



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

*Tec 200. 12 [1918-19]*

**Harvard College Library**



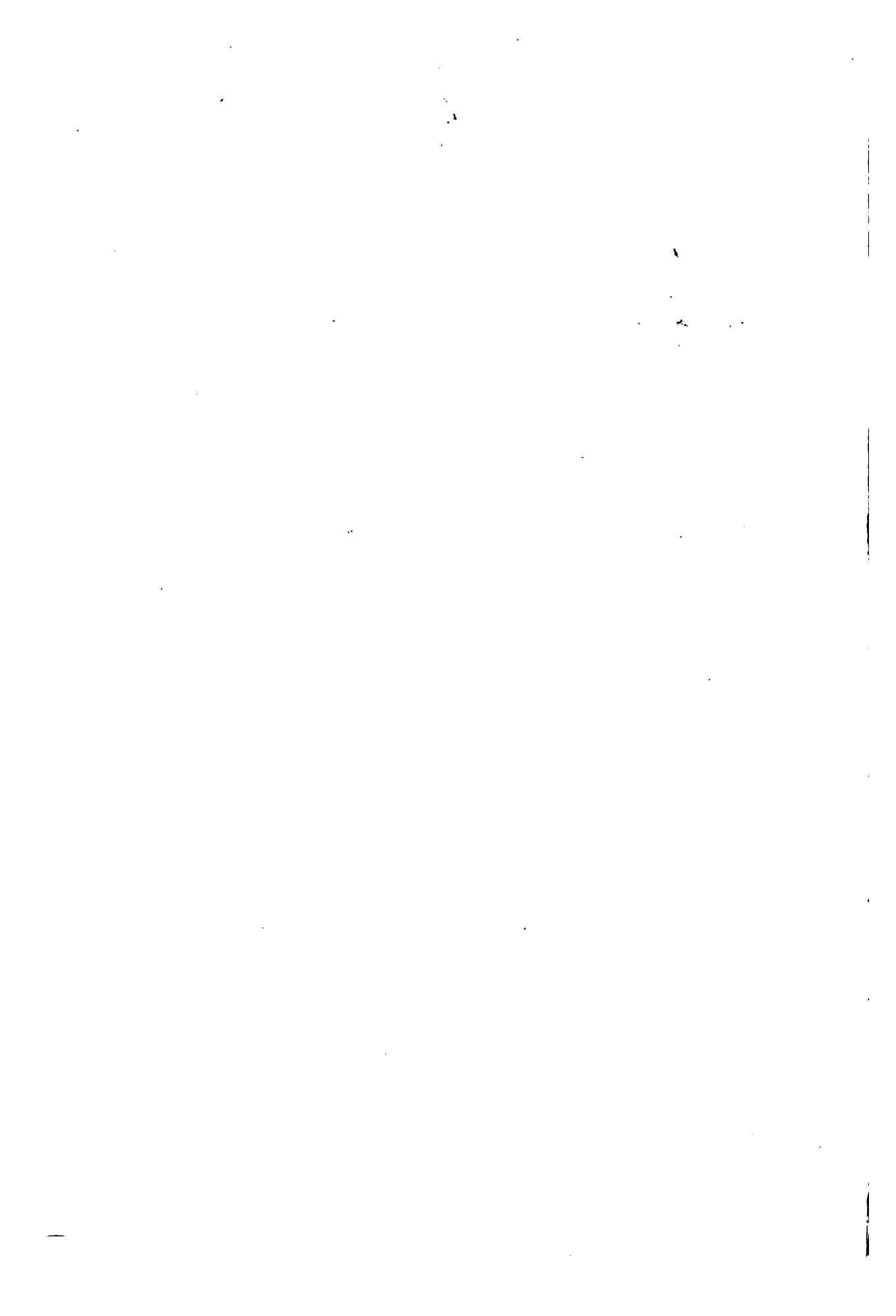
**BOUGHT WITH MONEY  
RECEIVED FROM THE  
SALE OF DUPLICATES**











# THE INDUSTRIAL ARTS INDEX

FIRST TWO-YEAR CUMULATION  
[SEVENTH ANNUAL VOLUME]

1918—1919

SUBJECT INDEX TO A SELECTED LIST OF ENGINEERING  
AND TRADE PERIODICALS

EDITED BY  
MARION E. POTTER AND  
LOUISE D. TEICH

THE H. W. WILSON COMPANY  
NEW YORK  
1919

<sup>Δ</sup>  
~~Ref 138.20.8~~  
~~RR 663.13~~  
✓  
Tec 200.12 (1918-19)



*Duplicate money*

# Industrial Arts Index

Vol. VII

December, 1919

No. 10

Published monthly, except July and November by  
**THE H. W. WILSON COMPANY**

958-964 University Ave New York City

Full information in regard to subscription price will be supplied on request.

Put out of sight or discard altogether your 1918 annual volume of the Industrial Arts Index. This is not a command but a friendly warning. Since this volume is a cumulation covering the years 1918 and 1919 and therefore includes everything that the 1918 cumulation contains, the use of the 1918 annual would be a waste of time; all the benefit which justifies the added labor and cost of putting together in one alphabet the two years' record would be lost.

After proving mathematically that during a ten year period there is greater efficiency in the two-yearly or three-yearly than in five-yearly cumulations, the publishers of the Industrial Arts Index sought an expression of opinion from their subscribers, with the result that the two-year plan was adopted. Hereafter, if this plan proves satisfactory, an annual cumulation, covering one year, will be published in the even years and a two-year cumulation will be published in the odd years.

On the following pages will be found a list of periodicals indexed. A few of these are indexed only from January 1919. These are: Architectural Forum, Aviation, Color Trade Journal, Electric Journal, Flying, Journal of Electricity, Marine Review. Owing to the delay in publishing caused by the printers' strike last fall, the December numbers of the New York periodicals did not appear in time for indexing in this volume but will be included of course in the next current issue.

In response to the wishes of our subscribers, ascertained by a carefully tabulated vote, the following additional magazines have been selected for indexing in 1920:

American Ceramic Society. Journal  
American Electrochemical Society. Proceedings  
American Journal of Science  
American Society for Testing Materials. Proceedings  
American Society of Refrigerating Engineers. Journal  
Blast Furnace and Steel Plant  
Canadian Engineer  
Chimie et Industrie  
Commercial and Financial Chronicle  
Electrician  
Engineering  
India Rubber World  
Institution of Mechanical Engineers. Journal  
Journal of Physical Chemistry  
Mining and Scientific Press  
Monthly Labor Review  
National Petroleum News  
Nation's Business  
Paper  
Popular Mechanics  
Power Plant Engineering  
Printers' Ink  
Society for the Promotion of Engineering Education. Proceedings  
Society of Automotive Engineers. Journal  
Society of Chemical Industry. Journal  
U.S. Bureau of Labor Statistics. Bulletin  
U.S. Geological Survey. Bulletin  
Wireless Age

The method of selecting periodicals by vote insures the indexing of those that are actually in use in libraries. It is also the policy of the Industrial Arts Index to index each magazine very closely. In the case of the more important periodicals found in the majority of libraries subscribing to the Index, even short paragraphs are often indexed, and articles of value are usually assigned several subject headings in order that every aspect of the subject may be covered. The headings moreover are made very specific and many

## NOTES AND ANNOUNCEMENTS

sub-headings are made in order that the user of the Index may not have to read thru a long list of references to find material on the particular phase of a subject in which he is interested.

It may be permissible to refer those interested in farm buildings, agricultural machinery, rural sanitation, and other branches of agricultural engineering to the Agricultural Index for additional material on these subjects. Material on commercial subjects which will be more largely represented hereafter in the Industrial Arts Index may also be found in the Readers' Guide to Periodical Literature. But the addition of Printers' Ink, Commercial

and Financial Chronicle and Nation's Business to the list of magazines indexed in the Industrial Arts Index will make it one of the most useful tools of the business library.

Miss Charlotte Noyes deserves credit for a good part of the indexing of the 1918 periodicals. Miss Jessica Doty, formerly of the Engineering Societies Library, has recently assisted in the indexing. Miss Emily Anderson and Miss May Carpenter have prepared copy for the printer and assisted in proof-reading. Miss Elsie Schonholtz has typewritten a large part of the copy. Miss Louise Teich in addition to editorial work has supervised the Index from its beginning in 1913.



## List of Periodicals Indexed

- Am Arch**—The American Architect. \$10; single numbers 25c. Architectural & Building Press, Inc., 243 W 39th St, New York.
- Am Chem Soc J**—Journal of the American Chemical Society. \$6. Charles L. Parsons, sec., 1709 G St, N. W., Washington, D. C.
- Am Gas Eng J**—American Gas Engineering Journal. \$3; single numbers 10c. American Gas Light Journal, Inc., 150 Nassau St, New York. Formerly American Gas Light Journal.
- Am Gas Inst Pro**—Proceedings of the American Gas Institute, tenth and eleventh annual meetings, 1915-1916. ea \$7.50 to libraries. American Gas Institute, 29 W 39th St, New York.
- Am Gas Light J**—See Am Gas Eng J
- Am Ind**—American Industries. \$1; single numbers 10c. National Manufacturers Co., 30 Church St, New York.
- Am Inst Arch J**—Journal of the American Institute of Architects. \$5; single numbers 50c. American Institute of Architects, The Octagon, Washington, D. C.
- Am Inst E E Pro**—American Institute of Electrical Engineers. Proceedings. \$10; single numbers \$1. F. L. Hutchinson, sec., 33 W 39th St, New York.
- Am Inst Min Bul**—Bulletin of the American Institute of Mining and Metallurgical Engineers. subs. \$10; single numbers \$1; to members, public libraries, and educational institutions, \$5; single numbers 50c. B. Stoughton, sec., 29 W 39th St, New York.
- Am Lumberman**—American Lumberman. \$4; single numbers 15c. American Lumberman, Manhattan Bldg., 431 S. Dearborn St, Chicago.
- Am Mach**—American Machinist. \$5; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Am Soc Heat & V E**—Transactions of the American Society of Heating and Ventilating Engineers. American Society of Heating and Ventilating Engineers, 29 W 39th St, New York.
- Am Soc M E J**. See Mech Eng
- Am Water Works Assn J**—Journal of the American Water Works Association. \$5; American Water Works Assn., Mount Royal and Guilford Avenues, Baltimore, Md.
- Arch & Bldg**—Architecture and Building. \$2.50; single numbers 25c. William T. Comstock Co., 23 Warren St, New York.
- Arch Forum**—Architectural Forum. \$6; single numbers 60c. Rogers and Manson Co., 85 Water St, Boston.
- Arch Rec**—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 115 W 40th St, New York.
- Automobile**—See Automotive Ind
- Automotive Ind**—Automotive Industries. \$3; single numbers 20c. Class Journal Co., 231 W 39th St, New York. Formerly Automobile
- Aviation**—Aviation and Aeronautical Engineering. \$3; single numbers 25c. Gardner-Moffat Co., Inc., Hartford Bldg., 22 E 17th St, New York.
- Bldg Age**—Building Age. \$2; single numbers 25c. Architectural and Building Press, Inc., 243 W 39th St, New York.
- Boston Soc C E J**—Journal of the Boston Society of Civil Engineers. \$4 (ten numbers); single numbers 50c. Boston Society of Civil Engineers, 715 Tremont Temple, Boston.
- Chem & Met Eng**—Chemical and Metallurgical Engineering. \$3; single numbers 25c. McGraw-Hill Co., Inc., 10th Av, at 36th St, New York. Formerly Metallurgical and Chemical Engineering
- Coal Age**—Coal Age. \$3; single numbers 15c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Color Tr J**—Color Trade Journal. \$5; single numbers 50c. Color Trade Journal, Inc., 21 E 40th St, New York.
- Concrete**—Concrete. \$2; single numbers 20c. Concrete-Cement Age Pub. Co., Telegraph Bldg., Detroit, Mich. Formerly published as Concrete-Cement Age.
- Dom Eng**—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 407 S Dearborn St, Chicago.
- Econ Geol**—Economic Geology. \$3.50; single numbers 60c. Economic Geology Pub. Co., 41 North Queen St, Lancaster, Pa.
- Elec J**—The Electric Journal. \$2; single numbers 20c. The Electric Journal, 1204 Keenan Bldg., Pittsburgh, Pa.
- Elec Ry J**—Electric Railway Journal. \$4; single numbers 15c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Elec R**—Electrical Review. \$3; single numbers 10c. International Trade Press, Inc., 542 Monadnock Bldg., Chicago. Formerly Electrical Review and Western Electrician.
- Elec W**—Electrical World. \$5; single numbers 15c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Engineer**—Engineer. Thick paper ed £3 7s 6d; Canadian subs £3 3s; thin paper ed £3 3s; Canadian subs £2 18s 6d. Engineer, 33 Norfolk St, Strand, London, W.C. 2.
- Eng & Contr**—Engineering and Contracting. \$3. Engineering and Contracting Pub. Co., 608 S Dearborn St, Chicago.
- Eng & Min J**—Engineering and Mining Journal. \$5; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Eng N**—Engineering News-Record. \$5; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York. Engineering News consolidated with Engineering Record beginning April 5, 1917.
- Eng Rec**—See Eng N
- Eng Soc W Pa**—Proceedings of the Engineers' Society of Western Pennsylvania. \$5; single numbers 50c. Engineers' Society of Western Pennsylvania, 568 Union Arcade Building, Pittsburgh, Pa.
- Factory**—Factory. \$3; single numbers 25c. A. W. Shaw Co., Wabash Av & Madison St, Chicago.
- Flying**—Flying. \$3; single numbers 25c. Flying Assn., Inc., 280 Madison Av, New York.
- Foundry**—Foundry. \$2; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- Gas Age**—Gas Age. \$3; single numbers 25c. Progressive Age Pub. Co., 52 Vanderbilt Av, New York. Formerly Progressive Age.
- Gen Elec R**—General Electric Review. \$2; single numbers 20c. General Electric Co., Schenectady, N. Y.
- Good Roads n s**—Good Roads new series. \$3; single numbers 10c. E. L. Powers Co., 150 Nassau St, New York.
- Heat & Ven**—Heating and Ventilating Magazine. \$2; single numbers 20c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.
- Horseless Age**—Horseless Age. \$1; single numbers 10c. Horseless Age Co., 95 Madison Av, New York. Horseless Age consolidated with Motor Age, Motor World and Automotive Industries in June, 1918, with title Motor Age.

## LIST OF PERIODICALS INDEXED

- Ill U Eng Exp Sta Bul**—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.
- Ill U Eng Exp Sta Circ**—Illinois University Engineering Experiment Station. Circular. Univ. of Ill., Urbana.
- Illum Engr**—Illuminating Engineer. 12s 6d; single numbers 1s 3d. Illuminating Engineering Pub. Co., 32 Victoria St. London, S. W. 1.
- Illum Eng Soc**—Transactions of the Illuminating Engineering Society. \$5; single numbers 75c. Illuminating Engineering Soc., 29 W 39th St, New York.
- Ind Management**—Industrial Management. \$3; single numbers 35c. Industrial Management, 6 E 39th St, New York.  
Formerly Engineering Magazine.
- Inland Ptr**—Inland Printer. \$4; single numbers 40c. Inland Printer Co., 632 Sherman St, Chicago.
- Inst E E J**—Journal of the Institution of Electrical Engineers. single numbers 7s. E. & F. N. Spon, Ltd., 57 Haymarket, London, S. W. 1.; Spon & Chamberlain, 123 Liberty St, New York.  
The Institution premises have been taken over by H. M. Government and the temporary offices are at 1 Albemarle Street, London, W. 1.
- Int Marine Eng**—International Marine Engineering. \$2. Aldrich Pub. Co., 6 E. 39th St, New York.
- Iron Age**—Iron Age. \$5; single numbers 25c. Iron Age Pub. Co., 239 W 39th St, New York.
- Iron Tr R**—Iron Trade Review. \$4; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- J Account**—Journal of Accountancy. \$4; single numbers 35c. Ronald Press Co., 20 Vesey St, New York.
- J Elec**—Journal of Electricity. \$2.50; single numbers 25c. Technical Pub. Co., 171-173 Second St, San Francisco, Cal.
- J Fr Inst**—Journal of the Franklin Institute. \$5; single numbers 50c. Franklin Institute, Philadelphia.
- J Ind & Eng Chem**—Journal of Industrial and Engineering Chemistry. \$6; single numbers 60c. American Chemical Society, Easton, Pa.
- Locomotive**—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Mach**—Machinery. Engineering edition \$3; single numbers 35c. Industrial Press, 140 Lafayette St, New York.
- Marine R**—Marine Review. \$2; single numbers 20c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- Mech Eng**—Mechanical Engineering, the Journal of the American Society of Mechanical Engineers. \$3; single numbers 35c. American Society of Mechanical Engineers, 29 W 39th St, New York.
- Met & Chem Eng**—See Chem & Met Eng
- Metal Ind**—Metal Industry. \$1; single numbers 10c. Metal Industry Pub. Co., 99 John St, New York.
- Metal Work**—Metal Worker, Plumber & Steam Fitter. \$3; single numbers 10c. Architectural & Building Press, Inc., 243 W 39th St, New York.
- Mining and Metallurgy**. See Am Inst Min Bul
- Mo U Sch Mines & Met Bul**—Bulletin of the University of Missouri, School of Mines and Metallurgy. Univ. of Mo., Rolla
- Mo U Sch Mines & Met Bul tech ser**—Bulletin of the University of Missouri, School of Mines and Metallurgy, Technical Series. Univ. of Mo., Rolla
- Motor Age**—Motor Age. \$3; single numbers 20c. Class Journal Co., 59 E. Madison St, Chicago.
- Munic Eng**—Municipal and County Engineering. \$2; single numbers 25c. Engineering Pub. Co., 702 Wulsin Bldg, Indianapolis, Ind.
- Munic J**—Municipal Journal and Public Works. \$3; single numbers 10c; special numbers 25c. Municipal Journal and Engineer, Inc., 243 W 39th St, New York.
- Power**—Power. \$3; single numbers 10c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Ry Age**—Railway Age. \$5; single numbers 15c. Simmons-Boardman Pub. Co., Woolworth Bldg., New York.  
Formerly Railway Age Gazette
- Ry Mech Eng**—Railway Mechanical Engineer including the American Engineer. \$2; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg., New York.  
Formerly Railway Age Gazette, Mechanical edition.
- Ry R**—Railway Review. \$4; single numbers 15c. Railway Review, 537 S Dearborn St, Chicago; 30 Church St, New York.  
Formerly Railway and Engineering Review.
- Sci Am**—Scientific American. \$5; single numbers 10c. Munn & Co., 233 Broadway, New York.
- Sci Am S**—Scientific American Supplement. \$5, single numbers 10c. Munn & Co., 233 Broadway, New York.  
Changed to Scientific American Monthly beginning January, 1920.
- Sibley J**—Sibley Journal of Engineering. \$2; single numbers 20c. Sibley College, Cornell Univ., Ithaca, N. Y.  
Suspended publication temporarily.
- Stevens Ind**—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N. J.
- Textile World**—Textile World Journal. \$3. Bragdon, Lord & Nagle Co., 334 4th Av, New York.  
Formerly published as Textile World Record, monthly at \$2
- U S Agric Bul**—United States. Dept. of Agriculture. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.  
Contributions from the Bureau of Chemistry, Forest Service and Office of Public Roads are indexed, also selected publications of other bureaus.
- U S Bur For & Dom Com**—United States. Bureau of Foreign and Domestic Commerce. Special agents series. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- U S Bur For & Dom Com misc ser**—United States. Bureau of Foreign and Domestic Commerce. Miscellaneous series. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- U S Bur Mines Bul**—United States. Bureau of Mines. Bulletin. Distributed free of charge. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Circ**—United States. Bureau of Mines. Miners' circular. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Tech Pa**—United States. Bureau of Mines. Technical paper. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Stand Bul**—United States. Bureau of Standards. Bulletin. Gratis to educational and scientific institutions and to government depositories. U. S. Bureau of Standards, Washington, D. C.  
Discontinued
- U S Bur Stand Circ**—United States. Bureau of Standards. Circular. U. S. Bureau of Standards, Washington, D. C.
- U S Bur Stand Sci Pa**—United States. Bureau of Standards. Scientific papers. U. S. Bureau of Standards, Washington, D. C.
- U S Bur Stand Tech Pa**—United States. Bureau of Standards. Technologic papers. U. S. Bureau of Standards, Washington, D. C.
- U S Sp Cons Rep**—United States. Special consular reports. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- W Soc E J**—Journal of the Western Society of Engineers. \$3 (ten numbers); single numbers 50c. Western Society of Engineers, 1735 Monadnock Blk, Chicago.
- Wis U Bul Eng S**—Bulletin of the University of Wisconsin, Engineering Series. Univ. of Wis., Madison

# List of Pamphlets Indexed

- Boston public library, Boston, Mass.**  
Occupations; short lists of books in the public library. (Brief Reading Lists no 9)
- Bureau of railway economics.**  
Misc. ser. 33. Railway stockholders: December 31, 1917.  
Winter railroading.
- California industrial accident commission, 525 Market St., San Francisco.**  
Mine safety rules.  
Quarry safety rules.  
Safety rules for gold dredges.
- California safety news.** Industrial accident commission, San Francisco.  
Bulletins.  
V. 2, no. 3, March, 1918.  
V. 2, no. 4, April, 1918.
- Canada honorary advisory council for scientific and industrial research, Ottawa.**  
Report.  
3. De-tarring of gas by electrical precipitation. J. G. Davidson.
- Council of national defense. Woman's committee.**  
Woman in the war; a bibliography. M. R. Nims.
- Federal board for vocational education, Washington, D.C.**  
Bulletin.  
11. Emergency war training for oxy-acetylene welders.
- Iowa state college. Engineering experiment station, Ames.**  
Bulletins.  
39. Good roads and community life in Iowa. J. E. Brindley and J. S. Dodds.  
46. Electric pumping with results of tests and operating records. H. W. Wagner.  
52. Spacing and depth of laterals in Iowa underdrainage systems and the rate of runoff from them with data from investigations. W. J. Schlick.  
189. Silo construction. C. K. Shedd and W. A. Foster.
- New York (state). Department of labor.**  
Special bulletin.  
86. Dangers in the manufacture and industrial uses of wood alcohol.
- Press of the engineer school, Washington, D.C.**  
Professional memoirs.  
v.9, no.48. Poisonous gases in warfare. H. E. Haferkorn and F. Neumann.  
v.10, no.54, supp2. Screw threads. H. E. Haferkorn.
- Russell Sage Foundation library, 130 E. 22d St., N.Y.**  
Bulletin.  
36. Industrial hygiene.
- Technical association of the pulp and paper industry, 131 E. 23d St., N. Y.**  
Technical association papers. Series 2.  
Literature of the paper industry. p. 11-23. M. Hubbard.
- United States. Bureau of applied economics, Washington, D. C.**  
Changes in cost of living, 1914-1919.  
Standards of living.  
Wages in various industries.
- United States. Bureau of the Census.**  
Bulletin.  
135. Cotton production and distribution, season of 1916-17.
- United States. Bureau of Foreign and Domestic Commerce.**  
Tariff series.  
27. Foreign tariff notes.  
37. Customs tariff of Australia. L. Domeratzky.  
39. British control of imports and exports, with lists of prohibited goods. L. Domeratzky.
- United States. Bureau of Labor Statistics.**  
Bulletins.  
215. Industrial experience of trade-school girls in Massachusetts.  
217. Effect of workmen's compensation laws in diminishing the necessity of industrial employment of women and children. M. K. Conyngton.  
218. Wages and hours of labor in the iron and steel industry: 1907-1915, with a glossary of occupations.  
225. Wages and hours of labor in the lumber, millwork, and furniture industries, 1915.  
227. Proceedings of the Employment managers' conference, Philadelphia, Pa., April 2-3, 1917.  
231. Mortality from respiratory diseases in dusty trades. F. L. Hoffman.  
234. Safety movement in the iron and steel industry, 1907-1917. L. W. Chaney and H. S. Hanna.  
235. Employment system of the Lake carriers' association. P. F. Brissenden.  
236. Effect of the air hammer on the hands of stonecutters.  
239. Wages and hours of labor in cotton goods manufacturing and finishing, 1916.  
240. Comparison of workmen's compensation laws of the United States up to December 31, 1917. C. Hookstadt.  
242. Food situation in Central Europe, 1917.  
244. Labor legislation of 1917.  
247. Proceedings of the Employment managers' conference, Rochester, N. Y., May 9, 10, and 11, 1918.  
249. Industrial health and efficiency.  
254. International labor legislation and the society of nations. yS. Bauer.  
255. Joint industrial councils in Great Britain.  
257. Labor legislation of 1918.  
261. Wages and hours of labor in woolen and worsted goods manufacturing, 1918.
- United States. Bureau of Mines**  
Chart of properties of mine gases. G. A. Burrell.  
Coal-mine fatalities in the United States 1917. comp. by A. H. Fay.  
General information and rulings for the enforcement of the law regulating the manufacture, distribution, storage, use, or possession of explosives and their ingredients. F. S. Peabody. (Public No. 68, 65th Congress; H.R. 3932)
- War minerals investigation series.**  
2. Potash situation. A. W. Stockett.
- United States. Department of Agriculture.**  
Circulars.  
78. Method of sale of nitrate of soda to farmers by the United States government.  
94. Regulations for cotton warehouses.  
Farmers' bulletins.  
475. Ice houses. L. C. Corbett.  
703. Suggestions for parcel post marketing. L. B. Fiohr and C. T. More.

## List of Pamphlets Indexed—Continued

- United States. Dept. of Agriculture. Farmers' bulletins.—*Continued*  
 865. Irrigation of alfalfa. S: Fortier.  
 888. Advice to forest planters in the Plains region. S. D. Smith.  
 904. Fire prevention and fire fighting on the farm. H. R. Tolley and A. P. Yerkes.  
 916. Successful community drying plant in Nebraska. C. W. Pugsley.  
 926. Some common disinfectants. M. Dorset.  
 930. Marketing butter and cheese by parcel post. L. B. Flohr and R. C. Potts.  
 958. Standard broom corn. E. E. Rothgeb.  
 963. Tractor experience in Illinois; a study of the farm tractor under corn-belt conditions. A. P. Yerkes and L. M. Church.  
 973. Soy bean: its culture and uses. W. J. Morse.  
 974. Clearing land. E. D. Strait.  
 984. Farm and home drying of fruits and vegetables. J. S. Caldwell.  
 992. Use of machinery in cutting corn. H. R. Tolley.  
 Reports.  
 115. Distribution of softwood lumber in the Middle West; wholesale distribution. O. M. Butler.  
 116. Distribution of softwood lumber in the Middle West; retail distribution. O. M. Butler.  
 United States. Federal trade commission. Cost reports of the Federal trade commission: coal; Pennsylvania—bituminous. Report of the Federal trade commission on leather and shoe industries.  
 United States. Federal trade commission. Food investigation. Report on flour milling and jobbing.  
 United States. Fuel administration. Bureau of Conservation, Engineering Bulletin.  
 1. Boiler and furnace testing. R. T. Strohm.  
 United States. Geological Survey. Bulletin.  
 666-O. Our mineral supplies; bauxite and aluminum. J. M. Hill.  
 United States. National advisory committee for aeronautics, Washington, D.C.  
 2d annual report, 1916.  
 3d annual report, 1917.  
 United States. National museum, Washington, D.C. Bulletins.  
 102. v.1. Energy resources of the United States: a field for reconstruction.  
 102, pt.7. Natural gas: its production, service, and conservation. S: S. Wyer.  
 United States. Shipping board, Division of planning and statistics, Washington, D.C. Stowage factors for ship cargoes.  
 United States. Tariff Commission. Report.  
 Dyes and other coal-tar chemicals. Tariff information series.  
 4. Button industry.  
 5. Glass industry as affected by the war.  
 11. Census of dyes and coal-tar chemicals, 1918.  
 United States. War industries board, Washington, D. C. Price bulletin.  
 2. International price comparisons. W. C. Mitchell, M. L. Goldsmith and F. K. Middaugh.  
 University of California. Publications in engineering.  
 v. 2, no. 2. Some tests of Douglas fir after long use. A. C. Alvarez. (70c)  
 v. 2, no. 3. Some compression tests of Portland cement mortars and concrete containing various percentages of silt. A. C. Alvarez and J. R. Shields. (25c)  
 University of Minnesota. Bulletin.  
 5. Manganiferous iron ores of the Cuyuna district, Minnesota. E. Newton.  
 University of Missouri. Bulletin.  
 Law series 16. Equitable servitudes in Missouri. G: L. Clark.  
 University of Texas. Bulletin.  
 1733. Water supply and sanitation.  
 1735. Roads and pavements.  
 1752. Boiler waters: their chemical composition, use and treatment. W. T. Read; E. P. Schoch.  
 1755. Report on the Colorado coal field of Texas. N. F. Drake.  
 1758. Geological conditions near Bridgeport and Chico, Wise county, Texas, with special reference to the occurrence of oil. E. Böse.  
 1801. Notes on publications by the faculty, 1915-1917.  
 1827. Texas mathematic teachers' bulletin.  
 1916:no 39. Planning of simple homes. M. H. Ellis and R. Everett.  
 Washington state college, Pullman. Library bulletin.  
 Home economics series.  
 3. Economics of textiles and clothing. (25c)

# Industrial Arts Index

## A Cumulative Index to Engineering and Trade Periodicals

January, 1918—December, 1919

### Abbeys

Spanish abbeys. G. G. King. *Il Am Inst Arch* J 7:399-406 S '19

### Abbreviations

Helpful suggestions for technical writers. *J Elec* 43:206 S 1 '19

### Aberdeen, Scotland

#### Rapid transit

Zone fare in practice. W. Jackson. *Il map Elec Ry J* 53:814-22 Ap 26 '19

### Ability tests

Applying army methods of selecting men for industry. P. N. Golden. *diags Am Mach* 51:409-11 Ag 28 '19

Army personnel work—a war gift to industry. *Il Factory* 22:686-7 Ap '19

Army trade skill tests applicable in construction. W. D. Scott. *Eng N* 82:554-5 Mr 20 '19

Certain illogical tests of intelligence. H. P. Gillette. *Eng & Contr* 51:351-2 Ap 9 '19

Engineer officers rank first in army mental tests. *Eng N* 82:814 Ap 24 '19

How high do you stand in the rating scale? B. Barton. *Eng & Contr* 51:358-61 Ap 9 '19

Intelligence tests in industry. J. P. Lamb. *Ind Management* 58:21-3 Jl '19

Mental tests for typists and stenographers. M. P. Jaques. *Ind Management* 58:145-7 Ag '19

Mental tests in industry. R. M. Yerkes. *diags Am Inst Min E Bul* 146:405-19 F '19; Discussion. 148:680-1 Ap '19

Right man in the right place in the army. J. J. Swan. *Mech Eng* 41:423-8 My '19

Round pegs and square holes. *Sci Am* 120:92 F 1 '19

Selecting and training interviewers. R. W. Kelly. *Ind Management* 57:263-70 Ap '19

Simple tests for office applicants. G. W. Greenwood. *Ind Management* 57:377-8 My '19

Tests of men. *diag Chem & Met Eng* 21:185-6 Ag 15 '19

Vocabulary test of intelligence. L. M. Terman. *Eng & Contr* 51:361-2 Ap 9 '19

### Abrasion meter

Abrasion-meter. R. F. Yates. *Il Sci Am S* 87:372-3 Je 14 '19

### Abrasive wheels. See Emery wheels; Grinding wheels

### Abrasives

Abrasive industry growing. *Iron Age* 102:849 O 3 '18

Carborundum co.'s new aluminous abrasive. *Mach* 26:189-90 O '19

Increased production of artificial abrasives. F. J. Katz. *Chem & Met Eng* 19:673 N 1 '18;

Same. *Iron Tr R* 63:1182 N 21 '18; Same abr. *Automotive Ind* 39:674 O 17 '18; Same abr. *J Fr Inst* 186:647-8 N '18

Reserve source of raw materials for artificial abrasives. C. Eldredge. *Am Mach* 49:804 O 31 '18

*See also* Alundum; Carborundum; Emery wheels; Garnets; Grinding and polishing

### Absenteeism. See Employment management

### Absorbent cotton. See Cotton, Absorbent

### Absorption

Extraction of gasoline from natural gas by absorption methods. G. A. Burrell, P. M. Biddison and G. G. Oberfell. *Il diags U S Bur Mines Bul* 120:1-66 '17; Excerpts. *Gen Elec R* 21:247-8 Ap '18

Gas mask absorbents. A. B. Lamb, R. E. Wilson and N. K. Chaney. *Il J Ind & Eng Chem* 11:420-38 My '19

Investigations on the absorption of water by gelatine. E. B. Shreve. *J Fr Inst* 187:319-37 Mr '19

Swelling of fibrin in polybasic acids and their salts. M. H. Fischer and M. Benzinger. *Am Chem Soc J* 40:292-303 Ja '18

Swelling of gelatin in polybasic acids and their salts. M. H. Fischer and M. O. Hooker. *Am Chem Soc J* 40:272-92 Ja '18

### Absorption (physiology)

Fischer's theory of water absorption in edema. W. J. Crozier. *Am Chem Soc J* 40:1611-12 O '18

*See also* Digestion; Osmosis

### Absorption of light

Absorption and phosphorescence. E. C. C. Baly. *Sci Am S* 86:277 N 2 '18

### Absorption spectra

Absorption spectra of some derivatives of cyclopropane. E. P. Carr and C. P. Burt. *Am Chem Soc J* 40:1590-1600 O '18

Absorption spectra of the blue solutions of certain alkali and alkaline earth metals in liquid ammonia and in methyllamine. G. E. Gibson and W. L. Argo. *diags Am Chem Soc J* 40:1327-61 S '18

Quinone-phenolate theory of indicators; the absorption spectra of solutions of phenolsulfonphthalein and its tetrabromo and tetranitro derivatives and their salts, and of analogous substances. E. C. White and S. F. Acree. *Am Chem Soc J* 40:1092-9 Jl '18

*See also* Spectrum analysis

### Abutments. See Bridges—Abutments

### Abyssinia

#### Commerce

Abyssinia; present commercial status with special reference to possibilities for American trade. A. E. Southard. *map U S Sp Cons Rep* 81:1-71 '18

### Academic freedom

Academic freedom. *Sci Am* 117:450 D 15 '17

Academic freedom. W. G. Greeson. *Sci Am* 118:55 Ja 12 '18

Academic freedom again. *Sci Am* 118:50 Ja 12 '18

### Accelerometer

Performance tests by accelerometer. H. C. Skinner. *Automotive Ind* 38:816-17+ Ap 26 '18

### Acceptance council, American. See American acceptance council

### Acceptances

Acceptance convention. *Am Ind* 19:32-3 Jl '19

Acceptances. W. G. Avery. *Am Mach* 48:659-62 Ap 18 '18

Acceptances and the country banker. R. H. Tingley. *Am Ind* 18:28-9 D '17

Acceptances and the northern cotton spinners. *Am Ind* 18:9-10 My '18

**Acceptances—Continued**

- Acceptances in retail business. W. G. Avery. J Account 27:120-4 F '19
- Acceptances very successful in the watch trade. G: J. Gruen. Am Ind 19:37-8 My '19
- Advantages of the acceptance for cotton financing. R. N. Durfee. Textile World 53:6011 Je 8 '18
- Advantages the buyer derives from the trade acceptance method. Dom Eng 83:133 Ap 27 '18
- Application of trade acceptances to electrical industry. Elec R 72:810-11 My 11 '18
- Application of trade acceptances to every-day business. W. Carter. Metal Work 89:117-18 Ja 18 '18
- Bank acceptance and the cotton crop. M. H. Fry. Textile World 54:2333+ N 9 '18
- Banker tells the merchant a few things. G: H. Curtis. Am Ind 18:13 F '18
- Business advantages of acceptances. W: G. Avery. Am Mach 49:1031-4 D 5 '18; Same cond. Am Ind 19:16-18 N '18
- Business man's views regarding trade acceptances. C. E. Crofoot. Automotive Ind 39:584-6 O 3 '18
- Cotton conference favors use of acceptances. Textile World 53:5418-18 My 11 '18
- Definite benefits of trade acceptances. Am Ind 19:28-30 Ag '18
- Excellent form of trade acceptance. Am Lumberman 2259:31; 2260:33 Ag 31-S 7 '18
- Extension of acceptances favored by cotton men. Textile World 53:6103 Je 15 '18
- Increasing our trading capacity. Sci Am 119:154 Ag 24 '18
- J. P. Morgan & co. help establish acceptance market. Am Ind 19:27-9 S '18
- Legal effect of trade acceptances. Dom Eng 82:256 F 16 '18
- Overcoming objections to trade acceptances. Dom Eng 85:336-7 N 30 '18
- Pithy comments at open forum of recent acceptance convention. Am Ind 20:38-40 O '19
- Plea for cotton bank acceptance. Textile World 53:6320 Je 29 '18
- Retailers' use of trade acceptance. Am Lumberman 2251:31 J1 6 '18
- Retailer's view of trade acceptances. Am Lumberman 2243:27 My 11 '18
- Spreading the gospel of the trade acceptance. Am Lumberman 2244:44 My 18 '18
- Standardized trade acceptance form. Am Lumberman 2247:29 Je 8 '18
- Trade acceptance adoption urged. Iron Tr R 63:1176-7 N 21 '18
- Trade acceptance and the manufacturer. E. B. Knowles. Am Ind 18:21-2 J1 '18
- Trade acceptance and the manufacturer. C. C. Miner. Am Ind 18:23 J1 '18
- Trade acceptance as an aid to collections. Metal Work 89:91 Ja 11 '18
- Trade acceptance as used by wholesaler. Am Lumberman 2256:38 Ag 10 '18
- Trade acceptance experiences. J. A. Green. Am Ind 20:33-4 Ag '19
- Trade acceptance helps central-station business. W. A. Wolla. Elec W 71:1379 Je 29 '18
- Trade acceptance in the electrical goods industry. Am Ind 19:28-9 Mr '19
- Trade acceptance in the raw silk industry. R. N. Hirsch; B. H. A. Hofmann. Am Ind 19:24-5 D '18
- Trade acceptance in the rubber tire industry. E. B. Knowles; J. T. Crowley. Am Ind 19:26-7 Ja '19
- Trade acceptance in the supply field. Ry Age 64:463-5, 1235-7 Mr 1, My 17 '18
- Trade acceptance, its value, uses, and effects on business. E. L. Seabrook. Bldg Age 40:222-3 Ap '18
- Trade acceptance movement. Textile World 54:2329+ N 9 '18
- Trade acceptance versus open accounts; prize essays. Horseless Age 43:31-3+ Mr 15 '18
- Trade acceptance winning favor. J: W. Hill. Iron Tr R 64:1613-15 Je 19 '19
- Trade acceptances. See monthly numbers of American industries beginning with March 1918
- Trade acceptances. H. A. Black. Textile World 53:5739+ My 25 '18
- Trade acceptances. G: S. Cole. Automotive Ind 38:995-8+ My 23 '18
- Trade acceptances. E. DuBrul. Metal Work 90:270-1 S 6 '18
- Trade acceptances and an open discount market. Am Ind 19:30 Ag '18
- Trade acceptances and the business man. L: E. Pierson. Am Ind 18:26 Je '18
- Trade acceptances and the manufacturer. W. M. Nones. Am Ind 18:24-5 Je '18; Same. Am Mach 48:1085-6 Je 27 '18
- Trade acceptances covering building operations. Elec R 75:76 J1 12 '19
- Trade acceptances; excerpts from address before Trade acceptance convention. P. M. Warburg. Am Ind 18:21 J1 '18; Am Gas Eng J 108:601-2 Je 22 '18
- Who's your banker? W: A. Bradford. Metal Work 90:8-11 J1 5 '18
- Accessories, Automobile. See Automobile industry and trade—Automobile accessories; Automobiles—Equipment and supplies
- Accident law. See Employers' liability; Heat stroke; Workmen's compensation
- Accident prevention. See Safety devices and measures
- Accidents
- America grows less careless. Coal Age 16:600-1 O 9 '19
- Hazards of walking. H. W. Mowery. Am Inst Arch J 7:29-30 Ja '19
- See also Automobile accidents; Aviation—Accidents; Bridge accidents; Building accidents; Burns and scalds; Lightning; Railroads—Accidents; Safety devices and measures; Shipwrecks; Street accidents; Street railroads—Accidents
- Accidents, Industrial
- Accidents at metallurgical works in the United States during the calendar year 1916. A. H. Fay. U S Bur Mines Tech Pa 201:1-17 '18; Summary. Iron Tr R 63:446 Ag 22 '18
- Accidents at metallurgical works in the United States during the calendar year 1917. A. H. Fay. U S Bur Mines Tech Pa 215:1-21 '19
- Accidents in Cadillac plants lessened. Il Automotive Ind 39:673-4 O 17 '18
- Accidents in metal-working industries. Iron Age 102:511 Ag 29 '18; Same. Mach 25:317 D '18
- Factors concerned in the causation of industrial accidents. H. M. Vernon. Automotive Ind 39:916-18 N 28 '18; Abstract. Sci Am S 86:107 Ag 17 '18
- Factory accidents. Mach 25:134 O '18
- Hazards and safeguards in ore-dressing plants. J. S. McKaig. Il Eng & Min J 106:897-9 N 23 '18
- Hazards reduced in steel industry. Il Iron Tr R 63:1341-5 D 12 '18
- Horse-play among employees. C. C. Sherlock. Inland Ptr 64:33-4 O '19
- International association of industrial accident boards and commissions 4th annual meeting, Boston. Il diags U S Bur Labor Statistics Bul 248:1-306 '19
- Labour administration. E: T. Elbourne. Il diag Engineer 126:504-6 D 13 '18
- New York subway cave-in kills three. diag Eng N 80:972 My 16 '18
- Occupational hazards at blast-furnace plants and accident prevention. F: H. Willcox. Il U S Bur Mines Bul 140:1-155 '17; Excerpts. Iron Tr R 62:917-21 Ap 11 '18
- Relation between light curtailment and accidents. R. E. Simpson. Illum Eng Soc 13:429-35 no 8 '18; Same. Am Gas Eng J 109:364-6 O 19 '18; Same abr. Power 49:144-5 Ja 28 '19; Excerpts. Elec W 72:934 N 16 '18; Discussion. Illum Eng Soc 13:435-8 no 8 '18
- Safety movement in the iron and steel industry, 1907 to 1917. L. W. Chaney and H. S. Hanna. Il U S Bur Labor Statistics Bul 234:1-299 '18
- Statistics in accident prevention. E. M. Davis. Elec W 73:476-7 Mr 8 '19
- Thoughtlessness in power plants. E. W. Miller. Power 46:127-8 J1 24 '17; Same. Locomotive 81:247-8 O '17

**Accidents, Industrial—Continued**

True cost of accidents. Concrete 14:sup34-5 Mr '19

See also Boiler explosions; Building accidents; Cement plants—Accidents; Cement plants—Safety devices and measures; Coal mines and mining—Accidents and explosions; Coke ovens—Accidents; Cranes, derricks, etc.—Safety devices; Disabled—Rehabilitation; Electricity, injuries from; Employers' liability; Explosions; First aid in illness and injury; Foundries—Accidents; Grinding wheels—Accidents; Heat stroke; Hoisting—Accidents; Mine accidents; Mining engineering—Safety measures; Quarries and quarrying—Accidents; Railroads—Accidents; Railroads—Safety devices and measures; Safety devices and measures; Workmen's compensation

**Accountants**

Accountants' bit in the American expeditionary forces. C. B. Holloway. J Account 26:244-6 O '18

Carrying on with the accountants in the American expeditionary forces. C. B. Holloway. J Account 26:412-16 D '18

Definition needed. L. A. Oates. J Account 25:477-8 Je '18

Definition needed. A. P. Richardson. J Account 25:266-7 Ap '18

Exemption for accountants. J Account 26:212-15 S '18

Government's compensation for accountants. J Account 25:366-8 My '18

Plea for the cost accountant. G. W. Hamilton. Ind Management 55:446 Je '18

See also Auditing; Cost accounting

**Accountants, Public**

Branch office ethics of accounting firms. J Account 28:212-16 S '19

Concerning criticism; a word to the younger public accountant. W. H. Rand. J Account 26:336-9 N '18

Effects of self-assertion; a word to younger public accountants. W. H. Rand. J Account 25:444-6 Je '18

Growing responsibilities of the public accountant. J. P. Joplin. J Account 28:9-15 Jl '19

Growth of the profession. W. H. Rand. J Account 27:412-19 Je '19

**Examinations**

Accounting theory and practice. J Account 27:305-16 Ap '19

American institute of accountants board of examiners; November, 1917, examination questions. J Account 24:413-23 D '17; Answers. S. Walton and H. A. Finney. 25:64-78, 140-8 Ja-F '18

American institute of accountants board of examiners; November, 1918, examination questions. J Account 26:401-11 D '18; Answers. 27:141-57, 227-35 F-Mr '19

American institute of accountants board of examiners; May, 1918, examination questions. J Account 25:406-12 Je '18; Answers. S. Walton and H. A. Finney. 26:222-33, 306-20 S-O '18

American institute examination, May, 1919; accounting theory and practice. J Account 28:55-68, 143-54 Jl-Ag '19

Examiner's impressions. J. P. Archer. J Account 26:247-9 O '18

Fair examination. J Account 28:286-9 O '19

**Law**

Alabama C. P. A. law. J Account 28:317-19 O '19

**Accounting**

Accounting control for company store or commissary. W. P. Field. J Account 27:96-106 F '19

Accounting for cantonment construction. W. H. West. J Account 26:321-6 N '18

Accounting for the first Liberty loan. H. S. Chase. J Account 25:7-16 Ja '18

Accounting for the import division of a department store. H. C. Magee. J Account 25:433-43 Je '18

Accounting for the second Liberty loan. H. S. Chase. J Account 25:91-100 F '18

Accounting for the third Liberty loan subscriptions. A. F. Jones. J Account 25:436-33 Je '18

Accounting methods; modern methods of handling notes and principles involved. R. H. Butz. Textile World 54:3251+ D 28 '18

Accounting of commission for relief in Belgium. L. D. Mapes. J Account 27:1-16 Ja '19

Consolidated accounts. G. R. Webster. J Account 28:258-72 O '19

Details of production department. M. H. Potter. Iron Tr R 64:1410-12 My 29 '19

Mail order accounting. H. L. Cavanagh. J Account 26:436-40 D '18

Methods of office accounting for architects. W. F. Anderson. Am Arch 113:369-76 Mr 27 '18

Mnemonic symbols show distribution of construction expenditures. Eng N 81:865 N 7 '18

Necessity of maintaining a cost system. H. Whitehead. Dom Eng 83:54 Ap 13 '18

New system of accounting for retail tradesmen. Metal Work 90:579-80, 659+, 708+ N 22, D 13, 27 '18

Retail clothing store accounting. M. Schlesinger. J Account 28:25-32 Jl '19

Should accounts reflect the changing value of the dollar? L. Middleditch, jr. J Account 25:114-20 F '18

Sugar accounting. W. T. Woodbridge. J Account 25:255-8 Ap '18

Surplus adjustment. J Account 26:460-72 D '18

Transactions between partner and firm. W. A. Paton. J Account 28:33-8 Jl '19

See also Accountants; Accountants, Public; Auditing; Balance sheets; Bookkeeping; Business; Capital stock; Card system in business; Corporations—Accounting; Cost accounting; Depreciation; Electric railroads—Accounting; Electric utilities—Accounting; Factories—Accounting; Farm accounting; Financial statements; Flour mills—Accounting; Foundry accounting; Fruit growers' associations—Accounting; Gas companies—Accounting; Gifts; Government accounting; Highway accounting; Interest; Inventories; Lumber trade—Accounting; Mine accounting; Municipal accounting; Partnership; Payrolls; Plumbing trade—Accounting; Power plants—Accounting; Printing, Practical—Accounting; Profit; Public utilities—Accounting; Railroads—Accounting; School accounting; Shipbuilding—Accounting; Sinking funds; Waterworks—Accounting; also American association of university instructors in accounting, American institute of accountants

**Examinations**

See Accountants, Public—Examinations

**Standards**

Advantages of uniform accounting. A. B. Manning. J Account 28:113-20 Ag '19

New standard accounting system. J. E. Sweeney. Elec R 74:508-9 Mr 29 '19

Standard accounting through price control. C. Reitel. J Account 25:360-5 My '18

Standardization of printers' accounts. J. H. Jackson. J Account 27:358-63 My '19

Standardized accounting system. chart J Elec 43:168-70 Ag 15 '19

What standardized accounting practice means. W. E. Koch. Am Ind 19:17 F '19

**Terminology**

Ambiguous terms and practices in corporate accounting. R. H. Tingley. Am Ind 19:32 Mr '19

Accounting, Cost. See Cost accounting

Accounting, Municipal. See Municipal accounting

Accumulators, Steam. See Steam accumulators

**Acetaldehyde**

Acetaldehyde from acetylene; patent. Met & Chem Eng 18:41-2 Ja 1 '18

**Acetic acid**

Acetic acid and acetone from beets. Sci Am 118:223 Mr 9 '18

**Acetic acid—Continued**

- Determination of acetic acid by distillation with phosphoric acid. W. F. Munn. *diag J Ind & Eng Chem* 10:550-2 J1 '18
- Distilling pyroligneous acid; patent. Met & Chem Eng 13:483 My 1 '18
- Glacial acetic acid as a solvent for prussic acid; benzalhydrasinophenylacetoneitrile and some derivatives. J. R. Bailey and R. H. Pritchett. *Am Chem Soc J* 40:1230-5 Ag '18
- Industrial developments relating to manufacture of acetic acid and acetone. H. Hibbert. *II Chem & Met Eng* 19:397-400 S 25 '18
- Preparation of several useful substances from corn cobs. F. B. LaForge and C. S. Hudson. *J Ind & Eng Chem* 10:925-7 N '18
- Process used at Shawinigan Falls, Que., for the synthetic manufacture of acetic acid. *Sci Am S* 87:279 My 3 '19
- Quantitative estimation of acetic, propionic and butyric acids. R. D. Crowell. *Am Chem Soc J* 40:453-60 F '18
- Reaction products of alkali-sawdust fusion; acetic, formic, and oxalic acids and methyl alcohol. S. A. Mahood and D. E. Cable. *J Ind & Eng Chem* 11:651-5 J1 '19
- Acetoacetic acid**
- Electronic constitutions of acetoacetic and citric acids and some of their derivatives. M. T. Hanke and K. K. Koessler. *Am Chem Soc J* 40:1726-32 N '18
- Acetone**
- Acetone. H. P. Bassett. *Chem & Met Eng* 20:190 F 15 '19
- California kelp operations of the Hercules powder company. *II Met & Chem Eng* 18:576-80 Je 1 '18
- Determination of acetone. A. J. Field. *J Ind & Eng Chem* 10:552 J1 '18
- Fermentation process for the production of acetone and ethyl alcohol. J. H. Northrop, L. H. Ashe and R. R. Morgan. *diag J Ind & Eng Chem* 11:723-7 Ag '19
- Industrial developments relating to manufacture of acetic acid and acetone. H. Hibbert. *II Chem & Met Eng* 19:397-400 S 25 '18
- Role of atmospheric oxygen and alkali in the oxidation of acetone with potassium permanganate, pyruvic acid as an intermediate product. E. J. Witzemann. *Am Chem Soc J* 39:2657-71 D '17
- Acetone-ethyl ether**
- On the system acetone-ethyl ether. J. Same-shima. *diags Am Chem Soc J* 40:1482-1503 O '18
- Acetylaminophenyl salicylate**
- Acetylaminophenyl salicylate; the preparation of salophen. R. Q. Brewster. *Am Chem Soc J* 40:1136-8 J1 '18
- Acetylene**
- Acetylene as motor fuel. *Automotive Ind* 40:864 F 13 '19
- Acetylene generator. T. P. Bowman. *II diags Motor Age* 36:32-4 J1 31 '19
- Acetylene lighting for railway cars. *II diag Ry E* 64:849-50 Je 7 '19
- Acetylene motors. *Sci Am* 121:194+ Ag 23 '19
- Acetylene saves the day for newspaper. C. C. Phelps. *Inland Ptr* 63:410 J1 '19; Same. *Sci Am* 120:92 J1 26 '19
- Dissolved acetylene and its storage. *Engineer* 125:125-6 F 8 '18
- Effect of acetylene on oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *diag J Ind & Eng Chem* 10:457-9 Je '18
- Impurities in acetylene. C. Bingham. *Textile World* 55:945 F 1 '19
- Modern welding and cutting. E. Viell. *II diags Am Mach* 50:833-8, 879-83 My 1-8 '19
- Modified method for the analysis of mixtures of ethylene and acetylene. W. H. Ross and H. L. Trumbull. *diags Am Chem Soc J* 41:1180-9 Ag '19
- Note on the distribution of energy in the visible spectrum of a cylindrical acetylene flame. E. P. Hyde, W. E. Forsythe and F. E. Cady. *J Fr Inst* 188:129-30 J1 '19
- Some reactions of acetylene. W. R. Hodgkinson. *Sci Am S* 85:355 Je 8 '18

Spectral energy distribution in the acetylene flame. W. W. Coblenz. *J Fr Inst* 188:399-401 S '19

Use of acetylene in navy yards. H. G. Knox. *II plan Int Marine Eng* 24:720-7 N '19; Same cond. *Am Mach* 51:661-4 O 2 '19

*See also* Oxyacetylene flame

**Acetylene lamps**

- Acetylene and electric cap lamps from a safety standpoint. H. M. Chance. *Coal Age* 14:1118-21 D 19 '18
- Chance acetylene safety lamp. W: Maurice. *diag Coal Age* 14:824-5 O 31 '18
- Why should the Associated companies attach a penalty to the non-use of carbide lamps in open-light mines? R. D. Hall. *Coal Age* 12:1053 D 22 '17

**Acetylmethylcarbinol**

Presence of acetylmethylcarbinol in saccharine sorghum silage. W. G. Friedemann and C. T. Dowell. *J Ind & Eng Chem* 11:129-30 F '19

**Acetylsalicylic acid**

- Examination of American-made acetylsalicylic acid. P. N. Leech. *J Ind & Eng Chem* 10:288-90 Ap '18
- Notes on acetylsalicylic acid. H: L. Dahm. *diag J Ind & Eng Chem* 11:29-30 Ja '19

**Achorutes vaticus**

Insect aid to filtration. H. D. Bell and W. H. Parkinson. *Munic J* 46:383-4 My 31 '19

**Acid elevators**

Monarch automatic acid elevator. *diags Met & Chem Eng* 18:558 My 15 '18

**Acid handling**

- Automatic blow-case valve. *diag Chem & Met Eng* 19:342 S 15 '18
- Rupture of cast iron in contact with mixed acid; abstract. A. C. Cummings. *Chem & Met Eng* 20:433-4 Ap 15 '19
- Safety rules needed to govern repairs to acid lines in flotation plants. *Eng & Min J* 105:188 Ja 26 '18

*See also* Acid-resisting materials

**Acid-resisting materials**

- Acid proof alloys. R. Irmann. *Sci Am S* 85:45 Ja 19 '18; Same. *Met & Chem Eng* 18:261 Mr 1 '18; Same cond. *Elec W* 71:1328 Je 22 '18
- Acid-proofing concrete. K. E. Hildreth. *Concrete* 12:205-6 Je '18
- Acid resisting alloy. *Foundry* 47:308a My 15 '19
- Acid-resisting iron. *Sci Am S* 87:340-1 My 31 '19
- Acid test on enamel ware. W. D. Collins. *J Ind & Eng Chem* 11:757-9 Ag '19
- Chemical iron ware. *II Chem & Met Eng* 19:520-3 S 28 '18
- Developments in making acid-resisting iron. *Sci Am* 120:336 Ap 5 '19
- Use of wood in chemical apparatus. A. W. Schorger. *Met & Chem Eng* 18:528-31 My 15 '18

*See also* Duriron

**Acid tanks**

Using wood for acid tanks. *Factory* 21:516+ S '18

**Acidimetry**

- Acidimetry of colored solutions: an application of the pocket spectroscope. A. Tingle. *Am Chem Soc J* 40:873-9 Je '18
- Acidity determination in water, leach liquors, mine waters, etc. J. J. Rankin. *Met & Chem Eng* 18:96 Ja 15 '18

**Acids**

- Evaporator for acid liquids. E: Hart. *diags J Ind & Eng Chem* 10:555 J1 '18
- See also* Acidimetry; also names of acids, e.g. Hydrochloric acid, Nitric acid, Sulfuric acid

**Acids, Fatty**

- Fats and fatty acids from petroleum. R. J. Moore and G. Egloff. *diag Met & Chem Eng* 18:308-11 Mr 15 '18; Discussion. B: T. Brooks; A. E. Outerbridge, jr. 18:388-9 Ap 15 '18



**Acids, Fatty—Continued**

Study of the fatty acids obtained from varnish oils and from varnishes. W. T. Pearce. *J Ind & Eng Chem* 11:121 F '19

**Acids, Organic**

Configurations of organic compounds and their relation to chemical and physical properties. A. Michael. *Am Chem Soc J* 40:704-23, 1674-1707 Ap, N '18

Identification of acids; phenacyl esters. J. B. Rather and E. E. Reid. *Am Chem Soc J* 41:75-83 Ja '19

Neutral ammonium salts of organic acids and their substituted derivatives. L. McMaster and L. Wright. *Am Chem Soc J* 40:683-93 Ap '18

Relative stability of halogen substituted aliphatic acids in water solution; the propionic acid and butyric acid series. G. S. Simpson. *Am Chem Soc J* 40:674-83 Ap '18

Scale of influence of substituents in paraffine monobasic acids and the correlation of ionization with structure. C. G. Derick and R. W. Hess. *Am Chem Soc J* 40:537-58 Mr '18

2,4-dihydroxybenzoyltetrachloro-*o*-benzoic acid and 2,3,4-trichloro-6-hydroxyxanthone-1-carboxylic acid and some of their derivatives. W. R. Orndorff and W. A. Adamson. *Am Chem Soc J* 40:1235-57 Ag '18

See also Acetic acid; Amino acids; Amino-aryl arsenic acids; Butyric acid; Propionic acid; Tartaric acid

**Alceral**

Tests of alceral, the new aluminum alloy. *Iron Age* 101:1467 Je 6 '18

**Acoma, New Mexico**

Scenes in Acoma, a pueblo city of New Mexico. *Il Sci Am S* 37:152 Mr 8 '19

**Acoustics, Architectural**

Life work of the late Wallace C. Sabine; an appreciation. P. E. Sabine. *Am Arch* 116:1-3 Jl 2 '19

Wallace Clement Sabine laboratory of acoustics, Geneva, Ill. P. E. Sabine. *Il diag plans Am Arch* 116:133-8 Jl 30 '19

**Acridine dyes**

Acridine dyestuffs. G. Heyl. *Color Tr J* 5:79-85 S '19

**Actinidia**

Delicious fruits of actinidia. W. A. Murrill. *Sci Am S* 85:307 My 18 '18

**Actinium**

Parent of actinium. *Sci Am S* 87:139 Mr 1 '19

**Activated charcoal. See Charcoal**

Activated sludge method. See Sewage disposal—Activated sludge method

**Actors' association, London**

Program of Actors' association. *Am Inst Arch J* 7:241-3 Je '19

**Adam, Robert**

Studies on Adam and Bernini. R: F. Bach. *Arch Rec* 43:85-9 Ja '18

**Adams, Comfort Avery, 1868-**

Nominee for next A. I. E. E. president. *por Elec W* 71:629 Mr 23 '18; *Elec R* 72:900 My 25 '18

**Adamson act, 1916**

Report of the eight-hour day commission. *Ry Age* 64:259-67 F 1 '18; *Ry R* 62:169-72 F 2 '18; *Iron Age* 101:362-3 Ja 31 '18; Appendix (Employment conditions in train and yard service). V: S. Clark. *Ry Age* 64:373-4 F 15 '18

**Bibliography**

List of references to books and articles on the Adamson eight hour law of September, 1916. Bureau of railway economics, Washington, D.C. 22p S 19 '19 (Typew)

**Addition compounds**

Organic additive compounds of potassium hydroxide. W: M. Dehn and R. B. Merling. *Am Chem Soc J* 39:2646-57 D '17

Some factors bearing upon 1,6-addition. T. L. Davis. *Am Chem Soc J* 41:1132-40 Jl '19

**Addressing machines**

Manufacturing the addressograph. M. E. Hoag. *Il Am Mach* 48:491-4 Mr 21 '18

**Adhesives. See Glue; Shellac****Adiabatic compression**

At Pompeii and St Pierre. G: W. Cole. *Sci Am S* 87:314-15+ My 17 '19

**Administrative and political divisions**

Plea for making watersheds and administrative areas coincide. C. G. Lynam. *Eng N* 83:239-40 Jl 31 '19

**Adobe**

Plisé de terre mine buildings. *Eng & Min J* 106:615-16 O 5 '18

**Adonis vernalis**

Examination of the leaves of adonis vernalis. F: W. Heyl, M. C. Hart and J. M. Schmidt. *Am Chem Soc J* 40:436-53 F '18

**Adsorption**

Adsorption of arsenious acid by ferric hydroxide. M. C. Boswell and J. V. Dickson. *diag Am Chem Soc J* 40:1793-1801 D '18

Adsorption of gases on plane surfaces of glass, mica and platinum. I. Langmuir. *Am Chem Soc J* 40:1361-1403 S '18

Colloidal phenomena and the adsorption formula. J: A. Wilson and W. H. Wilson. *Am Chem Soc J* 40:886-95 Je '18

Colloids and flotation. F: G. Moses. *U S Bur Mines Tech Pa* 200:1-22 '18

Molecular mechanism of colloidal behavior. R: C. Tolman and A. E. Stearn. *Am Chem Soc J* 40:264-72 Ja '18

Molecular mechanism of colloidal behavior; the chemical nature of the adsorption of acids and alkalies by the protein molecule. R. S. Bracewell. *Am Chem Soc J* 41:1511-15 O '19

Molecular mechanism of colloidal behavior; the swelling of fibrin in alkalies. R: C. Tolman and R. S. Bracewell. *Am Chem Soc J* 41:1503-10 O '19

Utilization of the adsorptive power of fuller's earth for chemical separations. A. Seidell. *Am Chem Soc J* 40:312-28 Ja '18

**Advertisements**

Afterthought in copy. C. G. Gaudert. *Inland Ptr* 62:299-300 D '18

Art of writing proposal advertisements. *Eng & Contr* 50:317 O 2 '18

Associated artists of Philadelphia advertising ideas and art; specimens. *Inland Ptr* 61:728a-728f S '18

Breaking the last law. M. Gross. *Inland Ptr* 61:579-82 Ag '18

Color in one-color printing. J. L. Frazier. *Inland Ptr* 61:345-7 Je '18

Marking machine copy for display. P. B. Perry. *Inland Ptr* 61:309-10 Je '18

Mental torpedoes that invite business to the periscope. C. T. Hubbard. *Inland Ptr* 64:36-7 O '19

Patriotic advertisements. *Inland Ptr* 62:416a-416f Ja '19

Result of advertisement contest. J. L. Frazier. *Inland Ptr* 60:777-80 Mr '18

Review of newspapers and advertisements. J. L. Frazier. See monthly numbers of *Inland printer*

Selecting the lines for emphasis. J. L. Frazier. *Il Inland Ptr* 62:57-9 O '18

That singular plural ad. A. Pemberton. *Inland Ptr* 64:39-40 O '19

What the eye receives the mind absorbs—a talk on typography. E. R. Currier. *Inland Ptr* 64:169-72 N '19

See also Advertising; Blotters; Catalogs; Posters

**Advertising**

British architect and advertising. *Am Arch* 114:224 Ag 21 '18

British viewpoint of advertising. *Am Arch* 114:264 Ag 28 '18

Business printer in the small town. H. E. Miles. *Inland Ptr* 62:513-14 F '19

Case for advertising. G. D. Mantle. *J Elec* 43:460-1 N 15 '19

Chicago's new engineering advertising association. *Elec R* 75:512 S 27 '19

Country merchant and advertising. H. E. Miles. *Inland Ptr* 61:464-6 Jl '18

Direct advertising under war tension. W. Fawcett. *Inland Ptr* 61:82-4 Ap '18

**Advertising—Continued**

- Ethics in advertising. *Am Inst Arch J* 6:84-5 F '18
- Getting new business. *J. Edwards. Inland Ptr* 61:219 My '18
- Human nature in advertising. *H. A. Lemmon. J Elec* 42:155-6 F 15 '19
- Keep good will alive. *Sci Am* 118:582 Je 29 '18
- Making your printed matter bring back business. *R. F. Duysters. Bldg Age* 40:316-17 Je '18
- Message to American business men from England. *V. Fisher. Dom Eng* 84:439-40 S 21 '18
- National advertising, the merchant and the newspaper. *T. W. Le Quatte. Inland Ptr* 61:80-1 Ap '18
- Peace advertising. *F. L. Martin. Inland Ptr* 62:427-8 Ja '19
- Persistent advertising needed. *W. R. Colver. Gas Age* 42:279 S 16 '18
- Preparation of gas company publicity. *F. M. Lester. Am Gas Eng J* 108:255-8 Mr 16 '18
- Some truth about legitimate publicity. *J. L. Clark. Automotive Ind* 41:678-80 O 2 '19
- Teaching the country merchant and the country editor the fundamentals of advertising. *M. J. McGowan. Inland Ptr* 63:82-3 Ap '19
- Value of trade journal advertising to engineers and draftsmen. *C. C. Marsh. Mach* 24:599 Mr '18
- Vision in advertising. *Sci Am* 119:456 D 7 '18
- What the retailer wants from his newspaper. *J. K. Grondahl. Inland Ptr* 61:501 Jl '18
- Why the du Pont co. is advertising although loaded with orders, and a suggestion to engineers. *Eng & Contr* 49:423 My 1 '18
- See also* Advertisements; Architects—Advertising; Billposting; Business; Catalogs; Contractors—Advertising; Electric signs; House organs; Posters; Sales letters; Show windows; Signs; also subdivision Advertising under names of Industries, e.g. Automobile industry and trade—Advertising. Printing trade—Advertising. Sheet metal trade—Advertising
- Rates**
- Standard advertising rates. *G. L. Caswell. Inland Ptr* 63:673 S '19
- Advertising, Cooperative**
- Co-operative advertising in California. *S. M. Kennedy. Elec W* 73:80-2 Ja 11 '19
- Piece work system in place of salaries. *J. A. A. Beaudin. Gas Age* 44:232 S 1 '19
- Advertising, Ethics of.** *See* Professional advertising
- Advertising, Foreign**
- Advertising ideas to sell American goods abroad. *A. Sinsheimer. Automotive Ind* 40:1118-19 My 22 '19
- Advertising methods in Chile, Peru, and Bolivia. *J. W. Sanger. In U S Bur For & Dom Com* 185:1-56 '19
- Advertising methods in Cuba. *J. W. Sanger. In U S Bur For & Dom Com* 178:1-47 '19; Abstract. *Automotive Ind* 40:1452-4 Je 26 '19
- Foreign advertising success. *W. G. Hildebrandt. Am Mach* 51:58-9 Jl 10 '19
- Kind of advertising to be used in Latin-America, China, Russia, and Orient. *C. H. Greene and E. B. Filsinger. Automotive Ind* 38:852-3+ My 2 '18
- Survey and method of advertising for foreign trade. *F. A. Arnold. Am Mach* 51:113-14 Jl 17 '19
- Advertising, Legal.** *See* Legal advertising
- Advertising, Professional.** *See* Professional advertising
- Aeration of sewage.** *See* Sewage disposal—Activated sludge method
- Aerial bombs.** *See* Bombs, Aerial
- Aerial derby around the world.** *See* Aviation
- Aerial photography.** *See* Photography, Aerial
- Aerial police.** *See* Police, Aerial
- Aerial postal service.** *See* Postal service, Aerial
- Aerial propellers.** *See* Airplane propellers

**Aerial routes**

- Aeromail and passenger routes now being used in England, Ireland and Scotland. *E. J. David. map Flying* 8:458 Je '19
- Air routes of the United States as mapped by Department of military aeronautics; map. *Motor Age* 35:14 Je 26 '19
- Canadian airway and aerial routes. *K. E. C. Kennedy. map Flying* 7:1133-6 Ja '19
- Map of Philippine aerial routes. *J. E. H. Stevenot. Flying* 8:342 My '19
- Aerial tramways.** *See* Cableways
- Aerial warfare.** *See* Aeronautics, Military; European war—Aerial operations
- Aerodromes.** *See* Airplanes
- Aerodromes (fields).** *See* Aviation fields
- Aerodynamic laboratories**
- Aerodynamic laboratory at Leland Stanford junior university and the equipment installed with special reference to tests on air propellers. *W. F. Durand. In diags U S Nat Advisory Com for Aeronautics* 1917:87-98 '18; Abstract. *Am Soc M E J* 40:435-6 My '18
- French air tunnel for testing airplane engines needed. *R. Soreau. In Automotive Ind* 38:759-60 Ap 18 '18
- Stanford university aerodynamic laboratory. *E. J. Baughman. In plan Aviation* 7:183-4 S 15 '19
- Wind tunnel experimentation. *A. Klemin. In diags Aviation* 7:132-5, 177-80 S 1-15 '19
- Aerodynamics**
- Aerodynamic coefficients and transformation tables. *J. S. Ames. U S Nat Advisory Com for Aeronautics* 1917:391-401 '18
- Aerodynamic experimental tunnel. *W. Knight. diags Aviation* 7:77-80 Ag 15 '19
- Course in aerodynamics and airplane design. *A. Klemin. In diags Aviation* 6:270-3, 327-31, 376-8, 430-3, 479-81, 484, 581-4, 633-6; 7:26-7, 81-3, 132-5, 177-80 Ap 1-Je 1, Jl 1-S 15 '19
- Dynamics of flight. *G. P. Thomson. Engineer* 127:252-3 Mr 14 '19
- Influence of aviation upon mathematical physics. *Sci Am S* 87:341 My 31 '19
- New theory of air-propeller action; abstracts. *M. Brooks. Am Soc M E J* 40:390 My '18; *Automotive Ind* 38:1206-7 Je 20 '18; Discussion. *Am Soc M E J* 40:676-81 Ag '18
- Physical properties and dynamics of the atmosphere. *W. R. Blair. U S Nat Advisory Com for Aeronautics* 1917:41-51 '18; Same. *Sci Am S* 85:158-60 Mr 9 '18
- Scale effects in relation to aerodynamics. *H. Levy. In diags Automotive Ind* 41:629-33 S 25 '19
- Studies in high speed aerodynamic phenomena. *F. W. Caldwell and E. N. Fales. In diags Automotive Ind* 41:422-6 Ag 28 '19
- What Langley did for the science of aviation. *Automotive Ind* 39:660-2 O 17 '18
- See also* Aerodynamic laboratories; Aeronautics; Air flow
- Aerolites.** *See* Meteorites
- Aeronautic engineers**
- Licenses**
- Licensing of aeronautical engineers and the inspection of aircraft. *G. E. Barnhart. Aviation* 7:123-9 S 1 '19
- Aeronautic engines.** *See* Airplane engines
- Aeronautic explorations.** *See* Explorations, Aeronautic
- Aeronautic instruments**
- Aeronautical instruments. *Am Mach* 49:83 Jl 11 '18
- Air speed indicators for dirigibles. *In plans J Fr Inst* 188:535-44 O '19
- Course in aerodynamics and airplane design. *A. Klemin. In diags Aviation* 6:581-4, 633-6; 7:26-7, 81-3 Jl 1-Ag 15 '19
- Development of an aircraft incidence meter. *A. F. Zahm. In plan J Fr Inst* 188:683-5 N '19
- Development of an airplane shock recorder. *A. F. Zahm. In diags J Fr Inst* 188:237-44 Ag '19
- Eliminating deviations of the airplane compass. *Automobile* 37:440 S 13 '17

**Aeronautic Instruments—Continued**

- Friction drive relay control for aircraft. A. Q. Cooper. *diags* Engineer 128:227-8 S 5 '19
- German aircraft speed meter. Engineer 125:447 My 24 '18; Same. Automotive Ind 39:19 J1 4 '18; Discussion. J. Carlier. Engineer 125:512 Je 14 '18
- Gyroscopic instrument for navigating aircraft. Automotive Ind 41:205 J1 31 '19
- Instruments for air use. W. A. Robson. Sci Am S 86:285 N 2 '18
- Navigating instruments of our aerial pilots. Sci Am 119:141+ Ag 17 '18
- New navigating instruments made for Transatlantic flight. Automotive Ind 40:1135 My 22 '19
- Radio direction-finding apparatus. A. S. Blatterman. *il diags* Elec W 73:464-7 Mr 8 '19
- Recording propeller thrustmeter. M. Field. *il* Automotive Ind 41:675-7 O 2 '19
- Speed measuring instruments for aeroplanes. Sci Am S 87:414 Je 28 '19
- Tests of aeronautic instruments. P. M. Heldt. *il* Automotive Ind 40:691-2 Mr 27 '19
- Van Sicklen chronometric tachometer. F. J. Feely. *il* Aviation 7:137-8 S 1 '19
- When the compass goes crazy. C. H. Claudy. Sci Am 121:204 Ag 30 '19
- See also* Air speed meters; Barograph
- Aeronautic motors.** *See* Airplane engines
- Aeronautical convention, Pan-American.** *See* Pan-American aeronautical convention
- Aeronautics**
- Advocate government assistance for development of aviation. Automotive Ind 39:1110+ D 26 '18
- Aeronautical inventions; British air ministry's suggestions to inventors. Engineer 126:5 J1 5 '18; Same cond. Am Soc M E J 40:768 S '18
- Aeronautics, 1914-1918. Engineer 127:18-19 Ja 3 '19
- Aeroplane in curvilinear flight; abstract. Mech Eng 41:275 Mr '19
- Aeroplanes used to discover outlaw Texas cotton fields. Flying 8:255-6 Ap '19
- Aircraft problems; abstract. Engineer 128:337-8 O 3 '19
- Airplane performance determined by engine performance. G. B. Upton. Sibley J 32:137-42 Je '18
- Airplanes of today; resumé of developments in flying machines. F. L. Faurote. *il* Automotive Ind 38:1184-6 Je 20 '18; Same. Motor Age 34:20-3 J1 4 '18
- Altitude errors in aerial navigation. J. G. Coffin. *diags* Aviation 6:624-6 J1 15 '19
- Aspect ratio and critical angle. C. H. Powell. *diags* Automotive Ind 39:367 F 14 '18
- Clouds formed by airplanes. E. D. Wells. Sci Am 120:601 Je 7 '19
- Development and production of airplanes. Am Mach 49:72-3 J1 11 '18
- Dr Johnson on aeronautics. W. H. Thorpe. Sci Am S 85:99 F 16 '18
- Economics of flight. H. B. Irving. *diags* Automotive Ind 40:1306-8 Je 12 '19
- Five-and-a-half mile climb in an American airplane. *il* Sci Am 119:353 N 2 '18
- Flight at high altitudes. Engineer 126:11-12 J1 5 '18
- Future of flying. L. Weir. Engineer 126:557-8 D 27 '18
- How the meteorologist aids the aviator. *il* Sci Am 121:11+ J1 5 '19
- Launching an airplane from an airship. *il* Sci Am 120:111 F 8 '19
- Meteorology in relation to aeronautics. W. H. Dines. Sci Am S 86:351-2, 366-8 N 30-D 7 '18
- Modern aeronautics. W. F. Durand. Sci Am S 86:130-1, 150-1, 166-7 Ag 31-S 14 '18; Same cond. Automotive Ind 39:368-70, 424-6, 464-7 Ag 29-S 12 '18; Abstract. Engineer 126:16-17 J1 5 '18
- National advisory committee for aeronautics 3d annual report, 1917. *il diags* U S Nat Advisory Com for Aeronautics 1917:1-495 '18
- National advisory committee for aeronautics 4th annual report. Aviation 5:750-3 Ja 15 '19
- Ornithopter. H. Chatley. Sci Am S 86:136 Ag 31 '18

- Outlook for 1919. A. Black. Aviation 5:690-1 Ja 1 '19
- Present-day problems in aeronautics. W. B. Stout. *il diags* Automotive Ind 38:1179-83 Je 20 '18; Same. Motor Age 33:23-7+ Je 27 '18
- Progress of aviation in the war period. L. Balfour. Engineer 128:93-4, 115-17 J1 25-Ag 1 '19
- Report on airplane problems; bulletin of the Naval consulting board and the Engineering council's War committee of technical societies; abstracts. Automotive Ind 39:271+ Ag 15 '18; Am Soc M E J 40:769-70 S '18
- Samuel Pierpont Langley: pioneer in practical aviation. H. Leffmann. *il* J Fr Inst 137:49-63 Ja '19
- Short chronology of locomotion. C. F. D. Marshall. Engineer 127:625 Je 27 '19
- Single government department for all aeronautics urged by mission. A. Sinshelmer. Automotive Ind 41:297-303, 323-7 Ag 14 '19; Same abr. Flying 8:714-17, 788-90, 866-7+ S-N '19
- Theory of an airplane encountering gusts. E. B. Wilson. U S Nat Advisory Com for Aeronautics 1917:403-31 '18
- Topographic and climatic factors in relation to aeronautics. W. R. Blair. U S Nat Advisory Com for Aeronautics 1917:63-63 '18; Same. Sci Am S 86:12-14 J1 6 '18
- Trans-Atlantic flight from the meteorologist's point of view. W. R. Gregg. *diags* Flying 8:357-61+ My '19; Same. Sci Am S 87:274-5, 300-2 My 3-10 '19; Same cond. Aviation 6:370-2, 422-5 My 1-15 '19
- Use of airplanes in forest patrol work. H. S. Graves. Aviation 5:754-5 Ja 15 '19
- What Langley did for the science of aviation. Automotive Ind 39:660-2, 714-18+, 761-5, 798-800 O 17-N 7 '18
- Wirelessly-directed aircraft. Engineer 127:357-8 Ap 11 '19

*See also* Aerodynamic laboratories; Aerodynamics; Aeronautics, Commercial; Airplane engines; Airplane stability and stabilizers; Airplanes; Airships; Aviation; Balloon fabric; Balloons; Explorations, Aeronautic; Flying boats; Flying machines; Photography, Aerial; Postal service, Aerial; Seaplanes; Wireless telephone in aviation

**Accidents**

*See* Aviation—Accidents

**Exhibitions**

- Airplanes at the aeronautical exposition. A. Klemin. *il* Aviation 6:210-14 Mr 15 '19
- Description de la exposition aerea de New York. Flying 8:249+ Ap '19
- Element of practical business at aeronautical exposition. *il* Automotive Ind 40:512-18 Mr 6 '19
- Exhibitors at the aero show. Flying 8:188 Mr '19; Motor Age 35:12-13 Mr 6 '19
- New York aeronautical exposition. Sci Am 120:270+, 290+ Mr 15-22 '19; Mech Eng 41:406-7 Ap '19
- Second impressions of the aeronautic show. *il diags* Automotive Ind 40:597-600 Mr 13 '19
- Sport models first at New York air show. *il* Motor Age 35:24-5+ Mr 13 '19

**Laws and regulations**

- Aeronautics soon to become an international problem. A. Sinshelmer. Automotive Ind 41:603-6 S 25 '19
- British regulations for aerial navigation. H. Woodhouse. *il* Flying 8:525-32 J1 '19
- Canada's plan for control and development of aeronautics. A. Sinshelmer. Automotive Ind 41:701-3 O 9 '19
- Free as air; legislation needed to control aerial traffic. Sci Am 120:484+ My 10 '19
- Freedom of the skies. A. McAuliffe and A. L. Rotch. Sci Am 121:34 J1 26 '19
- Future air traffic and necessary regulations to govern same. A. R. Hawley. *il* Flying 8:149-54 Mr '19
- International aerial navigation rules are defined. W. F. Bradley. *diags* Automotive Ind 41:197-9 J1 31 '19

**Aeronautics—Laws and regulations—Continued**  
International air navigation regulations. A. Sinsheimer. *Automotive Ind* 40:781-2 Ap 10 '19

International laws and regulations for air navigation. H. Woodhouse and E. Stafford. *Il Flying* 8:683-8 S '19

International medical requirements for aerial navigation. *Automotive Ind* 41:199-200 JI 31 '19

Regulation of air navigation in United Kingdom. W. S. Churchill. *Automotive Ind* 41:453-6 S 4 '19

Regulations for airways discussed. *Flying* 8:435 Je '19

Three air service bills before Congress. A. Sinsheimer. *Automotive Ind* 41:351-3 Ag 21 '19

To regulate aerial navigation. H. Woodhouse. *Il map Flying* 8:33-42+ F '19

#### Safety devices

See Aviation—Safety devices

#### Signals

Radio development in the air service. E. R. Doyle. *diags Elec W* 73:27-9 Ja 4 '19

#### Tables, calculations, etc.

Predicting the performance of an airplane. V. E. Clark. *Aviation* 7:168-74 S 15 '19

Prediction of airplane performance. I. M. Ladon. *chart Aviation* 7:139 S 1 '19

#### Terminology

Airplane nomenclature. *Il diags Automotive Ind* 39:11-13 JI 4 '18

Nomenclature for aeronautics. U S Nat Advisory Com for Aeronautics 1917:139-48 '18

Nomenclature for aeronautics; preprint from 4th annual report. U S Nat Advisory Com for Aeronautics Report 25:1-11 '19; Same. *Aviation* 6:529-32 Je 15 '19

#### Aeronautics, Commercial

Aerial transportation. E. J. David. See monthly numbers of Flying

Air transport and the aircraft industry. *Aviation* 5:682-4 Ja 1 '19

Airships practical for commercial use. *Automotive Ind* 40:461-3 F 27 '19

Ambitious flights planned abroad. W. F. Bradley. *Il Automotive Ind* 40:584-6 Mr 13 '19

Aviation as result of peace. *Motor Age* 35:22-3 Ja 16 '19

Civil aerial transport. *Engineer* 126:511 D 13 '18

Commercial airplanes in near future; problems of design. W. B. Stout. *Il Automotive Ind* 37:1094-6 D 20 '17

Commercial airships. *Engineer* 127:84-5 Ja 24 '19

Commercial aviation here in few years. *Automotive Ind* 40:71+ Ja 9 '19

Commercial aviation in Norway. *Sci Am* 118:396 Ap 27 '18

Commercial aviation in our foreign trade; mail, parcel post and light express service to Europe and South America a certainty. *Automotive Ind* 39:87-8 JI 18 '18

Commercial future of the large airplane. W. H. Barling. *Automotive Ind* 41:822-3 O 23 '19

Commercial prospects of the aeroplane. *Engineer* 125:99-100 F 1 '18

Commercial transport by airplane. *Aviation* 6:31-2 F 1 '19

Commercial uses of aircraft. E. J. David. *Il Flying* 8:541-3 JI '19

Dawn of the age of aerial transportation. H. Woodhouse. *Il Flying* 7:1125-7 Ja '19

Dirigibles for commercial flights. *Automotive Ind* 40:437+ F 20 '19

Earth roads and air roads. C. H. Davies. *Sci Am* 119:354 N 2 '18

Europe organizing passenger air lines. H. Thomas. *Aviation* 5:762 Ja 15 '19

Future of aerial transport. *Ry R* 64:226-7 F 8 '19

Future of the airplane in business. C. B. Morrick. *Il J Elec* 42:309-10 Ap 1 '19

Great future for lighter-than-air machines. C. H. Day; L. d'Orcey. *Automotive Ind* 40:590-1+ Mr 13 '19

Peace time aviation. O. Pomilio. *Aviation* 5:691 Ja 1 '19

Problems of commercial aeronautics. G. Lepere. *Aviation* 5:694 Ja 1 '19

Some aviation economics; what are we to do with the vast industries after the sword is sheathed? C. H. Claudy. *Sci Am* 119:313+ O 19 '18

Using the planes. *Sci Am* 119:432 N 30 '18

Views held on commercial possibilities in aviation. D. Beecroft. *Automotive Ind* 40:287-90 F 6 '19

See also Aerial routes; Postal service, Aerial

#### Landing stations

See Aviation landing stations

#### Austria

International air traffic company formed in Austria-Hungary. *Am Soc M E J* 40:421 My '18

#### Canada

Canadian airways and aerial routes. K. E. C. Kennedy. *Il map Flying* 7:1133-6 Ja '19

#### France

France adopts definite plan to promote aircraft. A. Sinsheimer. *Automotive Ind* 41:653-4 O 2 '19

#### Germany

Why Germans are flying for business rather than for fun. *Il Sci Am* 121:343+ O 4 '19

#### Great Britain

British airplane and seaplane competition. *Aviation* 7:223 O 1 '19

British official report on air transport. *Aviation* 5:700-1 Ja 1 '19

British post-war air activities. D. Beecroft. *Motor Age* 34:13+ D 19 '18

Future of British flying. C. H. Claudy. *Il Sci Am* 120:259+ Mr 15 '19

Great Britain developing commercial aviation program. *Automotive Ind* 40:1134 My 22 '19

How Britain has organized its aircraft ministry. A. Sinsheimer. *Automotive Ind* 41:399-401 Ag 28 '19

Regulation of air navigation in United Kingdom. W. S. Churchill. *Automotive Ind* 41:453-6 S 4 '19

#### Latin America

Lo que puede hacer la aviacion en pro de la solucion de los problemas economicos y sociologicos de las republicas Latino-Americanas. H. Woodhouse. *Flying* 8:350-1 My '19

Aeronautics, Military

Aeronautics in the United States. 1918. G. O. Squier. *Il Am Inst E E Pro* 38:53-114 F '19; Excerpts. *Elec R* 74:131-3 Ja 25 '19

Aero-warfare. G. P. Thomson. *Sibley J* 32:92 Mr '18

Aircraft problem. W. F. Durand. *Am Soc M E J* 40:32-5 Ja '18

A.E.G. bombing biplane. *diags Engineer* 125:484-7 Je 7 '18

America's air service. W. F. Durand. *Il J Fr Inst* 185:1-27 Ja '18

Aviation and the war. C. F. Lee. *Il Sci Am* 5:86:389 D 21 '18

Battle acrobacy or trick flying; abstract. K. G. Pulliam, jr. *diags Am Soc M E J* 40:1043-4 D '18

Bombing planes and their targets. *Il chart Sci Am* 119:86+ Ag 3 '18

By air across the Atlantic. A. Sinsheimer. *Il map Motor Age* 33:5-9 Je 27 '18

Destruction from the sky. *Il Sci Am* 5:86:356-7 D 7 '18

Development of military aircraft in Great Britain. *Automotive Ind* 40:261 Ja 30 '19

Flare for aviators. *Am Mach* 49:347 Ag 22 '18

German aeroplane design. *Sci Am* 5:86:121 Ag 24 '18

Giant aeroplanes. *Engineer* 125:537-8 Je 21 '18

Heroic deeds in the air. *Flying* 8:45-6 F '19

Italian naval aircraft. *Il Engineer* 125:6-9 Ja 4 '18

**Aeronautics, Military—Continued**

- Method of bombing from the air. *Il Motor Age* 34:28-9 S 5 '18  
 Our aerial sausages. C. H. Claudy. *Il Sci Am* 119:408-9+ N 23 '18  
 Our enemies in the air; how Germany is preparing to meet American and allied air fleets. C. Dienstbach. *Il Sci Am* 118:133 F 9 '18  
 Our technical achievements in the great war. *Sci Am* 121:208-9 Ag 30 '19  
 Problems involved in bomb sight design. *Automotive Ind* 39:404-5 S 5 '18  
 Problems of aerial bombing. *Il Automotive Ind* 39:324-6 Ag 22 '18  
 Pulling the trigger by fluid pressure. *Il Sci Am* 120:512-13+ My 17 '19  
 Quantity versus quality in airplane combat. J. G. Coffin and H. T. Booth. *Automotive Ind* 38:1209-11+ Je 20 '18  
 Radio development during the war. N. H. Slaughter. *Il chart plan Elec W* 73:311-15 F 15 '19  
 Sighting problems of the aviator. *diags Sci Am* 120:139 F 15 '19  
 Surprise packages for Fritz; bomb-dropping from an airplane. *Il Motor Age* 34:20-2 JI 25 '18  
 10th anniversary of the world's military aviation. G. W. Sutton, Jr. *Il Sci Am* 121:106-7 Ag 2 '19  
 Three and a half years of aerial warfare. *Il Sci Am* 118:517 Je 8 '18  
 Tricks and acrobatics of the air fighter. *Sci Am* 119:188 S 7 '18  
 Types of military airplanes; the possibilities of the bomber. V. E. Clark. *Sci Am S* 85:322 Mv 25 '18  
 War airplanes of to-day. *Il Automotive Ind* 39:14-17, 60-6 JI 4-11 '18  
 War aviation; reviewing the flying experience of a British expert. B. C. Hucks. *diags Sci Am S* 85:234-5 Mv 4 '18  
 Winged victory. *Sci Am S* 86:251 O 19 '18  
 Zeppelin, aeroplane and parachute. C. Dienstbach. *Sci Am* 117:474+ D 22 '17  
 Zeppelin biplane. J. Lagorgette. *Sci Am S* 86:334-5 N 23 '18  
*See also* Air raids; Airplane guns; Balloons; European war—Aerial operations; Flying boats; Great Britain—Aeronautics, Military; Gun cameras; Torpedoplanes; United States—Aeronautics, Military; United States—Army—Signal corps; also Council of national defense—Aircraft production board; United States—Aircraft production, Bureau of

**Training**

- Detroit has complete ground and flying school. *Il chart diag Automotive Ind* 38:958 My 16 '18  
 Flying stunts are vitally important; essential that military aviators be taught every trick of the trade. *Automotive Ind* 39:477 S 12 '18  
 Our aerial gunners in the making. *Il Sci Am* 119:395 N 16 '18  
 Training our aerial bombers. *Il Sci Am* 119:336-7 O 26 '18  
 Uncle Sam's ground schools for flyers; giving observers practical experience in spotting on a miniature battle-field. C. H. Claudy. *Il Sci Am* 118:69+ Ja 19 '18

**Aeronauts.** *See* Aviators  
**Aeroplanes.** *See* Airplanes

**Affinity, Chemical.** *See* Chemical affinity

**Afghanistan**

Between the Tigris and the Indus; a region of great future commercial importance. T. H. Holdich. *Sci Am S* 84:394-5 D 22 '17

**Africa, East****Commerce**

East African markets for hardware and agricultural implements. H. P. Starrett. *U S Sp Cons Rep* 78:1-27 '17

**Industries and resources**

Portuguese East Africa. *Am Ind* 20:27-8 Ag '19

**Africa, South.** *See* South Africa

**Africa, West****Industries and resources**

Geology of West Africa with notes on its resources and future development. R. Chudeau. *Sci Am S* 85:350-3 Je 1 '18

**Agave.** *See* Sisal hemp

**Age of earth.** *See* Earth, Age of

**Age societies**

Age-societies of the Plains Indians. R. H. Lowie. *Il Sci Am S* 85:201 Mr 30 '18

**Agency**

Attorney-at-law held to a strict accounting when dealing with client and conveyances to him may be set aside. *Dom Eng* 85:127-3 O 26 '18

Can you sue an agent? *Dom Eng* 82:255-6 F 16 '18

How can I delegate authority to another person to act for me by means of power of attorney? *Dom Eng* 85:165-6 N 2 '18

Principal's liability for the fraud of his agent. *Dom Eng* 83:462-3 Je 22 '18

*See also* Commercial law; Contracts; Joint sales agencies; Partnership

**Agitation (technical chemistry)**

Calculation of extraction in continuous agitation. A. Ham and H. S. Coe. *Chem & Met Eng* 19:663-6 N 1 '18

**Agitators**

Centrifugal agitator and distributor. H. E. Jacoby. *diag Chem & Met Eng* 20:593 Je 1 '19

Chapman automatic agitator for gas producers. *Il Iron Tr R* 62:326 Ja 31 '18; *Iron Age* 101:385 F 7 '18

**Agricultural administration**

Wartime agriculture in Great Britain. H. Bannerman-Phillips. *Sci Am* 120:26 Ja 11 '19

**Agricultural chemistry**

Industrial and agricultural chemistry in British Guiana; with a review of the work of Professor J. B. Harrison. C. A. Browne. *Il J Ind & Eng Chem* 11:374-81 S '19

Optical method for the determination of malic and tartaric acids in the same solutions. J. J. Willaman. *Am Chem Soc J* 40:693-704 Ap '18

Problems and methods in agricultural research. H. J. Wheeler. *J Ind & Eng Chem* 11:1056-60 N '19

*See also* Ammonia; Botanical chemistry; Fertilizers and manures; Silage; Soil analysis; Soils

**Agricultural colonization**

Back to the land: California. H. A. Crafts. *Sci Am* 121:185 Ag 23 '19

Developing irrigated land with selected settlers. *Il Eng N* 81:1014-18 D 5 '18; *Discussion.* A. T. Parsons; E. Mead. 82:251-3 Ja 30 '19

Land and the returning soldier. *Am Inst Arch J* 6:503-5 N '18

**Agricultural cooperation.** *See* Agriculture, Cooperative

**Agricultural libraries****Bibliography**

List of references on agricultural libraries in the United States; with list of agricultural libraries. M. G. Lacy. *Special Libraries* 10:53-60 Mr '19

**Agricultural machinery**

Agricultural implements and machinery. *Il Sci Am* 118:90 Ja 26 '18

Agricultural implements and machinery in Australia and New Zealand. J. Horns. *Il U S Bur For & Dom Com* 166:1-195 '18

Agricultural power machinery. *Engineer* 125:143-4 F 15 '18

Avery cultivator has six-cylinder engine. *Il Motor Age* 36:44 O 16 '19

Circular farm. R. H. Moulton. *Il Sci Am* 119:105 Ag 10 '18

Cultivating corn with motors. *Il Motor Age* 34:22-5 Ag 1 '18

East African markets for hardware and agricultural implements. H. P. Starrett. *U S Sp Cons Rep* 78:1-27 '17

**Agricultural machinery—Continued**

Engineering markets of Brazil. Engineer 126: 407-8, 491-2 N 15, D 6 '18  
 Farm equipment for tractor users. *Il* Motor Age 34:30-1 Ag 8 '18  
 Farm implement designs. Automotive Ind 39: 115 JI 18 '18  
 Farm machinery in the corn belt. C. Emrich. Sci Am 118:87 Ja 26 '18  
 Fitting the tractor to the job. F. M. Loomis. *Il* diags Motor Age 34:5-9, 24-5 JI 4-11 '18  
 Graham aims to put horse out of business. *Il* diags Motor Age 36:36-7 O 30 '19  
 How elevating graders are being used in sugar beet farming. *Il* Eng & Contr 49:281 Mr 20 '18  
 New tillage tool. *Il* Sci Am 118:413 My 4 '18  
 Roller bearings in farm machinery. *Il* Sci Am 120:490 My 10 '19  
 Royal agricultural show. *Il* diags Engineer 127:627-30; 128:8-10 Je 27-JI 4 '19  
 Steam ploughing and cultivating equipment. *Il* map Engineer 125:527-30, 536 Je 21 '18  
*See also* Harrows; Plows; Threshing machines; Tractors

**Agricultural meteorology.** *See* Meteorology, Agricultural

**Agricultural pests**

*See also* Hawks

**Agricultural products.** *See* Farm produce

**Agricultural surveys**

Aeroplanes used to discover outlaw Texas cotton fields. Flying 8:255-6 Ap '19

**Agriculture**

Can shell-scarred battlefields be cultivated? Sci Am 118:126 F 9 '18  
 Palate of civilized man and its influence on agriculture. D. Fairchild. *Il* J Fr Inst 185: 299-316 Mr '18; Same. Sci Am S 87:68-71 F 1 '19  
 Two crops of grain at the cost of one. Sci Am 118:586 Je 29 '18

*See also* Agricultural chemistry; Agricultural colonization; Agricultural machinery; Clearing of land; Drainage; Electricity on the farm; Farm accounting; Farm buildings; Farm produce; Feeding and feeding stuffs; Fertilizers and manures; Forests and forestry; Greenhouses; Irrigation; Live stock; Meteorology, Agricultural; Plant breeding; Reclamation of land; Silage; Silos; Soils; Trees; Woodlots; also names of special products, e.g. Alfalfa, Corn, Flax, Wheat

**Accounting**

*See* Farm accounting

**Bibliography**

Select list of books on agriculture. W. M. Hepburn. Special Libraries 10:81-3 Ap '19

**Economic aspects**

Crop growing on contract. Sci Am 120:536 My 24 '19

**War measures**

Agricultural problem. L. H. Bailey. Am Soc M E J 40:25-7 Ja '18

Emergency irrigation rate for garden farming at Alhambra, Cal. Eng & Contr 49:459 My 8 '18

Farm labor problem. C. Ousley. U S Agric Circ 112:1-10 '18

Five million children to be enrolled in the U.S. garden army and what this should mean to water works superintendents. Eng & Contr 49:449 My 8 '18

Helping people to help themselves. J. E. Carbery. Textile World 53:2493+ D 15 '17  
 How Maine enthusiasts enlisted farmers' aid in conservation. Am Lumberman 2236:39 Mr 23 '18

*See also* Food supply—United States

**California**

Developing irrigated land with selected settlers. *Il* Eng N 81:1014-18 D 5 '18; Discussion. A. T. Parsons; E. Mead. 82:251-3 Ja 30 '19

**France**

Agricultural reconstruction in France. Sci Am 121:404+ O 18 '19

French problem of reconstruction. C. H. Claudy. *Il* Sci Am 120:577+ My 31 '19

**Great Britain**

Supplying the British farmer with the sinews of war. H. Bannerman-Phillips. Sci Am 120:429+ Ap 26 '19

Wartime agriculture. H. Bannerman-Phillips. Sci Am 120:26 Ja 11 '19

**Mesopotamia**

Irrigation in Mesopotamia. Sci Am S 86:21 JI 18 '18

**Philippine Islands**

Masterpieces of primitive engineering. *Il* Sci Am 118:225+ Mr 16 '18

**Sahara desert**

Agricultural possibilities of the Sahara. Sci Am S 87:297 My 10 '19

**United States**

Agricultural revolution in the South. O. R. Geyer. Sci Am 118:378+ Ap 27 '18

How the farmer can help. A. L. Porter. Sci Am S 84:404 D 29 '17

Practical plan for increased crop production. Am Lumberman 2239:33 Ap 13 '18

*See also* Farm bureaus; Irrigation—United States; Reclamation service (United States)

**Agriculture, Cooperative**

Farming for returned soldiers. A. H. Hawkins. Sci Am 120:509 My 17 '19

Motor truck haulage for farmers. *Il* Good Roads n s 17:163-4 Ap 12 '19

*See also* Marketing, Cooperative

**Agriculture, Primitive**

Masterpieces of primitive engineering. *Il* Sci Am 118:225+ Mr 16 '18

Origin of American agriculture. H. J. Spinden. *Il* map Sci Am S 88:120-1+ Ag 23 '19

**Air**

Gas film theory in relation to heat conduction, and a large table of heat conductivities. H. P. Gillette. *Il* Eng & Contr 47:573-6 Je 27 '17; Abstract. Am Soc M E J 40:356-7 Ap '18

Why and wherefore of sanitary engineering. A. Bateman. *Il* diags Dom Eng 84:43-4 JI 13 '18

*See also* Aerodynamics; Aeronautics; Air conditions; Air flow; Air measurement; Air meters; Air pollution; Air washing; Atmosphere; Atmospheric pressure; Humidity; Meteorology; Mine air; Oxygen; Ozone; Psychrometry; Ventilation

**Analysis**

Effect of sunlight on air. W. J. Mauer. *Il* Heat & Ven 16:27-32 Mr '19

**Air, Compressed.** *See* Compressed air

**Air, Purification of.** *See* Air purification

**Air blasts.** *See* Mine explosions

**Air brake association**

25th annual convention, Cleveland, O., May 7-10. Ry R 62:675-82 My 11 '18; Ry Age 64: 1245-7, 1293-4 My 17-24 '18; Ry Mech Eng 92:315-20 Je '18

26th annual convention, Chicago, May 6. Ry Age 66:1165-70, 1212-13 My 9-16 '19; Ry R 64:681-8 My 10 '19; Ry Mech Eng 93:301-2, 423-8 Je-JI '19

**Air brake hose**

Air-brake hose mounting and clamping machines. *Il* Elec Ry J 52:846 N 9 '18

Air leakage through out-of-gage hose couplings. Ry R 64:688 My 10 '19

Brake pipe leakage. Ry Mech Eng 92:508 S '18

Eliminating train-line leakage; fuel conservation circular no. 13. Ry R 63:442-3 S 21 '18; Same. Ry Mech Eng 92:512-13 S '18

Hose mounting and hose clamping machine. *Il* diags Ry Mech Eng 92:683-4 D '18

**Air brake hose—Continued**

- Reclaiming air brake hose. diags Ry Mech Eng 93:492 Ag '19.  
 Transportation department and fuel economy. E. H. DeGroot, Jr. Ry Age 64:1291 My 24 '18; Same. Ry R 62:754 My 25 '18; Same. Ry Mech Eng 92:353-4 Je '18.  
 Two valuable hose devices. E. S. Norton. diags Ry Mech Eng 92:222 Ap '18.  
 What is the safe life of an air brake hose? Air brake association committee report, 1918; abstracts. Ry R 62:677-8 My 11 '18; Ry Age 64:1246-7 My 17 '18; Ry Mech Eng 92:317-18 Je '18.

**Air brakes**

- Air brake association: 26th annual convention, Chicago. Ry Age 66:1165-70, 1212-13 My 9-16 '19; Ry R 64:681-8 My 10 '19; Ry Mech Eng 93:423-28 Jl '19.  
 Air brake devices at Brainerd shops. 11 diags Ry Mech Eng 93:96-7 F '19.  
 Assistance by engine and train men in brake maintenance. H. A. Glick. Ry R 64:687-8 My 10 '19.  
 Best methods of preparing air brakes at terminals to avoid train shocks and break-in-tows; report of Air brake association committee, 1918; abstracts. Ry R 62:678-81 My 11 '18; Ry Mech Eng 92:318-20 Je '18.  
 Co-operation between the travelling engineer and the General air brake inspector; report of committee of Traveling engineers' association. Ry R 63:403-5 S 14 '18; Same cond. Ry Mech Eng 92:553-5 O '18; Same cond. Ry Age 65:503-4 S 13 '18.  
 Decreasing governor maintenance. J. W. Brown. 11 Elec Ry J 51:93 Ja 12 '18.  
 Emergency air and signal hose coupling. diags Ry Mech Eng 91:688 D '17.  
 Feed valve maintenance. W. Clegg. diags Ry R 62:824-6 Je 8 '18.  
 Handling air brakes on passenger trains; abstracts. Ry Age 67:581-3 S 19 '19; Ry R 65:422-4 S 20 '19; Ry Mech Eng 93:569-70 O '19.  
 Maintenance of air brakes; regional directors' rules. Ry Mech Eng 92:568-9 O '18.  
 Maintenance of freight brakes. diags Ry R 64:837-41 Je 7 '19.  
 Maintenance of freight brakes. M. Purcell. Ry Mech Eng 93:531-2 S '19; Abstract. Ry R 64:685-6 My 10 '19.  
 M. C. B. air brake defect card. J. Elder. Ry R 64:685 My 10 '19; Abstract. Ry Age 66:1168-9 My 9 '19.  
 M. C. B. circular on air brake maintenance. Ry Mech Eng 92:669-70 D '18.  
 M. C. B. freight brake stencilling for cleaning, etc. Ry R 62:682 My 11 '18.  
 Measurement of piston travel in yards. T. Birch. diags Ry Mech Eng 93:474 Ag '19.  
 Save coal by reducing the train line leaks. Ry Age 65:252 Ag 9 '18.  
 Slack action in long passenger trains; Air brake association committee report, 1918; abstracts. Ry R 62:675-7 My 11 '18; Ry Age 64:1245-6 My 17 '18; Ry Mech Eng 92:315-17 Je '18.  
 Train brake and signal equipment. diag Ry R 64:925 Je 21 '19.  
 Trouble from compressor cylinder-head gaskets blowing out. diag Elec Ry J 54:340-1 Ag 16 '19.  
 Up-to-date practice in compressor maintenance. 11 Elec Ry J 53:568-72 Mr 22 '19.  
 See also Air brake hose; Brake shoes

**Testing**

- Convenient testing room for air-brake valves. 11 Elec Ry J 53:374 F 22 '19.  
 Locomotive air brake tester. diags Ry Mech Eng 92:677-8 D '18.  
 100-car test of the automatic straight air brake. 11 Ry Age 65:173-6 Jl 26 '18; Same. Ry Mech Eng 92:453-6 Ag '18; Discussion. A. L. Humphrey. Ry Age 65:329-30 Ag 23 '18.  
 Portable compressor for testing air brakes. 11 Sci Am 119:360 N 2 '18.  
 Report on the automatic straight air brake; with discussion. Ry Age 66:840-2 Mr 28 '19; Same. Ry Mech Eng 93:195-8 Ap '19.

Virginian railway brake tests; automatic straight air brake. H. I. Miller. Ry Age 65:540-1 S 20 '18.

**Air chambers**

Maintaining air in air chambers. G. B. Somer. diag Power 50:351 Ag 26 '19.

Air chambers (plumbing). See Plumbing

**Air cleaners**

- Air cleaners analyzed and compared. W. G. Clark. diags Automotive Ind 39:678-80+ O 17 '18; Abstract. Am Soc M E J 40:1044-5 D '18.  
 Air cleaners and lubrication. Motor Age 34:17 N 14 '18.  
 R. W. Parrett water-type air cleaner. 11 Automotive Ind 40:1173 My 29 '19.  
 See also Air filters; Air washers

**Air compressors**

- Air compressor laundry. diags Ry R 63:46-7 Jl 13 '18.  
 Air-compressor losses. R. McLaren. diags Power 50:348 Ag 26 '19.  
 Air compressor table. J. H. Hahn. 11 diags Ry Mech Eng 92:159-60 Mr '18.  
 Air-compressor troubles. R. J. Bailey. diags Power 47:912 Je 25 '18.  
 Air receiver. F. Richards. 11 Engineer 127:562-3, 573-4 Je 6-13 '19; Same cond. Eng & Contr 52:222-4 Ag 20 '19.  
 Air valve lift gage for cross compound and single stage steam driven air compressors. diags Ry Mech Eng 92:222 Ap '18.  
 Automatic valves for motor-driven air compressors. 11 diag Engineer 127:461 My 9 '19.  
 Centrifugal compressor installation at Newport News shipbuilding and dry dock co. L. C. Loewenstein. 11 diags plan Gen Elec R 22:785-8 O '19.  
 Centrifugal compressors. G. Fluegel. diags Mech Eng 41:795-9+ O '19.  
 Compressing air for the laboratory. A. E. Schiffeson. diags Eng & Min J 108:411 S 6 '19.  
 Considerations in selecting compressor for air plant. L. A. Knights. Eng & Contr 50:578 D 18 '18.  
 Development of reciprocating air compressors. S. T. Nelson. 11 Eng & Min J 108:533-6 S 27 '19.  
 Economical air-compressor drive. 11 Eng & Min J 105:685 Ap 13 '18; Eng & Contr 49:621 Je 19 '18.  
 Effect of bushing the high pressure cylinder of an 8½ inch cross compound compressor. R. M. Durnford. Ry Mech Eng 92:280-1 My '18.  
 Electric air-compressor outfit. 11 Elec R 72:211 F 2 '18.  
 Electrically driven combination air compressor and buffing and grinding head. 11 Elec R 72:439-40 Mr 9 '18.  
 Fan, blower and air-compressor applications. C. E. Clewell. 11 Elec W 71:196-9 Ja 26 '18.  
 Features of a portable air compressor. 11 Munic Eng 53:252-3; 54:160 D '17, Ap '18.  
 Gasoline-driven air compressor. 11 Power 46:833 D 18 '17.  
 Ingersoll-Rand air compressor. 11 Am Mach 50:911-12 My 8 '19; Elec Ry J 53:790 Ap 19 '19; Eng & Contr 51:555-6 My 21 '19.  
 Ingersoll-Rand contractor's motor-driven compressor. 11 Elec W 72:474 S 7 '18.  
 Ingersoll-Rand Imperial type 14 portable gas compressor. 11 Am Gas Eng J 111:sup16 O 4 '19; Am Mach 51:737-8 O 16 '19; Good Roads 18:199 O 29 '19.  
 Ingersoll-Rand portable motor-driven air compressor for mine use. 11 Iron Age 101:1671 Je 27 '18; Coal Age 14:161 Jl 25 '18.  
 Lectorfater air compressors or vacuum pumps. Engineer 125:565 Je 28 '18.  
 Maintenance of cross-compound compressors; report of Air brake association committee. Ry Mech Eng 92:471-2 Ag '18.  
 Nagle duplex air compressor. 11 Ind Management 55:74 Ja '18.  
 Niebling high-speed compressor. diag Power 48:812 D 3 '18.  
 Perfected high-pressure rotary compressor. C. B. Lord. diags Mech Eng 41:877-8+ N '19.

**Air compressors—Continued**

- Petrol-driven air compressor. *Il* Engineer 127: 165 F 14 '19
- Portable air blowing outfit. *Il* Iron Age 103: 618 Mr 6 '19
- Power required to compress air. Coal Age 12:1032 D 15 '17
- Receiver eliminates moisture. C. L. Boyle. *diag* Power 47:96 Ja 15 '18
- Reclaiming lower head of cross-compound air compressors. J. H. Hahn. *diag* Ry Mech Eng 93:206 Ap '19
- Reclaiming top heads of Westinghouse 91-2 in. air compressors. J. H. Hahn. *diags* Ry Mech Eng 92:671 O '18
- Regulating centrifugal air compressors. *diags* Engineer 127:118 Ja 31 '19
- Satisfactory method of finishing welded air compressor cylinders. J. D. Pride. *diag* Elec Ry J 53:788 Ap 19 '19
- Small air compressors. *Il* Chem & Met Eng 21:204 Ag 15 '19
- Some recent improvements in air compressor design. *Il* *diags* Engineer 127:534, 538-40 My 30 '19
- Sullivan straight line compressor now equipped with plate valves; type WB-3. *Il* Eng & Contr 51:119 Ja 29 '19; Power 49: 481 Ap 1 '19; Ry Mech Eng 93:381 Je '19
- Sullivan wafer air compressor valves. *Il* Iron Age 103:1649 Je 19 '19; Power 50:54 Jl 8 '19
- Swiss intercooler for turbo-compressors; abstract. Mech Eng 41:616-17 Jl '19
- Talks on Diesel engines. L. H. Morrison. *diags* Power 49:608-10 Ap 22 '19
- Turbo air compressor at the Holbrook colliery. *Il* *diags* Engineer 126:113-15 Ag 9 '18
- Two-cylinder motor-driven air compressor. *Il* Elec W 71:1166 Je 1 '18
- Up-to-date practice in compressor maintenance. *Il* Elec Ry J 53:568-72 Mr 22 '19
- Use of portable, motor-driven air compressors. *Il* Elec R 72:892 My 25 '18
- Using air compressor on varied trench work in New York city. C. L. Edholm. *Il* Munic Eng 53:196-7 N '17
- Westinghouse life gage for air compressor valves. *Il* *diags* Ry R 62:742-3 My 18 '18
- See also* Air pumps; Compressed air

**Accidents**

- Air-compressor accident. F. C. Williams. *diags* Power 46:838 D 18 '17
- Air compressor explosions. Sci Am S 87:10 Ja 4 '19
- Explosion in compressor cylinders. S. B. King. Coal Age 13:982 My 25 '18

**Cooling**

- Cooling a small air compressor. W. A. Lallier. *diags* Am Mach 48:383 F 28 '18

**Lubrication**

- Air compressor oiling step. *Il* Ry Mech Eng 92: 160 Mr '18
- Air-cylinder lubrication. Coal Age 14:522, 836, 1132-3 S 12, O 31, D 19 '18
- Lubrication of air-compressor cylinders. Power 47:417 Mr 19 '18
- Lubrication of air compressors. Ry Mech Eng 91:704-6 D '17
- Lubrication of air compressors. W. H. Callan. Coal Age 14:211-13 Ag 1 '18; Same. Am Mach 49:575-7 S 26 '18; Same cond. Power 48:229-30 Ag 13 '18; Abstract. Eng & Min J 106:1032 D 14 '18
- Lubrication of air compressors. H. V. Conrad. *diag* Eng & Min J 107:392-4 Mr 1 '19; Same. Iron Age 103:753-4 Mr 20 '19; Same. Power 49:378-9 Mr 11 '19; Same. Textile World 55:1447+ Mr 1 '19; Same. Coal Age 15:704-6 Ap 17 '19; Same. Am Mach 51:168-70 Jl 24 '19; Same abr. Eng & Contr 51:291-3 Mr 19 '19; Same cond. Elec Ry J 53:424 Mr 1 '19; Excerpts. Mech Eng 41:384-6 Ap '19; Abstract. Foundry 47:214+ Ap 15 '19; Abstract. Mech Eng 41:621 Je '19
- Lubricator on air compressor. P. A. Gett. *diags* Power 49:373 Mr 11 '19

**Manufacture**

- Compressor casting takes 31 cores. *Il* Foundry 47:673-6 O 1 '19

**Testing**

- Testing air compressors; abstract. N. S. Tennant. *diags* Am Soc M E J 40:773-4 S '18
- Air conditions**
- Air conditioning. C. L. Hubbard. *Il* *diag* Dom Eng 85:82-4, 118-20 O 19-26 '18
- Condition of conditioned air. W. A. Field. Elec R 73:668-9 O 26 '18
- Condition of conditioned air; cooling turbo-generators. M. A. Lincoln. Elec R 73:581-2 O 12 '18
- Effect of air conditioning upon munitions manufacture. J. I. Lyle. *Il* charts *diag* Am Soc Heat & V E 23:383-92 '17
- Report on air conditions at the Paris garter factory. *Il* charts plans Heat & Ven 15:23-36 My; 37-43 Je '18
- Testing of atmospheric conditions; description of apparatus. D. D. Kimball, J. I. Lyle and A. K. Ohmes. *Il* *diags* Am Soc Heat & V E 23:453-81 '17
- Use of refrigeration in air conditioning. L. Nusbaum. *Il* Am Soc Heat & V E 23:671-8 '17
- Ventilation standards and the synthetic air chart. E. V. Hill. charts plan Am Soc Heat & V E 23:607-28 '17
- See also* Air—Analysis; Air purification; Air washing; Cooling; Dust prevention; Dust removal; Humidity; Smoke prevention; Ventilation
- Air cushions**
- Japanese air-cushions of paper. *Il* Sci Am 121:463 N 8 '19
- Air dryers.** *See* Drying apparatus
- Air ducts.** *See* Air pipes
- Air ejectors**
- Air occluders for use with condensers. *Il* *diag* Power 48:458-9 S 24 '18; Same. Int Marine Eng 23:550 S '18
- Air engines**
- Centenary of the heat regenerator and the Stirling air engine, with text of original specification. *diags* Engineer 124:516-17 D 14 '17; Discussion. R. B. Prosser. 124:537 D 21 '17
- Compressed air hoisting engine for India. Engineer 127:363 Ap 11 '19
- See also* Compressed air
- Air fans**
- Air fans for driving generators on airplanes. G. F. Gray, J. W. Reed, and P. N. Elderskin. *Il* Mech Eng 41:527-30 Je '19
- Air films**
- Dielectric strength of air films entrapped in solid insulation and a practical application of the problem for alternator coils and cables. F. Dubsky. *diags* Am Inst E E Pro 38:141-61 F '19
- Air filters**
- Filtered air supply for pneumatic tools. *diag* Eng & Contr 50:370 O 16 '18
- See also* Air washers
- Air flow**
- Air flow over rear deck of battleship Pennsylvania. A. F. Zahm. *Il* *diags* J Fr Inst 188: 389-97 S '19
- Air flow through poppet valves. *diag* Automotive Ind 39:1047-51 D 19 '18
- Calculating velocities of air. Coal Age 14:417 Ag 29 '18
- Determination of the efficiency of the turbo-alternator. S. F. Barclay and S. P. Smith. *diags* Mech Eng 41:704-5 Ag '19
- Development of an aircraft incidence meter. A. F. Zahm. *Il* plan J Fr Inst 188:683-5 N '19
- Flow in channels with large expansion ratio; abstract. R. Kröner. Am Soc M E J 40:106-7 Ja '18
- Formulas for figuring pipe capacities. Heat & Ven 15:51-2 Ja '18
- Measurement of air flow. Heat & Ven 16:68-9 F '19
- Measuring air-flow from rotary blowers. *diag* Iron Tr R 62:1374-5 My 30 '18
- Measuring air velocity in mines. *Il* Coal Age 13:848 My 4 '18



**Air flow—Continued**

- New Jersey air tool-ometer. *diags* Power 49:694 My 6 '19  
 Simplifying air duct design. L. Kraft. *Metal Work* 91:235-7, 307-9+, 403-5+ F 21, Mr 7, 28 '19  
 Study in air measurements and air flow. A. K. Ohmes. *chart diags* Am Soc Heat & V E 23:595-605 '17; Same. *Metal Work* 89:68-70 Ja 11 '18  
 Study of air resistance and air flow. H. Levy. *11 diags* Automotive Ind 40:1260-4 Je 12 '19  
 Testing of apparatus. D. D. Kimball, J. I. Lyle and A. K. Ohmes. *11 diags* Am Soc Heat & V E 23:453-81 '17  
 Velocity of air in ducts. Power 47:223 F 12 '18  
 Volume regulator for blast-furnace engines. L. C. Loewenstein. *11 diags* Am Soc M E J 40:224-33 Mr '18; Same. *Iron Tr R* 63:603-10 S 12 '18; Excerpts. *Met. & Chem Eng* 18:29-32 Ja 1 '18; Excerpts. *Iron Age* 101:737 Mr 21 '18; Discussion. *Am Soc M E J* 40:149 F '18

**See also Gas flow****Air hammers. See Pneumatic hammers****Air lifts**

- Air-lift artesian well. J. Oliphant. *11 Munic* J 46:249 Ap 5 '19  
 Air lift for compressor-jacket water. *diag* Power 47:588 Ap 23 '18  
 Air lift for handling tailings. H. A. Campbell. *diag Eng & Min J* 105:1177 Je 29 '18; Same. *Eng & Contr* 50:104 Ag 21 '18  
 Air lift pumping. J. Oliphant. *Engineer* 128:141-2 Ag 8 '19  
 Air-lift pumping. A. W. Purchas. *diags* Engineer 124:446-7 N 23 '17  
 Compound air lift. A. W. Allen. *diags Eng & Min J* 107:436-7 Mr 8 '19; Same. *Power* 49:692-3 My 6 '19  
 Design and tests of highly efficient air-lift installation at Fort Bliss, Texas. J. F. Brown. *diags Eng N* 82:1111-14 Je 5 '19  
 Installation and operation of air lift pumping plants. C. J. Deem. *Munic Eng* 57:234+ N '19

**Air mail service. See Postal service, Aerial****Air measurement**

- Air weight and volume measurement. D. T. Hastings. *diags Automotive Ind* 40:1278-87, 1399-1402 Je 12-19 '19  
 Study in air measurements and air flow. A. K. Ohmes. *chart diags* Am Soc Heat & V E 23:595-605 '17; Same. *Metal Work* 89:68-70 Ja 11 '18

**See also Air flow; Air meters; Anemometer****Air meters**

- Accurate air meter. G. B. Harris. *diag Am Mach* 48:369-70 F 28 '18

**See also Air flow; Anemometer****Air occluders. See Air ejectors****Air pipes**

- Durability of materials conveying steam, air and water. A. K. Ohmes. *11 diags* Am Soc Heat & V E 23:109-20; Discussion. 121-4 '17  
 Economy in duct construction. *diags Heat & Ven* 16:45-6 Je '19  
 Joints for duct work. *diags Heat & Ven* 16:46 Ag '19  
 Proper gauges and weights of round g.i. pipe and elbows for duct systems. *Heat & Ven* 15:69 Ap '18  
 Simplifying air duct design. L. Kraft. *Metal Work* 91:235-7, 307-9+, 403-5+ F 21, Mr 7, 28 '19  
 Sizing of ducts and flues. *Heat & Ven* 15:71-2 Ap; 65-7 My; 61-2 Jl; 35, 63-4 Ag; 79-80 S '18; Discussion. 15:58-60 Je '18

**See also Ductometer****Freezing**

- Ice in air pipes. *diag Mach* 25:342 D '18  
 Precautions that prevent freezing in air piping. *Elec Ry J* 51:242 F 2 '18

**Air pollution**

- Atmospheric pollution and the impurities of rain-water. J. B. C. Kershaw. *Engineer* 124:443-4 N 23 '17

- Atmospheric pollution from the engineer's standpoint. J. B. C. Kershaw. *Engineer* 128:197-8 Ag 29 '19

**See also Dust; Smoke; Ventilation****Air ports**

- Rain and spray excluding fan for ship's port-holes. *diags Int Marine Eng* 23:240-1 Ap '18

**Air ports (aviation terminals). See Aviation landing stations****Air pressure. See Atmospheric pressure****Air pump strainers**

- Air pump strainers. *diag Ry Mech Eng* 93:16-17 Ja '19

**Air pumps**

- Air-pump sling. J. K. Long. *diags Am Mach* 48:632 Ap 11 '18  
 Air pumps and condensers in steam engineering. *diag Sci Am S* 85:396 Je 22 '18  
 Radojet steam-ejector condenser air pump. *diags Elec Ry J* 51:533 Mr 16 '18; *Elec W* 71:750-1 Ap 6 '18; *Power* 47:770-1 My 28 '18  
 Recent developments in air-pump design. E. P. Jones. *diags Power* 47:26-31 Ja 1 '18  
 Report of committee appointed by the Council of the North-east coast institution of engineers and shipbuilders; abstracts. *11 diag* Engineer 124:557 D 28 '17; *Elec W* 71:209 Ja 26 '18; *Am Soc M E J* 40:283-5 Mr '18; *Int Marine Eng* 23:113 Mr '18  
 Will change in water for air pump be good or bad? *diag Power* 46:703-4, 838; 47:24, 161, 196-7, 302 N 20, D 18 '17, Ja 1, 29, F 5, 26 '18

**See also Air compressors; Air lifts; Vacuum gages****Air purification**

- Apparatus for cooling, drying and purifying air. W. J. Baldwin. *diags Am Soc M E J* 39:92-3 D '17; Same *abr. Heat & Ven* 15:44-5 Ja '18

**See also Air cleaners; Air filters; Air washers; Air washing; Dust removal; Smoke prevention; Ventilation****Air raids**

- Air-raid warning sign in Croydon. *11 Elec Ry J* 51:846 My 4 '18  
 Bombing and getting bombed. *11 Sci Am* 118:299 Mr 9 '18  
 Eight million cu. ft. of manufactured gas burned in a few seconds, lighting up all London. H. Townsend. *11 Am Gas Eng J* 110:551-4+ Je 28 '19  
 Gas main precautions in Paris during air raid period. *Am Gas Eng J* 111:392 O 18 '19  
 Searchlight air defense operations. W. F. Tompkins. *11 Gen Elec R* 22:663-7 S '19  
 When the Hun comes to Paris; huge sirens that warn the population to take shelter. J. Boyer. *11 Sci Am* 119:104 Ag 10 '18

**Air receivers**

- Air receiver. F. Richards. *11 Engineer* 127:562-3, 573-4 Je 6-13 '19; Same *cond. Eng & Contr* 52:222-4 Ag 20 '19

**Air resistance**

- Propeller and fuselage air pressure interaction. D. L. Bacon. *11 diags Aviation* 7:227-8 O 1 '19  
 Study of air resistance and air flow. H. Levy. *11 diags Automotive Ind* 40:1260-4 Je 12 '19  
 Wind resistance on a train. C. F. D. Marshall. *diags Engineer* 127:473-4 My 16 '19; Same. *Sci Am S* 88:105-6 Ag 16 '19; Excerpt. *Eng & Contr* 52:136 Jl 30 '19; Abstract. *Mech Eng* 41:701-2 Ag '19

**See also Air flow; Train resistance; Wind pressure****Air rifles**

- Air-rifle lock-knob holder. W. B. Greenleaf. *11 diags Mach* 24:1133-4 Ag '18  
 Air-rifle wedge die. W. B. Greenleaf. *diags Mach* 25:251 N '18  
 Making air-rifle trigger guard. W. B. Greenleaf. *11 diags Mach* 24:933-4 Je '18

**Air sampling**

- Effect of sunlight on air. W. J. Mauer. *11 Heat & Ven* 16:27-32 Mr '19  
 Sampling of dust in mine air. J. Boyd. *diags Eng & Min J* 107:395-6 Mr 1 '19

- Air shafts**  
Freezing of shaft in winter. *Coal Age* 14:1004 N 28 '18
- Air-ships.** See **Airships**
- Air speed meters**  
Air speed indicators for dirigibles. *Il plans J Fr Inst* 188:535-44 O '19  
Course in aerodynamics and airplane design. A. Klemin. *Il diags Aviation* 6:581-4 JI 1 '19
- Air testing.** See **Air—Analysis; Air sampling; Gas detectors**
- Air traffic.** See **Aeronautics, Commercial**
- Air washers**  
Air conditioning. C. L. Hubbard. *Il diag Dom Eng* 85:82-4, 118-20 O 19-26 '18  
Air washer experiences. S. R. Lewis and E. V. Hill. *diags Heat & Ven* 16:25-31 Je '19  
Bennett centrifugal air washer; combines the centrifugal principle of separating dust from air with the water-washing principle. *Il diag Automotive Ind* 39:448 S 12 '18; *Motor Age* 24:42 O 17 '18  
Fuel consumption required for operation of air washers; discussion. *Am Soc Heat & V E* 24:425-7 '18  
Getting the most out of turbo-generators. L. H. Parker and J. J. Preble. *Il diags Elec W* 71:564-6 Mr 16 '18  
High-speed air and gas washers. J. L. Alden. *diags Am Soc M E J* 40:390-2 My '18; Same cond. *Iron Tr R* 62:1428-9 Je 6 '18  
Leonard air washer. *Il Automotive Ind* 38:739 Ap 11 '18  
Tractor power plant improvements; air washer and thermostat. *diags Sci Am* 119:396 N 16 '18  
See also **Air cleaners; Air filters**
- Testing**
- Report of A. S. H. V. E. committee on standard method of testing air washers. *Am Soc Heat & V E* 23:407-10 '17
- Air washing**  
Air washing and humidification for school buildings. P. West. *Heat & Ven* 16:42+ F '19  
Increasing output without enlarging the equipment. J. T. Foster. *plan Elec W* 71:34-5 Ja 5 '18  
See also **Air filters; Air purification; Air washers; Dust removal; Ventilation**
- Aircraft engines.** See **Airplane engines; Airship engines**
- Aircraft factories**  
Heating and ventilation of workshops; aeroplane erecting shop and doping-room. *Il diags plans Engineer* 127:599-602, 608 Je 20 '19  
National aeroplane factory near Manchester. *Il (supp) diag plan Engineer* 127:422-4 My 2 '19  
See also **Curtiss aeroplane & motor corporation; Naval aircraft factory, Philadelphia**
- Aircraft industry**  
Air transport and the aircraft industry. *Aviation* 5:682-4 Ja 1 '19  
Aircraft situation. *Sci Am* 119:492 D 21 '18  
England's aircraft industry. C. H. Claudy. *Sci Am* 120:314 Mr 29 '19  
Future of British flying. C. H. Claudy. *Il Sci Am* 120:259+ Mr 15 '19  
Need of the present moment. A. Black. *Aviation* 7:16 Ag 1 '19  
Single government department for all aeronautics urged by mission. A. Sinsheimer. *Automotive Ind* 41:297-308, 323-7 Ag 14 '19; Same abr. *Flying* 8:714-17, 788-90, 866-7+ S-N '19  
See also **Airplane industry and trade**
- Aircraft investigation.** See **United States—Aircraft production investigation**
- Aircraft production bureau.** See **United States—Aircraft production, Bureau of**
- Airdromes.** See **Aviation fields**
- Airfone**  
Inter-communication on board airplanes. *Il Aviation* 6:228-9 Mr 15 '19
- Airplane accidents.** See **Aviation—Accidents**
- Airplane dope.** See **Airplane fabric**
- Airplane engines**  
Aeronautic power plant investigations. H. C. Dickinson. *diags U S Nat Advisory Com for Aeronautics* 1917:479-95 '18  
Aircraft engine with steel liners in aluminum cylinder blocks. *diags (supp) Automotive Ind* 41:367-9 Ag 21 '19  
Airplane engine crankshaft design. G. D. Angle. *diag Aviation* 6:525-8 Je 15 '19  
Airplane engine vibration. G. D. Angle. *diags Aviation* 7:118-22, 212-16 S 1, O 1 '19  
Airplane performance determined by engine performance. G. B. Upton. *Sibley J* 32:137-42 Je '18  
Airplane production and the Liberty engines. *Automotive Ind* 38:607 Mr 21 '18  
Augustine rotary two-cycle super-induction gas engine. *Il diags Power* 47:328-32 Je 11 '18  
Aviation chief topic at S. A. E. winter meeting, New York city. *Automotive Ind* 38:157-62 Ja 17 '18  
Benz 160-hp. aircraft engine. *Il diags Automotive Ind* 38:217-20 Ja 24 '18  
Benz 230-hp. aircraft engine. *Il diags Automotive Ind* 38:368-71, 449-52, 503-4 F 14, 28-Mr 7 '18  
Bombing plane engines. *Il maps Automotive Ind* 39:590-1 O 3 '18  
Boosting the ceiling of the airplane. *Il Sci Am* 121:481+ N 15 '19  
Captain Georges Guynemer; the Hispano-Suiza engine and the Spad. W. F. Bradley. *Il Automotive Ind* 38:1080-2 Je 6 '18  
Characteristics of a high-grade aero engine. J. H. W. Kerston. *Automotive Ind* 41:119 JI 17 '19  
Characteristics of American aircraft engines. *Aviation* 6:218-19 Mr 15 '19  
Curtiss K-6 and K-12 aircraft engines. *Il diags Automotive Ind* 40:1050-4+ My 15 '19  
Curtiss model K-6 aircraft engine. *Il Aviation* 6:83-4 F 15 '19  
Curtiss model K 12 cylinder airplane engine. *Il diags Aviation* 5:685-9 Ja 1 '19  
Details of Liberty engine. H. H. Emmons. *Motor Age* 35:16 Ja 2 '19  
Details of the Liberty engine. J. E. Schipper. *Il diags Automotive Ind* 39:991-5 D 12 '18  
Duesenberg sixteen-cylinder aircraft engine. *Il diags Automotive Ind* 40:214-18 Ja 23 '19  
Engines of the Zeppelin and the Gotha. *Il diags Engineer* 125:156-60, 182-4 F 22-Mr 1 '18; *Abstract. Am Soc M E J* 40:428-9 My '18  
Evolution of the aircraft engine; abstract. *Am Soc M E J* 40:pt 1, 579 JI '18; Same. *Sci Am* 119:270 O 5 '18; Same cond. *Power* 48:106 JI 16 '18  
Exhaust headers and mufflers. A. Black. *diags Automotive Ind* 39:145-7 JI 25 '18  
Fiat unusually powerful six-cylinder engine. *diags Automotive Ind* 41:728-31 O 9 '19  
Four Hispano-Suiza models. *diags Automotive Ind* 39:914-15+ N 28 '18  
France's Liberty engine, the amazing Salmson. W. F. Bradley. *Il diags (supp) plan Automotive Ind* 41:59-66 JI 10 '19  
Further light on airplane production history. H. H. Emmons. *Automotive Ind* 39:1069 D 19 '18  
German aeroplane engines. *Il Sci Am* S 85:53 Ja 26 '18  
German type of double rotary aircraft engine. *diag Automotive Ind* 41:514-15 S 11 '19  
Hispano-Suiza engine model H, 300 h.p. *Il diags Aviation* 6:23-6 F 1 '19  
How the Hispano-Suiza engine came to the forefront of aviation. *Il Sci Am* 119:7+ JI 6 '18  
How the radial engine saves space in the fighting airplane. *Il Sci Am* 119:462 D 7 '18  
Howard aviation engine with new features. *diags Automobile* 37:681-2 O 18 '17  
Hudson 120 hp. airplane engine. *Il Aviation* 6:232 Mr 15 '19  
Human talk on Liberty engine. C. F. Kettering; excerpts. *Motor Age* 33:28-9 Je 6 '18; *Sci Am* 118:538+ Je 8 '18  
Japanese aeroplane contest. *Il Sci Am* 117:457 D 15 '17  
King-Bugatti aviation motor; abstract. G. D. Wardrop. *diags Mech Eng* 41:276-8 Mr '19

**Airplane engines—Continued**

- King-Bugatti 16-cylinder aero engine. *Il* diags Automotive Ind 40:906-10, 956-9+ Ap 24-Mr 1 '19
- King 550 hp. aircraft engine. *Il* diags Aviation 6:274-7 Ap 1 '19
- Lancia aero engine has steel cylinders. Automotive Ind 37:994 D 6 '17
- Langley-Manly engine. L. M. Griffith. Sci Am 119:477 D 14 '18
- Largest aircraft engine. J Fr Inst 188:431-2 S '19
- Lawrance 3-cylinder airplane engine. *Il* Aviation 6:141 Mr 1 '19
- Le Rhone airplane engine 80 hp. *Il* diags Aviation 6:70-3 F 15 '19
- Liberty aircraft engine. G. O. Squier. *Il* Am Inst E E Pro 38:104-11 F '19; Same. Am Mach 50:130-1 Ja 18 '19
- Liberty aircraft engine. J. G. Vincent. Automotive Ind 40:323-7, 378-85 F 6-13 '19
- Liberty engine commended by Marshall airplane report. Automotive Ind 38:696 Ap 4 '18
- Liberty engine described in detail; abstract. Am Soc M E J 40:pt 1, 580-1 Jl '18
- Liberty engines going abroad. Automotive Ind 38:669+ Ap 4 '18
- Liberty motor. Am Mach 47:1148; 48:984-5 D 27 '17, Je 6 '18
- Liberty motor a brilliant success. Sci Am 118:82 Ja 26 '18
- Liberty motor; its checkered career and details of its construction. *Il* diags Sci Am 119:455+ D 7 '18
- Liberty motor officially described. Iron Age 101:1826 My 23 '18
- Limiting power of a single engine. E. P. Warner. Aviation 6:277 Ap 1 '19
- Maintaining constant pressure between the carburetors of air engines regardless of the altitude; abstract. L. V. Spencer. diags Mech Eng 41:476-7 My '19
- Making the aviation engine fit for any altitude. *Il* Sci Am 119:109 Ag 10 '18
- Mercedes 240 h.p. and 180 h.p. aero-engines. Engineer 125:446-7, 450, 467-70 My 24-31 '18
- Miller 125 hp. aircraft engine. *Il* Aviation 6:30-1 F 1 '19
- Modern aeronautics. W. F. Durand. Sci Am S 86:131, 150-1 Ag 31-S 7 '18; Same. Automotive Ind 39:424-6 S 5 '18
- More about the Liberty. *Il* diags Motor Age 34:7-9 D 12 '18
- Moss supercharger for airplane engines; abstract. L. V. Spencer. *Il* Mech Eng 41:616 Jl '19
- Multiple-engined airplanes. Sci Am S 88:111 Ag 16 '19
- Murray-Willat valveless rotary engine. *Il* Aviation 6:150 Mr 1 '19
- Napier engine designed to operate at high altitudes. Mech Eng 41:835 O '19
- New Liberty engine. Aviation 7:129 S 1 '19
- Not enough engines. J. D. Ryan. Iron Age 102:559 S 5 '18
- Official history of aircraft production. Automotive Ind 39:968-9, 987-90 D 5 '18
- 180-hp. Mercedes aircraft engine; a development of the 160-hp. model, having the same cylinder dimensions. *Il* diags Automotive Ind 39:452-6 S 12 '18
- Overhauling the Gnome airplane engine. diags Am Mach 48:9-15 Ja 3 '18
- Packard exhibits its first commercial plane. *Il* charts Automotive Ind 40:531-4 Mr 6 '19; Aviation 6:146-7+ Mr 1 '19; Motor Age 35:22-3 Mr 6 '19
- Photographic working model of the Gnome aviation engine. *Il* Sci Am 119:53 Jl 20 '18
- Possible effect of aircraft experience on automobile practice. H. C. Marmon; O. E. Hunt; H. M. Crane. Automotive Ind 40:317-22 F 6 '19
- Power and weight of American aeroplane engines. Engineer 126:338 O 18 '18
- Precautions that spelled success. J. L. Breese. diags Sci Am 121:55 Jl 19 '19
- Problems of aeroplane improvement. Engineer 126:506-7 D 13 '18
- Reasons behind the Liberty aviation engine. J. G. Vincent. Sibley J 32:128 My '18
- Renault 400-hp. aircraft engine. *Il* diags Automotive Ind 38:1084-7 Je 6 '18
- Some fixed-radial aero-engines. *Il* diags Engineer 127:530-2 My 30 '19
- Standard gasoline for aircraft. Automotive Ind 37:949 N 29 '17
- Status of Lorraine-Dietrich aircraft engine when examined by U.S. engineers. M. Barbarou. Automotive Ind 40:1403 Je 19 '19
- Super-charged airplane engine. B. S. Foss. *Il* Sci Am 120:512+ My 17 '19
- Theoretical indicator diagram; a method of predetermining the gas temperatures and pressures for various points in the engine cycles. O. A. Malychewitch. diags Automotive Ind 39:499-502, 545-7 S 19-26 '18
- 300 horse-power Maybach aero-engine. *Il* diags Engineer 126:182, 184-6, 194-6, 215-16 Ag 30-S 13 '18
- 300-hp. Maybach aircraft engine. *Il* diags Automotive Ind 39:755-9, 802-5, 840-3, 882-7 O 31-N 21 '18
- Trade-mark Liberty registered by the United States. W. L. Symons. Sci Am 121:116 Ag 2 '19
- True story of the Liberty motor. Sci Am 118:500+ Je 1 '18
- 270 h.p. Basse-Selve aero-engine. diags Engineer 127:246-8 Mr 14 '19
- U. S. aero engine a success. Automobile 37:468+ S 13 '17
- U.S. airplane production. H. H. Emmons. *Il* diags Motor Age 34:18-19+ D 5; 26+ D 12 '18
- Utilization of the power of supercharge engines. Automotive Ind 41:779 O 16 '19
- Value of supercharging. charts Aviation 6:577-9 Jl 1 '19
- Virtues of Liberty engine. Automotive Ind 38:1146 Ja 13 '18
- What the Germans found from tests of a captured Liberty motor. O. Schwager. Mech Eng 41:699 Ag '19
- Zetlin aero-engine. *Il* diags Engineer 127:408-10 Ap 25 '19

See also Airship engines

**Bearings**

- Design of reduction gearing for airplane engines. *Il* diags Automobile 37:485 S 20 '17
- Machining bearings for Liberty motors. F. H. Colvin. *Il* diags Am Mach 51:655-60 O 2 '19

**Cooling**

- Loomis cooling system for aircraft. diags Mech Eng 41:255-6 Mr '19
- Principles of cooling of airplane engine radiators. H. B. Irving. Automotive Ind 40:740-2 Ap 3 '19

**Failures**

- Failure of ductile materials under fluctuating stresses; abstract. H. A. Webb and W. H. Barling. diags Am Soc M E J 40:pt 1, 584-5 Jl '18
- Why Hawker failed. J. L. Breese, jr. diags Sci Am 121:87 Jl 26 '19

**Fuel**

- Investigation of airplane fuels. E. W. Dean and C. Netzen. Mech Eng 41:769 S '19

**Gearing**

- War time lesson on reduction gears. diags Automotive Ind 41:516-22 S 11 '19

**Ignition**

- Airplane motor-ignition systems. B. Z. Reiter. diags Am Mach 49:711-17 O 17 '18
- Battery versus magneto on the airplane. Sci Am 120:96+ F 1 '19
- Dixie standard aircraft magnetos. *Il* diags Automotive Ind 39:954-7 D 5 '18
- Douglas automatic airplane ignition interrupter. *Il* Aviation 6:156-8 Mr 1 '19; Same. Automotive Ind 40:372-3 F 13 '19; Abstract. Mech Eng 41:275-6 Mr '19
- Electrical system of the Liberty engine. J. E. Schipper. *Il* diags Automotive Ind 39:1089-92 D 26 '18
- Ignition on Liberty engine. *Il* diags Motor Age 35:20-1, 39 Ja 9 '19
- Ignition work at the Bureau of standards. F. B. Silsbee. *Il* diags Automotive Ind 40:1294-9 Je 12 '19

**Airplane engines—Ignition—Continued**

Liberty aircraft engine ignition. O. T. Kreuser. *II* *diags* Aviation 6:151-5 Mr 1 '19

**Inspection**

British aviation engine inspection. R. K. Bag-nall-Wild. *charts* Automotive Ind 38:125-30, 167-8+ Ja 10-17 '18

Complete inspection procedure for airplane engines. P. J. Piccirilli. Automotive Ind 39:1-4+ Jl 4 '18

**Lubrication**

Improved oil-pressure regulation in Liberty engine. *diags* Automotive Ind 40:1127+ My 22 '19

90-95 per cent lubricating oil reclaimed by army emergency process. W. F. Bradley. Automotive Ind 40:422-3+ F 20 '19

**Manufacture**

Aircraft specifications for cast iron. Foundry 46:243+ Je '18; Same cond. Mach 25:58 S '18

Airplane engine production methods. P. M. Heldt. *II* Automobile 37:537-40 S 27 '17

Application of Liberty engine materials to the automotive industry. H. F. Wood. Am Mach 51:557-62 S 18 '19

Assembling Liberty motor cylinders. H. A. Carhart. *II* Am Mach 51:27-30 Jl 3 '19

Attaining production on Liberty motor crank-case castings. *II* *diags* Foundry 47:126-9 Mr '19

Austro-Daimler 200-hp. aircraft engine. *II* *diags* Automotive Ind 40:20-4, 64-7, 132, 134-5 Ja 2-16 '19; Same cond. Engineer 126:374, 376-9, 392-4 N 1-8 '18

Baltimore plant makes steel for English airplane motors. *II* Iron Tr R 65:1173-4 O 30 '19

Cylinder grinding. F. D. Jones. *II* *diags* Mach 25:620-1 Mr '19

Drilling jig for rocker-arm of airplane motor. J. J. Woffington. *diags* Am Mach 48:77 Ja 10 '18

Efficiency in milling fixtures. J. Ahlers. *diags* Am Mach 48:186 Ja 31 '18

Finishing operations on Liberty motor cylinders. H. A. Carhart. *II* Am Mach 50:1197-1201 Je 19 '19

Grinding Liberty motor cylinders. *II* Iron Tr R 62:1368-9 My 30 '18

Hispano-Suiza airplane engine. H. O. C. Isenberg. *II* map Am Mach 50:1213-17; 51:55-8, 259-61, 365-8, 515-19, 703-10, 849-56, 1091-6 Je 26, Jl 10, Ag 7, 21, S 11, O 9, N 13, D 25 '19

Liberty engine welding plant. O. A. Kenyon. *II* *diags* Elec W 74:396-9 Ag 23 '19

Machining bearings for Liberty motors. F. H. Colvin. *II* *diags* Am Mach 51:655-60 O 2 '19

Machining operations on the Liberty motor cylinders. H. A. Carhart. *II* Am Mach 50:985-91 My 22 '19

Making Liberty airplane motor parts. *II* *diags* Mach 25:636-41 Mr '19

Manufacturing the Curtiss airplane cylinder. G. D. Ranger. *II* Am Mach 48:855-8; 49:62-5, 257-60 My 23, Jl 11, Ag 8 '18

Metallurgy of cast iron airplane cylinders. F. W. Adams. Foundry 46:123+ Mr '18

Metals used in the construction of aircraft. C. Vickers. Foundry 46:66-8 F '18

Operations on the Liberty motor cylinders. F. H. Colvin. *II* Am Mach 50:757-8 Ap 17 '19

Production of Liberty motor parts at Ford plant. W. F. Verner. *II* Mech Eng 41:517-22+ Je '19; Same. Am Mach 51:128-30 Jl 17 '19; Excerpts. Iron Tr R 64:1624-6 Je 19 '19

Remarks concerning the heat treatment of steel and their application to the treatment of steels used for airplane motors. A. Sauveur. J Fr Inst 188:189-97 Ag '19

Special machine tools for airplane motor work. *diags* Am Mach 49:219 Ag 1 '18

Special valve-grinding fixture for Hispano-Suiza aircraft engines. C. C. Ball. *diags* Am Mach 51:316 Ag 14 '19

System at the Lancaster (Eng.) works. *II* *diags* Engineer 125:133-6 F 15 '18

Welding operations on Liberty motor cylinders. H. A. Carhart. *II* Am Mach 50:1019-25 My 29 '19

Women in airplane production. I. W. Chubb. *II* Am Mach 48:221-5 F 7 '18

**Specifications**

Complete technical specifications of important American and foreign airplane engines. Automotive Ind 40:134a Ja 16 '19

**Starting devices**

Bijur starters for seaplanes and blimps. *II* *diag* Automotive Ind 40:51 Ja 9 '19; Aviation 6:33-4 F 1 '19

Electric starters add to safety of flying. *II* Elec R 75:6 Jl 5 '19

Liberty starter for aircraft engines. *II* Aviation 6:221-2 Mr 15 '19; Abstract. Automotive Ind 40:739 Ap 3 '19

**Testing**

Airplane engine test methods. C. F. Scott. Automotive Ind 38:873 My 2 '18

Altitude engine test laboratory. P. M. Heldt. *II* *diags* plan Automotive Ind 40:535-9 Mr 6 '19

Electric dynamometers for aircraft engine tests. *II* Automotive Ind 39:675-7+ O 17 '18

French air tunnel for testing airplane engines needed. R. Soreau. *II* Automotive Ind 38:759-60 Ap 18 '18

Liberty engine tests. *II* *diags* Mech Eng 41:249-53+ Mr '19

Methods of testing airplane engines. Automotive Ind 38:682 Ap 4 '18

900-hp. dynamometer installation; new test house of the Duesenberg motors corp. *II* Automotive Ind 39:449-51 S 12 '18

S. A. E. aircraft standards. *diags* Automotive Ind 38:410-13, 505-6 F 21, Mr 7 '18

Striking results of tests on Liberty-12 engine; abstract. Mech Eng 41:475-6 My '19

**Valves**

Competitive tests on gasoline valves of aero engines. Automotive Ind 41:229 Jl 31 '19

Exhaust valve troubles. Sci Am S 86:6 Jl 6 '18; Abstract. Am Soc M E J 40:pt 1, 533-4 Jl '18

Valve mechanism for use on airplane motors. B. X. Reiter. *diags* Am Mach 49:600 O 3 '18

What causes pitting of exhaust valves? Automotive Ind 41:476-7 S 4 '19

**Airplane fabric**

Aircraft fabric needs largely matter of speculation. Textile World 54:1592 O 5 '18

Airplane cloth product. Textile World 54:987+ Ag 31 '18

Airplane dopes. G. J. Esselen, jr. J Ind & Eng Chem 10:135-7 F '18; Same. Textile World 53:5587+ My 18 '18

Airplane wing coverings. Automotive Ind 38:649 Mr 28 '18

Aviation textiles and chemistry. A. Rusch, jr. Textile World 56:363+ Jl 19 '19; Same. Sci Am S 88:186-7 S 20 '19

British dope investigation; possibility of manufacturing cellulose acetate in England. Automotive Ind 39:409 S 5 '18

Cotton airplane fabric. S. Wakefield. *diag* Textile World 54:741+ Ag 17 '18; Discussion. E. D. Walen. 54:1207+ S 14 '18

Cotton airplane fabrics. E. D. Walen. U S Nat Advisory Com for Aeronautics 1917:435-58 '18

Dope poisoning. Automotive Ind 38:493-5, 511 Mr 7 '18

Doping airplane linen. G. H. Hoff. Aviation 7:226 O 1 '19

Doping in aircraft works. S. Smith. Chem & Met Eng 19:565 O 1 '18

Enough cotton fabric for planes. Automotive Ind 39:344-5 Ag 22 '18

Fire-proof solution for treating airplane fabrics. Sci Am 117:480 D 22 '17

Government textile changes. Textile World 54:3209+ D 28 '18

History of airplane dope. Automotive Ind 38:691 Ap 4 '18

History of cotton airplane fabric. E. D. Walen. Automotive Ind 39:1013 D 12 '18

How moisture affects the strength of aircraft fabrics. G. B. Haven. Automotive Ind 39:100-2+ Jl 18 '18

New airplane standards; dope and varnish specifications. *diags* chart Automotive Ind 37:839-41 N 8 '17

**Airplane fabric—Continued**

- Problems of airplane fabric preservation. F. W. Aston. Sci Am S 88:192 S 20 '19  
 Properties of airplane fabrics. E. D. Walen. II diag plan Am Soc M E J 40:933-7 N '18  
 Unique silk airplane fabric of interlaced ribbons. Textile World 53:2953 Ja 12 '18

See also Airplane wings

**Airplane guns**

- Air gun. Motor Age 34:34-5 Jl 11 '18  
 Battleplane armament. II Sci Am 120:74-5+ Ja 25 '19  
 Better fire-control gear wanted for fixed machine guns on airplanes. Am Mach 49:361 N 7 '18  
 How the Lewis gun is stripped for service on aircraft. II Sci Am 119:13 Jl 6 '18  
 Nonrecoil submarine gun for aircraft. II Iron Tr R 64:826-7 Mr 27 '19  
 Pulling the trigger by fluid pressure. II Sci Am 120:512-13+ My 17 '19  
 Sawed-off shot gun for airplanes. J: Algeo. Sci Am 119:107 Ag 10 '18  
 Use Browning guns for aircraft. Automotive Ind 38:1159-60 Je 13 '18; Same. Am Mach 48:1050 Je 20 '18; Same. Sci Am S 86:39 Jl 20 '18; Same. Sci Am 119:100 Ag 3 '18

**Airplane industry and trade**

- Exports of airplanes and parts for seven years; tabulation. Automotive Ind 40:144 Ja 16 '19

See also Aircraft industry

**Airplane mechanics**

- Right man in the right job; training airplane mechanics at Kelly Field, San Antonio, Texas. II Motor Age 34:5-7 Jl 18 '18

**Airplane motors. See Airplane engines****Airplane propellers**

- Aerodynamic laboratory at Leland Stanford junior university and the equipment installed with special reference to tests on air propellers. W: F. Durand. II diag U S Nat Advisory Com for Aeronautics 1917:87-98 '18; Abstract. Am Soc M E J 40:435-6 My '18  
 Aerodynamical considerations in the design of a propeller. H. Levy. diag Automotive Ind 41:316-20 Ag 14 '19  
 Aeroplane propeller; patent. diag Engineer 126:65-6 Jl 19 '18  
 Aero-propeller shaping machine. II Engineer 126:60 Jl 19 '18  
 Air propeller; patent. diag Engineer 126:149 Ag 16 '18  
 Air-propeller performance and design by the specific-speed method; abstract. M. C. Stuart. Am Soc M E J 40:715-16 Ag '18  
 Air screw that ridicules propeller theories. II Sci Am 119:14+ Jl 6 '18  
 Airplane propeller. C. H. Claudy. Sci Am 118:523+ Je 8 '18  
 Airplane propeller manufacture. A. L. Heim. Sci Am S 88:162 S 13 '19  
 Airplane propeller wastage reduced. R. Thelen. Aviation 6:373 My 1 '19  
 Bakelite-micarta airplane propellers. N. S. Clay. II Elec J 16:482-4 N '19  
 Balancing aeroplane propellers. Mech Eng 41:389 Ap '19  
 Development of propeller manufacture. Automotive Ind 39:55-6 Jl 11 '18  
 Discussion of the law of similitude as affecting the relation between the results derived from model forms and those to be anticipated from full-sized forms. W: F. Durand. U S Nat Advisory Com for Aeronautics 1917:131-8, pl 1-37 '18  
 Formula for approximating propeller diameter. E: P. Warner. Aviation 6:84 F 15 '19  
 General summary of the de Bothezat blade-screw theory. G: de Bothezat. diag Aviation 6:520-4 Je 15 '19  
 Keeping the propeller dry. M. E. Dunlap. II Sci Am S 87:292-3 My 10 '19; Same. Aviation 6:636-8 Jl 15 '19  
 Making propellers for airplanes. A. Sinshelmer. diag Motor Age 34:38-9 Jl 11 '18  
 Manufacture of airplane propellers as carried on in a French factory; photographs. Automotive Ind 39:8-9 Jl 4 '18

- Modern aeronautics. W. F. Durand. Sci Am S 86:151. 168-7 S 7-14 '18; Same. Automotive Ind 39:464-7 S 12 '18  
 Molded airplane propellers. II Sci Am 120:11 Ja 4 '19

- New theory of air propeller action; abstracts. M. Brooks. Am Soc M E J 40:890 My '18; Automotive Ind 38:1206-7 Je 20 '18; Discussion. Am Soc M E J 40:676-81 Ag '18

- Periodic stresses in gyroscopic bodies, with applications to air screws. A. F. Zahm. II diag U S Nat Advisory Com for Aeronautics 1917:381-9 '18

- Predicting strength and efficiency of airplane propellers. F. W. Caldwell. Automotive Ind 39:109-13, 152-5 Jl 18-25 '18

- Production of airplane propellers. Am Mach 49:147-8 Jl 25 '18

- Recording propeller thrustmeter. M. Field. II Automotive Ind 41:675-7 O 2 '19

- Sheathing and balancing airplane propellers. G: B. Fuller. II diag Automobile 37:703-5 O 25 '17

- Sound emission from airscrews. G. H. Bryan. Sci Am S 88:259 N 8 '19

- Specifications for mahogany lumber for use in propeller construction. diag Automotive Ind 38:1000 My 23 '18

- Specifications of airplane propellers. Automotive Ind 38:594-5 Mr 21 '18

- Standard hub for airplane propellers. F. H. Colvin. diag Am Mach 48:62-4 Ja 10 '18

- Stopping the engine automatically when the propeller breaks. II Sci Am 120:468+ My 3 '19

- Walnut for airplane propellers; government specifications. diag Am Lumberman 2246:33 Je 1 '18

- What is needed for airplane propellers. Am Lumberman 2252:38 Jl 13 '18

- Wood vs. metal for propellers. Metal Ind 16:272 Je '18; Discussion. W. H. Parry. 16:323 Jl '18

**Testing**

- Tests on 48 model forms of air propellers with analysis and discussion of results and presentation of the same in graphic form. W: F. Durand. II diag U S Nat Advisory Com for Aeronautics 1917:99-129 '18

**Airplane races. See Aviation****Airplane resistance**

- Horsepower of resistance in aeroplane design. N. L. Lieberman. II diag Mech Eng 41:721-7+ S '19

- Propeller and fuselage air pressure interaction. D. L. Bacon. II diag Aviation 7:227-8 O 1 '19

**Airplane ribs. See Airplane wings****Airplane stability and stabilizers**

- Directional stability of an airplane. F: Bedell. diag Sibley J 32:166-7 Ag '18

- Dynamics of flight. G. P. Thomson. Engineer 127:252-3 Mr 14 '19

- Instability of American airplanes. W. H. Ballou. II Sci Am 120:118-19 F 8 '19

- Investigation of the elements which contribute to static and dynamical stability, and of the effects of variation in those elements. A. Klemin, E: P. Warner and G: M. Denking. II diag U S Nat Advisory Com for Aeronautics 1917:273-340 '18

- Lateral stability of an airplane. F: Bedell. diag Sibley J 32:154-6 Jl '18

**Airplane wings**

- Elements of a general theory of airplane-wing design; with discussion. W. C. Durfee. diag Mech Eng 41:728-30+ S '19

- How pine manufacturers can help government. II Am Lumberman 2258:57 Ag 24 '18

- Methods of wing trussing compared. diag Automotive Ind 37:969 N 29 '17

- Present status of steel and duralumin in the construction of the framework of wings and empennage members. II Metal Ind 17:359-61 Ag '19

- Tools and fixtures for aircraft mechanics. B. Z. Reiter. diag Am Mach 48:443-4 Mr 14 '18

See also Airplane fabric

## Airplane wings—Continued

## Rib testing

- Experimental design and testing of airplane ribs. G. B. Fuller and L. Milburn. *Il diags Automotive Ind* 40:456-60+ F 27 '19  
 New method for the testing of airplane wing ribs. L. H. Cowdrey. *Il diags Automotive Ind* 39:140-4 J1 25 '18  
 Testing airplane wing ribs for strength. A. Elmendorf. *Il diags Automotive Ind* 41:622-3 S 25 '19  
 Testing strength of airplane wing ribs 55 to 96 inches. A. Elmendorf. *Il diags Automotive Ind* 41:209-13 J1 31 '19

## Airplane wood. See Airplanes—Manufacture

## Airplanes

- Additional lifting force for airplanes. C. Her-  
 ing. *diags Sci Am* 118:211+ Mr 9 '18; Dis-  
 cussion. J. A. Payne. 118:431 My 11 '18  
 Aerial limousine. *Il Sci Am* 121:459+ N 8  
 '19  
 Aerofoils and aerofoil structural combinations.  
 E. S. Gorrell and H. S. Martin. U S Nat  
 Advisory Com for Aeronautics 1917:341-79  
 '18  
 Aeroplane limits. *Sci Am* S 85:322-3 My 25  
 '18  
 Aeroplane production in America. *Il Engineer*  
 124:489, 498 D 7 '17  
 Air progress in Italy. *Il Motor Age* 34: 23-5  
 Ag 15 '18; Same cond. *Automotive Ind* 39:  
 272-6 Ag 15 '18  
 Air situation analysis. C. F. Kettering.  
*Motor Age* 34:19+ S 26 '18  
 Airplane built to be shot down. *Il Sci Am* 119:  
 511 D 28 '18  
 Airplane extremes: Farman Goliath and the  
 Farman Mosquito. *Il Sci Am* 121:155 Ag  
 16 '19  
 Airplane passenger service of today. *Il Sci Am*  
 121:127 Ag 9 '19  
 Airplane progress in France and Germany  
 since 1914. W. F. Bradley. *Il Automobile* 37:  
 613-16 O 11 '17  
 Airplane with wings of metal. *Il Sci Am* 120:  
 95 F 1 '19  
 Airplanes and seaplanes of our navy in war-  
 time. H. C. Richardson. *Sci Am* 120:188+ F  
 22 '19  
 Airplanes at the aeronautical exposition. A.  
 Klemm. *Il Aviation* 6:210-14 Mr 15 '19  
 Airplanes of today; resumé of developments  
 in flying machines. F. L. Faurote. *Automotive*  
*Ind* 38:1184-6 Je 20 '18; Same. *Il Motor*  
*Age* 34:20-3 J1 4 '18  
 Airship versus airplane. L. d'Orcy. *Il Sci Am*  
 120:98-9+ F 1 '19  
 Albatross fighting biplane. *Il diags Automotive*  
*Ind* 38:989-91, 1042-4, 1095-7, 1134-5,  
 1194-7 My 23-Je 20 '18  
 Ansaldo single and two seater airplanes. *Il*  
*Aviation* 6:223 Mr 15 '19  
 Austrian Berg single-seater fighter; abstract.  
*Am Soc M E J* 40:716 Ag '18  
 Automotive chronology for 1917. *Automotive*  
*Ind* 37:1143-9 D 27 '17  
 Bellanca C. E. biplane. *Il Aviation* 6:332 Ap  
 15 '19  
 Big step toward aerial transportation. *Il Sci*  
*Am* 120:203+ Mr 1 '19  
 Blackburn Kangaroo aeroplane. *Il Engineer*  
 127:679-80, 584 Je 13 '19  
 Bristol triplane Braemar. *Il Aviation* 6:639 J1  
 15 '19  
 Bristol two-seater fighter. *Il Automotive Ind*  
 39:548 S 26 '18  
 B.A.T. type F.K. 26 transport airplane. *Il*  
*Aviation* 7:22-3 Ag 1 '19  
 British airplanes and seaplanes; tabulation.  
*Automotive Ind* 40:142-3 Ja 16 '19  
 Can a safe airplane be made to sell at a  
 low price? *Il Sci Am* 120:512 My 17 '19  
 Caproni air cruisers. H. Woodhouse. *Il Am*  
*Mach* 49:816-18 O 31 '18  
 Commercial future of the large airplane.  
 W. H. Barling. *Automotive Ind* 41:822-3  
 O 23 '19  
 Comparative chart of airplanes in the Italian  
 service; tabulation. *Automotive Ind* 40:141  
 Ja 16 '19  
 Construction of the Curtiss military training  
 plane. *diags Am Mach* 49:594a S 26 '18  
 Controlling the tension of airplane guys. *Sci*  
*Am* 117:476-7 D 22 '17  
 Curtiss type 18-2 triplane. *Il Aviation* 6:74-5  
 F 15 '19  
 De Havilland 5A single-seater scout. *Il diags*  
*plan Automotive Ind* 39:627-9 O 10 '18  
 De Havilland IV biplane. *diags plan Auto-*  
*motive Ind* 39:181-5, 671-2 Ag 1, O 17 '18  
 Details of the Pfalz single-seater. *diags Auto-*  
*motive Ind* 39:406-9, 462-3, 503-5, 549-50+,  
 592-3+ S 5-O 3 '18  
 Development of air traffic. A. P. Kapteyn.  
*Automotive Ind* 40:588 Mr 13 '19  
 Features of recent German airplanes. *diags*  
*Automotive Ind* 38:782-3 Ap 18 '18  
 Flat plane for transatlantic flight. W. F.  
 Bradley. *Il Automotive Ind* 40:1283 Je 12 '19  
 First American-made airplanes shipped. *Iron*  
*Age* 101:564 F 28 '18  
 Five types of planes under test. *Automotive*  
*Ind* 39:378 Ag 29 '18  
 Fokker single-seater biplane. *diags Engineer*  
 126:282-4 O 4 '18  
 Fokker triplane. *Il Automotive Ind* 38:815 Ap  
 25 '18; *Engineer* 125:397-8 My 10 '18  
 French airplanes in service at the front; tab-  
 ulation. *Automotive Ind* 40:136-7 Ja 16 '19  
 From Caproni bombers to passenger-carry-  
 ing Capronis. *Il Sci Am* 121:115 Ag 2 '19  
 German aeroplane design. *Sci Am* S 86:121  
 Ag 24 '18  
 German mystery biplane; abstract. *Am Soc*  
*M E J* 40:pt 1, 584 J1 '18  
 Great future for lighter-than-air machines;  
 future of the airplane. C. H. Day. *Automotive*  
*Ind* 40:590-1+ Mr 13 '19  
 Halberstadt C. L. IV. biplane. *diags Engineer*  
 127:158 F 14 '19  
 Halberstadt two-seater biplane. *diags Engi-*  
*neer* 126:302-4 O 11 '18  
 Halberstadt two-seater fighter. *diags Avia-*  
*tion* 6:384-6 My 1 '19  
 Hannoveraner biplane. *Il diags Engineer* 126:  
 225-7 S 13 '18  
 How passengers are taking the place of bombs  
 in airplanes. *Il Sci Am* 120:203 Mr 1 '19  
 In defense of the Bristol fighter. S. W. Sym-  
 mons. *Automotive Ind* 40:365 F 13 '19  
 Large land airplane in German practice. E.  
 Hildesheim. *Il Aviation* 7:23-5 Ag 1 '19  
 Lawson primary training airplane. *Il Automot-*  
*obile* 37:587 O 4 '17  
 Lepère two-seater fighter. *Il diags Aviation*  
 6:426-9 My 15 '19  
 Loening monoplane. Lord Semphill. *Il diags*  
*Aviation* 6:759-62 Ja 15 '19  
 L. V. G. two-seater biplanes. *Il diags (supp)*  
*Engineer* 126:483-6, 524-7 D 6, 20 '18  
 Metal airplanes. *Sci Am* 121:276 S 20 '19  
 Modern aeronautics. W. F. Durand. *Sci Am* S  
 86:130-1, 150-1, 166-7 Ag 31-S 14 '18; Same  
 cond. *Automotive Ind* 39:368-70, 424-6, 464-7  
 Ag 29-S 12 '18; Abstract. *Engineer* 126:16-17  
 J1 5 '18  
 Monoplane vs. biplane. G. C. Loening. *Mech*  
*Eng* 41:765 S 19  
 Multiple-engined aeroplanes. *Engineer* 127:  
 305-6 Mr 28 '19  
 Nieuport night hawk single-seater scout.  
*Il diags Engineer* 128:132-4, 151-3, 158 Ag  
 8-15 '19  
 Nieuport plane-and-a-half speed scout. *diag*  
*plan Automobile* 37:633-5 O 11 '17  
 Non-stop trans-Atlantic flight; describing  
 the Handley-Page and the Vickers Vimy  
 bomber entries. *Il Sci Am* 120:656-7 Je 21 '19  
 Oddities in recent aircraft design. *Il Sci Am*  
 119:223+ S 21 '18  
 Operating room that flies to the battlefield.  
 F. Honoré. *Il Sci Am* 120:313 Mr 29 '19  
 Our enemies in the air; how Germany is pre-  
 paring to meet American and allied air  
 fleets. C. Dienstbach. *Il Sci Am* 118:133+ F  
 9 '18  
 Our fastest aircraft—the Loening monoplane.  
*Il Sci Am* 119:495 D 21 '18; *Aviation* 5:689 Ja  
 1 '19  
 Our first Handley-Page plane—the Langley.  
*Il Sci Am* 119:53 J1 20 '18  
 Our giant aircraft. *Il Sci Am* 120:7+ Ja 4 '19  
 Our sky army. C. G. Grey. *Sci Am* 118:479+  
 My 25 '18

**Airplanes—Continued**

- Packard exhibits its first commercial plane. *Il charts Automotive Ind 40:531-4 Mr 6 '19; Aviation 6:146-7+ Mr 1 '19; Motor Age 35:22-3 Mr 6 '19*
- Pfalz single-seater biplane. *diags Engineer 126:270-2 S 27 '18*
- Pfalz single-seater fighting aeroplane. *diags Engineer 127:95-7 Ja 31 '19*
- Pfalz single-seater scout. *Automotive Ind 39:53 Jl 11 '18*
- Present-day problems in aeronautics. W. B. Stout. *Il diags Automotive Ind 38:1179-83 Je 30 '18*
- Present status of American airplane and seaplane construction. A. Klemm. *Il Aviation 6:136-40 Mr 1 '19*
- Problems of aeroplane improvement. U S Naval Consulting Board Bul 3:1-32 '18
- Production of Le Pèrè planes was well started. J. E. Schipper. *Il Automotive Ind 40:303-4 F 6 '19*
- Products of the Royal aircraft factory. *Il Automotive Ind 39:236-8 Ag 8 '18*
- Recent enemy aircraft. B. W. Williams. *Il Sci Am 119:274 O 5 '18*
- Recent enemy airplane activities. *Il Automotive Ind 39:622 O 10 '18*
- Recent German aeroplanes. *diags Engineer 124:516, 518 D 14 '17*
- Recent types of allied military planes; photographs. *Automotive Ind 39:706-7 O 24 '18*
- Representative types of American airplanes; photographs. *Automotive Ind 39:105 Jl 18 '18*
- Roland single seater fighter. *diags plan Automotive Ind 39:267-8 Ag 15 '18*
- Romance of invention. C. H. Claudy. *Il Sci Am 121:340+, 442-3+ O 4, N 1 '19*
- Rumpler two-seater biplane of the C V type. *diags Engineer 126:248-50 S 20 '18*
- Rumpler two-seater C-IV biplane. *diags Automotive Ind 38:592-3 Mr 21 '18*
- Rumpler two-seater CV biplane. *Il diags plan Automotive Ind 39:962-5 D 5 '18*
- Some interesting German airplanes. *Il Aviation 7:217-20 O 1 '19*
- Sopwith camel. *Il diags plans Automotive Ind 39:790-1 N 7 '18*
- Sopwith Dolphin with Hispano engine. *Il Automotive Ind 39:225 Ag 8 '18*
- Sopwith triplane. *diags Automotive Ind 37:1044; 38:902-3 D 13 '17, My 9 '18*
- Spad pursuit biplane. J. J. Ide. *Il diags Sci Am 118:107+ F 2 '18*
- Spad two-seater biplane. *diags Automotive Ind 38:1212-14 Je 30 '18*
- Standard single-seater mailplane. *Il diags plan Aviation 5:703-4 Ja 1 '19*
- Tarrant triplane. *Il diags Engineer 127:452-4 My 9 '19; Abstract. Mech Eng 41:615 Jl '19*
- Technical history of the airplane. F. M. Green. *Automotive Ind 38:265-8 Ja 31 '18; Same. Sci Am S 85:130-1 Mr 2 '18*
- Thomas-Morse single and two-seater airplanes. *Il Aviation 6:278-80 Ap 1 '19*
- Trompenburg pursuit airplane. *Il Aviation 7:136 S 1 '19*
- Two far-reaching American flights. *Il Sci Am 121:139 Ag 9 '19*
- Type designations of German airplanes. *Automotive Ind 38:722 Ap 11 '18*
- Uncertainty still exists in aircraft program on planes. A. Sinsheimer. *Automotive Ind 39:356-7 Ag 29 '18*
- U.S. airplane production. H. H. Emmons. *Il diags Motor Age 34:18-19+ D 5; 26+ D 12 '18*
- Value of dirigibles for aerial transport; with comparative cost data. H. Woodhouse. *Il Flying 8:137-43 Mr '19*
- Vickers Vimy-Rolls crosses the Atlantic. *Il Aviation 6:580 Jl 1 '19*
- Vickers-Vimy transatlantic and commercial aeroplanes. *Il Engineer 127:555, 560 Je 6 '19*
- War airplanes of to-day. *Il Automotive Ind 39:14-17, 60-6 Jl 4-11 '18*
- Westland limousine aeroplane. *Il diags (supp) plan Engineer 128:271-2, 280 S 19 '19*
- What is needed in airplanes for forest rangers. K. E. Kennedy. *Am Lumberman 2239:39 Ap 13 '18*
- What Langley did for the science of aviation. *Il Automotive Ind 39:761-5, 798-800 O 31-N 7 '18*
- Why does an airplane fly? P. J. Piccirilli. *Il diags Motor Age 34:24-5 O 3 '18*
- Zeppelin biplane. J. Lagorgette. *diags Sci Am S 86:316-19, 334-5 N 16-23 '18*
- See also Aeronautics; Aeronautics, Commercial; Aircraft factories; Airplane engines; Airplane industry and trade, and other headings beginning Airplane; Airships; Aviation; Explorations, Aeronautic; Flying boats; Photography, Aerial; Police, Aerial; Postal service, Aerial; Seaplanes; Torpedoplanes; also Council of national defense—Aircraft production board; United States—Aircraft production, Bureau of*

**Bodies****See Fuselage****Design**

- Airplane and seaplane engineering. H. C. Richardson. *Il charts Aviation 6:640-3; 7:36-8 Jl 15-Ag 1 '19*
- Aspect ratio and critical angle. C. H. Powell. *diags Automotive Ind 38:367 F 14 '18*
- Course in aerodynamics and airplane design. A. Klemm. *Il diags Aviation 6:270-3, 327-31, 376-8, 430-3 Ap 1-May 15 '19*
- Design of airplane struts. W. H. Barling and H. A. Webb. *diags Aviation 6:79, 82-3 F 15 '19*
- Design of hollow interplane struts. A. El-mendorf. *diags Aviation 7:85-6 Ag 15 '19*
- Experiments with tandem planes; the Langley and Eiffel models, and a new design. R. G. Ecob. *Il diags plan Sci Am S 87:204-5 Mr 29 '19*
- Horsepower of resistance in aeroplane design. N. L. Lieberman. *Il diags Mech Eng 41:721-7+ S '19*
- How American ingenuity designed the NC boats. J. C. Hunsaker. *Il Automotive Ind 41:68-72 Jl 10 '19*
- Probable trend of aeroplane design. R. F. Mann. *diags Sci Am S 87:11 Ja 4 '19*
- S. E. 5A single seater fighter. *diags plan Automotive Ind 39:315-17 Ag 22 '18*
- Trend of German aeroplane design. *Engineer 127:25-6 Ja 10 '19; Same abr. Automotive Ind 40:262-5 Ja 30 '19; Same cond. Aviation 6:334-5 Ap 15 '19*
- USD-9A airplane. *Il diags Aviation 6:215-17 Mr 15 '19*

**Equipment and supplies**

- Accessories for airplanes. *Motor Age 33:30-1 Je 20 '18*
- Air fans for driving generators on airplanes. G. F. Gray, J. W. Reed, and P. N. Elderkin. *Il Mech Eng 41:527-30 Je '19*
- Airplane radio telephone set. G. O. Squier. *Am Inst E E Pro 38:101-3 F '19; Same. Elec R 74:132-3 Ja 25 '19; Same. Elec W 73:130, 222 Ja 18, F 1 '19*
- Armament, etc., of German aeroplanes. J. L. Lefranc. *Engineer 125:476 My 31 '18*
- Friction drive relay control for aircraft. A. Q. Cooper. *diags Engineer 128:227-8 S 5 '19*
- Fuel pump for airplanes. *diags Automotive Ind 41:575 S 18 '19*
- Inter-communication on board airplanes. *Il Aviation 6:228-9 Mr 15 '19*
- Making aircraft fittings with temporary tools. S. A. Hand. *Il diags Am Mach 51:221-5 Jl 31 '19*
- New airplane standards; safety belt discussion. *diags chart Automotive Ind 37:339-41 N 8 '17*
- Oxygen tanks will combat high altitudes. *Motor Age 34:11 O 24 '18*
- Phoning between airplanes and ground. *Il Sci Am 119:523 D 28 '18*
- Rubber hose for use with gasoline. *Automotive Ind 37:867+ N 15 '17*
- Speaking tube for airmen. *Il Sci Am 120:346 Ap 5 '19*
- Successful type of anti-noise transmitter and loud-speaking telephone. *Il Sci Am 120:579+ My 31 '19*
- Tests of aeronautic instruments. P. M. Heldt. *Il Automotive Ind 40:691-3 Mr 27 '19*

**Airplanes—Equipment and supplies—Continued**  
Tools of the German airmen. *diags* Sci Am 119:297+ O 12 '18

Wireless-equipped airplane for artillery spotting. *il* Sci Am 118:75 Ja 19 '18

*See also* Aeronautic instruments; Air speed meters; Airplanes—Patents; Altimeters

#### Fuselage

Streamline efficiency. G. W. Williams. Sci Am 119:211 S 14 '18

Veneer body construction. *il* *diag* plan Aviation 6:434-6, 485-6 My 15-Je 1 '19

#### Inspection

Inspection of airplanes at Romorantin, France. E. E. Ives. *Mech Eng* 41:819-20 O '19

Licensing of aeronautical engineers and the inspection of aircraft. G. E. Barnhart. Aviation 7:128-9 S 1 '19

*See also* Airplane engines—Inspection

#### Landing

Air flow over rear deck of battleship Pennsylvania. A. F. Zahm. *il* *diags* J Fr Inst 188:389-97 S '19

Future of civil flying. O. Wright. Aviation 5:676 Ja 1 '19

*See also* Aviation landing stations

#### Landing gear

Folding landing-gear for airplanes. Sci Am 121:416 O 25 '19

Landing devices for aeroplanes; patent. *diags* Engineer 126:65 Jl 19 '18

Landing gear of aircraft; patent. *diag* Engineer 126:149 Ag 16 '18

#### Manufacture

Aircraft specifications for cast iron. Foundry 46:243+ Je '18

Aircraft steels. A. Sauveur. Am Inst Min Bul 158:sup2323-38 S '19; Discussion. 156:3203-3 D '19

Airplane cost finding. C. H. Hart. Ind Management 56:208 S '18

Airplane strut turning machine. *il* Mach 24:753 Ap '18

Airplanes come first; their manufacture by automobile plants. A. D. T. Libby. Automotive Ind 37:1058-9 D 13 '17

Bone and sinew for our aircraft; winning the world war in the forests of Oregon and Washington. H. E. Thomas. *il* Sci Am 118:564+ Je 22 '18

Calculation of pressure in a hydraulic veneer press. Automotive Ind 41:636 S 25 '19

Concerning wire rope for aircraft. *diags* Automotive Ind 38:366-7 F 14 '18; Excerpts. Am Soc M E J 40:344-5 Ap '18

Defects in airplane woods. S. J. Record. *il* Sci Am 119:212+ S 14 '18

Delay in airplane production. Sci Am 118:404 My 4 '18

Development of the aircraft spruce industry. L. K. Hodges. *il* Automotive Ind 39:1037-40, 1100-1 D 19-26 '18

Dimensions of steel tube struts. C. M. Lerici. *diags* Automotive Ind 38:641-2 Mr 28 '18

Effect of changes on airplane output. Ind Management 56:375-7 N '18

Effects of wrapping on the strength of struts. T. R. C. Wilson. Automotive Ind 40:1351 Je 12 '19

Electric furnace for heat treating of small airplane parts. D. D. Miller. *il* Am Mach 49:373-6 Ag 29 '18

Electric treatment of airplane forging. D. D. Miller. *il* Iron Age 102:381-5 Ag 15 '18

Empire art metal construction in the airplane. *il* Aviation 6:320-1 Mr 15 '19

Fir and spruce airplane specifications revised. Am Lumberman 2239:38 Ap 13 '18

How woods compare for airplane manufacture. Am Lumberman 2231:37 F 16 '18

Intensive training in an aircraft plant; Curtiss company's school. F. L. Glynn. *il* Automotive Ind 39:362-5 Ag 29 '18; Am Ind 19:22-5 S '18

Kiln drying specifications for airplane lumber. Am Lumberman 2227:39 Ja 19 '18

Kiln-drying specifications for airplane lumber. H. D. Tieman. *il* Sci Am S 88:104 Ag 16 '19

List of airplane manufacturers. Am Lumberman 2232:37 F 23 '18

Making aircraft fittings with temporary tools. S. A. Hand. *il* *diags* Am Mach 51:221-5 Jl 31 '19

Manufacture of rafwires and their fittings. *il* (supp) *diags* Engineer 127:167-9 F 21 '19

Metal construction of aircraft. A. P. Thurston. *diags* Aviation 7:18-21 Ag 1 '19

Metal frames and fittings for airplanes. F. H. Colvin. *diags* Am Mach 47:1075-7 D 20 '17

Metal parts of airplanes. W. D. Richardson. *il* Metal Ind 17:357-9 Ag '19

Metallography and heat treatment of metals used in aeroplane construction. F. Grotts. *il* Chem & Met Eng 19:121-8, 191-7, 241-7, 315-19, 583-6 Ag 1-S 15, O 1 '18

Metals in the world war; a brief description of their application in the construction of 600-horsepower Caproni bombing airplane. F. B. Krom. *il* Metal Ind 17:118-20 Mr '19

Metals used in aeroplane construction. W. J. May. Sci Am S 86:262-3 O 26 '18

Metals used in the construction of aircraft. C. Vickers. Foundry 46:56-8 F '18

National aeroplane factory near Manchester. *il* (supp) *diag* plan Engineer 127:422-4 My 2 '19

Plywood in aeroplane construction. H. H. Suplee. Sci Am S 87:415 Je 28 '19

Preparation of spruce for airplane material. *il* Am Lumberman 2257:34 Ag 17 '18

Present status of steel and duralumin in the construction of the framework of wings and empennage members. *il* Metal Ind 17:359-61 Ag '19

Problems of aeroplane improvement. Engineer 126:506-7 D 13 '18

Production problems in the Martin bomber. L. D. Bell. *il* Aviation 5:680-1 Ja 1 '19

Properties and preparation of glues. *diags* Mech Eng 41:382-4 Ap '19

Reshaping automotive industries; manufacturers change from production of pleasure cars to the making of battle planes and trucks. E. L. Shaner. *il* Iron Tr R 62:79-83 Ja 3 '18

Selecting wood for airplanes. A. Koehler. *il* Sci Am S 88:148-9 S 6 '19

Some avoidable dangers in airplane construction. W. O. Adams. Am Mach 50:365-6 F 20 '19

Some ideas on airplane production. H. D. Fowler. Aviation 6:386-7 My 1 '19

Specialization in aircraft production. P. M. Heldt. Automobile 37:535 S 27 '17

Specifications for aircraft steels. A. L. Colby. Iron Age 102:70-1 Jl 11 '18

Splintering properties of airplane woods. G. E. Heck. *il* Automotive Ind 40:1234-5 Je 5 '19; Same. Sci Am S 88:68 Ag 2 '19

Steel for allied aircraft; joint Anglo-American specifications are being perfected. Iron Tr R 63:663-4 S 19 '18

Steels used in airplane work. W. H. Hatfield. Automobile 37:102-4, 154-6, 188-91, 234-5, 507-9 Jl 19-Ag 9, S 20 '17; Abstract. Engineer 123:386-7 Ap 27 '17; Abstract. Met & Chem Eng 17:497-8 O 15 '17; Abstract. Iron Age 100:1200 N 15 '17

Strut sockets and other sheet-metal airplane fittings. F. H. Colvin. *il* Am Mach 49:253-6 Ag 8 '18

Time study of aircraft operations. Automotive Ind 38:1036 My 30 '18

Tools and fixtures for aircraft mechanics. B. Z. Reiter. *diags* Am Mach 48:443-4 Mr 14 '18

Tubing in airplane construction. A. G. Hackett. *il* Automotive Ind 39:67-9 Jl 11 '18

Use of spruce in aeroplane construction; abstract. J. A. Newlin. Am Soc M E J 40:423-4 My '18

War-time scenes from a U.S.A. airplane factory; photographs. Motor Age 33:10-12 Je 13 '18

Waterproof plywood for airplanes. *il* Automotive Ind 40:1331-3+ Je 12 '19; Same cond. Am Lumberman 2300:44 Je 14 '19



**Airplanes—Manufacture—Continued**

What kind of lumber makes the best veneer for plywood? A. Elmendorf. *Automotive Ind* 41:168-9 J1 24 '19

Will use California white pine for airplanes. Am Lumberman 2258:36 Ag 24 '18

Woods for making airplanes. S: J. Record. II Sci Am 119:248-9 S 28 '18

See also Airplane wings

**Patents**

Aeroplane construction; patent. diags Engineer 125:285 Mr 29 '18

Aeroplane control mechanism; patent. diags Engineer 125:132 F 8 '18

Aeroplane fuselages; patent. diags Engineer 125:197 Mr 1 '18

Balancing arrangement for aeroplanes; patent. diags Engineer 126:65 J1 19 '18

Machine in which the angle of incidence of the planes is variable in flight; patent. diags Engineer 125:263 Mr 22 '18

Seats for aeroplanes; patent. diags Engineer 125:439-40 My 17 '18

Wind brakes for aeroplanes; patent. diags Engineer 124:485 N 30 '17

See also Airplanes—Landing gear

**Performance**

Airplane performance determined by engine performance. G. B. Upton. Sibley J 32:137-42 Je '18

Chart for performance computations. R: I. Elliott. chart Aviation 6:488 Je 1 '19

Curtiss triplane wins altitude record. II Sci Am 121:369 O 11 '19

Officially recognized performance records of airplanes and seaplanes. *Automotive Ind* 40:138-40 Ja 16 '19

Record of performance of American planes. *Automotive Ind* 40:103 Ja 16 '19

Record of performances of British airplanes. *Automotive Ind* 40:133 Ja 16 '19

**Radiators**

Airplane radiator construction. P. M. Heldt. II diags Automobile 37:483-5 S 20 '17

Manufacturers producing major part of automobile and aeroplane radiators use gas for every operation requiring heat. C: A. Drum. II Am Gas Eng J 111:506-8 N 29 '19

Performance data on airplane radiators. *Automotive Ind* 40:592-4 Mr 13 '19

Resistance of nose radiators. II Aviation 7: 28-9 Ag 1 '19

Tests of airplane radiators. P. M. Heldt. II diags *Automotive Ind* 40:479-83 F 27 '19

**Safety devices and measures**

How best to make the airplane safe. G. Ajello. Sci Am 120:225 Mr 8 '19

How best to make the airplane safe. S: D. Mott. Sci Am 120:573 My 31 '19

Making the airplane safe? Sci Am 120:541 My 24 '19

Reducing the fire hazard in the airplane. II Sci Am 121:275 S 20 '19

Smothering a fire beneath a combustible blanket. diags Sci Am 121:38+ J1 12 '19

Stopping the engine automatically when the propeller breaks. II Sci Am 120:468+ My 3 '19

See also Parachutes

**Specifications**

Bids and specifications of mailplanes. Aviation 6:576 J1 1 '19

New navy general specification for airplanes. A. Black. Aviation 6:592-4 J1 1 '19

**Speed**

Eliminating a wing to increase airplane's speed. II Sci Am 118:414 My 4 '18

Selecting aerofoil sections for speed range. V. E. Clark. Aviation 6:20-2 F 1 '19

Speed in airplane travel. Sci Am 121:360 O 11 '19

**Speed regulation**

Pilot motor variable pitch propeller. A. Vischer, jr. II diags Aviation 6:380-1 My 1 '19

**Standards**

Importance of aircraft standardization. *Automotive Ind* 38:406 F 21 '18

International aircraft standards. Am Soc M E J 40:103 Ja '18

International aircraft standards. C. F. Clarkson. *Automotive Ind* 38:1051-2 My 30 '18; Excerpts. Am Soc M E J 40:pt 1, 579-80 J1 '18

Many new aircraft practices have S. A. E. sanction. *Automotive Ind* 38:163-6, 234-7, 410-13, 505-6 Ja 17-24, F 21, Mr 7 '18

New airplane standards. diags *Automotive Ind* 37:754-7, 839-41 N 1-8 '17

Problems considered at aircraft meeting of S. A. E. Standards committee. P. M. Heldt. diags Automobile 37:573-7+ O 4 '17

S. A. E. standardization work in 1918. diags *Automotive Ind* 40:169-71 Ja 16 '19

S. A. E. Standards committee in busy session. *Automotive Ind* 38:136-8, 140-1 Ja 10 '18

S. A. E. Standards recommendations. *Automotive Ind* 38:1176 Je 20 '18

Standardization of allied airplane design. Iron Age 101:1412 My 30 '18

**Testing**

Course in aerodynamics and airplane design. A. Klemin. Aviation 8:376-8, 479-81, 484; 7: 26-7, 81-3, 132-5, 177-80 My 1, Je 1, Ag 1-S 15 '19

See also Air speed meters

**Transportation**

Improved methods of shipping airplanes. *Automotive Ind* 39:341 Ag 22 '18

**Visibility**

Principles of camouflage. M. Luckiesh. Illum Eng Soc 14:247-55 no 5 '19; Same. Sci Am 120:168+ F 22 '19

Visibility of airplanes. M. Luckiesh. II diags J Fr Inst 187:289-312, 409-57 Mr-Apr '19

**Airplanes, Armored**

A. E. G. armored biplane. II diags Engineer 126:206-7 S 6 '18

Fokker-Junkers armored biplane. II Aviation 6:36 F 1 '19

German flying tank. Sci Am 118:496 Je 1 '18

**Airplanes, Bombing**

A.E.G. bombing biplane. diags Engineer 125: 484-7 Je 7 '18

Bombing planes and their targets. II chart Sci Am 119:86+ Ag 3 '18

Caproni E-3 night bomber. II diags Aviation 6:322-5 Ap 15 '19

D. H. 10 bombing biplane. II Engineer 127:63 Ja 17 '19

Friedrichshafen bombing aeroplane. diags Engineer 125:356-7, 388-9 Ap 26-May 3 '18; Same (pt. 1). *Automotive Ind* 39:18-19 J1 4 '18

German giant airplanes. *Automotive Ind* 40: 373 F 13 '19

Giant aeroplanes. diags plan Engineer 125:537-8; 126:419-21 Je 21, N 15 '18

Gotha bombing biplane. diags Engineer 126: 435-8, 460, 461-2 N 22-29 '18

Great Britain's giant bombing plane. II Sci Am 121:10+ J1 5 '19

Martin twin-engined bomber. D. W. Douglas. II Aviation 5:677-80 Ja 1 '19

New giant German aeroplane. Engineer 125: 512 Je 14 '18; Same. *Automotive Ind* 39:238 Ag '18

Problems involved in bomb sight design. *Automotive Ind* 39:404-5 S 5 '18

Production problems in the Martin bomber. L. D. Bell. II Aviation 5:680-1 Ja 1 '19

Types of military airplanes; the possibilities of the bomber. V. E. Clark. Sci Am S 85: 322 My 25 '18

**Airship engines**

Engines of the Zeppelin and the Gotha. II diags Engineer 125:156-60 F 22 '18

Fiat airship engines. II *Automotive Ind* 40: 1117 My 22 '19

125 hp. Union aircraft engine. II chart Aviation 6:230-1 Mr 15 '19

Technical study of the R-34 motor plant. II *Automotive Ind* 41:81-3 J1 10 '19

**Airships**

Additional secrets of the super-Zeppelins. *Il Sci Am* 117:478+ D 22 '17  
 Aerial greyhounds of to-morrow. *Il Sci Am* 120:400-1+ Ap 19 '19  
 Airship engineering progress in the United States. J. C. Hunsaker. *Il Aviation* 7:72-6, 123-8 Ag 15-S 1 '19  
 Airship for commercial purposes. E. M. Maitland. *Aviation* 6:27 F 1 '19  
 Airship of the near future. *Sci Am* 121:52 JI 19 '19  
 Airships practical for commercial use. *Automotive Ind* 40:461-3 F 27 '19  
 Airships versus airplane. L. d'Orcy. *Il Sci Am* 120:98-9+ F 1 '19  
 Aluminum alloy from a German Zeppelin. *Il Iron Age* 101:373 F 7 '18; Same cond. *Eng & Min J* 105:425 Mr 2 '18  
 Aluminum in airship construction. *Il Metal Ind* 16:22 Je '18  
 British airship development and operations. *Il Aviation* 5:758-9 Ja 15 '19  
 British airship R-34 described. *Il Aviation* 6:629-32 JI 15 '19  
 British reduce their airship program. *Sci Am* 121:336 O 4 '19  
 Case for the airship. W. L. Marsh. *Aviation* 5:697-9 Ja 1 '19  
 Civil uses for army airships. *Il Aviation* 7:230 O 1 '19  
 Development of air traffic. A. P. Kapteyn. *Automotive Ind* 40:586 Mr 13 '19  
 Development of airship construction. C. I. R. Campbell. *plan Engineer* 127:384-6 Ap 18 '19; *Excerpts. Sci Am* S 87:406+ Je 28 '19  
 Development of the American airship industry. L. d'Orcy. *Aviation* 6:226-7 Mr 15 '19  
 Dirigibles for aerial transport over long distances. *Flying* 8:624-5 Ag '19  
 Dirigibles for commercial flights. *Automotive Ind* 40:437+ F 20 '19  
 Electrostatic effects on airships. G. S. Fulcher. *Aviation* 7:174-6 S 15 '19  
 Envelope problems of the dirigible constructor. *Il Sci Am* 121:223 S 6 '19  
 Final solution of the airship problem. L. d'Orcy. *Sci Am* 120:73+ Ja 25 '19  
 From bigger and bigger airships to smaller airships. *Sci Am* 121:391+ O 18 '19  
 Fundamentals of rigid airship design. R. H. Upson. *Aviation* 7:220-2 O 1 '19  
 Future of the helium airship. L. d'Orcy. *Il Aviation* 5:695-7 Ja 1 '19  
 Goodrich naval airship A-247. *Il Aviation* 6:227-8 Mr 15 '19  
 Goodyear airship type. H. T. Kraft. *Il Aviation* 6:159-60 Mr 1 '19  
 Great future for lighter-than-air machines. L. d'Orcy. *Automotive Ind* 40:591+ Mr 13 '19  
 Improvements in Zeppelin design. *Sci Am* S 85:117 F 23 '18  
 Inauguration of safe aerial transportation. H. F. Blanchard. *Il Automotive Ind* 40:845-9 Ap 17 '19  
 Is the dirigible outstripping the airplane? *Il Sci Am* 120:366-7 Ap 12 '19  
 Italian naval aircraft. *Il Engineer* 125:6-8 Ja 4 '18  
 Lighter-than-air craft. T. R. Cave-Browne-Cave. *Il Aviation* 6:533, 536-8, 585, 588-91 Je 15-JI 1 '19  
 Mooring masts for airships. *Il Sci Am* 121:459+ N 8 '19  
 Nature favors the airship. *Sci Am* 121:80 JI 26 '19  
 Naval airship C-5 makes 1100-mile flight. *Il Aviation* 6:475-6 Je 1 '19  
 New type of rigid airship construction. *Aviation* 7:27 Ag 1 '19  
 New Zeppelins. *Sci Am* S 84:411 D 29 '17; *Excerpt. Mach* 24:519 F '18  
 Our first rigid airship. *Sci Am* 121:506 N 22 '19  
 Our rapidly-expanding fleet of dirigible balloons. *Il Sci Am* 119:395 N 16 '18  
 Our trans-Atlantic dirigible entry; some constructional details of the U.S. navy dirigible C-5. *Il diags Sci Am* 120:549+ My 24 '19  
 Position of airships in the future of aeronautics. *Sci Am* S 86:407 D 28 '18

Production of helium for use in airships. A. Stewart. *Aviation* 7:32-5 Ag 1 '19  
 Proposed trans-Atlantic air-liner. *Il Motor Age* 36:10 O 16 '19  
 R-34 flies from Scotland to America and return. E. J. David; E. M. Maitland; Z. Lansdowne. *Il map Flying* 8:603-9+ Ag '19  
 R-34 flight indicates task of commercial aviation. *Il Automotive Ind* 41:49-52 JI 10 '19  
 Significance of oxygen in balloon gas. J. D. Edwards and P. G. Ledig. *Aviation* 6:325-6 Ap 15 '19  
 Stretching of the fabric and the deformation of the envelope in nonrigid balloons. R. Haas; A. Dietzhus. *Il diags U S Nat Advisory Com for Aeronautics* 1917:149-271 '18  
 Tailoring of airship envelopes. R. H. Upson. *Il Aviation* 6:487 Je 1 '19  
 Trans-Atlantic dirigible R-34. *Il chart Sci Am* 121:58-9+, 86 JI 19-26 '19  
 Two notable airship voyages. *Aviation* 6:158-9 Mr 1 '19  
 Value of dirigibles for aerial transport; with comparative cost data. H. Woodhouse. *Il Flying* 8:137-48 Mr '19  
 Zeppelin, aeroplane and parachute. C. Dienstbach. *Sci Am* 117:474+ D 22 '17  
 Zeppelin surprise. J. Jahaz. *Sci Am* S 85:27 Ja 12 '18

*See also Aeronautics; Aviation; Helium; Wireless telegraph in aviation; Wireless telephone in aviation*

**Equipment and supplies**

Air speed indicators for dirigibles. *Il plans J Fr Inst* 188:535-44 O '19

**Akron, Ohio****Rapid transit**

New Akron terminal in operation. *Il plans Elec Ry J* 53:680-3 Ap 5 '19

**Alabama.** *See Mines and mineral resources—Alabama; Roads—Alabama*

**Aland Islands**

Aland Islands. *chart Sci Am* S 86:43 JI 20 '18

**Alarms, Burglar.** *See Burglar alarms*

**Alarms, Electric.** *See Electric alarms*

**Alarms, Fire.** *See Fire alarms*

**Alaska**

Highway to Alaska. A. M. Sutton. *Il diags plan map Marine R* 49:202-8 Ap '19

Sidelights on Alaska. *Eng & Min J* 105:797 Ap 27 '18

*See also Roads—Alaska*

**Industries and resources**

Mineral springs of Alaska. *J Fr Inst* 185:415-16 Mr '18

*See also Gold mines and mining—Alaska; Mines and mineral resources—Alaska*

**Railroads**

*See Railroads—Alaska*

**Alaska gold mines company**  
 6th annual report for the year ended Dec. 31, 1917. *Eng & Min J* 105:1007 Je 1 '18

**Alaskan railroad.** *See Railroads—Alaska*

**Albany, New York**

**Rapid transit**

Six cents for Albany. *Elec Ry J* 52:352 Ag 24 '18

**Water supply**

Albany water-works a hundred years and more ago. *Eng N* 83:605 S 25 '19

Purification-plant methods and results at Albany. *Eng N* 83:604 S 25 '19

**Alberta.** *See Coal mines and mining—Alberta*

**Alcohol**

Alcohol as a source of power. W. T. Rowe. *Engineer* 124:471-2 N 30 '17

Alcohol from sulphite-pulp waste liquor. E. Hendrick. *Il Met & Chem Eng* 18:360-2 Ap 1 '18

Alcohol from sulphite waste liquors. R. H. McKee. *Chem & Met Eng* 19:97 JI 15 '18

**Alcohol—Continued**

- Alcohol in industry. *Sci Am* 121:286 S 20 '19  
 Alcohol in the arts and industries. E. H. Leslie. *Chem & Met Eng* 19:566-8 O 1 '18  
 Alcohol manufacture; patent. *Met & Chem Eng* 18:209-10 F 15 '18  
 Alcohol production in Germany. *J Ind & Eng Chem* 10:650 Ag '18  
 Asphodel as a source of alcohol. *Chem & Met Eng* 19:565 O 1 '18  
 Determination of small amounts of benzene in ethyl alcohol. F. W. Babington and A. Tingle. *J Ind & Eng Chem* 11:555-6 Je '19  
 Ethyl alcohol from waste sulphite liquor using an acclimated yeast. *Automotive Ind* 40:1391 Je 19 '19  
 Fermentation process for the production of acetone and ethyl alcohol. J. H. Northrop, L. H. Ashe and R. R. Morgan. *diag J Ind & Eng Chem* 11:723-7 Ag '19  
 Industrial alcohol act. *Chem & Met Eng* 21:39 Jl 1 '19  
 Manufacture of ethyl alcohol from wood waste. *diag Engineer* 126:204-5 S 6 '18  
 Nipa palm, new source of alcohol. *J Ind & Eng Chem* 10:313 Ap '18  
 Oxidation of ethyl alcohol by means of potassium permanganate; with discussion. W. L. Evans and J. E. Day. *diag Am Chem Soc J* 41:1267-85 Ag '19  
 Prompt action by chemists needed on prohibition legislation. J. R. Withrow. *J Ind & Eng Chem* 11:253-4 Mr '19  
 Recovery of platinum and alcohol from the potash determination. A. E. Smoll. *J Ind & Eng Chem* 11:466-7 My '19  
 Washing and distillation of liquids. *diag Gas Age* 40:573-5 D 15 '17  
 Wood-waste as a source of ethyl alcohol. G. H. Tomlinson. *il Chem & Met Eng* 19:552-5 O 1 '18; Same. *J Ind & Eng Chem* 10:859-61 O 1 '18  
*See also Alcohol as fuel*
- Physiological effects**  
 Pharmacology of alcohol. R. B. Wild. *Sci Am* S 87:22-3 Ja 11 '19
- Alcohol, Denatured**  
 Determination of the freezing-point curves and densities of denatured alcohol-water mixtures. C. E. Davis and M. T. Harvey. *il diag J Ind & Eng Chem* 11:443-8 My '19
- Alcohol, Wood**  
 Dangers in the manufacture and industrial uses of wood alcohol. *il N Y Dept Labor Sp Bul* 86:1-17 '17  
 Detection of methyl alcohol in alcoholic beverages and its formation by the several kinds of yeasts. T. Takahashi, M. Gunke and T. Yamazaki. *Am Chem Soc J* 39:2723-6 D '17  
 Reaction products of alkali-sawdust fusion; acetic, formic, and oxalic acids and methyl alcohol. S. A. Mahood and D. E. Cable. *J Ind & Eng Chem* 11:651-5 Jl '19  
 Wood alcohol—a new industrial monarch. *il Sci Am* 121:462 N 8 '19  
 Wood alcohol—a poison. M. E. Duggan. *Fundry* 46:404 S '18
- Alcohol as fuel**  
 Alcohol as a fuel for internal combustion engines; abstracts. *Mach* 24:708 Ap '18; *Sci Am S* 85:271 Ap 27 '18  
 Alcohol as a source of power. W. T. Rowe. *Engineer* 124:471-2 N 30 '17  
 Alcohol fuel committee's report. *Mech Eng* 41:696 Ag '19  
 Alcohol motor fuel. *Engineer* 128:17-18 Jl 4 '19; Same. *Sci Am S* 88:182-3 S 20 '19  
 Australia wants alcohol fuel. *il Automobile* 37:669-70 O 18 '17  
 Australian commission favors alcohol as a fuel. *Automotive Ind* 38:1037 My 30 '18  
 Is alcohol dead? J. P. Heritage. *Sci Am S* 88:242-3+ O 25 '19  
 Mixtures of alcohol with various other liquid fuels. *Sci Am S* 85:339 Je 1 '18  
 New and novel uses for solidified alcohol. *il Sci Am* 120:438 Ap 26 '19  
 Novel uses for alcohol in solidified form. *il Sci Am* 119:523 D 28 '18

Possibilities of new fuel mixtures for internal-combustion engines. E. Humboldt. *il Power* 50:418-20 S 9 '19

*See also Natalite*

**Alcohol stoves**

New and novel uses for solidified alcohol. *il Sci Am* 120:438 Ap 26 '19

**Alcohols**

- Alcohol—a large chemical family. *Sci Am* 118:230+ Mr 16 '18  
 Oxalyl chloride as a reagent in organic chemistry; preparation of aromatic acid anhydrides; reaction with alcohols. R. Adams, W. V. Wirth and H. E. French. *Am Chem Soc J* 40:424-31 F '18  
 Preparation and hydrolysis of esters derived from the substituted aliphatic alcohols. G. R. Bancroft. *Am Chem Soc J* 41:424-31 Mr '19  
 Studies on derivatives of trihalogen tertiary-butyl alcohols. T. B. Aldrich. *Am Chem Soc J* 40:1948-50 D '18

**Aldehydes**

- Reaction between acid halides and aldehydes. R. Adams and E. H. Vollweiler. *Am Chem Soc J* 40:1732-46 N '18  
 Relations between the chemical structures of carbonyl derivatives and their reactivities toward salts of semicarbazide. A. Michael. *Am Chem Soc J* 41:398-424 Mr '19  
 Soil aldehydes; scientific study of a new class of soil constituents unfavorable to crops, their occurrence, properties and elimination in practical agriculture. J. J. Skinner. *il J Fr Inst* 186:165-86, 289-316, 449-80, 547-84, 723-37; bibliog 737-41 Ag-D '18

**Aldopentoses. See Sugars****Alfalfa**

- Irrigation of alfalfa. S. Fortier. *il diag plan U S Agric Farmers' Bul* 865:1-40 '17  
 Mechanical curing of alfalfa. E. M. Bassler. *il Am Soc Heat & V E* 23:561-3; Discussion. 563-9 '17

**Alfalfa saponin**

- Alfalfa saponin; alfalfa investigation. C. A. Jacobson. *Am Chem Soc J* 41:640-8 Ap '19

**Algae**

- Algae cause taste in Fort Worth water. R. H. Craig. *Eng N* 82:778 Ap 17 '19  
 Algae growths increase value of  $\pi$  in Kutter's formula. P. Taylor. *il Eng N* 81:179-81 Jl 25 '18; Discussion. R. K. Tiffany. 81:462-3 S 5 '18  
 Chemical utilization of seaweed. *Sci Am S* 86:325 N 23 '18  
 Control of algae in irrigation canals by copper sulphate. R. K. Tiffany. *Eng & Contr* 50:558 D 11 '18  
 Removing algae from a California irrigation canal. E. C. Eaton. *il Eng N* 82:382-3 F 20 '19

**Alien enemies. See Enemy aliens****Aliens**

- Aliens as dependents. C. C. Sherlock. *Mach* 25:36 S '18  
 Reason Americanization work is needed. F. K. Lane. *Metal Work* 89:710 My 31 '18  
*See also Americanization; Immigrants in the United States*

**Aliphatic compounds**

- Future of industrial organic chemistry. H. Hibbert. *Chem & Met Eng* 20:335-41 Ap 1 '19

New theory relating constitution to taste. E. Oertly and R. G. Myers. *Am Chem Soc J* 41:855-67 Je '19

**Allizarin**

- Application of alizarine; use of American product in dyeing and printing. L. J. Matos. *Textile World* 55:3961+ Je 28 '19

**Allizarin sapphirole**

- Some distinguishing features of alizarine sapphirole. C. M. Whittaker. *Color Tr J* 4:69 Mr '19

**Alkali soils**

- Composition of the waters of the inter-mountain region. J. E. Greaves and C. T. Hirst. *J Ind & Eng Chem* 10:1001-4 D '18

**Alkalies**

- Absorption spectra of the blue solutions of certain alkali and alkaline earth metals in liquid ammonia and in methylamine. G. E. Gibson and W. L. Argo. *diags Am Chem Soc J* 40:1327-61 S '18
- Alkalies in cement clinker—their relation to the setting time. B. F. Erdahl. *Concrete* 15:sup17-20 Ag '19
- Complete revolatilization of alkalies. B. F. Erdahl. *Concrete* 13:sup19-20 Ag '18
- Manufacture of alkali and organic chlorides; patent. *diag Chem & Met Eng* 19:152 Ag 1 '18
- Prospects of a chemical industry in southern California. J. Koebig. *Chem & Met Eng* 19:27-30 Jl 1 '18
- Role of atmospheric oxygen and alkali in the oxidation of acetone with potassium permanganate, pyruvic acid as an intermediate product. E. J. Witzemann. *Am Chem Soc J* 39:2657-71 D '17
- See also* Ammonia; Concrete, Effect of alkalies on; Potassium; Sodium

**Alkalimetry**

- Alkalimetric determination of small amounts of magnesium. P. L. Hibbard. *J Ind & Eng Chem* 11:753-4 Ag '19

**Alkaloids**

- Analogues of atropine and homatropine. L. F. Werner. *Am Chem Soc J* 40:869-74 Ap '18
- Application of optical methods of identification to alkaloids and other organic compounds. E. T. Wherry. *U S Agric Bul* 679:1-9 '18; *Abstract, J Fr Inst* 185:561-2 Ap '18
- See also* Cinchona alkaloids

**Alkylation**

- Researches on pyrimidines; alkylation of 5-amino-uracil. T. B. Johnson and I. Matsuo. *Am Chem Soc J* 41:732-9 My '19

**Allantoxanic acid**

- Allantoxanic acid as an oxidation product of uric acid; third paper on hydrogen peroxide as a reagent in the purin group. F. J. Moore and R. M. Thomas. *Am Chem Soc J* 40:1120-32 Jl '18

**Alleys**

- Alleys in Minneapolis. *Munic J* 42:555-6 D 6 '17
- Statistics on street and alley paving in American municipalities. *Eng & Contr* 49:426 My 1 '18

**Allgemeine elektrizitäts-gesellschaft**

- Electrical competition in foreign markets. J. M. Goldstein. *chart Elec W* 73:468-71 Mr 8 '19

**Alliance, Ohio****Sewerage**

- Recent improvements to sewage treatment plant. R. W. Pratt. *il diags Munic Eng* 54:198-200 My '18

**Allied metals congress**

- Allied metals meeting is historic. *Iron Tr R* 63:907 O 17 '18

**Allotropy**

- Allotropy of cadmium. E. Cohen. *diags Am Chem Soc J* 40:1149-56 Ag '18

**Alloys**

- Acid-proof alloys. R. Irmann. *Sci Am S* 85:45 Ja 19 '18; *Same, Met & Chem Eng* 18:261 Mr 1 '18; *Same cond. Elec W* 71:1328 Je 22 '18
- Air-tight castings. *Mach* 24:728 Ap '18
- Alloy for resistance elements contains titanium. *Iron Age* 103:697 Mr 13 '19
- Alloy that will resist sulphuric acid. *Foundry* 46:168 Ap '18
- Alloys to withstand internal air pressure. S. D. Sleeth. *Sci Am S* 85:313 My 18 '18
- Anti-friction metal; physical properties of copper in lead and antimony alloys. G. C. Holder. *Metal Ind* 15:153-5 Ap '17
- Boronized metals: some minute aspects. J. Scott. *il Metal Ind* 15:115-16 Mr '17
- Cheap bearing mixture equivalent to malleable iron. *Foundry* 46:534 N '18
- Cobalt-crom—high-speed steel for milling cutters, taps, and reamers. *Mach* 25:39 S '18

- Electrical properties of some high-resistance alloys; abstract. M. A. Hunter and F. M. Sebast. *Elec W* 71:628 Mr 23 '18

- Electrolytic deposition of alloys, iron and iron-nickel at ordinary temperature and high hydrogen pressure; abstract. R. Kremen and H. Bregmesser. *Elec W* 73:216 Ag 3 '18

- Finding the amount of metals in an alloy. *Mach* 24:550 F '18

- Formulas for the brass foundryman; comparative hardness of alloys. *Foundry* 47:744a O 15 '19

- Formulas for the brass foundryman; names and composition of miscellaneous alloys. *Foundry* 46:38a Ja '18

- Formulas for the brass foundryman; odd and unusual alloys. *Foundry* 46:248a Je '18

- Hard-lead alloy. F. C. Frary and S. N. Temple. *il Chem & Met Eng* 19:523-4 S 28 '18

- Interesting things in metallurgical chemistry; the eutectic alloy and changes occurring in metals and alloys when cooling. C. W. Starker. *il Mach* 24:821-2 My '18

- Making highly leaded alloys. *Foundry* 46:469 O '18

- Making use of a brittle alloy. *Foundry* 46:575 D '18

- Manufacture of white metal for friction bearings. *Metal Ind* 17:74 F '19

- New alloy for cutting tools. *Iron Tr R* 63:1468 D 26 '18

- New alloy lowers melting point of steel. *Iron Tr R* 64:955 Ap 10 '19

- New alloy that does not oxidize or change its form at high temperatures. *il Sci Am* 120:207 Mr 1 '19

- Non-ferrous alloys for railway equipment; report of American society for testing materials committee. *Ry Age* 65:27-8 Jl 5 '18

- Pennsylvania railroad anti-friction and bell metals. F. M. Waring. *Am Inst Min E Bul* 144:1733-5 D '18; *Same, Metal Ind* 16:456 O '18; *Same, Am Mach* 49:910 N 14 '18; *Same, Chem & Met Eng* 19:657-8 N 1 '18

- Properties of metals and alloys. *Metal Ind* 15:164 Ap '17

- Small castings from alloys and scrap metals. W. J. May. *Sci Am S* 85:171 Mr 16 '18

- Structure of iron-carbon chromium alloys; abstract. T. Murakami. *Mech Eng* 41:894 N '19

- Studies of nonferrous alloys; results of investigations made by United States Bureau of mines. *il diags Metal Ind* 15:304-6 Jl '17

- Swelling of zinc base die castings. H. M. Williams. *Metal Ind* 15:470-1 N '17; *Abstract, Mach* 24:438 Ja '18

- Temperature determinations by eutectic alloys. C. P. Steinmetz. *Am Chem Soc J* 40:96-100 Ja '18; *Excerpts, Met & Chem Eng* 18:207-8 F 15 '18

- Uico hard metal—a substitute for babbitt. *Eng & Min J* 106:133 Jl 20 '18; *Same, Am Mach* 49:524 S 19 '18

- See also* Aluminum alloys; Amalgamation; Amalgams; Babbitt metal; Brass; Bronze; Cooperite; Copper alloys; Gun metal; Iron alloys; Magnesium alloys; Metallography; Metallurgy; Monel metal; Muntz metal; Pyrophoric alloy; Solder and soldering; Steel alloys; Stellite

**Bibliography**

- Bibliography of alloys; binary, ternary and quaternary systems whose equilibria have been investigated. C. Estes. *Met & Chem Eng* 18:312 Mr 15 '18

**Patents**

- Few patent points, with some applications to alloy patents. W. J. Rich. *Metal Ind* 15:474-6 N '17

- Metallic alloys; patents. *Met & Chem Eng* 18:208-9 F 15 '18

**Specifications**

- Testing engineers discuss standard specifications for nonferrous metals. *Foundry* 46:302-6 Jl '18

**Alloys —Continued****Standards**

Shall we have commercial standards of electro-deposits and government marks of karat alloys? C: H. Proctor. *Metal Ind* n s 15:17-18 Ja '17

**Alluvium**

Carriage of alluvium by water courses. F. Drouhet. *Eng & Contr* 49:522-5 My 29 '18

**Alpaca (animal)**

Camellidae of the new world. E: Albes. *Il Sci Am S* 87:120-3 F 22 '19

**Alpha rays**

Action of  $\alpha$  rays on metals. *Sci Am S* 87:94 F 8 '19

**Alphabet**

Universal alphabet. J. C. Ruppenthal. *Sci Am* 119:497 D 21 '18

See also Lettering; Printing

**Alsace-Lorraine**

Economic effect of the loss of Alsace-Lorraine. F. Pinner. *Sci Am* 120:183 F 22 '19  
Oil fields. *Sci Am* 120:317 Mr 29 '19

**Industries and resources**

New potash deposits. chart diag *Sci Am S* 86:170 S 14 '18

Alternating currents. See Electric currents, Alternating

Alternators. See Electric generators

**Airtimeters**

Course in aerodynamics and airplane design. A. Klemin. *Il diags Aviation* 6:581-4 Jl 1 '19

**Alton, Illinois**

River terminal has machinery for handling freight. *diags Eng N* 80:448-9 Mr 7 '18

**Railroads**

Divide cost five ways on Alton grade separation. *diags plan Eng N* 80:651-2 Ap 4 '18

**Alum**

Coagulants versus sand filters as aids to water purification in the field. H. S. Briggs and E. R. Marie. *Eng & Contr* 50:399-400 O 30 '18  
Selection of and specifications for alum for filter plants. *Eng & Contr* 49:462-3 My 8 '18

**Alumina**

Alumina for refractories and abrasives; patent. *Chem & Met Eng* 20:87 Ja 15 '19

See also Bauxite; Aluminum

**Aluminum**

Alterability of aluminum and the properties of its various alloys. J. Escard. *Sci Am S* 86:127-8 Ag 24 '18

Aluminum and its alloys. C: H. Eldridge. *Il Metal Ind* 16:171-2 Ap '18

Aluminum and its light alloys. *Il U S Bur Stand Circ* 76:1-108 '19; Abstract. *Foundry* 47:399-400 Je 15 '19; Bibliography. *U S Bur Stand Circ* 76:109-20 '19

Aluminum and its light alloys. P. D. Merica. *Il Chem & Met Eng* 19:135-40, 200-2, 329-35, 587-92, 625-40 Ag 1-15, S 15-O 15 '18

Aluminum and the war. *Eng & Min J* 107:228 F 1 '19

Aluminum industry in 1917. *Eng & Min J* 105:67 Ja 12 '18

Aluminum industry in 1917. *Metal Ind* 16:21 Ja '18

Aluminum industry in 1918. *Metal Ind* 17:2 Ja '19

Aluminum-iron-rope cable for high-tension transmission lines; abstract. *Elec W* 71:158 Ja 19 '18

Aluminum: its use in the motor industry in England. E. C. Hill. *Il Metal Ind* 16:543-6; 17:125-7 D '18, Mr '19

Aluminum piston development. J. E: Schipper. *Il diags Automotive Ind* 38:1139-41 Je 13 '18

Aluminum pistons in German airplane engines. C. Vickers. *Foundry* 46:460 O '18

Aluminum production of the United States. *Elec R* 73:157, 330 Ag 3, 31 '18

Aluminum rolling mill practice. G: Lyon, Jr. *Metal Ind n s* 15:4-5, 109-11 Ja, Mr '17

Aluminum transformer; abstract. M. Vidmar. *Elec W* 71:209-10 Ja 26 '18

Annealing aluminum. R. J. Anderson. *Sci Am S* 87:123 F 22 '19

Annealing and recrystallization of cold-rolled aluminum sheet. R. J. Anderson. *Il Met & Chem Eng* 18:523-7 My 15 '18

Benz now uses aluminum pistons. *diags Engineer* 126:35 Jl 12 '18; *Automotive Ind* 39:361 Ag 29 '18

Conductivity of aluminum; abstract. G. Grassl. *Elec W* 71:56 Ja 5 '18

Constitution and metallography of aluminum and its light alloys with copper and with magnesium. P. D. Merica, R. G. Waltenberg and J. R. Freeman, Jr. *Il diags U S Bur Stand Sci Pa* 337:105-19 '19; Same. *Am Inst Min Bul* 151:1031-49 Jl '19; Abstract. *Chem & Met Eng* 21:551-2 O 29 '19

Contributions to the chemistry of aluminum and its alloys; abstract. J: G. Rodin. *Sci Am S* 86:233 O 12 '18

Efficiency of machines with aluminum windings; abstract. G. Schonwald. *Elec W* 72:1085 D 7 '18

French aluminum capacity leads. *Iron Age* 101:859 Ap 4 '18

Gliding aluminum. C: H. Proctor. *Metal Ind* 17:78 F '19

Influence of aluminum ions on seed germination. J. Stoklasa and others. *Sci Am S* 87:318-20 My 17 '19

Metallography of aluminum. R. J. Anderson. *Il Met & Chem Eng* 18:172-8 F 15 '18

Metallography of aluminum. R. J. Anderson. bibliog *Il J Fr Inst* 187:1-47 Ja '19

Metallography of aluminum ingot. R. J. Anderson. *Il diags Chem & Met Eng* 21:229-34 S 1 '19

Micrography of aluminum. *Sci Am S* 88:57 Jl 26 '19

New solder for aluminum is developed. *Il Motor Age* 36:38 O 30 '19

Our mineral supplies; bauxite and aluminum. J. M. Hill. *U S Geological Survey Bul* 686-O:1-4 '17

Practical methods in welding aluminum. T. P. Bowman. *diags Motor Age* 36:36-7 O 23 '19

Production of aluminum and tin from 1900 to 1917. *Eng & Min J* 106:567 Mr 23 '18

Recent industrial uses of aluminum. F. G. Shull. *Metal Ind* 15:438-9 O '17

Record aluminum output in 1917. *Metal Ind* 16:514 N '18

Removing aluminum from brass scrap. *Foundry* 46:575 D '18

Solders for aluminum. *Il U S Bur Stand Circ* 78:1-9 '19

Solders for aluminum. P. D. Merica and L: J. Gurevich. *Il Metal Ind* 16:500-3 N '18

Use of aluminum in the electrical industry; abstract. J. Escard. *Elec W* 71:107 Ja 12 '18

Why of aluminum in motor cars. H. M. Taylor. *Il Motor Age* 35:7-9 Ap 17 '19

World's production of aluminum. *Eng & Min J* 106:884 N 16 '18

See also Alumina; Bauxite

**Bibliography**

Aluminum and its light alloys. *U S Bur Stand Circ* 76:109-20 '19

Aluminum and its light alloys. P. D. Merica. *Chem & Met Eng* 19:729-32, 780-5 N 15-D 1 '18

**Testing**

Erichsen tests on aluminum sheets. R. J. Anderson. *Iron Age* 101:950-1 Ap 11 '18; Discussion. *Engineer* 126:251 S 20 '18

Testing of aluminum sheets. R. J. Anderson. *Iron Age* 102:148-9 Jl 18 '18

Tests of aluminum; abstract. *Elec W* 72:72 Jl 13 '18

**Aluminum alloys**

Alterability of aluminum and the properties of its various alloys. J. Escard. *Sci Am S* 86:127-8 Ag 24 '18

Aluminum alloy combines strength with toughness. *Il Automotive Ind* 41:108-9 Jl 17 '19

Aluminum alloy for aviation and marine motors. *Foundry* 46:167 Ap '18

Aluminum alloy from a German Zeppelin. *Il Iron Age* 101:373 F 7 '18; Same cond. *Eng & Min J* 105:425 Mr 2 '18

**Aluminum alloys—Continued**

- Aluminum alloy; patent. *Met & Chem Eng* 18: 101 Ja 15 '18
- Aluminum and copper alloys. C: Vickers. *Il Mach* 25:201-4 N '18
- Aluminum and its alloys. C: H. Eldridge. *Il Metal Ind* 16:171-2 Ap '18
- Aluminum and its light alloys. *Il U S Bur Stand Circ* 76:1-108 '19; Abstract. *Foundry* 47:399-400 Je 15 '19; Bibliography. *U S Bur Stand Circ* 76:109-20 '19
- Aluminum and its light alloys. P. D. Merica. *Chem & Met Eng* 19:635-40 O 15 '18
- Aluminum-copper. J. Scott. *Il Metal Ind* 15: 340-2 Ag '17
- Aluminum: its use in the motor industry in England. E. C. Hill. *Il Metal Ind* 16:543-6; 17:125-7 D '18, Mr '19
- Analysis of aluminum alloys. *J Ind & Eng Chem* 10:747 S '18
- Common aluminum alloys. R. J. Anderson. *Foundry* 47:827-8 N 15 '19
- Constitution and metallography of aluminum and its light alloys with copper and with magnesium. P. D. Merica, R. G. Waltenberg and J. R. Freeman, Jr. *Il diag U S Bur Stand Sci Pa* 337:105-19 '19; Same. *Am Inst Min Bul* 151:1031-49 Ji '19; Abstract. *Chem & Met Eng* 21:551-2 O 29 '19
- Decomposition of metals. A. I. Krynitaky. *Il Chem & Met Eng* 20:280-1, 421-4 Mr 15, Ap 15 '19
- Duralumin for metal airplanes. A. P. Thurston. *Automotive Ind* 40:1358 Je 12 '19
- Evolution of the Lynite laboratories. *Il chart plans Iron Age* 104:149-54 Ji 17 '19
- Heat treatment of aluminum-alloy castings. Z. Jeffries and W. A. Gibson. *Il Am Inst Min Bul* 153:sup2493-2512 S '19; Discussion. 156: 3153-61 D '19
- Heat treatment of duralumin. P. D. Merica, R. G. Waltenberg and H. Scott. *Il diag Am Inst Min Bul* 150:913-49 Je '19; Summary. *J Fr Inst* 138:549-50 O '19; Same. *Mech Eng* 41:836-7 O '19; Same. *Metal Ind* 17:361 Ag '19; Same. *Automotive Ind* 41:677 O 3 '19; Abstract. *Chem & Met Eng* 21:552-4 O 29 '19; Discussion. *Am Inst Min Bul* 156:3134-6 D '19
- Metallography applied to nonferrous metals. E. J. Davis. *Il diag Foundry* 47:304-7 My 15 '19
- Some zinc and aluminum alloys. W. J. May. *Sci Am S* 87:367 Je 7 '19
- Tests of acetal, the new aluminum alloy. *Iron Age* 101:1467 Je 6 '18
- Zinc phosphide not used for fluxing aluminum. *Foundry* 46:138-9 Mr '18
- See also Aluminum bronze

**Bibliography**

- Aluminum and its light alloys. P. D. Merica. *Chem & Met Eng* 19:780-5 D 1 '18

**Testing**

- Mechanical properties and resistance to corrosion of rolled light alloys of aluminum and magnesium with copper, nickel, and manganese. P. D. Merica, R. G. Waltenberg and A. N. Flinn. *Il Am Inst Min Bul* 151:1051-62 Ji '19
- Some tests of light aluminum casting alloys; the effect of heat treatment; abstract. P. D. Merica and C. P. Karr. *J Fr Inst* 138:691-3 N '19
- Aluminum bronze**
- Aluminum bronze as an engineering material. C: Vickers. *Mach* 25:135-6 O '18
- Aluminum bronze industry. W. M. Corse. *Am Inst Min E Bul* 144:1738-42 D '18; Same. *Metal Ind* 16:454-6 O '18; Same. *Chem & Met Eng* 20:162-3 F 15 '19
- Aluminum bronzes; abstract. *Elec W* 71:575 Mr 16 '18
- Constitution and hardness of aluminum bronze. J. N. Greenwood. *Il Foundry* 46:322-5 Ji '18
- Die-casting of aluminum-bronze. H. Rix and E. Whitaker. *Il Engineer* 125:281 Mr 29 '18; Same. *Foundry* 46:272-4 Je '18; Same. *Metal Ind* 16:361-3 Ag '18; Same. *Sci Am S* 86:314-15 N 16 '18; Same cond. *Mach* 25:308-9 D '18; Abstract. *Chem & Met Eng* 20:135 F 1 '19

- Hardening of aluminum bronze. *Metal Ind* 17:167 Ap '19

- Metallography applied to nonferrous metals. E. J. Davis. *Il diag Foundry* 47:263-6 My 1 '19

- Mixture for aluminum bronze. *Foundry* 46:219 My '18

- Overcoming aluminum bronze difficulties. *Foundry* 46:534 N '18

- Relation of microstructure to phase changes in heat-treated aluminum bronzes. L. R. Seldell and G. J. Horvitz. *bibliog Il Chem & Met Eng* 21:179-81 Ag 15 '19

**Aluminum chloride**

- Action of aluminum chloride on cymene. A. W. Schorger. *Am Chem Soc J* 39:2671-9 D '17

- Action of aromatic alcohols on aromatic compounds in the presence of aluminum chloride. R. C. Huston and T. E. Friedemann. *Am Chem Soc J* 40:785-93 My '18

**Aluminum dust**

- Inflammability of aluminum dust. A. Leighton. *U S Bur Mines Tech Pa* 152:1-13 '18

**Aluminum founding**

- Alloy foundry run under scientific direction. *Il diag chart Foundry* 47:381-4 Je 15 '19

- Alumina inclusions in aluminum castings. *Foundry* 46:431 S '18

- Aluminum alloy for automobile engine pistons. C: Vickers. *Foundry* 47:447 Ji 1 '19

- Aluminum castings and forgings. P. E. McKinney. *Metal Ind* 15:65-6 F '17

- Aluminum foundry molding losses analyzed. *Foundry* 51:416 Ji 1 '19

- Casting aluminum in plaster molds. *Foundry* 46:81-2 F '18

- Fluxes to replace zinc chloride for melting aluminum. C: Vickers. *Foundry* 47:400-1 Je 15 '19

- Melting aluminum in an oil-fired furnace. *Foundry* 46:219 My '18

- Notable aluminum casting. *Il Metal Ind* 17: 224 My '19

- Overcoming porosity in aluminum castings. *Foundry* 46:81 F '18

- Practice of melting and casting aluminum. R. J. Anderson. *Il Foundry* 46:104-6, 164-6 Mr-Apr '18

- Progress in aluminum casting. *Il Metal Ind* 17:211-13 My '19

- Steel inserts cause blowing of aluminum castings. *Foundry* 46:430 S '18

- Unsoundness in aluminum castings. R. J. Anderson. *Il Foundry* 47:579-84 S 1 '19

See also Aluminum bronze

**Aluminum leaf**

- Keeping the propeller dry. M. E. Dunlap. *Il Sci Am S* 87:292-3 My 10 '19; Same. *Aviation* 6:636-8 Ji 15 '19; Abstract. *Automotive Ind* 40:953 My 1 '19

**Aluminum metallurgy**

- Aluminum-manufacturing processes used in Europe. O. Nissen. *diag plan Chem & Met Eng* 19:804-15 D 15 '18

- Aluminum plant of the United smelting and aluminum company, New Haven, Conn. *Il Metal Ind n s* 15:36-7 Ja '17

- Electrolytic and electrothermic processes and products. *Gen Elec R* 21:757-8 N '18

- Processes for the manufacture of aluminum; abstract. *Elec W* 71:835 Ap 20 '18

- Remelting of aluminum pig in the electric furnace. D. D. Miller. *Il diag Chem & Met Eng* 19:251-4 S 1 '18

**Alundum**

- Alundum, artificial vs. natural abrasives. A. B. Frits. *Il Metal Ind* 16:278-80 Je '18

- Alundum manufacture and use. M. A. Williamson. *Metal Ind* 16:128-9 Mr '18

- Polishing with alundum. *Iron Tr R* 62:854 Ap 4 '18

**Alunite**

- Alunite deposits of Australia. *Engineer* 125: 269 Mr 29 '18

- Alunite problem. W. F. Downs. *Eng & Min J* 107:388 Mr 1 '19

- Potash from alunite in Utah. J: W. Hornsey. *Chem & Met Eng* 19:461-2 S 26 '18; Same. *J Ind & Eng Chem* 10:838-9 O '18

**Alunite—Continued**

Potassium sulphate from alunite at Marysville, Utah. *Met & Chem Eng* 18:391-3 Ap 15 '18

Recently recognized alunite deposits at Sulphur, Humboldt county, Nevada. I. C. Clark. *Il diag map Eng & Min J* 106:159-63 Jl 27 '18

Separation of alunite from gangue; patent. *Chem & Met Eng* 19:778 D 1 '18

Amalgamated association of street & electric railway employees of America  
16th convention, Chicago, Sept. 8-10. *Elec Ry J* 54:527-8 S 13 '19

**Amalgamation**

Berdan pan for amalgamation. A. W. Allen. *diag Eng & Min J* 106:1075-6 D 21 '18

Milling in cyanide solution. A. W. Allen. *Met & Chem Eng* 18:515-19 My 15 '18; *Excerpt. Eng & Min J* 106:531 S 21 '18

Roberts amalgamator. E. A. Haggen. *Eng & Min J* 106:957 N 30 '18

See also Alloys; Amalgams; Cyanide process; Mercury

**Amalgams**

Concentrated thallium amalgams; their electro-chemical and thermoelectric behavior, densities and freezing points. T. W. Richards and F. Daniels. *diag Am Chem Soc J* 41:1732-68 N '19

Copper amalgam as cement. *Eng & Min J* 105:780 Ap 27 '18

See also Alloys

*Amaranthus retroflexus*. See Pigweed

**Ambrine**

Case of severe third degree burns treated with ambrine; with a resumé of literature on the subject by H. R. Hosmer. C. G. McMullen. *Il Gen Elec R* 20:717-22 S '17; Same. *Sci Am S* 85:190-1 Mr 23 '18

Treatment of gas flame wounds. A. Fitch. *Am Gas Eng J* 109:545-6 D 14 '18

Wax compound and non-irritative dressing for burns. *Il Ind Management* 57:76-7 Ja '19

Ambulance trains. See Hospital trains

**Ambulances**

Army's ambulance program. *Il Automotive Ind* 39:578-81 O 3 '18

Electric car equipped for hospital service at Boston. *Il diag Elec Ry J* 51:766-7 Ap 20 '18

French ambulance system at front. W. F. Bradley. *Il Automobile* 37:582-4 O 4 '17

U. S. A. ambulance and trailer. *Il Automotive Ind* 39:148-9 Jl 25 '18

American acceptance council (formerly American trade acceptance council)

American acceptance council. *Am Ind* 19:37 My '19

Campaign for the development of the trade acceptance policy. *Am Ind* 18:26 Mr '18

Convention, Detroit, June 9. *Am Ind* 19:32-3 Jl '19

American association for the advancement of science

Annual convention at Baltimore. *Elec W* 73:42-3 Ja 4 '19

75th annual meeting, Pittsburgh, Pa., Dec. 28, 1917-Jan. 2, 1918. *Elec W* 71:61, Ja 5 '18; *J Ind & Eng Chem* 10:154 F '18

American association of city representatives of electric railways

City representatives organize. *Elec Ry J* 54:725-7 O 11 '19

**American association of engineers**

Engineers to study after war conditions. *Eng & Contr* 50:269 S 11 '18

4th annual meeting, Chicago, May 14. *Eng N* 80:1019 My 23 '18; *Eng & Contr* 49:516 My 22 '18; *Power* 47:780-1 My 28 '18

5th annual convention, Chicago, May 12-13. *Ry R* 64:715-16 My 17 '19

Future of the American association of engineers. F. H. Newell. *Munic Eng* 57:25-8 Jl '19

Giving credit where credit is due. E. A. Van Deusen. *Eng N* 82:585-6 Mr 20 '19

Objects of the American association of engineers. *Eng & Contr* 49:47-8 Ja 9 '18

Society directory gives training and experience of members. *Eng N* 81:647 O 3 '18

Why some engineers in the service of the city of Chicago joined the international federation of technical engineers, architects and draftsmen. T. S. Ford. *Munic Eng* 57:59-60 Ag '19

Why support the A. A. E.? *Power* 47:309 F 26 '18

American association of passenger traffic officers

63d annual convention, Baltimore, Jan. 23. *Ry Age* 66:298 Ja 31 '19

American association of public employment offices

6th annual convention, Cleveland, O., Sept. 19-21. *Iron Tr R* 63:791 O 8 '18

American association of state highway officials

Annual meeting, Richmond, Va., Dec. 4-6. *Eng N* 79:1131-3 D 13 '17; *Good Roads n s* 14:313-14 D 15 '17; *Munic J* 44:26-7 Ja 5 '18

Convention, Chicago, Dec. 9-13. *Good Roads n s* 16:218-22, 243-4 D 7, 21 '18; *Eng N* 81:1145-6+ D 19 '18

American association of university instructors in accounting

2d annual meeting, Philadelphia, Dec. 27-28, 1917. *J Account* 25:155-6 F '18

American association of woolen and worsted manufacturers

Annual meeting, New York city. *Textile World* 53:2352-3 D 8 '17

Annual meeting, New York. *Textile World* 54:2831, 2872d-3 D 7 '18

American automobile association

Meeting, Atlantic City. *Munic J* 45:21 Jl 6 '18

American aviation mission

Mission recommends aeronautic department. *Motor Age* 36:13 Ag 14 '19

Single government department for all aeronautics urged by mission. A. Sinsheimer. *Automotive Ind* 41:297-303, 323-7 Ag 14 '19; Same *abr*. *Flying* 8:714-17, 788-90, 866-7+ S-N '19

American board of scrap iron dealers

Meeting, Pittsburgh, May 22. *Iron Age* 101:1408-9 My 30 '18

American boiler manufacturers' association

30th annual convention, Philadelphia, June 17-18. *Power* 47:929-30 Je 25 '18; *Am Soc M E J* 40:710 Ag '18

31st annual convention, Buffalo, June 23. *Power* 50:41-2 Jl 1 '19

American brass company, Waterbury, Connecticut

Mobilizing a brass army; how the labor problems incidental to war's demands are met. E. M. Ruttenber. *Il Metal Ind* 16:111-13 Mr '18

American bureau of welding

Research bureau organized. *Elec W* 73:860 Ap 26 '19

American car & foundry company

Annual report for year ended April 30, 1917. *Ry Age* 64:951 Ap 5 sec 2 '18

American ceramic society

Meeting, Chicago, Sept. 24. *J Ind & Eng Chem* 11:984-5 O '19; *Chem & Met Eng* 21:462-3 O 8 '19

Past, present and future of the American ceramic society. C. F. Binns. *Chem & Met Eng* 21:464-5 O 8 '19

21st annual meeting, Pittsburgh. *Chem & Met Eng* 20:180-3 F 15 '19

American chemical society

Advisory committee meetings. C. L. Parsons. *J Ind & Eng Chem* 11:592-3 Je '19

Annual meeting, Cleveland, Sept. 9 to 13. *Chem & Met Eng* 19:543-4 O 1 '18; *J Ind & Eng Chem* 10:768-75 O '18

Building for the American chemical society. A. Seldell. *J Ind & Eng Chem* 11:693 Jl '19

57th meeting, Buffalo, April 7-11. *Chem & Met Eng* 20:390-5 Ap 15 '19; *J Ind & Eng Chem* 11:394-9 My '19

57th meeting, Buffalo, N.Y., April 7-11; program of papers. *J Ind & Eng Chem* 11:480-1 My '19

**American chemical society—Continued**

- 58th annual meeting, Philadelphia, September 2-6. Chem & Met Eng 21:278-307 S 15 '19; J Ind & Eng Chem 11:885-6, 911-30 S-O '19; Textile World 56:1360-1, 1506-7 S 6-13 '19
- 58th annual meeting, Philadelphia, Pa., Sept. 4: contributions from the dye section. J Ind & Eng Chem 11:1071-83 N '19
- Industrial excursions, Philadelphia, Sept. 2-6. Chem & Met Eng 21:488-502 O 15 '19
- Meeting of the rubber division, Philadelphia. A. H. King. Chem & Met Eng 21:429-31 O 1 '19
- Our opportunity. B. C. Hesse. J Ind & Eng Chem 11:341-4 Ap '19
- Our preparation for after the war. B. C. Hesse. J Ind & Eng Chem 10:881-7 N '18
- Phases of reconstruction. Sci Am 120:58 Ja 18 '19
- Report of omnibus committee. A. D. Little. J Ind & Eng Chem 11:410-13 My '19
- Reports for the year 1917. Am Chem Soc J 40:sup15-23 F '18
- Statistics of chemical imports in preparation. Chem & Met Eng 19:367 S 24 '18
- American chemical society news service**  
Laboratory and newspaper shop. J. W. Harrington. J Ind & Eng Chem 11:164-5 F '19
- American concrete institute**  
Annual convention, Atlantic City, N. J., June 27-29; abstracts of papers. Eng N 81:57+ JI 4 '18; Ry Age 65:17-21 JI 5 '18; Concrete 13:51-5 Ag '18
- 15th annual convention, Atlantic City, June 27-28. Am Arch 116:57-60 JI 9 '19; Arch Forum 31:53-4 Ag '19; Munic J 47:99 Ag 9 '19
- American cotton manufacturers association**  
Business meeting, May 3. Textile World 53:5144g+ My 4 '18
- Combined gathering of cotton manufacturers. Textile World 53:5137-40+ My 4 '18
- New president and governors; portraits. Textile World 53:5135 My 4 '18
- 22d annual convention, Atlantic City. Textile World 55:3274-6+, 3287+ My 31 '19
- American drop forge association**  
Joint meeting with Drop forge supply association, Buffalo, June 20-22. Automotive Ind 38:1270-1+ Je 27 '18; Iron Age 101:1650-4 Je 27 '18; Iron Tr R 62:1623-4 Je 27 '18
- 6th annual convention, Pittsburgh, Penn., June 12-14. Am Mach 50:1247-50 Je 26 '19; Iron Age 103:1645-7 Je 19 '19
- American dyes institute**  
List of members. Color Tr J 5:1 JI '19
- American dyestuff manufacturers' association**  
Annual meeting, New York. Textile World 54:2968+ D 14 '18
- Board of governors elects officers, executes the certificate of incorporation, and adopts constitution and by-laws. J Ind & Eng Chem 10:402 My '18
- Dye association adopts constitution and elects officers. Textile World 53:4559 Ap 6 '18
- Dyestuff association membership. Textile World 53:4018 Mr 2 '18
- Dyestuff association officially organized. Met & Chem Eng 18:479 My 1 '18
- Dyestuff ass'n projected by important interests. Textile World 53:3451-3+ Ja 26 '18; J Ind & Eng Chem 10:231-3 Mr '18
- Dyestuff association started. Textile World 53:4132 Mr 9 '18
- Dyestuff manufacturers perfect organization. Met & Chem Eng 18:289 Mr 15 '18
- American electric railway accountants' association**  
Convention, Atlantic City, Oct. 7-8. Elec Ry J 54:sup85-6 O 11 '19
- American electric railway association**  
Annual report, 1917. Elec Ry J 51:374 F 23 '18
- Mid-year meeting, New York, March 14. Elec Ry J 53:516-21 Mr 15 '19
- New York conference, Nov. 1. Elec Ry J 52:789-97 N 2 '18
- 38th annual convention, Atlantic City, Oct. 6-10. Elec Ry J 54:sup43-52 O 11 '19
- Value of a company section. B. I. Budd. Elec Ry J 50:1038 D 8 '17

**Committee of 100**

- Committee of one hundred. Elec Ry J 54:32 JI 5 '19
- Report of the Committee of one hundred. Elec Ry J 54:sup50-2 O 11 '19

**War board**

- Board issues bulletins. Elec Ry J 51:1018 My 25 '18
- Edwin C. Faber, head of war board traffic bureau. Elec Ry J 51:256 F 2 '18
- Electric railway war board notes. Elec Ry J 50:1080 D 15 '17
- Interurban rates, transportation of draft men to cantonments and other topics discussed. Elec Ry J 51:1167 Je 15 '18
- List of electric railway war board bulletins. Elec Ry J 52:895 N 16 '18
- Problems of the industry and work of electric railway war board. L. S. Storrs. Elec Ry J 51:653 Ap 6 '18
- Traffic bureau organized. Elec Ry J 51:139-41 Ja 19 '18
- War board considers many committee reports. Elec Ry J 50:1164 D 29 '17
- War board presents first annual report. Elec Ry J 52:781-8 N 2 '18
- War board raises jitney question again. Elec Ry J 52:620 O 5 '18
- War board sessions. Elec Ry J 51:526, 715, 980 Mr 16, Ap 13, My 18 '18
- What the war board is doing for the industry. P. H. Gadsden. Elec Ry J 52:831-3 N 9 '18
- Work. Ry R 63:29-31 JI 6 '18
- American electric railway claims association**  
Convention, Atlantic City, Oct. 6-9. Elec Ry J 54:718-25 O 11 '19
- American electric railway engineering association**  
Convention, Atlantic City, Oct. 6-9. Elec Ry J 54:sup69-82 O 11 '19
- Engineering association committee appointments. Elec Ry J 53:609-10 Mr 22 '19
- American electric railway manufacturers' association**  
Manufacturers association votes to disband. Elec Ry J 54:sup86-7 O 11 '19
- American electric railway transportation & traffic association**  
10th annual convention, Atlantic City, Oct. 6. Elec Ry J 54:sup53-68 O 11 '19
- American electrical society**  
Old-time national electrical society with headquarters in Chicago. W. E. Kelly. Elec R 72:426-7 Mr 9 '18
- American electrochemical society**  
Electrochemical industry essential to winning the war. C. G. Schluenderberg. Met & Chem Eng 18:437 My 1 '18
- Fall meeting, Atlantic City, Sept. 30-Oct. 2. Chem & Met Eng 19:609-15 O 15 '18; Iron Age 102:896-7 O 10 '18
- Southern convention. Met & Chem Eng 18:500-12 My 15 '18
- 34th general meeting, Atlantic City, N. J., Sept. 30-Oct. 2, 1918. J. W. Richards. J Ind & Eng Chem 10:944-5 N '18
- 35th general meeting, New York city, April 3-5. Iron Age 103:945-6 Ap 10 '19; Chem & Met Eng 20:379-89 Ap 15 '19
- 35th general meeting, New York city, April 3-5. J. W. Richards. J Ind & Eng Chem 11:483-4 My '19
- 36th general meeting, Chicago, Sept. 23-26. Elec R 75:524 S 27 '19; Eng & Min J 108:557 S 27 '19
- American electroplaters' society**  
Closer relations between employer and employee in the work of the American electroplaters' society. W. C. Gold. Metal Ind 17:313-15 JI '19
- Convention; a description of the metal plating and finishing shops of Philadelphia. G. Goodfellow. Metal Ind 17:257-65 JI '19
- 5th annual convention, St. Louis, July 5-7. R. M. Edmonds. Metal Ind 15:285-9 JI '17
- 6th annual meeting, Detroit, Mich., July 1-3, 1918. Metal Ind 16:301-7, 379 JI-Ag '18
- 7th annual convention, Philadelphia, July 1-3. L. J. Krom. Metal Ind 17:307-10 JI '19



- American engineering standards committee**  
Engineering and industrial standardization. C. A. Adama. Power 49:337 Mr 4 '19  
Engineering standards committee proposes new constitution. Eng N 83:575-6 S 18 '19  
Establishing American engineering standards. J Elec 43:164-5 Ag 15 '19; Same cond. Sci Am 121:157+ Ag 16 '19  
New association plan. Elec W 73:857 Ap 26 '19  
Organization. Eng & Min J 107:1091-2 Je 21 '19  
Organization and procedure of A.E.S. committee explained. Elec Ry J 53:407 Mr 1 '19  
Proposed constitution for standards committee. Eng N 81:76 J1 11 '18  
Proposed reorganization; constitution. Mech Eng 41:638-9 J1 '19  
Reorganization of the Engineering standards committee. E: B. Rosa. Eng N 82:861-2, 916-18 My 1-8 '19; Excerpta. Elec Ry J 53: 859-60 My 3 '19  
Revision of constitution of organization now proposed to carry on the large work of the committee originally suggested. C. B. Le Page. Elec W 73:1233 Je 7 '19  
Statement issued by the association outlining the scope of its proposed activities and stating its reasons why such an association is necessary. Power 49:930-1 Je 17 '19; Same. Elec R 74:1001-2 Je 14 '19; Same cond. Elec Ry J 53:1100 Je 7 '19; Excerpta. Elec W 73:1233 Je 7 '19; Excerpta. Eng N 82:1154 Je 12 '19; Excerpta. Iron Age 103: 1585 Je 12 '19; Excerpta. Mach 25:1072 J1 '19
- American foundrymen's association**  
Convention, Philadelphia, Sept. 29-Oct. 3. G: B. Goodfellow. Metal Ind 17:405-12 S '19  
Foundrymen's convention. R. T. Elmes. II plans Metal Ind 15:373-7, 417-28 S-O '17  
Quaker city, American foundrymen's association's cradle. Iron Tr R 65:sup100-5 S 25 '19  
23d annual convention, Milwaukee, Oct. 7-11. Iron Age 102:955-65 O 17 '18; Iron Tr R 63: 907-12 O 17 '18; Metal Ind 16:445-58 O '18; Foundry 46:501-11 N '18  
24th annual convention, Philadelphia, Sept. 29-Oct. 3. Foundry 47:619-40, 717-25 S 15, O 15 '19; Iron Age 104:712, 833-48, 1074-7 S 11, 25, N 27 '19; Iron Tr R 65:821-4, 888, 989-94 S 25-O 9 '19; Metal Ind 17:477-81 N '19  
War service committee. Iron Age 101:339 Ja 31 '18
- American fuse manufacturers' association**  
Fuse-making contractors organize. Am Mach 48:599 Ap 4 '18
- American gas association**  
Association to be organized June 6. Gas Age 41:423-4, 525-6 My 1, Je 1 '18  
Carbonization committee report shows distinct trend of gas industry towards by-product oven. Am Gas Eng J 111:396-402+ O 25 '19  
Consolidation of the technical and commercial societies of the gas industry. Gas Age 41:545-51 Je 15 '18  
1st annual convention, New York city, October 13-18. Am Gas Eng J 111:341-4+ O 18 '19; Gas Age 44:371-82 N 1 '19  
Manufacturers section of A.G.A. W. W. Barnes. chart Gas Age 43:326 Mr 15 '19  
March conference of American gas association demonstrates complete welding of interests of the two former national associations, New York. Am Gas Eng J 110:249-50 Mr 22 '19; Gas Age 43:301-2 Mr 15 '19  
New association launched, June 6. Am Gas Eng J 108:549-50 Je 8 '18  
Policy of the association. G: B. Cortelyou. Gas Age 41:651 Je 15 '18  
Program for 1919. Gas Age 43:29-30 Ja 1 '19  
Report of industrial fuel committee. Am Gas Eng J 110:203-4 Mr 1 '19  
Scope of the advertising section of the American gas association. Am Gas Eng J 111: 377-8 O 18 '19  
Secretary of American gas association should be a man well versed in the theory and practice of gas manufacture and use. Am Gas Eng J 111:54-5 J1 19 '19
- American gas institute (now American gas association)**  
Plans for amalgamation of the American gas institute and the National commercial gas association rapidly approaching completion. Am Gas Eng J 108:235-6, 365-9 Mr 9, Ap 20 '18; Gas Age 41:423-4 My 1 '18
- American gear manufacturers' association**  
Aims of the association. F. W. Sinram. Am Mach 50:885-6 My 8 '19  
Annual meeting, Cleveland, April 14-16. Iron Age 103:1083-5 Ap 24 '19; Am Mach 50:872 My 1 '19; Mach 25:810-11 My '19  
Gear makers adopt standard contract and set design standards for composition and bevel gears. Automotive Ind 41:830-1+ O 23 '19  
Gear makers hold successful meeting. P. M. Heldt. Automotive Ind 40:834-5 Ap 17 '19  
2d annual meeting, White Sulphur Springs, W. Va., April 18-20. Iron Age 101:1080-3 Ap 25 '18; Elec R 72:761 My 4 '18  
Semi-annual meeting, Syracuse, N.Y., Sept. 19-21. Iron Age 102:750-3 S 26 '18; Iron Tr R 63:730-1 S 26 '18; Automotive Ind 39:527-9 S 26 '18; Elec R 73:543 O 5 '18; Mach 25: 161-2 O '18
- American hardwood manufacturers' association**  
Adoption of the principles to be embodied in the inspection rules to be drawn up and applied by the association. Am Lumberman 2277:53 Ja 4 '19  
1st annual convention. Am Lumberman 2275: 36-42 D 21 '18  
Hardwood associations to unite as one. Am Lumberman 2267:35+ O 26 '18  
Hardwood interests form new organization. Am Lumberman 2228:40-2 Ja 26 '18; Iron Tr R 62:173 Ja 10 '18  
New hardwood inspection rules drafted. Am Lumberman 2280:57 Ja 25 '19  
Semiannual meeting, Memphis, Tenn., May 25. Am Lumberman 2246:54-6 Je 1 '18
- American hide & leather company**  
Report for the fiscal year ended June 30, 1918. Ry Age 65:899-900 N 15 sec 2 '18
- American institute of accountants**  
Annual meeting. J Account 26:296-9 O '18  
Annual meeting, Cincinnati, Ohio, September 16-17. J Account 28:290-6 O '19  
Board of examiners; November, 1917, examination questions. J Account 24:413-23 D '17; Answers. S. Walton and H. A. Finney. 25: 64-78, 140-8 Ja-F '18  
Board of examiners; May, 1918, examinations. J Account 25:401-12 Je '18; Answers. S. Walton and H. A. Finney. 26:143-56, 222-33 Ag-S '18
- American institute of architects**  
Address of president. J: L. Mauran. Am Arch 113:555-8 My 8 '18  
Democratizing the institute. Am Arch 115: 515-16 Ap 9 '19  
Federating the building industry. T: R. Kimball. Am Arch 113:719 My 29 '18  
Fellows and fellowships. Am Inst Arch J 7: 51-9 F '19  
51st annual convention, Philadelphia, April 24-26. Am Inst Arch J 6:190-8 Ap '18; Am Arch 113:551-64 My 8 '18  
52nd annual convention, Nashville, Tenn., April 30-May 2. Am Arch 115:633-41, 647, 665-70 My 7-14 '19; Am Inst Arch J 7:192-8 My '19; Arch Forum 30:123-6 My '19  
Illinois chapter A. I. A. elects new officers; Geo. W. Maher succeeds D. H. Burnham as president. Am Arch 114:403-4 O 2 '18  
National organization. Am Arch 112:431-2 D 12 '17; Discussion. 113:42-3, 89-91, 119-20, 155-8, 471-6, 717-18 Ja 9, 23-F 6, Ap 17, My 29 '18  
National organization of architects; a defense. R. C. Sturgis. Am Arch 113:349-51 Mr 20 '18  
Record of the Institute's war service. J: L. Mauran. Am Inst Arch J 5:641-3 D '17
- Post-war committee**  
Inter-professional conference. Am Inst Arch J 7:493-4 N '19  
Post-war committee on architectural practice. Am Inst Arch J 7:153-8 Ap '19

- American Institute of architects—Post-war committee—Continued**  
 Post-war committee—some opinions. Am Inst Arch J 7:453-8 O '19  
 Preliminary conclusions. C: H. Whitaker. Am Inst Arch J 7:390-5 S '19  
 Review of the Post-war committee's activities at the Nashville convention. R. D. Kohn. Am Arch 115:735-8 My 28 '19
- American Institute of chemical engineers**  
 10th annual meeting, St Louis, Dec. 5-8. Met & Chem Eng 17:684 D 15 '17; J Ind & Eng Chem 10:77-9 Ja '18  
 10th semi-annual meeting, Gorham, N. H., June 19-22. II Chem & Met Eng 19:4-8 Jl 1 '18; J Ind & Eng Chem 10:651-3 Ag '18  
 11th annual meeting, Chicago, Jan. 15-18. Chem & Met Eng 20:115-18 F 1 '19; J Ind & Eng Chem 11:162-4 F '19  
 11th semi-annual meeting, Boston and Cambridge, June 18-21. Chem & Met Eng 21:5-15 Jl 1 '19; J Ind & Eng Chem 11:789-91 Ag '19
- American Institute of electrical engineers**  
 A. E. F. section. Elec R 73:252 Ag 17 '18  
 A. I. E. E. development committee report. G: T. Southgate. Elec W 74:703 S 27 '19  
 Annual reports of technical committees. Am Inst E E Pro 38:901-5 Jl '19  
 Appointments to the A. I. E. E. committees. Elec W 74:373 Ag 16 '19  
 Closing sessions of A. I. E. E. convention embrace many subjects. Elec R 75:67-9 Jl 12 '19  
 Comments on proposed A. I. E. E. changes. Elec W 74:298-300, 354-7 Ag 9-16 '19  
 Committee reports presented June, 1918. Am Inst E E Pro 37:935-76 Ag '18  
 Committees for the year beginning August 1, 1918. Elec R 73:325 Ag 31 '18  
 Enhancing the prestige of the Institute. C: P. Steinmetz. Elec W 74:243-6 Ag 2 '19  
 How A. I. E. E. changes may lessen scientists' support. J. B. Whitehead. Elec W 74:577-8 S 13 '19  
 How can A. I. E. E. increase its revenue? Elec W 74:522-3 S 6 '19  
 Joint meeting with the Association of iron and steel electrical engineers, Cleveland, O., March 8. Elec R 72:457-8 Mr 16 '18; Elec W 71:580-1 Mr 16 '18  
 Midwinter convention, New York, Feb. 19-21. Elec R 74:350-3 Mr 1 '19; Elec W 73:421-4 Mr 1 '19; Power 49:338-9 Mr 4 '19  
 Proposed changes in A. I. E. E. activities. Elec W 74:241-2 Ag 2 '19; Same abr. Power 50:276-7 Ag 12 '19  
 Proposed changes in A. I. E. E. activities; issuing of engineering periodical instead of proceedings. Elec W 74:18-19 Jl 5 '19  
 Report of committee on development, A. I. E. E. Elec W 74:374-6 Ag 16 '19; Same abr. Am Inst E E Pro 38:337-46 S '19 [sec 1]; Same cond. Elec R 75:322-4 Ag 23 '19; Excerpts. J Elec 43:231-2 S 1 '19  
 Report of the board of directors for fiscal year ending April 30, 1918. Am Inst E E Pro 37:717-38 Je '18  
 Shall Institute practices be amended? Elec W 74:466-7 Ag 30 '19  
 6th annual midwinter convention, New York, Feb. 15-16. Elec R 72:342-3 F 23 '18; Elec Ry J 51:373 F 23 '18; Elec W 71:424-5 F 23 '18; Power 47:312 F 26 '18  
 34th annual business meeting, New York city, May 17. Elec R 72:873 My 25 '18; Am Inst E E Pro 37:sup186 Je '18  
 34th annual convention; abstracts of papers. II diag. Elec R 72:1080-3 Je 29 '18; Elec Ry J 51:1229-31 Je 29 '18  
 34th annual convention, Atlantic City, N. J., June 26-28. Elec R 72:1086-9; 73:14-17 Je 29-Jl 6 '18; Elec W 71:1374-5; 72:28-31 Je 29-Jl 6 '18; Power 48:66-8 Jl 9 '18; Munic J 45: 61+ Jl 20 '18; Am Inst E E Pro 37:sup239-44 Ag '18  
 35th annual convention, Lake Placid, New York, June 24-27. Elec R 75:7-12 Jl 5 '19; Elec W 73:1383-90; 74:16-17 Je 28-Jl 5 '19; Power 50:39-40 Jl 1 '19  
 35th meeting, New York, Dec. 14; with abstracts of papers. Elec W 70:1208 D 22 '17
- 342nd meeting, Philadelphia, Dec. 13. Elec R 73:972-4 D 21 '18  
 348th meeting, Boston, March 14. Elec W 73: 592-5 Mr 22 '19  
 What are the important functions of the A. I. E. E.? W: Arthur. Elec W 74:410-11 Ag 23 '19
- American Institute of metals**  
 Foundrymen's convention. R. T. Elmes. II plans Metal Ind 15:373-7, 417-28 S-O '17  
 Sessions of the Institute of metals. Iron Age 103:566-7 F 27 '19  
 To join the American Institute of mining engineers. Metal Ind 16:223-4 My '18; Abstract. Iron Tr R 62:1052 Ap 25 '18
- American Institute of mining and metallurgical engineers (formerly American Institute of mining engineers)**  
 Address of president to local sections. S. J. Jennings. Am Inst Min E Bul 137:sup8-13 My '18  
 American Institute of metals to join the American Institute of mining engineers. Metal Ind 16:223-4 My '18; Abstract. Iron Tr R 62:1052 Ap 25 '18  
 A. I. M. E. in Colorado. Eng & Min J 106:377 Ag 31 '18  
 Annual meeting of the Institute of metals division, Philadelphia, Sept. 29-Oct. 3. Foundry 47:619-24, 744-5 S 15, O 15 '19; Iron Tr R 65:821-4 S 25 '19; Chem & Met Eng 21: 550-6 O 29 '19  
 Board of directors, A. I. M. E.; portraits. Eng & Min J 108:469-71 S 13 '19  
 Board of directors; portraits. Eng & Min J 106:378-80 Ag 31 '18  
 Coal has leading place in session of A. I. M. E. R. D. Hall. Coal Age 16:606-10 O 9 '19  
 Consider industrial relations; remarks on meeting of A. I. M. E. R. D. Hall. Coal Age 13:413-14, 458-9, 499-500, 544-5 Mr 2-23 '18  
 Institute and the war. B. Stoughton. II Eng & Min J 106:375-7 Ag 31 '18  
 Meeting of the San Francisco section, July 22. Eng & Min J 108:193 Ag 2 '19  
 Milwaukee meeting, Oct. 7-12. J. W. Richards. J Ind & Eng Chem 10:946-6 N '18  
 Officers of mining engineering societies. Eng & Min J 107:486-8 Mr 15 '19  
 116th annual meeting, New York, Feb. 18-21. Iron Age 101:554-9 F 28 '18; Iron Tr R 62: 549-52 F 28 '18; Eng & Min J 105:391-2, 426-9 F 23-Mr 2 '18; Met & Chem Eng 18:227-31 Mr 1 '18  
 117th meeting, Denver and Colorado Springs, Sept. 2-5. Chem & Met Eng 19: 278-86 S 15 '18; Eng & Min J 106:501 S 14 '18; Am Soc M E J 40:858 O '18  
 118th meeting of the Institute of metals division, Milwaukee, Oct. 8. Foundry 46:530-1 N '18  
 119th annual meeting, New York, Feb. 17-20. Chem & Met Eng 20:208-15 Mr 1 '19; Eng & Min J 107:373-4, 414-15 F 22-Mr 1 '19; Iron Age 103:563-6 F 27 '19; Iron Tr R 64:578-9 F 27 '19; Metal Ind 17:111-12 Mr '19  
 120th meeting, Chicago, Sept. 22-26. Eng & Min J 108:328-9, 364-6, 655 Ag 23-30, S 27 '19; Chem & Met Eng 21:458-61 O 8 '19; Iron Tr R 65:900-1 O 2 '19; Iron Age 104:1058-61 N 27 '19; Metal Ind 17:477-81 N '19  
 Reports for the year 1917. Am Inst Min E Bul 134:sup9-24 F '18  
 Session on milling and industrial organization, Chicago, September 22. Eng & Min J 108:588 O 4 '19  
 Some facts and figures about the A. I. M. E. II Eng & Min J 108:433-9 S 13 '19  
 23d annual convention, Milwaukee, Oct. 7-11. Iron Age 102:955-65 O 17 '18; Metal Ind 16: 445-58 O '18; Foundry 46:501-11 N '18
- American Iron and Steel Institute**  
 New committee for scrap. Iron Age 101:360 Ja 31 '18  
 New members. Iron Age 101:1532 Je 13 '18  
 16th general meeting, New York city, Oct. 24. Iron Tr R 65:1194-6 O 30 '19  
 Stricter control over ferro alloys; Institute to act as clearing agent. Iron Tr R 62:439-40 F 14 '18  
 War writes steel's brightest page. E. C. Kreutzberg. Iron Tr R 64:42-51 Ja 2 '19

- American iron, steel and heavy hardware association**  
Annual convention, Atlantic City, N.J. Iron Age 101:1394-6 My 30 '18
- American locomotive company**  
Annual report for fiscal year ended June 30, 1918. Ry Age 66:897 N 15 sec 2 '18
- American lumber congress**  
American lumber congress considers the industry's problems. Am Lumberman 2292: 56-64 Ap 19 '19  
Proceedings. Am Lumberman 2292:1, 47-67 Ap 19 '19
- American machinist (periodical)**  
Anent our fortieth birthday. W. D. Forbes. Am Mach 48:20-1 Ja 3 '18  
Value of the American machinist as a college textbook. J. A. De Turk. Am Mach 48:531-2 Mr 28 '18
- American manufacturers export association**  
Exporters in drive for world trade. Iron Tr R 63:1078-9 N 7 '18  
10th annual convention, New York, Oct. 16-17. Ry Age 67:701-2 O 3 '19
- American metric association**  
2d meeting, Pittsburgh, Pa., Dec. 28-29, 1917. J Ind & Eng Chem 10:154 F '18
- American mining congress**  
American mining congress. B. Wells. Eng & Min J 107:489-90 Mr 15 '19
- American oak manufacturers' association. See American hardwood manufacturers' association**
- American paper and pulp association**  
Paper associations joint convention, New York, Feb. 3-6. Chem & Met Eng 20:184-5 F 15 '19
- American petroleum institute**  
Natural gas and petroleum wartime activities. C. C. Smith. Gas Age 44:90-2 Ag 1 '19
- American photoengravers' association**  
23d annual convention, Buffalo, June 19-21. S. H. Horgan. Inland Ptr 63:415-16 Jl '19
- American pig iron association**  
Annual meeting, Pittsburgh, Feb. 7. Iron Age 101:472 F 14 '18
- American railroad association**  
Atlantic City conventions. Ry Mech Eng 93: 185-7 Ap '19  
Developments in American railroad association. Ry Age 66:541-2 Mr 7 '19  
New section of American railroad association; superseding the American storekeepers' association. Ry Mech Eng 93:296 Je '19  
Personnel of general committees. Ry R 64: 400 Mr 15 '19  
Reorganization of the American railway association taking in several auxiliary associations. Ry Age 66:194-6 Ja 17 '19; Same. Ry R 64:86-9 Ja 18 '19
- Mechanical section**
- 1st annual meeting, Atlantic City, June 18-25. Elec Ry J 53:1213-16, 1268-70 Je 21-28 '19; Ry R 64:922-5+, 977-85, 994-1000 Je 21-28 '19
- Mechanical section of American railroad association; rules of order. Ry Age 66:535-7 Mr 7 '19; Ry R 64:345-6 Mr 8 '19**
- Signal division**  
(formerly Railway signal association)
- 1st annual meeting, Chicago. Sept. 17-19. Ry Age 67:613-16 S 26 '19; Ry R 65:429-30, 450 S 20-27 '19  
Meeting, Atlantic City, June 26-27. Ry Age 67:31-4 Jl 4 '19  
Spring meeting of signal division, Chicago, March 17. Ry R 64:433-4 Mr 22 '19
- Telegraph and telephone division**
- Convention of the telegraph superintendents consider mailgram service, wire crossings and pole line construction. Ry Age 66:1542-4 Je 20 '19
- American railway accounting officers, Association of. See Association of American railway accounting officers**
- American railway association. See American railroad association**
- American railway bridge and building association**  
28th annual convention, Chicago, Oct. 15-17. Ry Age 65:705-13 O 18 '18; Ry R 63:559-61 O 19 '18  
29th annual convention, Cleveland, Oct. 21-23. Ry R 65:609-10 O 25 '19
- American railway commission**  
American railway commission in Russia. J. E. Greiner. Ry R 63:170-2 Ag 3 '18; Same cond. Eng & Contr 50:56-8 Jl 17 '18
- American railway engineering association**  
Brief summarization of reports submitted to 19th annual convention. Eng N 80:547-50 Mr 21 '18; Elec Ry J 51:565-7, 618 Mr 23-30 '18  
Committee work. Ry Age 66:949 Ap 11 '19  
19th annual convention, Chicago, March 19-21. Ry R 62:417-25 Mr 23 '18; Eng N 80:632 Mr 28 '18  
President's address. C. A. Morse. Ry R 64: 440-3 Mr 22 '19  
President's address. J. G. Sullivan. Ry R 62: 437-9 Mr 23 '18  
Recommendations of fourteen committees adopted. Eng N 80:606 Mr 28 '18  
20th annual convention, Chicago, March 18-20. Elec Ry J 53:649-51 Mr 29 '19; Eng N 82: 806-9 Mr 27 '19; Ry R 64:435-40, 446-8 Mr 22 '19; Iron Age 103:819 Mr 27 '19
- American railway express company**  
Express company taken over and rates raised. Ry Age 65:924-5 N 22 '18  
Four express companies to be consolidated. Ry Age 64:1377-82 Je 7 '18  
Outline of government's scheme of organization for handling express business during the war. E. A. Stedman. Ry R 63:531-3 O 12 '18
- American railway master mechanics' association (now American railroad association—Mechanical section)**  
Joint meeting with the Master car builders' association, Chicago, June 19-20. Ry Age 64:1514-32 Je 21 '18; Ry R 62:938-51 Je 29 '18  
Past and future of the mechanical associations. W. Schlafe. Ry R 62:904-6 Je 22 '18; Same cond. Ry Age 64:1515-16 Je 21 '18
- American railway tool foremen's association**  
9th convention, Chicago, Aug. 27-29. Ry R 65:315-16 Ag 30 '19; Ry Age 67:471-2 S 5 '19; Ry Mech Eng 93:613-16 O '19
- American red cross. See Red cross**
- American relief administration. See United States—American relief administration**
- American road builders' association**  
15th annual convention, St. Louis, Feb. 4-7. Good Roads n s 15:75-8+ F 9 '18; Munic J 44:129-30 F 16 '18  
History, aims and officers of the national organization. Good Roads n s 17:79-83 F 22 '19  
History of the association and the St. Louis convention program. Good Roads n s 15:65-9 F 2 '18  
Proposed changes in constitution. Good Roads n s 16:36 Jl 27 '18  
16th annual convention, New York city, Feb. 25-28. Good Roads n s 17:95-7, 105-8 Mr 1-8 '19; Munic J 46:197-200 Mr 8 '19
- American short line railroad association**  
Convention, Washington, D. C., June 3-5. Ry Age 66:1377-80 Je 6 '19; Elec Ry J 53:1172 Je 14 '19
- American smelting and refining company**  
Report for the fiscal year ended Dec. 31, 1917. Eng & Min J 105:682 Ap 13 '18
- American society for municipal improvements**  
Reports at the 24th annual convention. Good Roads n s 16:140-2+ O 12 '18  
24th convention, Buffalo, N.Y., Oct. 2-5. Munic J 45:277-80 O 12 '18

- American society for testing materials**  
 21st annual meeting, Atlantic City, June 25-28. Iron Age 102:14-18 JI 4 '18; Eng N 81:56 JI 4 '18; Iron Tr R 63:33 JI 4 '18; Ry Age 65:27-30 JI 5 '18; Power 48:68-9 JI 9 '18; Munic J 45:61 JI 20 '18
- 22d annual meeting, Atlantic City, N. J., June 24-27. Am Arch 116:53-6 JI 9 '19; Elec Ry J 54:24-5 JI 5 '19; Eng N 83:9-14 JI 3 '19; Foundry 47:460-1 JI 15 '19; Iron Age 103:1748-a Je 26 '19; Ry Age 67:16-20 JI 4 '19; Arch Forum 31:52-3 Ag '19
- American society of agricultural engineers**  
 11th annual meeting, Chicago, Dec. 27-29, 1917. Eng N 80:52 Ja 3 '18
- American society of civil engineers**  
 Annual meeting, Jan. 15. Eng N 82:160-1 Ja 16 '19  
 Committee on development. Eng N 80:1209-10; 81:239-41 Je 27, Ag 1 '18; Resolutions. Am Soc M E J 40:712 Ag '18; Eng & Contr 50:49-50 JI 17 '18  
 Committee on development. Ry R 64:14-16 Ja 4 '19  
 Committee on development: its purpose and field. A. N. Talbot. Eng & Contr 50:381-2 O 23 '18  
 Development committee of American society appointed. Eng N 81:658-60, 688-9 O 10 '18  
 Low working stress for spare-end steel columns is recommended by column committee; abstracts. Eng N 80:250-3 F 7 '18; Eng & Contr 49:223-5 F 27 '18  
 Problems before American society of civil engineers. C. T. Johnston. Eng N 82:154-5 Ja 16 '19  
 Problems before the Civil engineers' society. G. S. Williams. Eng N 81:1018-19 D 5 '18  
 Prominent engineers approve development-committee plan. Eng N 81:134-6 JI 18 '18  
 Revised constitution voted down. Eng N 80:532 Mr 14 '18  
 2d progress report of Development committee. Eng N 82:1229-30 Je 19 '19; Same. Eng & Contr 52:82-3 JI 16 '19; Same. Ry R 65:108-10 JI 19 '19  
 Shall the American society defeat the revised constitution? Eng N 80:325, 375-7, 424-5, 527 F 14-28, Mr 14 '18  
 65th annual meeting, Jan. 16. Eng N 80:139-40 Ja 17 '18  
 Society welcomed to its new home in the Engineering societies' building, New York. Eng N 79:1144-7 D 20 '17; Am Inst E E Pro 37:sup4-5 Ja '18; Am Soc M E J 40:78-9 Ja '18  
 Society's war activities and journalistic criticism. C. W. Hunt. Eng N 79:1091-2 D 13 '17
- American society of heating and ventilating engineers**  
 Cooperation between the National district heating association and the American society of heating and ventilating engineers. D. L. Gaskill. Am Soc Heat & V E 23:585-90; Discussion. 591-4 '17  
 Engineers face to face with a new era in association work; meeting of New York chapter. Heat & Ven 16:40-2 N '19  
 Engineers' fuel saving suggestions at a meeting of New York chapter. F. West; W. M. Mackay. Metal Work 89:290-2 Mr 1 '18  
 Proceedings and papers of the semi-annual meeting, July 18-20, 1917. Am Soc Heat & V E 23:317-678 '17  
 Proceedings and papers of the twenty-third annual meeting, New York, Jan. 16-18, 1917. Am Soc Heat & V E 23:1-314 '17  
 Record of year's work of engineers' society. F. R. Still. Metal Work 91:168-70+ F 7 '19  
 Report of committee on engineering co-operation. Am Soc Heat & V E 23:393-406 '17  
 Report of committee on school house standards. Am Soc Heat & V E 23:411-14 '17  
 Report of committee on standard method of testing air washers. Am Soc Heat & V E 23:407-10 '17
- Semi-annual meeting, Buffalo, N.Y., June 26-28. Heat & Ven 15:27-42 JI '18; Metal Work 90:15-20 JI 5 '18; Dom Eng 84:17-20 JI 6 '18; Am Soc M E J 40:709-10 Ag '18; Am Soc Heat & V E 24:265-8 '18
- Semi-annual meeting, Pittsburgh, June 10-12. Dom Eng 87:527-30 Je 21 '19; Heat & Ven 16:26-37 JI '19; Metal Work 91:807-11 Je 20 '19; Power 49:990-1 Je 24 '19
- 24th annual meeting, New York, Jan. 22-24. Metal Work 89:171-80 F 1 '18; Dom Eng 82:176+ F 2 '18; Power 47:203-4 F 5 '18; Heat & Ven 15:28-44 F '18
- 24th annual meeting, New York, July 26-28. Am Soc Heat & V E 24:1-439 '18
- 25th annual meeting, New York, Jan. 28-30. Heat & Ven 16:35-53 F '19; Metal Work 91:180-8 F 7 '19; Power 49:222-3 F 11 '19; Dom Eng 86:263-8+ F 8 '19
- 25th annual meeting with report of committee of the Bureau of research. Metal Work 91:151-2+ Ja 31 '19
- Research bureau**  
 Bureau of research of the American society of heating and ventilating engineers. bibliog II Mech Eng 41:759-64 S '19  
 Bureau of research to start operations this summer. Heat & Ven 16:57-8 Je '19  
 Heating engineers' research bureau. II Metal Work 91:725-6 Je 6 '19  
 Progress report; with discussion. Am Soc Heat & V E 24:269-72 '18  
 Report of committee on Research bureau. Am Soc Heat & V E 24:4-6 '18  
 Report of Research bureau committee. Metal Work 91:808-10 Je 20 '19
- American society of mechanical engineers**  
 Aims and organization of the society. Am Soc M E J 41:12-15 Ja '19  
 A.S.M.E. committee on local sections; tabulation. Am Soc M E J 41:190-1 F '19  
 Annual meeting, New York city, Dec. 3-6. Elec Ry J 52:1008-9 D 7 '18; Power 48:900-2 D 17 '18  
 Annual meeting of Boston section, May 29. Power 47:850-2 Je 11 '18  
 Chairmen of local sections, executive committees; portraits. Am Soc M E J 41:76-7 Ja '19  
 Committee appointments. C. W. Rice. Am Soc M E J 40:161-2 F '18  
 Committee on development. Am Soc M E J 40:794 S '18  
 Cooperation between the A. S. M. E. and the War industries board. Am Soc M E J 40:877 O '18  
 First public discussion of the A. S. M. E. rules for conducting performance tests of power plant apparatus. Am Soc M E J 40:123-35 F '18  
 John A. Stevens trust fund. Am Soc M E J 40:479 Je '18  
 Joint committee on gages of the American society of mechanical engineers and the Society of automotive engineers. Am Soc M E J 40:70-2 Ja '18  
 Limiting the impurities in coal; fuel session. Iron Age 101:1534-7 Je 13 '18  
 Meeting, Detroit, June 16-19. Iron Age 103:1728-9 Je 26 '19; Mech Eng 41:567-71 JI '19; Power 50:33-7 JI 1 '19  
 New by-laws governing sections of the A.S.M.E.; what they permit and encourage. L. C. Marburg. Am Soc M E J 40:209-11 Mr '18  
 Progress of the Society's technical committee. Am Soc M E J 40:792-3 S '18  
 Relation of engineering to industrial management. D. S. Kimball. Am Soc M E J 40:121-2 F '18  
 Report of committee on limits and tolerance in screw thread fits. charts diagr Am Mach 48:313-26 My 30 '18; Same. Am Soc M E J 40:661-75 Ag '18; Excerpts. Mach 24:1061-2 JI '18  
 Report of the committee on industrial relations. Mech Eng 41:715 Ag '19  
 Report of the committee on standardization of flanges and pipe fittings. diagr Am Soc M E J 40:850-3 O '18  
 Report on proposed activities of mechanical engineers. Eng N 83:22-3 JI 3 '19  
 Reports of standing committees of administration. Am Soc M E J 40:1062-6 D '18  
 Sections reports and progress for the year. Am Soc M E J 40:797-801 S '18

- American society of mechanical engineers—Cont.**  
Service rendered through its Engineering resources committee. C. W. Rice. Am Soc M E J 40:317-18 Ap '18
- Spring meeting, Worcester, Mass., June 4-7.**  
Am Mach 48:1022-3, 1070-2 Je 13-20 '18; Iron Age 101:1550-1 Je 13 '18; Iron Tr R 62:1499-1501 Je 13 '18; Am Soc M E J 40:pt 1, 521-60 J1 '18; Power 47:886-8 Je 18 '18
- Suggested extension of the scope of transactions.** S. A. Moss. Am Soc M E J 40:396 My '18
- 38th annual meeting, New York, Dec. 4-7.** Am Soc M E J 40:1-72 Ja '18; Am Mach 47:1097-9 D 20 '17; Elec Ry J 50:1077 D 15 '17; Elec W 70:1115-18 D 8 '17; Eng N 79:1122-5 D 13 '17; Iron Age 100:1424-7+ D 13 '17; Iron Tr R 61:1286-9 D 13 '17; Power 46:813-14 D 11 '17
- 39th annual meeting, New York city.** Am Mach 49:1098-1100 D 12 '18
- Usefulness of a technical society in war; inquiries received by A. S. M. E. in one week.** C. W. Rice. Am Soc M E J 40:401-2 My '18
- War industries readjustment committee.** Am Soc M E J 40:695-6 Ag '18
- Committee on aims and organization**  
Committee on aims and organization; report. Mech Eng 41:601-3 J1 '19  
Portraits. Mech Eng 41:296-9 Mr '19
- American society of refrigerating engineers**  
Meeting. New York section, Sept. 18. Power 48:507, O 1 '18
- 6th western meeting, Cincinnati, May 19-21.** Power 49:871-2 Je 3 '19
- American society of sanitary engineering**  
13th annual convention, Chicago, Oct. 14-15. Dom Eng 85:87-9+ O 19 '18; Metal Work 90:479-83 O 25 '18
- 14th annual convention, Cleveland, Sept. 15-17.** Dom Eng 88:552-4 S 20 '19; Metal Work 92:377-81 S 26 '19
- American steel treaters' society**  
1st convention, Chicago, Sept. 23-27. Iron Tr R 65:925 O 2 '19; Chem & Met Eng 21:530 O 22 '19; Iron Age 104:1061-2 N 27 '19
- Program for the convention, Seventh regiment armory, Chicago, Ill., Sept. 23-27.** Am Mach 51:441 Ag 28 '19
- American supply and machinery manufacturers association**  
Supply conventions, Cleveland, May 15-17. Iron Age 101:1346-51 My 23 '18; Am Mach 48:1095-9 Je 27 '18
- American telephone and telegraph company**  
Annual report for 1917. Elec W 71:584 Mr 16 '18
- Telegraph companies' compensation.** Ry R 63:580 O 19 '18
- American tractor association**  
Tractor makers protest curtailment; 30 manufacturers form association. Automotive Ind 39:657-9+ O 17 '18
- American university experiment station**  
Institute for research in synthetic organic chemistry. A. S. Loewenhardt. J Ind & Eng Chem 10:971-3 D '18
- American water works association**  
American water works body to have New York home. Eng N 83:533 S 11 '19
- Association's policies.** C. E. Davis. Am Water Works Assn J 6:581-2 S '19
- Constitution, list of past presidents, officers 1918-1919, committees 1918-1919, roll of honor, members.** Am Water Works Assn J 5:supl-114 S '18
- Constitution, list of past presidents, list of officers 1919-1920, list of sections, list of committees 1919-1920, roll of honor, list of members.** Am Water Works Assn J 6:supl-117 S '19
- President's address.** T. A. Leisen. Am Water Works Assn J 5:250-1 S '18
- Proceedings 38th annual convention, St Louis, Mo., May 13-17.** Am Water Works Assn J 5:363-84 S '18; Eng N 80:973, 1015+ My 16-23 '18
- Progress report of committee on mechanical analysis of sands.** Am Water Works Assn J 5:346-54 S '18
- Proposed amendments to the constitution.** map Am Water Works Assn J 5:355-62 S '18
- Report of City planning committee.** Il Am Water Works Assn J 6:1-9 Mr '18
- Report of committee on private fire protection service.** bibliog diagrs Am Water Works Assn J 6:679-770; Discussion. 771-84 N '19
- Report of committee on war burdens of water works in the United States.** Am Water Works Assn J 5:303-44 S '18
- Report of the 38th annual convention, St Louis.** C. C. Brown. Munic J 44:431-2, 452-3, 472-3 My 25-Je 8 '18
- 38th annual convention, St Louis, May 13-18.** Eng N 80:973, 1015+ My 16-23 '18
- 39th annual convention, Buffalo, June 10-18.** Eng N 82:1233-4 Je 19 '19; Munic J 46:446-9, 468-72 Je 21-28 '19
- American welding society**  
Organization. Am Mach 50:571-2, 720 Mr 20, Ap 10 '19; Elec W 73:701 Ap 5 '19; Iron Tr R 64:910 Ap 3 '19; Iron Age 103:690 Mr 13 '19
- Plan for organization of American welding society.** Elec W 73:545 Mr 15 '19
- American wood preservers' association**  
14th annual convention, Chicago, Jan. 22-24. Ry R 62:129-30 Ja 26 '18; Am Lumberman 2228:59 Ja 26 '18; Ry Age 64:277-80 F 1 '18
- 15th annual meeting, St Louis, Jan. 28-29.** Ry R 64:177-9 F 1 '19; Ry Age 66:365-7 F 7 '19; Am Lumberman 2281:74-5+ F 1 '19
- American woolen company**  
Annual report for the year ending Dec. 31, 1917. Textile World 53:4132 Mr 9 '18
- American zinc institute**  
Annual meeting, St Louis, June 9-10. Eng & Min J 107:1095 Je 21 '19; Chem & Met Eng 21:29 J1 '19
- Committee appointed to effect permanent organization.** Chem & Met Eng 19:235 S 1 '18
- 1st meeting, St Louis, July 29.** Eng & Min J 106:68-9, 230 J1 13, Ag 3 '18
- Americanisms**  
American language. F. H. Teall. Inland Ptr 63:398-9 J1 '19
- Americanization**  
Aims and standards in industrial Americanization. C. H. Paull. Ind Management 57:148-51 F '19
- Americanization.** Sci Am 118:562 Je 22 '18
- Americanization a problem in human engineering.** H. D. Hammond. Eng N 80:1116-19 Je 13 '18
- Americanization in industry; teaching the English language to aliens.** W. Talbot. Ind Management 56:510-11 D '18
- Americanization of railway shop men.** Ry Age 67:54-5 J1 11 sec 1 '19
- Americanization of the foreign-born.** Mrs W. D. Spurburg. Am Inst Min E Bul 147:suplx-xiv Mr '19
- Americanization—what it means.** Am Arch 114:263 Ag 28 '18
- Americanization work conducted by Worcester manufacturers.** Mach 26:265 N '19
- Americanization work in Newark, N.J.** Chem & Met Eng 21:375-6 S 15 '19
- Americanizing employees; features of an effective campaign in Connecticut.** Iron Age 103:966 Ap 10 '19
- Americanizing the foreigner.** Coal Age 14:286, 415, 521, 614, 708-9, 873-5 Ag 8, 29, S 12, 26, O 10, N 7 '18
- Better Americans, better workers—at slight expense.** C. A. Livingston. Il Factory 23:1302-4 D '19
- Conference for industrial peace.** Metal Work 91:293-4 F 28 '19
- Congress plans to educate aliens.** Iron Tr R 65:1131 O 23 '19
- Connecticut Americanization plan.** Am Ind 20:22 Ag '19
- Development of Americanization project.** C. H. Paull. Il Ind Management 57:213-17 Mr '19
- Factory school as an Americanizing force.** T. A. Levy. Am Ind 20:23-4 S '19

**Americanization—Continued**

- How business men can help stir the melting pot. *Am Lumberman* 2246:32 Je 1 '18
- Making American citizens at Minneapolis. *Il Elec Ry J* 54:279-80 Ag 9 '19
- Making Americans out of the foreign born. *S: Rea. Il Am Lumberman* 2256:49 Ag 10 '18; Same. *Am Mach* 49:673-6 O 10 '18; Same *sbr. Ry R* 62:693-5 My 11 '18
- Making use of the alien. *Am Mach* 48:637 Ap 11 '18; Discussion. *A. Ellsworth. 48:810 My 9 '18*
- Nation-wide Americanization plan. *Am Mach* 48:752 My 2 '18
- National safety council outlines Americanization in industry. *Iron Tr R* 65:1255 N 6 '19
- One language industrial plant. *W. Talbot. Ind Management* 58:313-20 O '19
- Real results of Americanization schools of Youngstown sheet & tube co. *Iron Age* 102:188-9 JI 18 '18; Same. *Iron Tr R* 63:264-5 Ag 1 '18
- Wisconsin town erects community house to promote Americanism. *Il Am Lumberman* 2253:39+ JI 20 '18

*See also* Immigrants in the United States

**Americanization in Industries; National conference on. See National conference on Americanization in Industries**

**Amides**

- Aromatic arsenic compounds; aromatic amides of *N*-arylglycine arsonic acids. *W. A. Jacobs and M. Heidelberger. Am Chem Soc J* 41:1610-44 O '19
- Aromatic arsenic compounds; *N*-(phenyl-4-arsonic acid)- $\alpha$ -phenylglycine and its amides. *W. A. Jacobs and M. Heidelberger. Am Chem Soc J* 41:1622-5 N '19
- Aromatic arsenic compounds; the amides of (4-arsonic acid)-phenoxycetic acid and the isomeric phenoxycetyl-arsanilic acids. *W. A. Jacobs and M. Heidelberger. Am Chem Soc J* 41:1834-40 N '19
- Rotatory powers of the amides of active  $\alpha$ -hydroxy acids of the sugar group. *C. S. J* 40:813-17 My '18
- Rotatory powers of the amides of several  $\alpha$ -hydroxy acids of the sugar group. *C. S. Hudson and S. Komatsu. Am Chem Soc J* 41:1141-7 JI '19

**Amidophenols**

- Catalytic preparation of the amidophenols and the phenylenediamines. *O. W. Brown and L. L. Carrick. Am Chem Soc J* 41:436-40 Mr '19

**Amines**

- Certain aromatic amines and chloroacetyl derivatives. *W. A. Jacobs, M. Heidelberger and I. P. Rolf. Am Chem Soc J* 41:458-74 Mr '19
- Formation of ammonia and amines in canned sardines during storage. *F. C. Weber and J. B. Wilson. J Ind & Eng Chem* 11:121-6 F '19
- Halogen derivatives of aromatic amines and their analysis. *F. B. Dains, T. H. Vaughan and W. M. Janney. Am Chem Soc J* 40:930-6 Je '18
- Phthalic acid derivatives; constitution and color, the action of amines upon dichlorophthalic anhydrides. *D: S. Pratt and G. A. Perkins. Am Chem Soc J* 40:214-19 Ja '18
- Studies on proteinogenous amines. *K. K. Koessler and M. T. Hanke. Am Chem Soc J* 40:1716-26 N '18

**Amino acids**

- Nitrogenous auxoamylases. *E. W. Rockwood. Am Chem Soc J* 39:2745-52 D '17

**Amino compounds**

- Aromatic arsenic compounds; the amides and alkyl amides of *N*-arylglycine arsonic acids. *W. A. Jacobs and M. Heidelberger. Am Chem Soc J* 41:1587-1600 O '19
- Certain amino and acylamino phenol ethers. *M. Heidelberger and W. A. Jacobs. Am Chem Soc J* 41:1450-72 S '19
- Condensation of amino compounds with nitromalonic aldehyde. *W: J. Hale and E: M. Honan. Am Chem Soc J* 41:770-6 My '19

**Aminoaryl arsonic acids**

- Nitro- and aminoaryl arsonic acids. *W. A. Jacobs, M. Heidelberger and I. P. Rolf. Am Chem Soc J* 40:1580-90 O '18

**Aminocarvacrol**

- Para cymene; the utilization of cymene for the preparation of photographic developers. *H. A. Lubs. J Ind & Eng Chem* 11:455-6 My '19

**Aminoflavones**

- Synthesis of aminoflavones, of flavone- $\alpha$ -beta-naphthol dyes, and of other flavone derivatives. *M. T. Bogert and J. K. Marcus. Am Chem Soc J* 41:83-107 Ja '19

**Aminopropiophenone**

- Condensation of  $\beta$ -amino-propiophenone with nitromalonic aldehyde. *W. J. Hale and E. C. Britton. Am Chem Soc J* 41:1020-7 Je '19

- Preparation of  $\beta$ -aminopropiophenone. *W: J. Hale and E. C. Britton. Am Chem Soc J* 41:841-7 My '19

**Amino-uracil**

- Researches on pyrimidines; alkylation of 5-amino-uracil. *T. B. Johnson and I. Matsuo. Am Chem Soc J* 41:782-9 My '19

**Ammeters**

- Ammeters were reversed. *E. C. Parham. Power* 47:93 Ja 15 '18
- Experience of the hazards of synchronous motor field ammeters. *B. H. Smith. Elec R* 75:452 S 13 '19
- Multi-range ammeter with external shunts. *Il diag Elec W* 73:741 Ap 12 '19

*See also* Ampere-hour meters; Electric meters

**Ammonia**

- Absorption spectra of the blue solutions of certain alkali and alkaline earth metals in liquid ammonia and in methylamine. *G. E. Gibson and W. L. Argo. diags Am Chem Soc J* 40:1327-61 S '18
- Adiabatic compression of ammonia. *Power* 47:273 F 19 '18
- Ammonia and nitric nitrogen determinations in soil extracts and physiological solutions. *B. S. Davison. diags J Ind & Eng Chem* 10:600-5 Ag '18
- Ammonia for fire extinguishing. *A. Schleiher. Mach* 24:443-4 Ja '18
- Ammonia from coal. *M. Meredith. Coal Age* 16:563-5 O 2 '19
- Ammonia in gas purification. *M. Meredith. Gas Age* 43:193-4 F 15 '19
- Ammonia in producer gas. *F. K. Ovits. Chem & Met Eng* 21:253-5 S 1 '19
- Ammonia plant at the Stockholm gas works. *diags Gas Age* 43:182-4, 183-5 F 1-15 '19
- Ammonia program for 1918. *C: W. Merrill. J Ind & Eng Chem* 10:480-2 Je '18
- Ammonia, refrigeration and munitions. *Met & Chem Eng* 18:277 Mr 15 '18; Discussion. 18:389-90 Ap 15 '18
- Ammonia required for new refrigerating plant. *J. Killian. Power* 49:849 Je 3 '19
- Ammonia-saving suggestion. *Power* 48:250 Ag 13 '18
- Analytical method for determining efficiency of ammonia oxidation. *D. P. Gallard. diag J Ind & Eng Chem* 11:745-7 Ag '19
- Commercial oxidation of ammonia to nitric acid. *C: L. Parsons. Il diags J Ind & Eng Chem* 11:541-52 Je '19; Abstract. *Chem & Met Eng* 20:502-3 My 15 '19
- Continuous liquor sampler. *K. Norton. diags Gas Age* 42:112 Ag 1 '18
- Data on platinum gauze used as a catalyzer for the oxidation of ammonia; table of weights and active surface of platinum, air space, etc., shown for a unit of one square inch of gauze of a given mesh and diameter of wire. *A. A. Campbell. J Ind & Eng Chem* 11:468-9 My '19
- Determination of loosely bound nitrogen as ammonia in eggs. *N. Hendrickson and G. C. Swan. diags J Ind & Eng Chem* 10:614-17 Ag '18

**Ammonia—Continued**

- Development in nitric acid manufacture in the United States since 1914. E. J. Pranke. *Chem & Met Eng* 19:395-6 S 25 '18; Same. *J Ind & Eng Chem* 10:830-2 O '18; Same. *Gen Elec R* 21:804-6 N '18
- Effect of acetylene on oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *diag J Ind & Eng Chem* 10:457-9 Je '18
- Effect of hydrochloric acid on the nitrogen-hydrogen equilibrium. E. B. Ludlam. *Met & Chem Eng* 18:208 F 15 '18
- Effect of phosphine and hydrogen sulfide on the oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *J Ind & Eng Chem* 11:27-8 Ja '19
- Electric power for nitrogen fixation. E. K. Scott. *diag Am Inst E E Pro* 37:779-92 Jl '18; Same cond. *Chem & Met Eng* 19:411-14 S 25 '18
- Extracting ammonia from gases; patent. *diag Chem & Met Eng* 21:102-3 Jl 15 '19
- Food administration urges conservation of ammonia. *Power* 48:105 Jl 16 '18
- Formation of ammonia and amines in canned sardines during storage. F. C. Weber and J. B. Wilson. *J Ind & Eng Chem* 11:121-6 F '19
- Heat of reaction of ammonia oxidation. G. B. Taylor. *J Ind & Eng Chem* 11:121-3 D '19
- How the nitrogen problem has been solved. H. J. M. Creighton. *il diag J Fr Inst* 187:705-16; Bibliography. 716-35 Je '19
- Increasing the ammonia yield. *Am Gas Eng J* 111:223-5 S 13 '19
- Investigation of the reaction between antimony and solutions of sodium in liquid ammonia. E. B. Peck. *diag Am Chem Soc J* 40:335-47 F '18
- Latent heat of pressure variation of liquid ammonia. N. S. Osborne and M. S. Van Dusen. *U S Bur Stand Bul* 14:433-8 Je 24 '18
- Latent heat of vaporization of ammonia. N. S. Osborne and M. S. Van Dusen. *U S Bur Stand Bul* 14:439-72 Je 24 '18; Same cond. *Am Chem Soc J* 40:14-25 Ja '18; Excerpts. *Power* 47:632-3 Ap 30 '18
- Liquid ammonia in a Dutch gas plant. M. Cluwer. *Gas Age* 41:176-7 F 15 '18
- New absorbent for ammonia respirators. G. St. J. Ferrott, M. Yablick and A. C. Fieldner. *il diag J Ind & Eng Chem* 11:1013-16 N '19
- New process for the synthesis of ammonia. *Chem & Met Eng* 21:438-9 O 1 '19
- Oxidation of ammonia. W. S. Landis. *diag Chem & Met Eng* 20:470-7 My 1 '19; Discussion. 21:4 Jl 1 '19
- Oxidation of ammonia; patent. *Met & Chem Eng* 17:716 D 15 '17
- Purification of gas by ammonia. W. A. Twine. *Am Gas Eng J* 109:562-4 D 21 '18
- Recent ammonia processes. *diag Gas Age* 41:272-3 Mr 15 '18
- Recovering ammonia at tar-distilling plants. C. R. Woodward. *Met & Chem Eng* 18:299-301 Mr 15 '18
- Relation between efficiency of refrigerating plants and the purity of their ammonia charge. F. W. Frerichs. *il diag J Ind & Eng Chem* 10:202-11 Mr '18
- Saving ammonia and coal. B. Lamb. *Power* 47:703 My 14 '18
- Solubility of ammonia; abstract. M. J. Eichhorn. *Am Soc M E J* 40:781-2 S '18
- Solubility of naphthalene in ammonia. *Gas Age* 41:28-30 Ja 1 '18
- Specific heat of liquid ammonia. N. S. Osborne and M. S. Van Dusen. *U S Bur Stand Bul* 14:397-432 Je 24 '18; Same cond. *Am Chem Soc J* 40:1-13 Ja '18
- Starting and stability phenomena of ammonia-oxidation and similar reactions. F. G. Liljenroth. *Chem & Met Eng* 19:287-93 S 15 '18; Same. *Gen Elec R* 21:807-15 N '18
- Storage tanks of reinforced concrete for ammoniacal liquors. F. W. Frerichs. *diag plan Concrete* 14:151-4 Ap '19
- Test taper for ammonia leaks. C. E. Freeman. *diag Power* 48:396 S 10 '18
- Testing for ammonia in brine. *Power* 47:90 Ja 15 '18
- Vapor pressure of liquid ammonia up to the critical temperature. F. G. Keyes and R. B. Brownlee. *diag Am Chem Soc J* 40:25-45 Ja '18
- Work of the British nitrogen products committee; plans under way for cyanamide, ammonia, oxidation, and experimental synthetic ammonia plants. *Met & Chem Eng* 18:77-81 Ja 15 '18
- Ammonia compressors**
- Electric motors for ammonia compressor drive; with discussion. *Power* 47:169 Ja 29 '18
- Functions of ammonia compressor. J. E. Starr. *Power* 50:386-7 S 2 '19
- Oil lantern jammed on piston rod. E. W. Miller. *diag Power* 47:660 My 7 '18
- Unusual causes of racing of ammonia compressors. E. W. Miller. *Power* 50:298-9 Ag 19 '19
- Ammonia condensers**
- Ammonia condenser data. H. Torrance. *il diag Power* 49:106-9 Ja 21 '19
- Condenser was full of ammonia. T. T. Grover. *il Power* 47:792-3 Je 4 '18
- Functions of the ammonia condenser. H. J. Macintire. *diag Power* 50:10-11 Jl 1 '19
- Improving efficiency of ammonia condensers. C. H. Herter. *diag Power* 48:952-3 D 31 '18
- Making each coil of ammonia condensers do its share. A. G. Solomon. *diag Power* 49:815-17 My 27 '19
- Refrigerated purge tank. H. J. Macintire. *Power* 50:257 Ag 12 '19
- Selection of ammonia condensers. M. A. Saller. *Power* 47:359-60 Mr 12 '18
- Throttling ammonia. C. H. Herter. *Power* 48:530-1 O 8 '18
- Ventilation of ammonia condensers. T. S. Sieben. *diag Power* 49:396-7 Mr 18 '19
- Ammonia pipe lines. See Piping (refrigerating plants)**
- Ammonia receivers**
- Watch the ammonia receiver. J. E. Starr. *diag Power* 50:142-3 Jl 22 '19
- Ammonium chloride**
- Emulsification of water and of ammonium chloride solutions by means of lamp black. W. C. Moore. *Am Chem Soc J* 41:940-6 Je '19
- Ammonium nitrate**
- Ammonium nitrate from coal gas. *Sci Am S* 36:231 O 12 '18
- Effecting and controlling crystallization of ammonium nitrate. J. E. Bolling. *il diag plan Chem & Met Eng* 20:401-5 Ap 15 '19
- Studies on the official method for pyridine in ammonium nitrate. R. M. Ladd. *il diag J Ind & Eng Chem* 11:552-5 Je '19
- United States ammonium nitrate plant, Perryville, Md. *il Chem & Met Eng* 20:320-6 Ap 1 '19
- See also Nitrate plants (federal)*
- Ammonium persulfate**
- Effect of the iron content of ammonium persulfate on its photographic reducing power. S. E. Sheppard. *J Fr Inst* 186:115-19 Jl '18
- Ammonium salts**
- Neutral ammonium salts of organic acids and their substituted derivatives. L. McMaster and L. Wright. *Am Chem Soc J* 40:683-93 Ap '18
- Ammonium sulfate**
- Ammonia plant at the Stockholm gas works. *diag Gas Age* 43:132-4 F 1 '19
- New process for making neutral sulphate of ammonia. *Sci Am S* 88:55 Jl 26 '19
- Saturation apparatus for recovery of ammonium sulphate. *diag Gas Age* 41:30 Ja 1 '18
- Ammonium trinitride**
- Behavior of the hydronitrogens and their derivatives in liquid ammonia; electrolytic nitridation of various anodes in a solution of ammonium trinitride. A. W. Browne, M. E. Holmes and J. S. King. *Am Chem Soc J* 41:1769-76 N '19

**Ammunition**

Design of artillery ammunition. J. W. Taylor. *diags Sci Am S 88:26-7, 31-2 JI 12 '19*  
 Plant of the Oliver loading company, Old Bridge, N.J., built in sixty days. *Il Am Arch 113:389-92 Mr 27 '18*

*See also* Bullets; Explosives, Military; Gunpowder; Munitions of war; Projectiles; Shells (projectiles); Shrapnel shells

**Testing**

Testing rifle ammunition. *Il Sci Am S 88:221 O 11 '19*

**Ampelopsis quinquefolia.** *See* Virginia creeper

**Ampere-hour meters**

Connecting charge-controlling ampere-hour meter for truck. *diag Elec R 75:75 JI 13 '19*

Locomotive type ampere-hour meter for truck, tractor and locomotive battery charging. *Il Elec R 75:38 JI 5 '19*

**Amphibia.** *See* Batrachia

**Amplifiers**

Application of the thermionic amplifier to conductivity measurements. R. E. Hall and L. H. Adams. *Il diags Am Chem Soc J 41: 1515-25 O '19*

Recent novelties in public speaking; application of the vacuum-tube amplifiers and the loud-speaking telephone. *Il Sci Am 120: 489+ My 10 '19*

Telephone repeaters. B. Gherardi and F. B. Jewett. *Il diags Am Inst E E Pro 38:1255-1313 N '19*

Vacuum-tube amplifiers. M. C. Batsel. *Il diag Elec W 73:568-70 Mr 22 '19*

*See also* Audion

**Amputation**

Prosthesis of the lower limb. *Sci Am S 87: 290-1+ My 10 '19*

**Amyl acetate**

Manufacture of amyl acetate and similar solvents from petroleum pentane. B. T. Brooks, D. F. Smith and H. Essex. *J Ind & Eng Chem 10:511-15 JI '18*

**Amylase.** *See* Diastase

**Amylene**

Organic chemical reagents; amylene, tertiary amyl alcohol. R. Adams, O. Kamm and C. S. Marvel. *Am Chem Soc J 40:1950-5 D '18*

**Anaconda copper mining company**

Professor and the Anaconda. W. R. Ingalls. *Eng & Min J 107:578 Mr 29 '19*

Report. *Eng & Min J 107:234-5 F 1 '19*

Report for the calendar year 1917. *Eng & Min J 105:1005 Je 1 '18*

**Analysis, Chemical.** *See* Assaying; Chemistry, Analytic; also names of substances analyzed, e.g. Coal—Analysis, Gas analysis

**Analysis, Colorimetric.** *See* Colorimetric analysis

**Analysis, Electrochemical.** *See* Electrochemical analysis

**Analysis, Metallurgical.** *See* Metallurgical analysis

**Analysis, Spectrum.** *See* Spectrum analysis

**Anchor bolts**

Anchor bolts held in correct position while concreting footings. A. P. Roscoe. *diag plan Eng N 82:588-9 Mr 20 '19*

**Anchor chains.** *See* Chains

**Anchors**

Allison type of anchor. *Il diags Iron Age 103: 1225-6 My 8 '19*

Casting steel anchors in a permanent mold. *diags Foundry 47:112 Mr '19*

Investigation of the failure of a cast-steel anchor. *Il diags Iron Age 104:773-4 S 18 '19*

New Ryan stockless anchor. *diags Int Marine Eng 23:551-2 S '18*

**Anchors, Guy**

Anchor rod designed to be removed undamaged. *diag Elec W 70:1105 D 8 '17*

**Calculating holding strength of guy anchors.**

G. E. Jansson. *diags Elec R 72:771-2 My 4 '18*

Cone-shaped guy anchor. M. N. Longbothum. *diags Elec W 71:518 Mr 9 '18*

Details of line construction—with particular reference to guying and anchors. C. R. Harte. *Il diags Elec Ry J 52:868-75 N 16 '18*

Examples of pole guying from other fields. C. R. Harte. *Il Elec Ry J 53:321-4 F 15 '19*

When a line pole needs a guy. C. R. Harte. *Il chart diags Elec Ry J 53:139-42 Ja 18 '19*

**Anchors, Pipe**

Homemade anchors for underground heating mains. W. B. Gray. *diags Metal Work 90: 573-5 N 22 '18*

**Anderson, Charles Frederick**

Plea for the recognition of Charles Frederick Anderson as the designer of the wings of the national capitol. G. Keller. *Am Inst Arch J 7:329-30 JI '19*

**Anemometer**

Calibration of anemometers. A. H. Anderson. *Il diags Heat & Vent 14:15-17 D '17*

Design of pressure plate anemometers. C. H. Powell. *diags Aviation 6:374-5 My 1 '19*

Hot-wire anemometer with thermocouple. T. S. Taylor. *diag Am Inst Min Bul 153: 1605-8 S '19*

Hot wire anemometry. J. S. G. Thomas. *Sci Am S 87:106-7 F 15 '19*

Measuring air velocity in mines. *Il Coal Age 13:848 My 4 '18*

Testing an anemometer. *Power 48:283 Ag 20 '18*

**Anemotachometer**

Speed measuring instruments for aeroplanes. *Sci Am S 87:414 Je 28 '19*

**Anesthetics**

New surgical method. *Sci Am 120:289 Mr 22 '19*

**Angle irons**

Handy angle irons for the metal pattern shop. S. L. Cook. *diags Foundry 47:18 Ja '19*

Moments of inertia and center of gravity. *diags Locomotive 32:234-9 O '19*

Some mathematics of boiler construction. H. J. Vander Eb. *diags Locomotive 32:230-3 O '19*

**Angle planers**

Planing of angles in ship construction for watertight calking. E. R. Spencer. *Il Int Marine Eng 24:478-80 JI '19*

**Angle plates**

Kar sine angle plate. *Il Am Mach 49:1007-8 N 28 '18; Iron Age 103:752 Mr 20 '19; Iron Tr R 64:638 Mr 6 '19*

**Angles**

Angle as a beam. R. Fleming. *diags Eng N 82:433-4 F 27 '19*

Chart of angles. H. Hodgkinson. *Am Mach 50:125 Ja 16 '19*

Chart of Helix angles. A. B. Babbitt. *Am Mach 49:720 O 17 '18*

Determination of form-cutter angle. C. C. Soper. *diags Am Mach 51:529-30 S 11 '19*

Double and compound angles. *Mach 25:648, 1049 Mr, JI '19*

Double and compound angles. T. A. Reilly. *diag plan Mach 25:254 N '18*

How would you find the angle X when the hypotenuse of the triangle is tangent to the circle? K. H. Condit. *diag Am Mach 51: 713-14 O 9 '19*

Method of determining angle for milling radial V-grooves. A. Moses. *diag Mach 25: 1066 JI '19*

Obtaining angles with a carpenter's rule. E. Tor. *diag Bldg Age 40:523-4 N '18; Same. Metal Work 92:95 JI 25 '19*

Plotting conduit-run angles with a 2-ft. rule. T. Croft. *diag Elec W 73:275 F 8 '19*

**Angora rabbits**

Angora rabbit and its wool. *Il Textile World 55:2995+ My 17 '19*

**Anheuser-Busch brewery**

Bevo bottling plant. Anheuser Busch brewing association, St. Louis, Mo.; views and plans. *Arch Forum 31:pl 12-13 JI '19*



- Anheuser-Busch brewery—Continued**  
Remodeling suction gas mains. R. H. Karl. II charts diag plans Power 50:48-54 J1 3 '19
- Anhydrides**  
Condensation of 1-phenyl-3-methyl-5-pyrazolone with anhydrides. S. C. Chatterjee and A. K. Das. Am Chem Soc J 41:707-9 Ap '19  
Oxalyl chloride as a reagent in organic chemistry; preparation of aromatic acid anhydrides; reaction with alcohols. R. Adams, W. V. Wirth and H. E. French. Am Chem Soc J 40:424-31 F '18
- Aniline**  
Determination of aniline in dilute aqueous solution. W. G. O. Christiansen. J Ind & Eng Chem 11:763-4 Ag '19  
New method of preparing monomethyl aniline and dimethylaniline by catalysis. A. Mailhe and F. de Godon. Chem & Met Eng 19:410 S 25 '18
- Animals**  
Evolution and destruction of life; effect of modern agencies on wild birds and animals. W. Beebe. Sci Am S 86:266 O 26 '18  
See also Animals, Predatory; Aquariums; Birds; Livestock; Phosphorescence; Zoology; also names of animals, e.g. Dogs, Horses, Sheep
- Protective equipment  
Animal camouflage. P. C. Mitchell. Sci Am S 85:407 Je 29 '18
- Animals, Aquatic.** See Marine fauna
- Animals, Fossil.** See Paleontology
- Animals, Habits and behavior of**  
Animal life at the front. W. Beebe. Sci Am S 86:19 J1 13 '18  
How animals act in aeroplanes. H. Woodhouse. II Flying 8:771-4 O '19  
Why animals play dead; a study of curious phenomena in insect and animal life. E. Rabaud. Sci Am S 86:290-1+ N 9 '18
- Animals, Luminosity of.** See Phosphorescence
- Animals, Predatory**  
Freeing the range of predatory rogues. II Sci Am 119:501 D 21 '18  
Stock-killing animals. Sci Am S 85:69 F 2 '18
- Annealing**  
Annealing aluminium. R. J. Anderson. Sci Am S 87:123 F 22 '19  
Annealing and recrystallization of cold-rolled aluminium sheet. R. J. Anderson. II Met & Chem Eng 18:523-7 My 18 '18  
Annealing by muffle and pot ovens compared. J. E. Deisher. Foundry 46:154-8 Ap '18  
Annealing furnace. diag Iron Tr R 63:560 S 5 '18  
Annealing of glass. A. Q. Tool and J. Valasek. Am Inst Min Bul 153:1945-52 S '19; Discussion. 155:3026-7 N '19  
Anneals tool steel by special packing. II Iron Tr R 65:166-7 J1 17 '19  
Continuous bright annealing furnace. II Metal Ind 16:328 J1 '18  
Copper diffuses through cast iron. H. E. Diller. II Foundry 47:779-80 N 1 '19  
Effect of annealing on the electrical resistance of hardened carbon steel. I. P. Parkhurst. diags J Ind & Eng Chem 10:515-18 J1 '18  
Electric furnace for forging and annealing of steel. W. S. Scott. II Elec R 72:941-4 Je 8 '18; Same. Chem & Met Eng 19:86-9 J1 15 '18; Same cond. Iron Tr R 63:440-2 Ag 22 '18; Abstract. Iron Age 101:1676-7 Je 27 '18  
Ericksen tests on aluminum sheets. R. J. Anderson. Iron Age 101:950-1 Ap 11 '18  
Experiments in annealing malleable iron. H. E. Diller. II Foundry 46:564-6 D '18; Same. Iron Tr R 63:1414-16 D 19 '18  
Graphitization of white cast iron upon annealing. P. D. Merica and L. J. Gurevich. II Am Inst Min Bul 151:1063-72 J1 '19; Abstract. Mech Eng 41:766-7 S '19; Summary. Foundry 47:466 J1 15 '19; Discussion. Am Inst Min Bul 154:2938-42 O '19
- Homemade annealing fixture for partly finished brass pins. F. W. Stalker. diags plan Am Mach 51:429-30 Ag 28 '19  
How to make ordnance steel castings. E. R. Swanson. Iron Tr R 63:836-7 O 10 '18; Same. Iron Age 102:1086-7 O 31 '18; Same. Foundry 46:538 N '18  
Improvements in the Bates & Peard annealing furnace for non-ferrous metals. D. Bates. II diags Metal Ind 16:31-2 F '18  
Influence of tempering and cold-working on carbon steel. F. Cloup. Am Soc M E J 40:500 Je '18  
Notes on the influence of certain variables associated with the anneal of cold-worked alpha brass. A. Phillips and G. C. Gerner. II Chem & Met Eng 20:622-8 Je 15 '19  
Ordnance steel for army and navy. J. H. Hall. Iron Tr R 63:834-6 O 10 '18; Same. Iron Age 102:1084-6 O 31 '18; Same. Foundry 46:535-7 N '18  
Reducing the malleable iron annealing period. A. E. White and R. S. Archer. II Foundry 47:61-5 F '19  
Safe chain loads. A. Black. diag Mach 25:37-9 S '18  
Using pulverized coal for annealing. C. Longenecker. II diags Foundry 47:680-1 O 1 '19; Same. Iron Tr R 65:972-3 O 9 '19  
See also Glass; Iron; Steel
- Anodes**  
Aerating anode; patent. diags Met & Chem Eng 18:485 My 1 '18  
Anode suspension; patent. diag Met & Chem Eng 18:375 Ap 1 '18  
Antisell's lugless copper anode. diags Eng & Min J 105:924-5 My 18 '18  
Behavior of the hydronitrogens and their derivatives in liquid ammonia: electrolytic nitridation of various anodes in a solution of ammonium trinitride. A. W. Browne, M. E. Holmes and J. S. King. Am Chem Soc J 41:1769-76 N '19
- Anomalies of the animal world.** R. W. Shufeldt. II Sci Am S 83:84-7, 243-50, 333-4; 84:100-2, 325-6; 85:4-5, 68-9, 168-70, 245-6, 308-9, 373-4; 86:84-5, 237-8, 404-5; 87:85-7 F 10, Ap 21, My 26, Ag 18, N 24 '17, Ja 5, F 2, Mr 16, Ap 20, My 18, Je 15, Ag 10, O 12, D 28 '18, F 8 '19
- Ansaldo company, Genoa**  
Italian industry in the war; the manufacture of artillery by the Ansaldo, the Genoise Krupp. A. Benington. II Sci Am 118:548-9 Je 15 '18
- Ant eaters**  
Ant pests and ant-eating animals. S. P. Verner. Sci Am S 86:48 J1 20 '18  
Importing insect-destroying animals. Sci Am 118:246 Mr 16 '18  
Silky eater of ants. W. Beebe. II Sci Am S 86:340-1 N 30 '18
- Antarctic regions.** See Zoology—Antarctic regions
- Anthocyanin**  
Anthocyanin pigments in plants and their chemical, physiological and biological functions. Sci Am S 87:2-3+ Ja 4 '19  
Studies on anthocyanins: color variation in anthocyanins. K. Shibata, Y. Shibata and I. Kasiwagi. Am Chem Soc J 41:208-20 F '19
- Anthracene**  
Solubilities, separation, and purification of anthracene, carbazol and phenanthrene. J. M. Clark. J Ind & Eng Chem 11:204-9 Mr '19
- Anthracite coal.** See Coal; Coal mines and mining
- Anthracite slush.** See Culm
- Anthraquinone**  
Anthraquinone derivatives. F. Ulmann and P. Dootson. Color Tr J 4:69 Mr '19  
1, 4, 6-trihydroxyanthraquinone. M. L. Crossley. Am Chem Soc J 40:404-6 F '18  
Quantitative estimation of anthraquinone. H. F. Lewis. J Ind & Eng Chem 10:425-6 Je '18
- Anthropology**  
Anthropology as a corrective of provincialism. J. R. Swanton. Sci Am S 86:171 S 14 '18

**Anthropology—Continued**

Popularizing anthropology; what museums are doing to make science attractive. E: H. Brush. *Il Sci Am S 84:408-11 D 29 '17*

*See also* Cave dwellers; Man, Prehistoric

**Anti-aircraft guns.** *See* Guns, Anti-aircraft

**Anti-dimming compositions**

Anti-dimming compositions for use in the gas mask. P. W. Carleton. *J Ind & Eng Chem 11:1105-11 D '19*

Anti-dimming preparations for gas masks. H. N. Holmes and others. *J Ind & Eng Chem 11:1111-16 D '19*

**Anti-freeze solutions.** *See* Freezing

**Antimony**

Antimony data compiled. Eng & Min J 107: 502 Mr 15 '19

Antimony in 1917. K. C. Li. Eng & Min J 105: 89-90 Ja 12 '18

Antimony in 1918. K. C. Li. Eng & Min J 107: 64-5 Ja 11 '19

Antimony in Oklahoma county, Washington. O. P. Jenkins. Eng & Min J 106:309 Ag 17 '18

Antimony in the province of Hunan, China. Foundry 47:269 My 1 '19

Antimony in the textile industry. E. R. Darling. Textile World 55:1901, 1903+ Mr 29 '19

Antimony plating from the fluoride bath and the testing of other antimony baths. F. C. Mathers, K. S. Means and B. F. Richard. *Il Metal Ind 15:197-9 My '17*

Deposits of antimony in Nevada. N. R. Layng. Eng & Min J 105:797 Ap 27 '18

Electrolytic antimony from stibnite. D. J. Demorest. Eng & Min J 105:10 Ja 5 '18

Electrolytic refining of antimony. Y. C. Wong. Chem & Met Eng 19:509 S 28 '18

Investigation of the reaction between antimony and solutions of sodium in liquid ammonia. E: B. Peck. *diags Am Chem Soc J 40:335-47 F '18*

Practice of antimony smelting in China. C. Y. Wang. *Il diags plans Am Inst Min E Bul 136:927-45 Ap '18; Abstracts. Chem & Met Eng 19:280 S 15 '18; Sci Am S 86:236 O 12 '18*

Should the United States foster the domestic production of antimony. E. C. Miller. Eng & Min J 105:1088-9 Je 15 '18

Treating antimony ores. G: P. Hulst. Am Inst Min Bul 153:1603-4 S '19

**Antimony compounds**

Soluble antimony compounds. Textile World 55:1291+ F 22 '19

**Antimony sulfide**

Antimony sulfide as a constituent in military and sporting arms primers. A. S. Cushman. *J Ind & Eng Chem 10:376-83 My '18*

**Antiseptics**

Antiseptics; work done for the British medical research committee in the pathological department, Edinburgh university. T. Rettie. *Sci Am S 85:202-3 Mr 30 '18*

*See also* Carvacrol; Disinfection and disinfectants; Phenols

**Antitoxins**

Making anti-toxins for war use at the laboratories of the University of Toronto. *Il Sci Am S 85:104 F 16 '18*

**Ants**

Ant pests and ant-eating animals. S. P. Verner. *Sci Am S 86:48 Jl 20 '18*

Ants of high and of low ability. R. Stumper. *Sci Am S 88:166-7 S 13 '19*

Insect tyrants—the army ant and some of his methods. W: Beebe. *Il Sci Am S 87: 228-9 Ap 12 '19*

**Antwerp, Belgium****Water supply**

Antwerp water works during the war period. Mr Van der Taelen. Am Water Works Assn J 6:486-9 S '19

**Apartment houses**

Apartment building for moderate rentals. E. H. Janes. *diags plans Arch Forum 31: 147-52 N '19*

Apartment house, Cambridge, Mass.; views and plan. Am Arch 113:pl 85-7 Mr 13 '18

Apartment houses are in demand—interest investors in your locality. *Il diags plans Bldg Age 41:48-50 F '19*

Apartment studio building, no. 200 West 57th street; views and plans. Am Arch 113:38, 41, pl 17-27 Ja 9 '18

Government housing work at Bridgeport, Conn. W. S. Parker. *Il plans Arch Forum 31:111-18 O '19*

High-class apartment buildings as investments. B. H. Marshall. Am Arch 114:74-6 Jl 17 '18

Interior court and plans of stores and basements, Madison avenue end, apartment house, 270 Park avenue, New York city; views and plans. Arch & Bldg 50:front, pl 83-5 My '18

New garden apartments, Queens county, New York city. *Il diags plans Arch Forum 30:187-91 Je '19*

New type of apartment housing for workmen at Astoria, N.Y. *Il plan Eng & Contr 49: 227-8 F 27 '18*

Revolving apartment; making one room take the place of a whole suite. *Il Sci Am 121: 136-7 Ag 9 '19*

Rodin studio apartments, 57th street and 7th avenue, New York city; views and plan. Arch & Bldg 49:pl 179-81 D '17

Some recent New York apartment houses. W. W. Beach. *Il plans Arch Forum 30:127-36 My '19*

War and industrial housing. H: A. Smith. *Il plans Am Arch 113:33-7 Ja 9 '18*

*See also* Tenement houses

**Heating and ventilation**

Heating and ventilation of combined store and apartment buildings. C: L. Hubbard. *diags Dom Eng 83:80-2+ Ap 20 '18*

**Apes**

Evolution of the human face. W: K. Gregory. *Il diags Sci Am S 85:152-4 Mr 9 '18*

**Apex law.**

*See* Mining law

**Appalachian logging congress**

Meeting, April, 1918. Am Lumberman 2242:58-9 My 4 '18

**Appalachian power company**

Appalachian power system. H. S. Slocum. *Il diags map Power 49:438-44 Mr 25 '19; Same cond. Elec W 73:123-7 Ja 18 '19*

**Apples**

Cider apple jelly. B. T. P. Barker. *Sci Am S 86:282-3 N 2 '18*

Golden apple. S. Morgan. *Sci Am S 86:5 Jl 6 '18*

**Storage**

Apple scald prevented by ventilation. *Sci Am S 85:77 F 2 '18*

Simple design marks cold storage building for apples. S. T. Smith. *Il diags plans Eng N 80:1175-7 Je 30 '18*

**Apples, Dried**

Dried-apple sculpture. *Il Sci Am 120:255 Mr 15 '19*

European apple beverages. *Sci Am S 87:205 Mr 29 '19*

**Applications for positions**

How I landed my job. L. A. Terven. Ind Management 55:321-2 Ap '18

How to apply for a job. Eng & Contr 52:104 Jl 23 '19

Presenting your record graphically. J. R. Henderson. Ind Management 58:147 Ag '19

*See also* Recommendations for positions

**Appraising.**

*See* Valuation

**Apprentices**

Activities of apprenticeship committee of National association of sheet metal contractors. Metal Work 89:72-3 Ja 11 '18

Apprentice department of the American locomotive co. C. K. Getchell. Mach 24:1086 Ag '18

Apprentices here and in Europe. E. J. S. Halvorsen. Am Mach 51:77-8 Jl 10 '19

Apprentices wanted. A. Bateman. Dom Eng 89:20-1 O 4 '19

**Apprentices—Continued**

- Apprenticeship course for shipfitters. W. H. Dooley. *Int Marine Eng* 24:154-6+ Mr '19
- Community apprenticeship training in Fitchburg, Mass. *Iron Age* 101:803 Mr 23 '18
- Co-operative management—the apprentice. A. F. Johnson. *Int Marine Eng* 23:567-8 O '18
- Future status of the apprentice. C. C. Hermann. *Mach* 24:889 Je '18
- General electric co. creates skilled labor. *II Automobile* 37:499-501 S 20 '17
- Improved apprenticeship methods on the Pennsylvania. J. H. Yoder. *II Ry Mech Eng* 92:8-10 Ja '18
- Life in a large manufacturing plant. C. M. Ripley. *II Gen Elec R* 21:82-91 Ja '18
- Plea for the apprentice in the marine engineering shop. *Int Marine Eng* 24:365-6 My '19
- Practical results from modern apprenticeship. H. S. Rauch. *Ry Mech Eng* 92:20 Ja '18
- Recording the progress of apprentices. *II Mach* 25:1155-6 Ag '19
- Training apprentices for railway trades. F. G. Lister. *Elec Ry J* 50:1083 D 15 '17
- Training operators at Winchester plant. W. E. Freeland. *II Iron Age* 103:178-9 Ja 16 '19
- Wisconsin's new apprenticeship law. S. Schrimshaw. *Dom Eng* 82:489-90 Mr 30 '18
- See also Corporation schools; Employees, Training of; Industrial education

**Aquariums**

- Constructing sheet metal aquariums. *diags Metal Work* 91:342-3 Mr 14 '19
- Salt water aquaria in the home. I. M. Mellen. *Sci Am S* 85:394 Je 23 '18
- Sheet metal aquarium for the home. W. H. Gruening. *II diags plan Metal Work* 92:185-7+ Ag 15 '19

**Aquatic animals. See Marine fauna****Aqueducts**

- Construction of famous Los Angeles aqueduct facilitated by electricity. C. W. Geiger. *II Elec R* 73:241-2 Ag 17 '18
- Headgates combined with bridge over aqueduct canal. *II diags plan Eng N* 83:610-11 S 25 '19
- Labor shortage made good by station contract system; Winnipeg aqueduct; abstracts. F. P. Kemon. *II Eng N* 81:542-4 S 19 '18; *Eng & Contr* 50:342-4 O 9 '18
- Montezuma aqueduct on Erie canal is demolished. J. G. Palmer. *II diags plan Eng N* 81:769-72 O 24 '18
- Suspension bridge aqueduct twice built in six weeks. F. C. Emerson. *II Eng N* 81:761-3 O 24 '18

See also Catskill aqueduct; Winnipeg aqueduct

**Arabinose**

- Isomeric tetracetates of L-arabinose and beta-triacetyl-methyl-L-arabinoside. C. S. Hudson and J. K. Dale. *Am Chem Soc J* 40:992-7 Je '18

**Arbitration, Commercial**

- Plea for standardizing conditions in textile industry in settling disputes. C. S. Andrews. *Textile World* 55:3489+ Je 7 '19

**Arbitration, Industrial**

- Arbitration—its uses and benefits. H. P. Molloy. *Textile World* 53:5743+ My 25 '18
- Bi-partisan labor boards. W. N. Doak. *Ry Age* 67:212-14 Ag 1 '19
- Compulsory arbitration is opposed by investigators of British industrial unrest. J. Horton. *Iron Tr R* 63:256-7 Ag 1 '18
- Minneapolis arbitration award announced. *Elec Ry J* 51:332 F 23 '18
- To arbitrate jurisdictional building strikes. *Eng N* 82:1233 Je 19 '19

See also Labor and capital; Strikes

**Arbors**

- Collapsible arbor for waste water basin. J. R. Anderson. *diags Foundry* 47:570-1 Ag 15 '19
- Patternmaking and molding tips. *diags Foundry* 47:486 Jl 15 '19

**Arbors and mandrels**

- Collapsible babbitt mandrel. M. H. Ball. *diags Am Mach* 51:284 Ag 7 '19
- Eccentric mandrels for relieving form cutters. G. F. Kuhne. *diags Am Mach* 50:168 Ja 23 '19
- Efficiency self-gripping mandrel. *II Am Mach* 51:804 O 30 '19
- Expanding mandrel. G. M. Dick. *diags Am Mach* 48:761 My 2 '18
- Expanding mandrel. A. R. Jones. *II Am Mach* 47:1035 D 13 '17
- Holding arbors while quenching. E. B. Ward. *diags Am Mach* 51:767-8 O 23 '19
- Improved expanding mandrel. F. Pierce. *diags Am Mach* 49:1139-40 D 19 '18
- Mandrel for truing engine truck bearings. T. E. Grace. *diags Ry R* 65:392 S 13 '19
- Mandrels for thin threaded pieces of brass tubing. G. W. Cooper. *diags Am Mach* 50:79 Ja 9 '19
- Nonslip expanding mandrel. E. Chapman. *diags Am Mach* 48:506 Mr 21 '18
- Stud arbor. *diags Mach* 24:1018 Jl '18
- Support for a slender arbor. D. A. Hampson. *diags Mach* 25:648 Mr '19
- Supports for milling machine arbors. L. D. Burlingame. *II diags Mach* 24:992-6 Jl '18
- Turret fixture and expansion arbor. A. J. Cahen. *diags Mach* 25:750 Ap '19

**L'Arc de Triomphe**

- L'Arc de Triomphe de l'Etoile, July 14, 1919. J.-P. Alaux. *II Am Inst Arch J* 7:406-8 S '19

**Arc lamps. See Electric lamps, Arc****Arc welding. See Electric welding****Arch. See Arches****Arched bridges. See Bridges, Arched****Archeology**

- Future of the archaeologist in Mesopotamia. E. J. Banks. *II Sci Am* 120:506+ My 17 '19
- History in tools. W. M. F. Petrie. *diags Sci Am S* 85:300-2 My 11 '18
- Prehistoric classification. W. J. L. Abbot. *Sci Am S* 84:370-1 D 15 '17
- See also Anthropology; Cave dwellers; Stone implements and weapons

**Arches**

- Arch analysis by a method using variable elastic weights. F. J. Dulude. *diags Eng N* 82:471-3 Mr 6 '19
- Building a centering for circular brick arch. E. V. Laughlin. *diags Bldg Age* 40:544-5 N '18
- Concrete block wall and monolithic arch. *II Concrete* 14:66-7 F '19
- Country house details. A. B. Greenberg. *diags Bldg Age* 41:240-1+ Jl '19
- Direct design of curvature of arches. F. Barber. *diags Eng & Contr* 51:85-7 Ja 22 '19
- Failure of rubble masonry arch. L. Goodman. *diags Bldg Age* 41:263-4 Ag '19
- Hinged polygonal steel arch carries viaduct spans. *II diags Eng N* 80:607-9 Mr 28 '18
- How to build and fireproof with hollow tile; constructing short and long span segmental arches. J. J. Cosgrove. *diags Bldg Age* 41:137-9 Ap '19
- How to proportion unsymmetrical concrete arches. J. F. Schwada. *diags Eng N* 80:415-16 F 28 '18
- New and little-known methods of calculation of girders, beams and arches. J. S. Martin. *charts diags Eng Soc W Pa* 34:579-633; Discussion. 634-9 D '18
- New type of iron-concrete arch. *Sci Am S* 86:184 S 21 '18
- One-hundred-foot concrete arch carries theater balcony. C. W. Driver. *II diags plans Eng N* 80:244-6 F 7 '18
- Simple truss for concrete or brick arches. E. V. Laughlin. *diags Bldg Age* 40:353 Jl '18
- Steel roof trusses are designed as elastic arches. W. S. Tait. *II diags plan Eng N* 80:761-4 Ap 18 '18
- Timber-arch truss roof with steel gusset-plates. H. W. Sheley. *II diags plans Eng N* 80:595-7 Mr 23 '18

See also Bridges, Arched; Culverts

**Arches, Memorial and triumphal**

- L'Arc de Triomphe de l'Etoile, July 14, 1919. J.-P. Alaux. *II Am Inst Arch J* 7:406-8 S '19

**Arches, Memorial and triumphal—Continued**

Arch of Democracy, Brooklyn, New York. F. J. Helmle. *Il plan* Am Arch 115:94-5, pl 22-4 Ja 15 '19

Arch of Freedom, Madison Square, New York; diagrams and plan. Am Arch 115:pl 18-21 Ja 15 '19

Arch of Victory on Fifth avenue, opposite Madison Square. Am Arch 115:pl 140-2 Ap 30 '19

**Archil**

Dyes from archil and redwood. B. De Puyster. *Color Tr J* 5:51-4 Ag '19

**Architects**

Address before Ohio state association of architects. H. B. Briggs. Am Arch 113:311-12 Mr 13 '18

Address of president of American institute of architects. J. L. Mauran. Am Arch 113:555-8 My 8 '18

Advancement of the profession of architecture. W. A. Edwards. Am Arch 114:427-8 O 9 '18

Aloofness of architects. Am Arch 114:139-40 Jl 31 '18

American institute of architects; Post-war committee—preliminary conclusions. C. H. Whitaker. Am Inst Arch J 7:390-5 S '19

Architect after the war. M. B. Medary, Jr. Am Inst Arch J 6:227-9 My '18

Architect and engineer. E. P. Casey. Am Arch 115:27-8 Ja 1 '19

Architect and the builder. T. T. Hopper. Am Arch 115:543-5 Ap 16 '19

Architect and the decorator. Am Inst Arch J 6:35 Ja '18

Architect and the industrial plant. Am Arch 113:250-1 F 27 '18

Architect as a business man and his relation to the engineer. O. Wenderoth. Eng & Contr 51:428-30 Ap 23 '19

Architect as a man. Am Arch 114:364-6 S 25 '18

Architect in industry. Am Arch 114:144 Jl 31 '18

Architect in the small community. Am Arch 114:484-5 O 23 '18

Architect of the future. S. N. Crowen. Arch & Bldg 50:51-2 Ag '18

Architect of the future. C. S. Taylor. Arch Forum 30:1-4, 51-4, 83-6, 147-9 Ja-Mr, My '19

Architect of tomorrow. C. H. Blackwell. Eng & Contr 51:229-30 F 26 '19

Architect of tomorrow. A. H. Granger. Am Arch 115:91-3 Ja 15 '19

Architect versus the engineer. Eng & Contr 50:496-7 N 27 '18

Architects and engineers; business partnerships. Am Arch 114:431-3 O 9 '18

Architects and their standing in the community. F. W. Garber. Am Arch 113:308-10 Mr 13 '18

Architects should assure business leadership in building enterprises. T. Thorson. Am Arch 114:517-18 O 30 '18

Architecture after the war. C. H. Blackall. Am Arch 115:89-90, 331-3, 481-3 Ja 15, Mr 5, Ap 2 '19

Architecture and engineering. T. C. Young. Am Arch 115:403-5 Mr 19 '19

Architecture—art, profession or business? Am Arch 116:235-6 Ag 20 '19

Architecture as a business. W. R. Greeley. Am Arch 113:173-5 F 13 '18

Architecture as a pastime. W. R. Greeley. Am Arch 113:706-8 My 29 '18

Architecture as a profession. W. R. Greeley. Am Arch 112:421-3 D 12 '17

Architecture as a service. A. E. Robinson. Am Arch 113:567 My 8 '18

Beauty and economics. H. W. Corbett. Am Arch 115:11-12 Ja 1 '19

Campaign of publicity and education. G. W. Maher. Am Arch 113:175-8; Discussion. 183 F 13 '18

Circum shadow; what is the matter with the architectural profession? R. W. Tudor. Am Inst Arch J 6:114-16, 169-72, 223-7, 284-6, 330-3 Mr-Jl '18

Circular of advice and code of ethics of the American institute of architects. H. K. Holzman. Am Arch 115:367-71 Mr 13 '19

Constructive criticism. O. Wenderoth. Arch & Bldg 50:31-6 My '18; Same. Eng & Contr 51:76-9 Ja 22 '19

Constructive criticism of the architect. F. W. Fitzpatrick. Eng & Contr 51:320-2 Mr 26 '19

Co-operation between architects, engineers and other technical men. D. K. Boyd. Eng & Contr 51:210-11 F 26 '19

Does the architect function as he should? R. D. Kohn. Am Arch 115:291-6 F 26 '19

Engineers' place in the sun. Heat & Ven 15:24-5 Jl '18

Fetishes and fallacies. T. C. Young. Am Arch 113:15-16 Ja 2 '18; Discussion. 347-9 Mr 20 '18

Has an architect's services any real value? Arch & Bldg 50:42 Je '18

How architects may secure more extended recognition. G. Hancock. Eng & Contr 51:229 F 26 '19

Intimate thoughts on professional ethics. J. W. Davidge. Am Arch 114:666-8 D 4 '18

National organization. Am Arch 112:431-2 D 12 '17; Discussion. 113:42-3, 89-91, 119-20, 155-8, 471-6, 717-18 Ja 9, 23-F 6, Ap 17, My 29 '18

New phase of architectural responsibility. T. C. Young. Am Arch 113:713-14 My 29 '18

Note on Bryn Athyn church. R. A. Cram. Am Arch 113:709-12 My 29 '18

Opinions of a number of the past-presidents of the R.I.B.A. on the architectural profession. Am Inst Arch J 7:267-70 Je '19

Plan now for future activity. Am Arch 113:715-16 My 29 '18

Post war committee—more comprehensive service. E. J. Russell. Arch Forum 31:145 O '19

Post-war committee on architectural practice. Am Inst Arch J 7:6-8, 118, 153-8 Ja, Mr, Ap '19

Post-war committee on architectural practice. Arch Forum 31:17-21 Jl '19

Post-war committee—preliminary outline of programme. Am Inst Arch J 7:25-8 Ja '19

Post-war committee—some opinions. Am Inst Arch J 7:453-8 O '19

Practice of architecture. Am Arch 114:701-6, 733-5, 769; 115:71-2, 99, 169-70 D 11-25 '18, Ja 8-15, 29 '19

Present and future status of the architect in his relations with the general contractor. W. W. Beach. Concrete 13:168 N '18; Same. Eng & Contr 51:90 Ja 22 '19

Professional ferment. W. P. Comstock. Arch & Bldg 50:27-8 Ap '18; Same. Am Inst Arch J 6:306-7 Je '18

Proper recognition for architectural practice. G. Hancock. Am Arch 114:313-14 S 11 '18

Reconstructing architectural practice in England. H. T. Hare. Am Arch 115:93 Ja 15 '19

Report of sub-committee of the joint committee on reconstruction after war. J. C. Llewellyn. Am Arch 115:65-7 Ja 8 '19

Review of the Post-war committee's activities at the Nashville convention. R. D. Kohn. Am Arch 115:735-8 My 28 '19

Service. C. W. Mullin. Am Arch 114:551 N 6 '18

Slaves of the drawing-board. Am Arch 114:483-4 O 23 '18

Society of technology architects discuss the architect and his training. Am Inst Arch J 7:325-8 Jl '19

Status of technical students, with particular reference to those in architecture. E. Lorch. Am Inst Arch J 6:404-5 Ag '18

Status of the architect. Am Arch 113:588-9 My 15 '18

Status of the architect. I. K. Pond. Am Arch 115:667-8 My 14 '19

Structural service. D. K. Boyd. Am Arch 115:233-5 F 12 '19

Unifying the profession in South Africa. Am Inst Arch J 7:219 My '19

Unity of the profession. H. Wigglesworth. Am Arch 113:339 Mr 20 '18

Unity of the profession; abstract of discussion in Journal of R. I. B. A. Am Inst Arch J 6:172-4 Ap '18

**Architects—Continued**

What constitutes unprofessional practice in architecture? *Am Arch* 114:187-9 Ag 14 '18;  
Discussion. 114:343-4, 461 S 18, O 16 '18  
What the architect's client wants. *Am Arch* 114:511-12 O 30 '18  
Who was the architect? *Am Arch* 112:411;  
113:293 D 6 '17, Mr 6 '18  
Wisdom of reticence. M. H. Baillie-Scott. *Am Arch* 114:669-70 D 4 '18  
Work of the Post-war committee on architectural practice. *Am Inst Arch J* 7:143-6 Ap '19

*See also* Architects' offices; Architectural education; Architecture; Also American institute of architects, Illinois society of architects

**Accounting**

Methods of office accounting for architects. W. F. Anderson. *Am Arch* 113:369-76 Mr 27 '18  
Proposed general accounting and cost system for the Michigan society of architects. *Arch Forum* 30:13-21 Ja '19

**Advertising**

Advertising policy for the architect. C. S. Taylor. *Arch Forum* 30:147-9 My '19  
British architect and advertising. *Am Arch* 114:224 Ag 21 '18  
British viewpoint of advertising. *Am Arch* 114:264 Ag 28 '18  
Ethics in advertising. *Am Inst Arch J* 6:84-5 F '18  
Question of ethics. *Am Arch* 113:291-2 Mr 6 '18  
Royal institute of British architects and the question of advertising. *Am Arch* 114:369-70 S 25 '18  
Shall architects advertise? *Am Arch* 113:301-2 Je 12 '18  
Two opinions on architectural advertising. T. C. Young; F. E. Davidson. *Am Arch* 115:26-7 Ja 1 '19

**Biography**

Competition for the Federal buildings, 1792-1793. F. Kimball and W. Bennett. II plans *Am Inst Arch J* 7:355-62 Ag '19  
Frank Miles Day; a remembrance. A. F. West. II *Am Inst Arch J* 6:383-94 Ag '18  
Hispanic society publications; George Edmund Street: unpublished notes and reprinted papers. M. Wilcox. *Arch Rec* 43:481-4 My '18  
Leonardo, an architectural theorist. R. F. Bach. *Arch Rec* 43:485-6 My '18  
Otto R. Eggers, architectural renderer and designer. J. T. Boyd, Jr. II *Arch Rec* 43:420-5 My '18

**Fees**

American and British schedules of charges for architects' services. W. S. Parker. *Am Inst Arch J* 7:408-9 S '19  
Payment for services. *Am Inst Arch J* 7:153, 156 Ap '19

**Law**

Architects' responsibility for contracts and bonds. R. J. O. Culver. *Eng & Contr* 51:220-1 F 26 '19  
Facts as to the law affecting architectural practice. R. J. O. Culver. *Am Arch* 113:384-5 Mr 27 '18  
Profession of architecture in New Zealand. W. Beauchamp-Platts. *Am Inst Arch J* 7:22-4 Ja '19  
Rights of an architect. *Bldg Age* 40:132-3 Mr '18

*See also* Architects—Licenses

**Licenses**

Architectural incompetence revealed by some registration laws. D. E. Wald. *Am Inst Arch J* 6:254-5 My '18  
Model form of law for the registration of architects. *Am Inst Arch J* 7:335-8 Jl '19  
Registration law in Michigan passes legislature. *Eng N* 82:889 My 1 '19  
Registration of architects. D. E. Wald. *Am Arch* 115:738-9 My 28 '19  
State licensing laws. *Am Arch* 114:400 O 2 '18

State registration of architects and Columbia university. R. F. Bach. *Arch Rec* 44:182-3 Ag '18

States requiring registration of architects. *Am Arch* 114:145 Jl 31 '18

What laws govern the practice of architecture in various states? *Bldg Age* 40:361 Jl '18

**War service**

Architect in war work illustrated by views and plans of groups of temporary office buildings. W. E. Wood. II diag plans map *Am Arch* 114:630-44, pl 161-8 N 27 '18

**Architects' offices**

Architectural office organization for post war conditions. D. P. Higgins. *Am Arch* 115:13-16, 60-4 Ja 1-8 '19

Constructive criticism. O. Wenderoth. *Arch & Bldg* 50:31-6 My '18; Same. *Eng & Contr* 51:76-9 Ja 22 '19

Possibilities in the cooperative organization of architects' offices and draughting-rooms. R. Atkinson. *Am Inst Arch J* 7:433-4 O '19

Sales organization in an architect's office. C. S. Taylor. *Arch Forum* 30:51-4 F '19

Architectural acoustics. *See* Acoustics, Architectural

Architectural competitions. *See* Architecture—Competitions

Architectural criticism

Architectural criticism. *Am Arch* 115:707-8 My 21 '19

Architectural decoration. *See* Decoration and ornament

Architectural designs. *See* Architecture—Designs and plans; Architecture, Domestic—Designs and plans

Architectural detail. *See* Architecture—Details

Architectural drawing

How to make a perspective drawing. G. Lawrence. diag *Bldg Age* 40:486-7 O '18

How we prepare drawings that get better buildings. L. Bowman. diag plans *Bldg Age* 41:280-4 S '19

Three books for draftsmen. R. F. Bach. *Arch Rec* 42:583-7 D '17

*See also* Architectural rendering; Architecture—Designs and plans; Architecture—Details; Blueprints; Geometrical drawing

**Architectural education**

Architect and his education. C. F. Gould. *Eng & Contr* 51:578-9 My 28 '19

Architectural education. J. B. Dibelka. *Am Arch* 115:161-2 Ja 29 '19

Architectural education from an English point of view. R. Atkinson. *Am Inst Arch J* 7:301-5 Jl '19

Architectural education of the future. *Am Arch* 114:284-5 S 4 '18

Architecture after the war. C. H. Blackall. *Am Arch* 115:7-9 Ja 1 '19

Circum shadow; what is the matter with the architectural profession? R. W. Tudor. *Am Inst Arch J* 6:114-16, 169-72, 223-7, 284-6, 330-3 Mr-Jl '18

Educating for architectural practice. F. W. Garber. *Am Arch* 115:9-10 Ja 1 '19

Education toward reality. C. G. La Farge. *Am Inst Arch J* 7:243-50 Je '19

Need of architectural instruction in American colleges. G. C. Nimmons. *Am Arch* 116:169-72, 175-6 Ag 6 '19

New architectural education. *Am Arch* 115:157-60 Ja 29 '19

Report of the committee on education. *Am Inst Arch J* 7:174-6 Ap '19; Same. *Am Arch* 115:638-40 My 7 '19

Rotch travelling scholarship. II *Am Arch* 113:105-12 Ja 30 '18

S. A. T. C. architectural engineering curriculum. *Am Arch* 114:594-6 N 13 '18

Some notes on the education of the architect. H. V. Magonigle. *Am Inst Arch J* 7:217-18 My '19

Training the architect by direct method. E. Coxhead. *Am Inst Arch J* 7:467-8 N '19

*See also* Architectural schools

Architectural gardening. *See* Landscape gardening

- Architectural ironwork.** See Ironwork, Architectural
- Architectural league of New York**  
33d annual exhibition. *Il Am Arch* 113:197-206, pl 69-76 F 20 '18; *Am Inst Arch J* 6:85-6 F '18
- Architectural models**  
Model for architectural representation. E. S. Parker. *Il diag plan Arch Forum* 30:119-21 Ap '19  
Model making in the drafting room. R. Rook. *Il Am Arch* 114:247-52 Ag 28 '18  
Preservation of architectural models. *Am Arch* 114:252 Ag 28 '18
- Architectural plan service**  
Plan service by institute chapters. *Am Arch* 115:851, 853-4 Je 18 '19  
Planning the low cost house. A. Pfund. *Am Arch* 116:239-40 Ag 20 '19
- Architectural rendering**  
Suggestions and models for architectural rendering. L. V. Solon. *Il Arch Rec* 46:211-19 S '19
- Architectural schools**  
French architectural students in the war; atelier gazettes. R. D. Kohn. *Il Am Inst Arch J* 6:110-13 Mr '18
- Architectural societies**  
Address at 22d annual meeting of the Illinois society of architects. T. R. Kimball. *Am Arch* 116:99-102 Jl 23 '19  
Federating state societies. I. K. Pond. *Am Arch* 116:203-4 F 5 '19  
Function of an architectural society. S. Webb. *Am Inst Arch J* 6:8-13 Ja '18; *Abstract. Am Arch* 113:411-13 Ap 3 '18  
See also American institute of architects
- Architecture**  
Architectural etching. F. Wellenkampf. *Il Arch Rec* 44:560-7 D '18  
Architectural propaganda. I. T. Frary. *Arch Rec* 44:479-80 N '18  
Architecture after the war. C. H. Blackall. *Am Arch* 115:7-9, 89-90, 331-3, 481-3 Ja 1, 15, Mr 5, Ap 2 '19  
Architecture after the war, discussed by the Royal institute of British architects. *Am Inst Arch J* 6:359-62 Jl '18  
Architecture and democracy. *Am Arch* 115:411-13 Mr 19 '19  
Architecture, industry, and wealth in the future. E. F. Lawrence. *Am Inst Arch J* 7:172-3 Ap '19  
Architecture nationalized by the war. J. T. Boyd, Jr. *Arch Rec* 44:181-2 Ag '18  
Art, architecture and engineering. J. Pennell. *Am Arch* 116:346-8 S 10 '19  
Beyond architecture. L. Stein. *Am Inst Arch J* 6:423-6 S '18  
Business and art of architecture. T. P. Barnett. *Am Arch* 113:625-8 My 1 '18  
Criticism and comment. W. L. Steele. *Am Arch* 113:717 My 29 '18  
Crooked architecture and photography; Prof. Goodyear's enlarged photographs of cathedrals in the war zone. B. J. Lubschez. *Am Inst Arch J* 6:577-8 D '18  
Developing regional types of architecture. *Il Am Arch* 114:277-81 S 4 '18  
Development of craftsmanship. *Am Arch* 115:597-8 Ap 30 '19  
Living architecture. W. R. Lethaby. *Am Inst Arch J* 7:123-4 Mr '19; Same abr. *Eng & Contr* 51:420 Ap 23 '19  
Meaning of architecture. C. Bragdon. *Arch Rec* 45:182-3 F '19  
Meaning of architecture, by I. K. Pond. Review. *Am Arch* 115:875-6 Je 25 '19  
Meaning of architecture, by I. K. Pond. Review, by L. Stein. *Am Inst Arch J* 6:534-5 N '18  
Paper architecture. A. K. Porter. *Am Inst Arch J* 6:245-8 My '18  
Philosophy in architecture. H. Barnes. *Am Arch* 116:377-8 S 17 '19  
Plea for a classic tradition. A. Stratton. *Am Arch* 115:573-3 Ap 23 '19  
Portfolio of current architecture. See monthly numbers of the Architectural record  
Post-war committee on architectural practice. E. Swartwout. *Arch Forum* 31:99-102 S '19
- Printing and architecture are sister arts. *Il Inland Ptr* 63:404 Jl '19  
Study of the architectural and building fields. *Am Arch* 113:1-5 Ja 2 '18  
What is the function of architecture in a democracy? *Am Inst Arch J* 6:465-8 O '18  
Young ambition's ladder. M. Stapley. *Arch Rec* 43:190-2 r '18
- See also Arches; Architects; Architectural drawing, and other headings beginning Architectural; Art—Galleries; Auditoriums; Automobile service stations; Bank buildings; Barns and stables; Basements; Baths, Public; Bridges; Building; Building materials; Buildings; Capitol buildings; Cathedrals; Ceilings; Chimneys; Church architecture; Clubhouses; College architecture; Columns; Community centers; Concrete construction; Concrete houses; Cornices; Cottages; Decoration and ornament; Department stores; Domes; Doors; Doorways; European war and architecture; Factories; Farm buildings; Fire houses; Fireplaces; Fireproof construction; Floors; Foundations; Fountains; Fraternity houses; Garages; Gateways; Gazebos; Grain elevators; Greenhouses; Gymnasiums; Heating; High buildings; Hospitals; Hotels; House painting; Industrial buildings; Ironwork, Architectural; Laboratories; Library architecture; Machine shops; Market buildings; Masonry; Memorials; Moldings; Monuments; Moving picture theaters; Municipal buildings; Mural painting and decoration; Naval architecture; Office buildings; Partitions; Pavilions; Pergolas; Plumbing; Post office buildings; Printing, offices; Public buildings; Public comfort stations; Railings; Railroads—Buildings; Railroads—Stations; Roofs; Schoolhouses; Sheet metal work, Architectural; Stadia; Stairways; Steel construction; Store buildings; Strains and stresses; Strength of materials; Subway stations; Theaters; Towers; Trusses; Ventilation; Walls; Warehouses; Windows; Woodwork; Young men's Christian association buildings
- Bibliography**  
Books from university presses. R. F. Bach. *Arch Rec* 43:285-8 Mr '18  
Renaissance architecture and its critics. A. D. F. Hamlin. *Il Arch Rec* 46:57-76 Jl '19  
Some recent French books. B. Ferree. *Arch Rec* 44:566-70 D '18
- Competitions**  
American competition for the best solution of the house problem, conducted by the Journal of the American institute of architects and the Ladies' home journal. *Am Inst Arch J* 6:252-3 My '18  
Architectural competitions. T. C. Young. *Am Arch* 115:311-12 F 26 '19  
Beaux-arts institute of design: awards. *Il Am Arch* 113:179-82, pl 65-8, 283-9, 340-4, 462-8, 535-40, 723-7, 772-4, 864-70; 115:381-6, pl 83-6 F 13, Mr 6, 20, Ap 17, My 1, 29, Je 5, 26 '18, Mr 12 '19  
Competition for the Federal buildings, 1792-1793. F. Kimball and W. Bennett. *Am Inst Arch J* 7:8-12, 98-102, 202-10, 355-62 Ja, Mr, My, Ag '19  
Sacramento state buildings competition. W. C. Hays. *Il plans Am Arch* 115:124-6, pl 25-34 Ja 22 '19
- Contracts**  
See Building contracts
- Designs and plans**  
Apartment studio building, no. 200 West 57th street; views and plans. *Am Arch* 113:38, 41, pl 17-27 Ja 9 '18  
See also Architecture, Domestic—Designs and plans
- Details**  
Concrete features of S. B. Newberry residence, Cleveland, O. *Il Concrete* 12:211 Je '18  
Department store for the La Salle & Koch co., Toledo, O., views and plans. *Am Arch* 114: pl 112-20 O 16 '18

**Architecture—Details—Continued**

Details of porch and doorway, residence at Ridley Park, Pa. *il* diag plan Bldg Age 40:192-3 Ap '18

Panelled room from Clifford's Inn, London. (English details no. 11). *Am Arch* 113:477, pl 134-8 Ap 17 '18

Peoples savings & loan association building of Sidney, Ohio. T: E. Tallmadge. *il* *Am Arch* 114:477-82, pl 121-8 O 23 '18

Stalls, Brazenose college chapel, Oxford. (English details no. 10). *Am Arch* 112:pl 260-1 D 5 '17

*See also* Ceilings; Decoration and ornament; Doors; Doorways; Stairways

**Exhibitions**

Architectural league exhibition. R: F. Bach. *Arch Rec* 43:338-90 Ap '18

Architectural league of New York; 33d annual exhibition. *il* *Am Arch* 113:197-206, pl 69-76 F 20 '18; *Am Inst Arch J* 6:85-6 F '18

Boston architectural club annual exhibition. J: T. Boyd, Jr. *Arch Rec* 43:93-4 Ja '18

Royal academy architecture and architects. S. Brinton. *il* diag *Am Arch* 116:61-7 J1 16 '19

31st annual Chicago architectural exhibition. *il* *Am Arch* 113:521-4 My 1 '18

32nd annual Chicago architectural exhibition. *il* *Am Arch* 115:671-6 My 14 '19

**History**

Architecture in tapestry. P. Ackerman. *il* *Arch Rec* 44:477-9 N '18

*See also* Architecture, Renaissance

**Study and teaching**

Department of architecture at the A. E. F. university of Beaune, Cote d'Or, France. J: Bakewell, Jr. *il* *Am Inst Arch J* 7:469-81 N '19

*See also* Architectural education; Architectural schools

**Brittany**

Architectural rambles in Brittany. A. K. Porter. *il* *Am Arch* 112:161-8, 313-22; 113:453-61, 491-9 S 5, O 31 '17, Ap 17-24 '18

**Dalmatia**

Architecture of the Dalmatian coast. H. D. Eberlein. *il* *Arch Forum* 31:1-6, 35-40, 81-4 J1-S '19

**France**

American architect in France. A. P. Shaw. *il* *Am Arch* 115:333-6 Mr 5 '19

Coucy-le-Château; a victim of the war. R: F. Bach. *il* plans *Arch Rec* 42:551-7 D '17

New architecture for new France. *Am Arch* 116:267-8 Ag 27 '19

Shadows of the châteaux. H. D. Smith. *Arch Rec* 45:12-14 Ja '19

**New Mexico**

Archale architecture. W: T. Johnson. *il* *Am Inst Arch J* 7:65-70 F '19

**Spain**

Early churches in Spain. G. G. King. *il* *Am Inst Arch J* 6:395-402, 435-42, 559-66; 7:103-11 Ag-S, D '18, Mr '19

Spanish abbeys. G. G. King. *il* *Am Inst Arch J* 7:399-405 S '19

Spanish cloisters. G. G. King. *il* *Am Inst Arch J* 7:481-8 N '19

**United States**

Analyzing the development in American architecture. D: J. Varon. *Am Arch* 115:405-7 Mr 19 '19

Architectural history of a western town. T: E. Tallmadge. *il* *Am Arch* 115:443-51 Mr 26 '19

Architecture and democracy. C. Bragdon. *il* *Arch Rec* 44:75-84, 125-31, 252-8 J1-S '18

Creole architecture of old New Orleans. N. C. Curtis. *il* map *Arch Rec* 43:435-46 My '18

*See also* Architecture, American; Architecture, Colonial; Architecture, Domestic—United States

**Architecture, American**

English review of American architecture. *Am Arch* 115:784+ Je 4 '19

*See also* Architecture—United States; Architecture, Colonial

**Architecture, Colonial**

Beautiful home that is typically colonial. *il* plans Bldg Age 40:500-2 O '18

Colonial houses of the earliest type. J. W. Dow. *il* *Am Arch* 113:701-6 My 29 '18

**Bibliography**

Asher Benjamin revived. R: F. Bach. *Am Arch* 112:449-50 D 19 '17

Books on colonial architecture. R: F. Bach. *Arch Rec* 44:85-90, 176-80 J1-Ag '18

**Architecture, Domestic**

Building for health. W. Hutchinson. *il* *Am Arch* 115:121-3 Ja 22 '19

Dramatic note concerning a fourth and a fifth dimension in architecture. J. W. Dow. *il* *Am Arch* 114:417-23 O 9 '18

Home planning for household efficiency. E. Allen. diag Bldg Age 40:557-8 D '18

Increasing home comfort by built-in conveniences. P. D. Otter. *il* plan Bldg Age 41:81 Mr '19

Notes on space economy in housing. *Am Arch* 113:590-1 My 15 '18

Plan features that make homes sell quicker. A. Marple. diag Bldg Age 41:83-4 Mr '19

Planning for domestic efficiency. *Am Arch* 113:675-6 My 22 '18

Planning of simple homes. M. H. Ellis and R. Everett. *il* plans Texas U Bul 39:1-38 J1 10 '16

Public taste and architectural housing. *Am Arch* 116:76+ J1 16 '19

Reasons for failures of heating systems. J. D. Hoffman. *Am Soc Heat & V E* 24:367-76 '18; Same. *Metal Work* 90:30-4 J1 12 '18;

Same cond. *Heat & Ven* 15:13-18 J1 '18; Discussion. *Am Soc Heat & V E* 24:376-8 '18

Small house of the Georgian period. *il* *Am Arch* 116:163-7 Ag 6 '19

Some principles of design and construction in domestic building. C: H. Moore. *Arch Rec* 45:210-16 Mr '19

Stucco-coated house. *il* diag plans Bldg Age 40:323-5 J1 '18

Two family houses are popular with tenants and investors—supply the demand. *il* diag plans Bldg Age 41:11-12 Ja '19

*See also* Apartment houses; Bathrooms; Bungalows; Closets; Concrete houses; Cottages; Country houses; Doorways; Farm buildings; Farmhouses; Fireplaces; Fraternity houses; Heating; House decoration; House painting; Housing problem; Kitchens; Landscape gardening; Mantels; Miners' houses; Plumbing; Stairways; Tenement houses

**Designs and plans**

Alterations to the house of Mr E. L. Glaser, Glencoe, Illinois. *il* *Am Arch* 113:383, pl 107-15 Mr 27 '18

American country house. F. Kimball. *il* diag plans *Arch Rec* 46:291-400 O '19

American lumberman house plans. See weekly numbers of American lumberman

Arrangement of kitchen and maid's room a feature in this house. *il* diag plans Bldg Age 41:330-1 O '19

Attractive and well planned stucco house. *il* diag plans Bldg Age 40:469-72 O '18

Attractive architecture of a colonial cottage. *il* diag plans Bldg Age 40:210-13 Ap '18

Attractive residence of brick. *il* diag plans Bldg Age 40:80-2 F '18

Big profits in bringing old houses up-to-date. B. Mottor. *il* diag plans Bldg Age 41:44-6 F '19

Brick and stucco house built in Wisconsin. *il* diag plans Bldg Age 40:564-8 D '18

Colonial house built at Nepperhan Heights, New York. *il* diag plans Bldg Age 40:373-6 Ag '18

Colonial house that a builder erected for himself. *il* diag plans Bldg Age 41:41-2 F '19

- Architecture, Domestic—Designs and plans—Cont.**  
 Colonial precedent in minor domestic architecture. G. F. Marlowe. II plans Arch Forum 31:133-3 O '19  
 Comfortable home in New England. II diag plans Bldg Age 40:41-54 Ja '18  
 Comfortable house of colonial type. II diag plans Bldg Age 40:404-7 Ag '18  
 Competition for a small face brick house. II plans Arch Forum 31:175-81 N '19  
 Concrete house at Gle. Ridge, N. J. II diag plans Concrete 14:104-6 Mr '19  
 Cottage competition of the Royal Institute of British architects. Am Inst Arch J 6:352-8 JI '18  
 Cottages at the United States nitrate plant no. 2, Muscle Shoals, Ala. Arch & Bldg 51: Dwelling house series 14-16 S '19  
 Country house of J. W. Harriman, esq., Brookville, L. I. J. T. Boyd, jr. II plans Arch Rec 43:2-21 Ja '18  
 Design of a house at Chestnut Hill, Philadelphia; the residence of Francis S. McIlhenny, esq. A. I. Meigs. II plan Arch Forum 31:119-22, pl 49-53 O '19  
 Designing the low cost house. S. Schnalt-tacher; D. S. Lyman. Am Arch 116:107 JI 23 '19  
 Dutch colonial house built in Connecticut. II diag plans Bldg Age 40:156-61 Mr '18  
 Dutch colonial house suitable for a small family. II diag plans Bldg Age 40:306-8 Je '18  
 Effective handling of modern materials in a moderate cost house. II diag plans Bldg Age 41:56-7 F '19  
 Effective handling of rectangular house. II diag plans Bldg Age 41:215-16 JI '19  
 English type of stucco house. II diag plans Bldg Age 41:230-1 JI '19  
 50 double wall houses for Carnegie employees. II diag plans Concrete 14:24-7 Ja '19  
 First war emergency government towns, Groton, Conn. II plans Am Inst Arch J 6: 510-17 N '18  
 Five and six-room frame houses. Arch & Bldg 51: Dwelling house series 1-3 F '19  
 Five-room brick and stucco cottage with interesting floor plan. II plans Bldg Age 40: 417-18 S '18  
 Government housing work at Bridgeport, Conn. W. S. Parker. II plans Arch Forum 31:111-18 O '19  
 Government's housing project at Quincy, Mass. S. Baxter. II diag plans Arch Rec 45: 242-61 Mr '19  
 Group of Long Island country houses. II plans Arch Forum 30:47-50, pl 17-32 F '19  
 Home of unusual plan and design built at Mamaronock, N.Y. II diag plans Bldg Age 40:179-83 Ap '18  
 Homelike house with livable plan. II diag plans Bldg Age 41:147-8 My '19  
 House at Belle Terre, Long Island, N.Y. Arch Forum 31:pl 47-8 S '19  
 House at Forest Hills Gardens, Long Island, N.Y.; views and plans. Arch Forum 31: pl 74 N '19  
 House of C. S. Mott, esq., Flint, Mich.; views and plans. Arch Forum 31:pl 68-72 N '19  
 House of D. J. Holland, Jamaica Plain, Mass.; view and plans. Am Arch 113:pl 6-7 Ja 2 '18  
 House of Dr G. A. Stickney, Beverly, Mass. Am Arch 113:pl 174-7 My 8 '18  
 House of Dr L. W. Mansur, Sherman, Cal. Am Arch 113:pl 224-6 Je 19 '18  
 House of Dr Robert Fagin, Memphis, Tenn. Am Arch 115:pl 60-2 F 19 '19  
 House of E. J. Feeley, North Scituate, Mass.; views and plans. Am Arch 113:pl 91-5 Mr 13 '18  
 House of F. E. Wilhelm, Chicago, Ill.; views and plans. Am Arch 112:pl 272-5 D 12 '17  
 House of George F. Armstrong, Savannah, Ga.; views and plan. Am Arch 116:pl 46-51 Ag 6 '19  
 House of Gustave C. Kuemmerle, Fort Washington, Pa.; views and plans. Am Arch 116:pl 128-9 O 1 '19  
 House of H. A. Fuller, Pasadena, Cal.; views and plans. Am Arch 114:pl 57-60 Ag 14 '18  
 House of J. J. Schullinger, Riverdale on Hudson, New York. Am Arch 113:pl 97-101 Mr 20 '18  
 House of James C. Francesconi, esq., Brooklyn, N.Y.; House of F. G. Tallman, esq., Wilmington, Del. and others; views and plans. Arch Forum 31:pl 17-32 Ag '19  
 House of John H. Mooney, esq., St. Louis, Mo.; view and plans. Arch Forum 31:102 S '19  
 House of John R. Flippin, Memphis, Tenn.; views and plans. Am Arch 115:pl 96-9 Mr 26 '19  
 House of M. C. Heath, Columbia, S. C., and other houses. Am Arch 116:pl 19-27 JI 16 '19  
 House of Rev. J. G. Mueller, Dayton, O.; view and plans. Am Arch 116:pl 133 O 1 '19  
 House of W. A. Dupee, Milton, Mass.; views and plans. Am Arch 114:112, pl 26-31 JI 24 '18  
 House of William Shewell Ellis, Moylan, Pa. Am Arch 113:pl 178-80 My 8 '18  
 Housing development that solves the lodger problem; the Naval ordnance housing development, South Charleston, W. Va. II Am Arch 115:566-9, pl 133-9 Ap 23 '19  
 How a two-story house was remodeled into a three-story. O. B. Maginnis. diag Bldg Age 40:129-30 Mr '18  
 How to secure economy and convenience in a floor plan. R. L. Stevenson. diag plans Bldg Age 40:340-3 JI '18  
 Ideas for American small houses; eight sketches by A. H. Hepburn for the Housing company, Boston. Am Inst Arch J 6:175-83 Ap '18  
 Industrial housing. II Arch & Bldg 51:2-5, pl 1-17, 19-21 Ja '19  
 Industrial housing at Perryville, Md. II plans Am Arch 114:503-10, pl 129-35 O 30 '18  
 Industrial housing developments in America. L. Veiller. II diag plans map Arch Rec 43: 231-56, 344-59, 447-69, 547-59 Mr-Je '18  
 Italian house at Miami, Florida. II Am Arch 115:805-9, pl 188-94 Je 11 '19  
 New houses for old. II plans Am Arch 115: 679-80, pl 156-9 My 14 '19  
 Nine-room suburban house. Arch & Bldg 51: Dwelling house series 5 Ap '19  
 Notes from England with special references to post-war housing developments. H. J. Birnstingl. II diag plans Arch Forum 31: 163-8 N '19  
 Philippine Island concrete house. II diag plans Concrete 14:146-9 Ap '19  
 Plans of houses of U.S. shipping board emergency fleet corporation. Am Arch 116:pl 65-73 Ag 20 '19  
 Portfolio of current architecture. See monthly numbers of Architectural record  
 Recent country house work of Howard Shaw. P. B. Wight. II plans Arch Rec 42:498-527 D '17  
 Recent country houses from the designs of Murphy & Dana, architects. II plans Arch Forum 30:143-6, pl 78-80 My '19  
 Reconstruction in France; the competition by French architects for the creation of types of rural dwellings. II diag plans Am Inst Arch J 6:473-9 O '18  
 Re-housing in Halifax with concrete block. II diag plans map Concrete 14:44-52 F '19  
 Report of the United States housing corporation. II plans Am Arch 116:399-408, 412-14, pl 114-22 S 24 '19  
 Residence of A. L. Garford, esq., Oak Knoll, Pasadena, Cal. C. O. Cornelius. II plan Arch Rec 46:194-202 S '19  
 Residence of A. Stewart Walker, esq., New York. J. T. Boyd, jr. II plan Arch Rec 46:2-17 JI '19  
 Residence of Allan S. Lehman, esq., Tarrytown, N.Y. H. D. Smith. II plans Arch Rec 44:483-501 D '18  
 Residence of Charles D. Blaney, esq., Saratoga, Cal. M. W. Scott. II plans Arch Rec 43:98-114 F '18  
 Residence of F. F. Peabody, esq., Montecito, California. II plan Arch Rec 43:394-403 My '18  
 Residence of George Arents, jr., esq., Rye, N.Y. J. T. Boyd, jr. II plans Arch Rec 43:290-308 Ap '18



**Architecture, Domestic—Designs and plans—Cont.**  
 Residence of George Hill, esq., Stamford, Conn.; view and plans. Arch Rec 43:568-73 Je '18

Residence of Harry A. Smith, esq., the Riviera, Santa Barbara, California; views and plans. Arch Rec 45:471-3 My '19

Residence of Henry I. Harriman, esq., Newton, Mass. P. M. Riley. 11 plans Arch Rec 45:482-9 Je '19

Residences of Harold L. Ickes, esq., Hubbard Woods, Ill., and Mrs Cyrus H. McCormick, Lake Forest, Ill. P. B. Wight. 11 plans Arch Rec 43:194-212 Mr '18

Shingled bungalow built at Cranford, N.J. 11 diag plans Bldg Age 40:275-7 Je '18

Six-room house and two country houses. Arch & Bldg 51: Dwelling house series 8-10 Jl '19

Six room house with two bathrooms at Birmingham, Ala.; view and plans. Bldg Age 41:327 O '19

Small country house at Rockford, Ill.; views and plans. Arch Forum 31:131-2 O '19

The small house illustrated with examples of the work of Bohnard & Parason. I. T. Frary. 11 plans Arch Rec 44:186-98 S '18

Solving the problem of the low cost house. 11 plans Am Arch 116:229-34 Ag '20 '19

Some ingenious solutions of the high-cost-of-building problem. 11 diag plan Sci Am 121:255 S 13 '18

Some larger country houses. A. D. F. Hamlin. 11 plans Arch Rec 44:337-79 O '18

Stone and half-timbered home built in Pennsylvania. 11 diag plans Bldg Age 40:513-15 N '18

Stucco and timber house in the Middle West. 11 diag plans Bldg Age 40:354-7 Jl '18

Stucco-coated English type of house. 11 diag plans Bldg Age 41:162-3 My '19

Stucco coated house with an interesting floor plan. 11 diag plans Bldg Age 40:125-8 Mr '18

Stucco house showing popular western tendencies. plans Bldg Age 41:94 Mr '19

Study of floor plans for small dwellings. plans Am Lumberman 2305:45 Jl 19 '19

Suburban house built at Atlantic City, N. J. 11 diag plans Bldg Age 40:549-51 D '18

Summer home of George C. Nimmons at Flossmoor, Illinois. 11 plans Arch Rec 45:290-302 Ap '19

Thatched roof effect used on a house built at Cleveland, O. 11 diag plans Bldg Age 40:227-30 My '18

Two country homes with up-to-date features; views and plans. Bldg Age 41:320 O '19

Two-family house, Upper Montclair, New Jersey; view and plans. Arch & Bldg 49:pl 181a-181b D '17

281 fireproof dwellings built of large precast concrete units. H. Whipple. 11 diag plans Concrete 14:3-8 Ja '19

Union Park gardens; a model garden suburb for shipworkers at Wilmington, Del. W. E. Groben. 11 diag plans map Arch Rec 45:44-64 Ja '19

Unusual use of wall board in construction of \$1700 cottage. 11 diag plans Bldg Age 40:296-9 Je '18

Village house. 11 plan Am Lumberman 2276:42c D 28 '18

Washington's headquarters at Valley Forge adapted to the needs of today. 11 plans Bldg Age 41:315-16 O '19

Well designed clapboarded gambrel roofed house. 11 plans Bldg Age 41:113-14 Ap '19

When an architect builds for himself; Villa Flora, Staten Island, N.Y. R. T. Pryor. 11 plans Am Arch 112:441-6, pl 284-95 D 19 '17

Workingman and his house. A. D. F. Hamlin. 11 diag plans Arch Rec 44:302-25 O '18

#### England

English home from Charles I to IV; its architecture, decoration and garden design, by J. A. Gotch. Review. Am Arch 114:485 O 23 '18

English house vs. the American. F. L. Ackerman. Am Inst Arch J 7:223-4 My '19

Sparrow house and the rabbit house. J. W. Dow. 11 plans Am Arch 115:505-10 Ap 9 '19

#### France

Reconstruction in France; the competition by French architects for the creation of types of rural dwellings. 11 diag plans Am Inst Arch J 6:473-9 O '18

#### Italy

Villa Borghese. J. W. Dow. 11 Am Arch 115:837-43 Je 18 '19

See also Architecture, Italian

#### Porto Rico

Construction of concrete houses in Porto Rico. 11 diag plans Bldg Age 40:396-400 Ag '18

#### Switzerland

Colonial houses of Switzerland. J. W. Dow. 11 Am Arch 114:598-606 N 20 '18

#### United States

Alterations and additions to a house at Manchester, Mass.; views and plans. Am Arch 112:pl 296-306 D 26 '17

American country house. F. Kimball. 11 diag plans Arch Rec 46:291-400 O '19

American country house, with particular reference to types developed or improved during the war. A. D. F. Hamlin. 11 diag plans Arch Rec 44:274-379 O '18

City residence of Leonard M. Thomas, esq., New York city. C. O. Cornelius. 11 Arch Rec 45:386-97 My '19

Colonial houses of the earliest type. J. W. Dow. 11 Am Arch 113:701-6 My 29 '18

Country house of Francis L. Hine, esq., Glen Cove, L.I. C. O. Cornelius. 11 plan Arch Rec 44:2-20 Jl '18

Country house of J. W. Harriman, esq., Brookville, L.I. J. T. Boyd, Jr. 11 plans Arch Rec 43:2-21 Ja '18

Examples of the country house work of William Adams. C. P. Warren. 11 plans Arch Rec 43:505-25 Je '18

Homes for wartime workers. A. C. Bossom. 11 plan Arch Rec 44:814-24 S '18; Abstract. Am Lumberman 2263:30 S 28 '18

House of Allan S. Lehman, Tarrytown-on-the-Hudson, New York. 11 plan Am Arch 115:191-200, pl 42-50 F 5 '19

House of C. B. Butterfield, Marion, Mass.; views. Am Arch 116:pl 130-2 O 1 '19

House of Charles T. Ladd, Portland, Ore.; views. Am Arch 113:pl 234-7 Je 26 '18

House of Edwin H. Hewitt, architect, Minneapolis, Minn.; views. Am Arch 114:pl 32-3 Jl 24 '18

House of Henry A. Morss, Marblehead, Mass.; views. Am Arch 115:pl 6-10 Ja 1 '19

House of W. M. Jeffords, esq., Hunting Hill, Glen Riddle, Pa.; photographs. Arch Rec 44:164-74 Ag '18

House of William H. Reid, Springdale, Conn.; views. Am Arch 115:pl 113-17 Ap 9 '19

Residence of Adolph Lewisohn, esq., New York; views. Arch Rec 44:61-4 Jl '18

Residence of Allan S. Lehman, esq., Tarrytown, N.Y. H. D. Smith. 11 plans Arch Rec 44:483-501 D '18

Residence of Major J. H. H. Peshine, Santa Barbara, California. C. O. Cornelius. 11 plan Arch Rec 45:98-115 F '19

Residence of Mrs Andrew Welch, San Francisco, California. L. V. Solon. 11 diag plan Arch Rec 45:194-209 Mr '19

Residence of Otto H. Kahn, esq., New York. L. V. Solon. 11 plan Arch Rec 46:98-114 Ag '19

Residences of Harold L. Ickes, esq., Hubbard Woods, Ill., and Mrs Cyrus H. McCormick, Lake Forest, Ill. P. B. Wight. 11 plans Arch Rec 43:194-212 Mr '18

Winter home of George H. Crosby, esq., Mira Vista, Pasadena, Cal. 11 Arch Rec 45:176-8, 188-9 F '19

Architecture, Ecclesiastical. See Church architecture

Architecture, Gothic

Art of the middle ages. A. K. Porter. 11 Arch Rec 43:115-30, 213-30 F-Mr '18

Hispanic society publications. M. Wilcox. Arch Rec 43:481-4 My '18

- Architecture, Greek**  
Classic spirit and tradition. *Am Arch* 116: 447-8 O 1 '19
- Architecture, Italian**  
Architecture of the Dalmatian coast. H. D. Eberlein. *Il Arch Forum* 31:1-6, 35-40, 81-4 J1-S '19  
Italian house at Miami, Florida. *Il Am Arch* 115:805-9, pl 188-94 Je 11 '19
- Architecture, Medieval**  
Coucy-le-Château; a victim of the war. R. F. Bach. *Il plans Arch Rec* 42:551-7 D '17
- Architecture, Naval.** See Naval architecture
- Architecture, Renaissance**  
Character of renaissance architecture. C. H. Moore. *Arch Rec* 44:465-9 N '18  
Hispanic society publications. M. Wilcox. *Arch Rec* 43:481-4 My '18  
Renaissance architecture and its critics. A. D. F. Hamlin. *Il Arch Rec* 46:57-76 J1 '19  
Spirit of the renaissance. B. Robinson. *Il diags Arch Rec* 44:152-8 Ag '18
- Architecture, Roman**  
Art in the eastern Roman empire from the time of Constantine. C. Heaton. *Il plans Am Arch* 112:241-6, 279-80, 283-4, 447-9 O 3, 17, D 19 '17  
Case against Roman architecture. A. K. Porter. *Il Arch Rec* 43:22-36 Ja '18
- Architecture, Rural.** See Barns and stables; Country houses; Farm buildings
- Arcs**  
Comparison of formulas for computing parabolic arcs. R. C. Strachan. *diags Eng N* 82:325-6 F 13 '19  
Computation of lengths of elliptic arcs. G. Paaswell. *Eng N* 53:221 J1 31 '19  
Finding the radius of a concave arc. G. H. Gardner. *diags Mach* 24:762 Ap '18
- Arctic exploration**  
Aero radio surveying and mapping. J. H. Hammond, jr. *diags Flying* 8:160-1+ Mr '19  
Captain Bartlett's Arctic expedition. *Flying* 7: 1148-9 Ja '19  
Roosevelt memorial expedition to explore the Arctic by aeroplane. *Il map Flying* 8:48-9 F '19  
Stefansson in the Arctic. J. G. Holme. *Il Sci Am* 120:603+ Je 7 '19
- Arctic ocean**  
Latest guide to the Arctic. *Sci Am* 118:206 Mr 9 '18
- Area measurement**  
Area of fillets. H. Gwinner. *chart diags Mach* 25:200 N '18  
Chart for determining pipe areas. W. F. Schaphorst. *Eng & Min J* 106:866 N 16 '18  
Convenient table for draftsmen. P. A. Arnold. *Coal Age* 13:445 Mr 9 '18
- Argentina**  
Patent and trade mark laws of the Argentine. R. W. Huntington. *Automotive Ind* 39:192-3 Ag 1 '18  
Railroad development of the Argentine. *Il map Ry Age* 66:1001-5 Ap 18 '19
- Commerce**
- Argentina likes our office furniture. *Sci Am* 120:124 F 8 '19  
Argentine market for motor vehicles. D. Beecroft. *Il U S Bur For & Dom Com misc ser* 62:1-27 '17; Excerpts (Automobile trade with Argentina). *Automotive Ind* 37:999+ D 6 '17  
Boots and shoes, leather and supplies in Argentina, Uruguay, and Paraguay. H. G. Brock. *Il U S Bur For & Dom Com* 177:1-182 '19  
Chemical markets of Argentina, Brazil and Uruguay. O. P. Hopkins. *J Ind & Eng Chem* 10:701-4 S '18  
Paper, paper products, and printing machinery in Argentina, Uruguay, and Paraguay. R. S. Barrett. *Il U S Bur For & Dom Com* 163:1-165 '18  
Use of roofing materials in Argentina. *Metal Work* 90:216 Ag 23 '18
- Wearing apparel in Argentina.** L. B. Clark. *Il U S Bur For & Dom Com misc ser* 68:1-158 '18
- Industries and resources**
- Economic and geologic conditions pertaining to the occurrence of oil in the North Argentine-Bolivian field of South America. S. C. Herold. *Il maps Am Inst Min E Bul* 141:1503-22 S '18; Discussion. 149:854 My '19  
See also Automobile industry and trade—Argentina
- Argon**  
Industrial preparation of argon. *Sci Am S* 87: 94 F 8 '19
- Arizona**  
Southwest copper field; geology, topography and ethnology of the region. J. R. Finlay. *Il Eng & Min J* 106:199-205 Ag 3 '18  
See also Roads—Arizona
- Description and travel**
- Miniature from the past; dwellers in Arizona today who appear to be left-overs from the stone age. *Il Sci Am S* 87:324-5 My 24 '19  
See also Canyon de Chelly
- Industries and resources**
- See also Copper mines and mining—Arizona
- Arizona united mining company**  
Arizona united mine, in Johnson-Dragoon district of Arizona. H. E. Scott. *Il Eng & Min J* 106:705 O 19 '18
- Arkansas**
- Industries and resources**
- See also Bauxite; Mines and mineral resources—Arkansas
- Armatures**  
Armature and field windings. H. H. Bliss. *Il diags J Elec* 43:30-2 J1 1 '19  
Armature winding. *diags Elec R* 73:384-5 S 7 '18  
Convenient method for removing armatures from box-frame motors. *Il Elec Ry J* 54:532 S 13 '19  
Current distribution in armature conductors. W. V. Lyon. *diags Elec W* 74:66-8 J1 12 '19  
Current distribution in three-phase commutator armatures; abstract. M. Ernst. *Elec W* 72:989 N 23 '18  
Design of small direct-current armatures. C. R. Wylie. *Elec W* 73:571-5 Mr 22 '19  
Dielectric strength of air films entrapped in solid insulation and a practical application of the problem for alternator coils and cables. F. Dubsky. *diags Am Inst E E Pro* 38:141-61 F '19  
Direct-current armature trouble. F. Huskinson. *Coal Age* 14:823 O 31 '18  
Does it pay to dip and bake armatures? J. S. Dean. *Elec J* 16:467 O '19  
Electrical study course—armature reaction. *diags Power* 48:13-15 J1 2 '18  
Electrical study course—direct-current armature construction. *diags Power* 47:87-90 Ja 15 '18  
Electrical study course—faults in generators and motors. *diags Power* 48:707-10 N 12 '18  
Electrical versus mechanical troubles with railway motor armatures. J. S. Dean. *diags Elec Ry J* 53:657 Mr 29 '19  
Heating of the armature in traction motors; abstract. L. Adler. *Elec W* 71:153 Ja 19 '18  
Homemade armature oven. R. Z. Virgin. *diag Coal Age* 13:911 My 18 '18  
Home-made tools aid in armature coil winding. M. M. Clement. *diags plan Elec W* 72:399 Ag 31 '18  
Improving the coil attachment. J. J. Nolan. *diags Coal Age* 13:861 My 11 '18  
Insulated armature coils. *Iron Tr R* 64:573 F 27 '19; Same. *Coal Age* 15:563 Mr 27 '19  
Insulation of armatures. *Elec R* 73:1022-3 D 28 '18  
Insuring standard end play for armatures. *diags Elec Ry J* 53:1231-2 Je 21 '19

**Armatures—Continued**

- Magnetic pull of armatures of electrical machines; abstract. E. Rosenberg. *Elec W* 71:782 Ap 13 '18
- Method of flattening leads for armatures. F. Huskinson. *diag Elec W* 71:1877 Je 29 '18
- Methods of insulating. A. C. generator coils. H. D. Stephens. *il diag Power* 48:333-5 S 3 '18
- Motor problem with armature shaft slightly too long. T. H. Reardon. *Elec R* 73:904 D 7 '18
- Preventing the breakage of armature leads on railway motors. A. L. Broomall. *il Elec J* 16:440-3 O '19
- Rewinding and testing direct-current locomotive armatures. F. Huskinson. *il diag Coal Age* 14:541-4 S 19 '18
- Rewinding direct-current armatures. R. Thistlewhite. *diag Power* 47:325-8 Mr 5 '18
- Studies in the wear of armature ball bearings. W. Fink. *Elec Ry J* 52:339 Ag 24 '18
- System in the armature room. G. E. Pellissier. *il Elec Ry J* 53:95 Ja 11 '19
- Winding and forming armature and stator coils. F. Huskinson. *il diag Coal Age* 13:1140-1 Je 22 '18
- Winding coils for old armatures. *il Elec Ry J* 53:578-80 Mr 22 '19

See also Commutators; Electromagnets

**Repair**

- Armature repair work aided by simple tools. M. M. Clement. *diag Elec W* 72:699 O 12 '18
- Diagrams for recording coil and commutator throws. *diag Elec W* 74:763 O 4 '19
- Machine for doing armature repair work. *il Elec W* 74:250-1 Ag 2 '19

**Testing**

- Armature coil tester for plant repair shop. W. V. Bond. *diag Elec W* 73:1326 Je 21 '19
- Method for testing armatures. *diag Motor Age* 35:44 Mr 13 '19
- Testing a magneto armature. *diag Horseless Age* 42:37 D 15 '17
- Testing heater motor armatures before installation. H. C. Ebeling. *il Elec Ry J* 52:878 N 16 '18

**Armies**

- Today—and other days; armies raised in this country. *Sci Am* 118:426 My 11 '18

See also Demobilization; Military art and science; Military hygiene; Military service; Soldiers; also subdivision Army under names of countries, e.g. Germany—Army, United States—Army

**Commissariat**

- Army rations. W. H. Newcomb. *Sci Am S* 86:86-7 Ag 10 '18
- Fats of fighters. L. Lodlan. *il Sci Am* 118:229 Mr 16 '18

**Equipment**

- Blanket purchases by War department. *Textile World* 53:4021 Mr 2 '18
- Engineers' combat wagon. *il Eng & Min J* 105:7-8 Ja 5 '18
- Equipment of an army. A. A. Hopkins. *Sci Am* 118:71 Ja 19 '18
- How war strategy affected textiles. J. A. Hunter. *Textile World* 53:2957+ Ja 12 '18
- Making the new army blanket. *Textile World* 53:5575 My 18 '18
- Manufacture of cotton cloths for military uses. J. Reynolds. *il Textile World* 53:2987+ Ja 12 '18
- New and unusual war textiles. *il Textile World* 53:2952-3+ Ja 12 '18
- New specifications for blankets. *Textile World* 53:4511 Ap 30 '18
- Supply organization expands 2250 per cent to equip engineer troops. E. J. Mehren. *Eng N* 80:25-9 Ja 3 '18
- Supplying army centered in general staff. *Eng N* 81:561-2 S 19 '18
- Textile industry in relation to the war. J. E. Roumaniere. *Am Soc M E J* 40:pt 1, 528-9 Jl '18

See also Army cloths; Soldiers—Clothing

**Water supply**

- American army's water-works projects in France number about four hundred. R. K. Tomlin, jr. *il diag plans Eng N* 81:434-7 S 5 '18
- Army motor trucks carry water purification plant. R. K. Tomlin, jr. *il diag plan Eng N* 81:458-60 S 5 '18; Same. *Chem & Met Eng* 19:678-80 N 1 '18
- Filters for fighters in France built from odds and ends. *diag plans Eng N* 81:670-1 O 10 '18
- Geologist in war times: relation to military water supplies. O. E. Meinzer. *Econ Geol* 13:314-15 Je '18
- Keeping the first army supplied with water. F. S. Scheidhelm. *il chart plan Am Water Works Assn J* 6:623-38 N '19
- Motor-truck-mounted water purification units. W. J. Orchard. *il plans Am Water Works Assn J* 6:562-71 S '19; Same. *Eng & Contr* 52:190-1 Ag 13 '19
- Operation of cantonment water-works. G. A. Johnson. *diag Am Water Works Assn J* 6:169-82 Je '19
- Pumping machinery used by service of supply of American expeditionary forces in France. W. B. Gregory. *Mech Eng* 41:462-3 My '19
- Pure water supplied to men at front by mobile filters. *Dom Eng* 84:46 Jl 13 '18
- Sanitation in war fields "over there." *diag Metal Work* 90:93-5 Jl 26 '18
- Special water supply department for the French army. *Sci Am* 118:158+ F 16 '18
- Water consumption in army and guard camps compared. D. H. Maury. *Eng N* 80:904 My 9 '18
- Water for an army. *il Sci Am S* 87:36 Ja 18 '19
- Water supplies of army camps, cantonments and posts in the United States, with particular reference to problems of quality. C. G. Hyde and C. A. Haskins. *Am Water Works Assn J* 6:532-61 S '19
- Water-supply at the front in France. R. K. Tomlin, jr. *il Eng N* 80:892-8 My 9 '18
- Water supply for the cantonments. D. H. Maury. *diag Munic J* 47:227-8, 241-3 O 11-18 '19
- Water supply service in the army of occupation in Germany. L. A. Fritze. *Am Water Works Assn J* 6:422-6 S '19
- Water-supply specifications for national army cantonments reviewed. D. H. Maury. *Eng N* 80:33-5 Ja 3 '18

See also Water supply engineering

**Armor plate**

- Evolution of tank armor. *Iron Age* 103:1004 Ap 17 '19
- Hot punching of holes in armor plate. *Am Mach* 49:1039 D 5 '18
- Producing bitter pills for Fritz. G. Satterthwaite. *Iron Tr R* 63:384-8 Ag 15 '18

**Armored airplanes. See Airplanes, Armored****Armored cars**

- Armored motor cars for the U.S. army. *il Ry R* 64:938-9 Je 21 '19

**Armored vessels. See Warships****Armories**

- Faulty foundation causes serious damage to armory. *il diag plan Eng N* 82:1067-9 My 29 '19

See also Arsenals

**Armour institute of technology, Chicago**

- Armour's special testing equipment. *il diag Power* 49:670-4 My 6 '19

**Arms and armor**

- Adapting ancient armor to the needs of modern warfare. *il Sci Am* 119:149+ Ag 24 '18
- Ancient defensive armor in modern warfare; the shield, the cuirass and the helmet revived. N. Flamel. *il diag Sci Am S* 85:180-2 Mr 23 '18
- Bullet versus armor. E. C. Crossman. *il Sci Am* 118:498-9 Je 1 '18
- Coincidence or copy in tin hat? *Iron Tr R* 65:695-6 S 11 '19

**Arms and armor—Continued**

Making modern armor; workshop at Metropolitan museum busy. *Iron Age* 102:334 Ag 8 '18

See also Artillery; Boomerangs; Firearms; Guns; Helmets; Pistols; Rifles

**Army cloths**

Analysis of o. d. uniform cloth specifications. *Textile World* 53:5573+ My 18 '18

Army cloth standards are disclosed. *Textile World* 53:4426-7 Mr 30 '18

Army fabrics conversion. *Textile World* 54:3217+ D 28 '18

Army specifications; question of shoddy. C: Eisenman. *Textile World* 53:4151+ Mr 9 '18

Cotton military cloths. *Textile World* 53:5241 My 4 '18

Fulling of wool army goods. O. Fisk. *Textile World* 53:3105+ Ja 12 '18

Italian army fabric. *Textile World* 54:1735 O 12 '18

Performance of textile service equipment. W: Davis. *Textile World* 54:1969+ O 26 '18

Redyeing of military cloths. L: J. Matos. *Textile World* 56:1781+ S 27 '19

Water-resisting process on military cloths. H. P. Pearson and F. Sundermann, jr. *Textile World* 53:3075+ Ja 12 '18

Woolen specifications issued. *Textile World* 54:1963 O 26 '18

Army engineer school. See United States army engineer school

**Army ordnance association**

Organization of a society for the perpetuation of American preparedness. J: H. Van Deventer. *Am Mach* 51:105-6 Jl 17 '19

Army rations. See Armies—Commissariat

Army shoes. See Shoes, Army

**Army supply bases**

Army supply bases useful adjuncts to railroads. *Il diag* plan Ry Age 66:1809-12 Je 27 '19

Boston army supply base—construction features. C: R. Gow. *Il Boston Soc C E J* 6:77-113 Mr '19

Boston army supply base—from the contractor's standpoint. W: F. Kearns. *Il Boston Soc C E J* 6:115-23 Mr '19

Boston army supply base—general data. C: M. Spofford. *Boston Soc C E J* 6:125-37 Mr '19

Boston army supply base—general features of project. F: H. Fay. *Boston Soc C E J* 6:67-76 Mr '19

Brooklyn army base is largest port terminal. *Il diag* plans Eng N 82:317-23 F 13 '19

Building the New Orleans army supply base. *Il plan Eng N* 83:122-6 Jl 17 '19

Electrical features of the Brooklyn army supply base. *Il Elec R* 75:509-12 S 27 '19

Electrical service at great seaboard terminal. *Il diag Elec W* 73:784-7 Ap 19 '19

Freight handling at the Brooklyn army base. *Il plan Eng N* 83:555-60 S 18 '19

Modern industrial plants; the great army supply bases and quartermasters' terminals constructed along the eastern coast for war purposes. G: C. Nimmons. *Il diag Arch Rec* 45:262-82 Mr '19

Modern terminal. *Il Sci Am* 121:390-1 O 18 '19

New Orleans army base improves facilities of the port. G: H. Davis. *Il diag plan Eng N* 82:823-6 Ap 24 '19

Paving of streets and aisles, Brooklyn army supply base. *Il diag plan Eng N* 83:400-2 Ag 28 '19

Time keeping system on \$28,000,000 Boston army supply base contract. *Eng & Contr* 51:579-80 My 28 '19

U.S. government buildings for the army and navy departments. *Il Arch & Bldg* 51:41-3, pl 74-8, 85 My '19

Wall construction at Norfolk army supply base by cement gun process. *Il Eng & Contr* 51:574-5 My 28 '19; *Eng N* 82:1199-1200 Je 19 '19

Wood construction feature of Charleston port terminal. H. Abbott. *Il diag plans Eng N* 82:702-6 Ap 10 '19

Yard tracks for Brooklyn army supply base. *plan Ry R* 64:609-11 Ap 26 '19

**Arnold arboretum**

Debt of landscape art to a museum of trees. B. Farrand. *Il Arch Rec* 44:406-13 N '18

Aromatic hydrocarbons. See Hydrocarbons, Aromatic

Arresters, Lightning. See Lightning arresters

**Arrowrock dam**

Comparison of the Elephant Butte and Arrowrock dams. J. E. Sater. *Concrete* 11:183 D '17

**Arsenilic acids**

Preparation of primary and secondary arsenilic acids. P. A. Kober and W. S. Davis. *Am Chem Soc J* 41:451-8 Mr '19

Arsenal technical schools. See Indianapolis, Indiana—Arsenal technical schools

**Arsenals**

Expansion of Rock Island arsenal. *Am Mach* 50:268 F 6 '19

Governmental suggestions for arsenals and manufacturers. *Am Mach* 47:1085-6 D 20 '17

Royal arsenal, Woolwich. *Engineer* 128:58 Jl 18 '19

Arsenate of lime. See Calcium arsenate

**Arsenic**

Arsenic in 1918. *Eng & Min J* 107:86 Ja 11 '19

Arsenic in sulfured food products. W. D. Collins. *diag J Ind & Eng Chem* 10:360-4 My '18

Determination of arsenic in insecticides by potassium iodate. G: S. Jamieson. *J Ind & Eng Chem* 10:290-2 Ap '18

Modifications of Pearce's method for arsenic. J: Waddell. *J Ind & Eng Chem* 11:939-41 O '19

New method for the separation of the copper group from the arsenic group, with especial reference to the identification of arsenic. M. C. Sneed. *Am Chem Soc J* 40:187-91 Ja '18

Use of arsenic as a flux in brass. G. C. Holder. *Metal Ind* 17:124 Mr '19

White arsenic in Rhodesia. *Eng & Min J* 106:1076 D 21 '18

**Arsenic compounds**

Aromatic arsenic compounds. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1581-1644, 1809-40 O-N '19

**Arsenic trichloride**

Manufacture of arsenic trichloride. R. C. Smith. *diag J Ind & Eng Chem* 11:109-10 F '19

**Arsenicals**

Plan of procedure for the synthesis of arsenicals for chemotherapeutic research. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1581-7 O '19

Review of the American patent literature on arspenamine (salvarsan) and other arsenicals. H. F. Lewis. *J Ind & Eng Chem* 11:141-5 F '19

**Arsenious acid**

Adsorption of arsenious acid by ferric hydroxide. M. C. Boswell and J. V. Dickson. *diag Am Chem Soc J* 40:1793-1801 D '18

**Arsenious oxide**

Arsenious oxide as a standard substance in iodimetry. R. M. Chapin. *Am Chem Soc J* 41:351-8 Mr '19

Preparation and testing of pure arsenious oxide. R. M. Chapin. *J Ind & Eng Chem* 10:522-5 Jl '18

**Arsonic acids**

Aromatic arsenic compounds; aromatic amides of *N*-arylglycine arsonic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1610-44 O '19

Aromatic arsenic compounds; the amides and alkyl amides of *N*-arylglycine arsonic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1587-1600 O '19

Aromatic arsenic compounds; the ureides and  $\beta$ -substituted ureides of *N*-arylglycine arsonic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1600-10 O '19

Isomeric hydroxyphenylarsonic acids and the direct arsenation of phenol. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1440-50 S '19

**Arsonic acids—Continued**

Nitro- and aminoaryl arsonic acids. W. A. Jacobs, M. Heidelberger and I. P. Rolf. *Am Chem Soc J* 40:1580-90 O '18

**Arphenamine.** See **Salvarsan**

**Art**

College and museum; excerpt. F. L. Ackerman. *Am Inst Arch J* 7:465-7 N '19  
War's message to art. W. L. Nowil. *Am Inst Arch J* 8:482-3 O '18

See also **Architecture**; **Bronzes**; **Church and art**; **Decoration and ornament**; **Design**; **Decorative**; **Engraving**; **Etchings**; **House decoration**; **Mural painting and decoration**; **Photography**; **Sculpture**; **Stained glass**

**Exhibitions**

Seventeenth and eighteenth century design books; exhibition at the Metropolitan museum of art. New York. C. O. Cornelius. *Arch Rec* 45:573-4 Je '19

**Galleries and museums**

Dudley Peter Allen memorial art building. Oberlin, Ohio. I. T. Frary. *Il diags plans Arch Rec* 44:98-111 Ag '18

Gallery for Italian paintings in the Cleveland museum of art; views. *Am Arch* 115:pl 118-20 Ap 9 '19

See also **New York (city)—Metropolitan museum**

**Study and teaching**

See **Art education**

**Art, Commercial**

Art director's directions to artists. S. H. Horgan. *Inland Ptr* 60:532 Ja '18

Commercial art department for the printery. R. F. Saladé. *Inland Ptr* 62:211-12 N '18

**Art, Decorative.** See **Arts and crafts**; **Decoration and ornament**; **Design**; **Decorative**

**Art, Greek**

Greek system of architectural polychrome decoration. L. V. Solon. *Il Arch Rec* 43:322-34 Ap '18

**Art, Japanese**

Japanese stencil. I. D. Little. *Il Color Tr J* 4:135-8 Je '19

**Art alliance**

Experiment in internationalism; exhibition of foreign handicraft at the galleries of the Art alliance. E. C. Gray. *Il Color Tr J* 5:6-9 Ji '19

**Art commissions**

List of art commissions in United States. *Am Arch* 115:650 My 7 '19

**Art education**

Art education and the industrial arts. L. V. Solon. *Arch Rec* 44:571-4 D '18

See also **Architectural education**

**Art of perpetuation**; museums the results of man's acquisitiveness. B. Cummings. *Sci Am S* 85:330-1 My 25 '18

**Art schools**

Department of architecture at the A. E. F. university of Beaune, Côte d'Or, France. J. Bakewell, jr. *Il Am Inst Arch J* 7:469-81 N '19

Soldier's school of art. *Il Am Arch* 116:293-7 S 3 '19

**Art service league**

Artists in and around Chicago have formed an organization. *Am Arch* 116:80 Ji 16 '19

**Artesian wells**

Air-lift artesian well. J. Oliphant. *Il Munic J* 46:249 Ap 5 '19

Artesian wells for water supply, with special reference to the artesian wells of Wisconsin. W. G. Kirchoffer. *Munic Eng* 55:136-8 O '18

Features in artesian well construction in Mankato. H. F. Blomquist. *Am Water Works Assn J* 5:163-4 Je '18

History of the artesian water supply at Savannah, Georgia. E. R. Conant. *Am Water Works Assn J* 5:252-62 S '18; *Abstract. Eng N* 80:889-90 My 23 '18

Supplementary artesian supply for Indianapolis. *diag Eng N* 81:633 O 3 '18

Unusual ground water supply conditions at Baton Rouge, Louisiana. L. R. Howson. *Am Water Works Assn J* 6:271-6 Je '19; Same cond. *Eng & Contr* 52:40-1 Ji 9 '19; *Abstract. Eng N* 82:1175-6 Je 12 '19

See also **Madison, Wisconsin—Water supply**

**Artichoke, Jerusalem**

Alimentary and economic value of the Jerusalem artichoke. *Sci Am S* 86:16 Ji 6 '18

**Artificial daylight.** See **Daylight, Artificial**

**Artificial flowers**

Gas in artificial flower making. R. E. Livingston. *Il Am Gas Eng J* 108:389-90 Ap 27 '18

**Artificial ice.** See **Ice—Manufacture****Artificial limbs**

Manufacture of artificial limbs at Messrs. Yarrow's works. *Il Engineer* 126:236-8, 244 S 20 '18

Prosthesis of the lower limb. *Sci Am S* 87:290-1+ My 10 '19

Reconstructing the war's maimed. *Il Sci Am* 118:450+ My 18 '18

See also **Hands, Mechanical**

**Artificial silk.** See **Silk, Artificial**

**Artillery**

Artillery which keeps pace with the infantry. *Il Sci Am* 119:352-3+N 2 '18

Design of artillery ammunition. J. W. Taylor. *diags Sci Am S* 88:26-7, 31-2 Ji 12 '19

Four-inch guns mounted on motor truck. W. F. Bradley. *Il Automotive Ind* 40:50 Ja 9 '19

Gun camouflage. C. H. Claudy. *Il Sci Am* 119:460+ D 7 '18

Guns for the fighting front; American heavy artillery. *Il Sci Am* 120:54-5+ Ja 18 '19

High-angle fire artillery—the backbone of the Austrian army. *Il Sci Am* 118:171 F 23 '18

In the service of the guns. C. H. Claudy. *Il Sci Am* 119:392-3+ N 16 '18

Italian industry in the war; the manufacture of artillery by the Ansaldo, the Genoaese

Krupps. A. Benington. *Il Sci Am* 118:548-9 Je 15 '18

Mathematics in the artillery. A. A. Bennett. *Texas U Bul* 1827:9-16 My 10 '18

Ordnance on the allied front. J. Headlam. *Sci Am S* 85:370-1, 391 Je 15-22 '18

Remarkable developments of engines of war. *Il Iron Age* 103:124-6 Ja 9 '19

See also **Gunnery**; **Guns (ordnance)**; **Naval guns**

**Artillery, Coast**

Men behind the guns. C. H. Claudy. *Il Sci Am* 119:376-7 N 9 '18

**Artillery, Railway**

Armoured trains for coast defence. *Il Engineer* 127:150-2 F 14 '19

Battleship guns on the western front. C. L. McCrea. *Il Sci Am* 120:123+ F 8 '19

14-in naval railway batteries. C. L. McCrea. *Il diags plan Am Mach* 50:141-9 Ja 23 '19

Naval land gun that can fire from the track at a moment's notice. C. L. McCrea. *Il Sci Am* 121:91+ Ji 26 '19

Navy guns mounted on railway cars. *Ry Age* 65:766-7 N 1 '18

Navy's land batteries in France triumph of engineering. W. S. Duxsey. *Il diag Iron Tr R* 64:315-22 Ja 30 '19; Same cond. *Marine R* 49:96-102 F '19

New American railway artillery. E. D. Campbell. *Il diags Ry R* 64:869-74 Je 14 '19

Railroad men man mobile battery for navy; fourteen-inch guns are placed on railway mountings. *Il Ry Age* 65:967-9 N 29 '18

Railway artillery. J. B. Dillard. *Il diags plan Am Soc M E J* 41:44-9 Ja '19

Railway gun mounts. G. M. Barnes. *Il Am Mach* 50:329-35 F 20 '19

Railway mounted artillery in the war. *Ry Age* 66:1205-9 My 16 '19

Railway mounts for large naval guns. *Il diags plan Ry R* 64:477-80 Mr 29 '19

**Artillery, Railway—Continued**

War department railway artillery. *Il Ry Age* 65:1113-14 D 20 '18

**Arts and crafts**

Seventeenth and eighteenth century design books; exhibition at the Metropolitan museum of art, New York. C: O. Cornelius. *Arch Rec* 45:573-4 Je '19

See also Ironwork; Pottery; Tapestry; Weaving

**Asbestone**

Plastic, fireproof and durable material laid over old floors. *Il Textile World* 54:2691 N 30 '18

**Asbestos**

Asbestos, ground and mixed with a binder, likely to score a big success as a refractory and insulator. *Il Sci Am* 121:254+ S 13 '19

Asbestos industry. *Eng & Min J* 105:132 Ja 12 '18

Asbestos industry, 1918. *Eng & Min J* 107:51 Ja 11 '19

Asbestos mines of Quebec. W. F. Sutherland. *Il Sci Am* 121:315+ S 27 '19

History of asbestos. *Engineer* 127:547 My 30 '19

Modern roofing materials. C: H. Stringer. *Am Arch* 114:361-4 S 25 '18

Production increasing. *Am Gas Eng J* 109:6 JI 6 '18; Same. *Metal Work* 90:71 JI 19 '18

**Ash (tree)**

Effects of kiln-drying on commercial white ash. H. J. Rosenthal. *diag Automotive Ind* 41:774-9 O 16 '19

Production of ash in the South. J. B. Robinson. *Am Lumberman* 2250:43 Je 29 '18

**Ash collection**

Philadelphia's new ash trucks. *Il Munic J* 45:426-7 N 30 '18

**Ash handling**

Ash cars made from scrap material by Connecticut company. *Il Elec Ry J* 50:1125 D 22 '17

Ash handling in old boiler plant. *Il Iron Age* 101:1205 My 9 '18

Ash-slucing system. F. Sawford. *diags Power* 50:251 Ag 12 '19

Ashes—handling by steam conveyor versus manual labor. *Elec Ry J* 54:30 JI 5 '19

Brick-lined ash hopper. M. E. Duggan. *diag Power* 47:847 Je 11 '18

Buying an ash-handling system. H. E. Birch. *Power* 47:186-8 F 5 '18

Disposing of ashes with steam. *Il Sci Am* 121:111+ Ag 2 '19

Economic handling of ashes. R. Trautschold. *Il diags Ind Management* 56:17-20 JI '18

Economical method of handling coal and ashes. *Il Elec W* 72:985 N 23 '18

Electrical monorail hoists for handling ashes. *Il Elec R* 72:210-11 F 2 '18; *Elec W* 71:283 F 2 '17; *Int Marine Eng* 23:93 F '18; *Power* 47:544-5 Ap 16 '18

Handling ashes electrically. *Il Factory* 22:1208 Je '19

Handling coal and ash at Youngstown, O. *diags Iron Age* 102:367-8 Ag 8 '18

Handling coal and ashes in the boiler house. H: J. Edsall. *Il Coal Age* 13:694-7 Ap 13 '18

Improved Girtanner ash conveyor. *diags Power* 50:18-19 JI 1 '19

Improved Green steam-jet ash conveyor. *Il Power* 50:434 S 9 '19

Management of the power plant. R. June. *Il diags Textile World* 55:2089+, 2719+, 3711+ Ap 5, My 3, Je 14 '19; *Excerpt. Elec R* 75:691-2 O 15 '19

Money saved by use of steam jet ash conveyor. G. S. Hamilton. *Il Coal Age* 15:307 My 1 '19; *Abstract. Elec W* 74:458 Ag 30 '19

Pneumatic ash conveying. *Il Power* 50:103 JI 15 '19; *Sci Am* 121:348 O 4 '19

Selection of coal and ash conveyors. H. E. Birch. *Il diags Power* 47:82-6 Ja 15 '18

Steam-jet ash conveyor. *diags Iron Age* 100:1457 D 13 '17

Steam jet ash conveyor. T. A. Peebles. *Il Coal Age* 16:658-9 O 16 '19

Suggested steam-jet ash-conveyor improvements. H. G. Burrill. *diag Power* 47:923 Je 25 '18; *Discussion. M. J. Armington. 48:209 Ag 6 '18*

**Cost**

Relative costs of handling ashes manually and mechanically. *Elec R* 74:1047 Je 21 '19

**Ash pits**

Arrow ashpit gate. *diags Power* 50:335 Ag 26 '19

Double-track water-type ashpit of Pennsylvania railroad. *Il diags Eng N* 83:408-10 Ag 28 '19

Ashes. See Ash handling; Coal ash; Wood ash

Ashpits. See Ash pits

Asia, Central

**Economic conditions**

Tractor prospects in Siberia and Central Asia. N. A. Stepanoff. *map Automotive Ind* 39:947-53 D 5 '18

Asia Minor

**Commerce**

Engineering markets of the Near East. *Engineer* 126:213-14 S 13 '18

**Asparagin**

Influence of aspartic acid and asparagin upon the enzymic hydrolysis of starch. H. C. Sherman and F. Walker. *Am Chem Soc J* 41:1866-73 N '19

**Asphalt**

Asphalt and petroleum residues in 1917. *Chem & Met Eng* 19:140 Ag 1 '18

Asphalt block adapted to war purposes. E. J. Morrison. *Eng N* 82:131 Ja 16 '19

Asphalt industry in 1917. *Eng & Contr* 50:19-20 JI 3 '18; Same cond. *Good Roads n s* 16:17 JI 13 '18

Asphalt industry in 1918. *Good Roads n s* 18:70 JI 30 '19

Asphalts and tars in surface treatment. R. G. Tyler. *Texas U Bul* 1735:22-34 Je 20 '17

Boring in Trinidad asphalt lake. *Sci Am S* 88:195 S 27 '19

Limestone rock asphalt produces good mortar. J. R. Nash. *Eng N* 82:903 My 8 '19

Melting point of asphalts. L. M. Proctor. *Chem & Met Eng* 21:81-3 JI 15 '19

New low level record reached in Trinidad asphalt lake soundings. *Munic Eng* 57:30 JI '19

New uses for industrial fuel gas. C. H. Kallstedt. *Am Gas Eng J* 108:243-4 Mr 16 '18; Same. *Gas Age* 41:315-16 Ap 1 '18

Standardization of consistency for asphalt. J. R. Draney. *Eng & Contr* 50:437 N 6 '18

See also Asphalt plants; Bituminous materials; Pavements, Asphalt

**Analysis**

Steam heated bitumen extractor. C. H. Lovejoy. *diags Munic J* 46:130-1 F 15 '19

**Transportation**

Advantages of tank car shipments of asphalt. C: E. Murphy. *Il Eng & Contr* 52:160-1 Ag 6 '19

**Asphalt association**

Organization. *Eng N* 82:1237 Je 19 '19; *Good Roads n s* 17:257 Je 14 '19; *Munic Eng* 57:22 JI '19

Asphalt pavements. See Pavements, Asphalt

**Asphalt plants**

Asphalt plant used also for car sand drying to gain all-year use. A. E. Harvey. *Il Elec Ry J* 51:46 Ja 5 '18

Data on California asphalt paving work performed with portable asphalt plant. T. E. Stanton. *Il Munic Eng* 54:223-6 Je '18

How a contractor equipped his asphalt plant to dispense with two men and lower cost of asphalt. M. R. Butler. *plan Munic Eng* 56:206 Je '19

Portable asphalt plants retain popularity. *Munic Eng* 54:41 Ja '18

**Asphalt plants, Municipal**

Data on operation of asphalt mixing plant owned by city of Worcester, Mass. A. T. Rhodes. *Il Munic Eng* 54:52-3 F '18

- Asphalt plants, Municipal—Continued**  
 Operation cost, municipal asphalt plant of the District of Columbia. Eng N 82:764 Ap 17 '19  
 Operation costs of municipal asphalt plant of the city of Portland, Ore. Eng N 83:1200-1 Je 19 '19  
 Operations of municipal asphalt plant of Los Angeles. Eng & Contr 52:27 J1 2 '19
- Asphodel**  
 Asphodel as a source of alcohol. Chem & Met Eng 19:565 O 1 '18
- Asphyxia**  
 Various manual resuscitation methods. H. B. Harmer. Am Gas Eng J 109:293-5 S 28 '18
- Asphyxiating gases.** See Gases, Asphyxiating and poisonous; Gases in warfare
- Aspirin.** See Acetylsalicylic acid
- Assaying**  
 Assay practice economies on the Rand. C. Toombs. Eng & Min J 106:584-5 S 28 '18  
 Chilean assay terms defined. Eng & Min J 105:162 Ja 19 '18  
 Importance of particle-size reduction before sampling for assay. A. W. Allen. Eng & Min J 106:1103-5 D 28 '18  
 Minor economies in assaying. T. G. Martyn. Eng & Min J 107:241-2 F 1 '19  
 Rapid electrolytic copper assay without rotating cathode. R. G. Place. Chem & Met Eng 20:452 My 1 '19  
 Sulphur dioxide method for determining copper minerals in partly oxidized ores. C. E. Van Barneveld and E. S. Leaver. diag U S Bur Mines Tech Pa 198:1-12 '18; Same abr. Met & Chem Eng 18:203-6 F 15 '18  
 Table for assay balance. Il Eng & Min J 104:1092 D 22 '17  
 United States assay office. Eng & Min J 107:994-5 Je 7 '19  
 See also Cupellation; Metallurgy; Ore sampling
- Assembling methods**  
 Assembling tractors in a new plant. E. Kreutzberg. Il plan Iron Tr R 63:89-92 J1 11 '18  
 Assembly plants for Buick and Chevrolet companies will contain novel equipment. Il Iron Tr R 65:575 Ag 28 '19  
 Automobile factory transportation systems. E. K. Hammond. Il Mach 26:123-3 O '19  
 Battery manufacture; conveyor system used extensively in Willard plant. Il Automotive Ind 37:1007-10 D 6 '17  
 Building marine engines on a quantity basis. F. B. Jacobs. Il diag Marine R 49:388-92-4 Ag '19  
 Continuous movement in the Essex production line. J. E. Schipper. Il plans (supp) Automotive Ind 41:416-21 Ag 28 '19  
 Conveyors speed assembly. Il Iron Age 104:374 Ag 7 '19  
 Elevator reverses automobile. C. L. Edholm. Il Am Mach 48:232 F 7 '18  
 Ferris wheel for assembling automobiles. Il Sci Am 118:25 Ja 5 '18  
 Fordson tractor assembly wholly on progressive plan. J. E. Schipper. Il diag Automotive Ind 40:895-901+, 960-6 Ap 24-May 1 '19  
 Great submarine-chaser factory produces Eagles by indoor shipbuilding system. Il diag Eng N 81:698-702 O 17 '18; Same. Am Mach 49:841-4 N 7 '18; Same abr. Int Marine Eng 23:702-5 D '18  
 Lodge and Shipley control system; shop inspection and assembly. D. M. Perrill. Il Ind Management 55:24-30 Ja '18  
 Manufacture of Diamond transmission chain. J. V. Hunter. Il diag Am Mach 49:1077-80 D 12 '18  
 Manufacture of worm gear and assembly methods factors in Fordson tractor success. Il Automotive Ind 38:810-14 Ap 25 '18  
 Mass production at the Winchester shops. W. E. Freeland. Il chart Iron Age 101:616-21 Mr 7 '18  
 Putting the human element into a tractor assembly plan. F. M. Heldt. Il Automotive Ind 40:1444-8 Je 26 '19
- Remarkable feat of engine assembling. Am Mach 50:291-2 F 13 '19
- Assessment**  
 Argument for changing common method of financing pavement construction and renewal. C. A. Mullen. Munic Eng 54:326-7 Je '18  
 Assessments for street improvements. Munic J 46:161-4 F 22 '19  
 Cambridge, Mass., system of real estate assessment. S. Bell. Boston Soc C E J 5:321-32; Discussion. 332-47 S '18  
 Methods of assessment for ornamental lighting; situation in Syracuse, N.Y. Elec W 71:1043-4 My 18 '18  
 New assessing system includes house survey. H. Dartt. Eng & Contr 50:241 S 4 '18  
 Paving and grading assessments on simple basis in Flint, Mich. G. H. Ruhling. diag Eng N 80:1049-51 My 30 '18; Discussion. R. D. Gladding. Eng N 83:672-3 O 2 '19  
 Practice in assessing pavement costs determined. Eng N 80:1233-4 Je 27 '18  
 Wheel taxes for road funds. Munic J 44:471-2 Je 8 '18  
 See also Valuation
- Associated business papers, Inc.**  
 14th annual convention, Chicago, Sept. 18-20. Ry Age 67:612 S 26 '19
- Associated cooperage industries of America**  
 3d annual convention, St Louis, May 7-9. Am Lumberman 2243:43 My 11 '18  
 4th annual convention, St Louis. Am Lumberman 2295:53 My 10 '19
- Associated general contractors of America**  
 Program of work. Eng & Contr 51:403 Ap 16 '19
- Associated manufacturers of electrical supplies**  
 Effective work of associated manufacturers. Elec W 71:46-8 Ja 5 '18  
 Electrical manufacturers form signaling-apparatus section. Elec R 72:680 Ap 20 '18  
 Electrical war service work. Elec R 72:38-9 Ja 5 '18  
 4th annual convention, New York, March 20. Elec W 73:635-7 Mr 29 '19  
 Section officers. Elec W 82:123 J1 20 '18  
 3d annual convention, New York city, March 21. Elec R 72:557-8 Mr 30 '18; Elec W 71:680-2 Mr 30 '18  
 War service committees. Elec W 70:1207 D 22 '17
- Associated mountaineering clubs of North America**  
 Associated mountaineering clubs. L. Jeffers. Sci Am 120:169 F 23 '19
- Association and associations**  
 Advantages of incorporating an association of master plumbers—liability of the members of both kinds of organizations. Dom Eng 88:11-12 J1 5 '19  
 See also Engineering societies; Professional associations; Trade associations
- Association of American railway accounting officers**  
 29th annual meeting, Chicago, Sept. 26-27. Ry Age 63:609-16 O 5 '17  
 30th annual meeting, St Louis, May 29-30. Ry Age 64:1389-92 Je 7 '18
- Association of British chemical manufacturers**  
 2d annual general meeting, London, July 11. J Ind & Eng Chem 10:751 S '18
- Association of Edison illuminating companies**  
 Officers elected. Elec R 73:413 S 14 '18  
 38th convention, New London, Conn., Sept. 15-18. Elec R 75:525-7 S 27 '19; Elec W 74:716-18 S 27 '19
- Association of electric furnace manufacturers**  
 Electrical men organize war committee to furnish electric furnace information. Iron Tr R 63:220 J1 25 '18; Elec W 72:175 J1 27 '18  
 Meeting of manufacturers of electric furnaces, New York, August 20. Iron Age 102:475 Ag 23 '18

- Association of iron and steel electrical engineers**  
Joint meeting with the American institute of electrical engineers, Cleveland, O., March 8. Elec R 72:457-8 Mr 16 '18; Elec W 71:580-1 Mr 16 '18
- 12th annual convention, Baltimore, Md., Sept. 11-14.** Elec R 73:457-8 S 21 '18; Iron Tr R 63:675-6 S 19 '18
- 13th annual convention, St. Louis, Sept. 23-26.** Elec R 75:530-1 S 27 '19; Iron Tr R 65:926-7 O 2 '19; Elec W 74:816-17 O 11 '19
- Association of Ohio technical societies**  
Conference, Columbus, Jan. 29. Iron Age 101: 449 F 14 '18
- Association of railway accounting officers**  
31st annual meeting, New York, June 11-12. Ry Age 66:1425-33 Je 13 '19
- Association of railway claim agents**  
Annual meeting, Chicago, July 30. Ry Age 65:268-9 Ag 9 '18
- 30th annual convention, Chicago, June 25-26.** Ry Age 67:65-9 Jl 11 sec 1 '19
- Association of railway electrical engineers**  
10th annual convention, Chicago, Oct. 29-31. Ry Age 65:807-9 N 8 '18; Ry R 63:629-33 N 2 '18
- Astronomical clocks.** See Clocks
- Astronomical instruments**  
See also Nocturnals
- Astronomical observatories**  
Enclosed observing room, R. W. Porter. diag Sci Am S 85:277 My 4 '18
- Astronomy**  
Attraction between two and three bodies. G. Boucheny. diag Sci Am S 85:224 Ap 6 '18
- Influence of astronomy on human thought.** H. Macpherson. Sci Am S 87:342-3+ My 31 '19
- See also Astronomical observatories; Earth, Age of; Meteorites; Stars; Telescope
- Observations**
- Daylight seeing.** W: H. Pickering. Sci Am S 86:9 Jl 6 '18
- Study and teaching**
- How the sun, earth and moon move; illustrated by an ingenious mechanical model.** Il diag Sci Am S 84:380-1 D 15 '17
- Atchison, Topeka & Santa Fe railroad**  
Development of Santa Fe reading room system. C: E. Parks. Il Ry Age 65:179-82 Jl 26 '18
- Financial statistics.** map Ry Age 67:48-9 Jl 11 sec 1 '19
- Report for 1917.** map Ry Age 65:369-71 Ag 30 '18
- Scrap reclamation.** C: E. Parks. Il Ry R 62: 122-5, 156-60 Ja 26-F 2 '18
- Athletic fields**  
Illumination of an athletic field. F. H. Murphy. Il plan Elec W 70:1200-1 D 22 '17
- Athletics**  
How Uncle Sam has created an army of athletes. Il Sci Am 120:114-15 F 8 '19
- Atlanta, Georgia**
- Bridges**
- Design of Piedmont park bridge.** A. M. Wolf. Il diag Concrete 11:133-6 N '17; Same. Am Arch 113:49-54 Ja 9 '18
- Atlantic City, New Jersey**
- Hotels**
- Hotel Ambassador.** C: W. Hastings. Il Arch & Bldg 51:60-4, pl 116-24 Ag '19
- Plant of the hotel Traymore.** Il Power 49: 760-2 My 20 '19
- Atlantic Heights, New Hampshire**  
Atlantic Heights housing development. plans Textile World 55:233-4+ Ja 11 '19
- First war emergency government towns.** Il diag plans Am Inst Arch J 6:427-34 S '18
- Portsmouth and the war; notes on the development at Atlantic Heights.** W: R. Greeley. Il diag plans Am Arch 114:447-56 O 16 '18
- Atlas crucible steel company, Dunkirk, New York**  
Military harness of industrial plants as a means towards winning the war. G. W. Hinkley. chart Sibley J 33:14-17 N '18
- Atmosphere**  
Physical properties and dynamics of the atmosphere. W: R. Blair. U S Nat Advisory Com for Aeronautics 1917:41-51 '18; Same. Sci Am S 85:158-60 Mr 9 '18
- Physics of the air.** W. J. Humphreys. Il diag J Fr Inst 184:137-78, 371-408, 527-51, 651-74, 805-36; 185:83-117, 359-72, 517-38, 611-47, 785-824; 186:57-75, 481-509 Ag '17-Ja, Mr-Je, Jl, O '18
- Remarks on the physical conception of the air.** G: O. Squier. Il Am Inst E E Pro 38:70-4 F '19
- Shooting through the ocean of air.** Sci Am 118:354 Ap 20 '18
- Traces of gas.** Sci Am 119:501 D 21 '18
- Ultra-violet transparency of the lower atmosphere and relative poverty in ozone.** R. J. Strutt. Sci Am S 86:107 Ag 17 '18
- See also Air; Meteorological optics; Meteorology
- Atmospheric electricity**  
Atmospheric electricity. W. F. G. Swann. diag J Fr Inst 188:577-606 N '19
- Electrical phenomena in the upper atmosphere.** S. Chapman. diag Sci Am S 88:198-9, 202 S 27 '19
- Magnetic storms.** C. Chree. Inst E E J 57: 591-609 Ag '19
- Physics of the air.** W. J. Humphreys. diag J Fr Inst 186:356-70 S '18
- See also Auroras; Lightning
- Atmospheric pressure**  
Physics of the air. W. J. Humphreys. J Fr Inst 185:359-72 Mr '18
- Atmospheric temperature**  
Changes in oceanic and atmospheric temperatures, and their relation to changes in the sun's activity. F. Nansen. Sci Am S 86:42 Jl 20 '18
- Pleionian cycle of climatic fluctuations.** H: Arctowski. Sci Am S 85:66-7 F 2 '18
- Remarks on the temperature of space.** C. Fabry. Sci Am S 85:363 Je 8 '18
- Study of degrees of discomfort, based on temperature comfort tests made at the Chicago normal college.** J. W. Shepherd. Heat & Ven 15:11-14 Ag '18
- Temperatures and their duration during the heating season.** R. P. Bolton. Am Soc M E J 40:689-91 Ag '18
- Atolls.** See Coral reefs and islands
- Atomic heat**  
Atomic heats of tungsten and of carbon at incandescent temperatures. A. G. Worthing. J Fr Inst 185:707-8 My '18
- Atomic weights**  
International atomic weights, 1917. Am Chem Soc J 39:2517-18 D '17
- Observations on the rare earths; the atomic weight of yttrium.** H. C. Kramers and B. S. Hopkins. Am Chem Soc J 41:718-21 My '19
- Properties of atomic weights.** O. Ely. Sci Am S 85:187 Mr 23 '18
- Revision of the atomic weight of samarium; the analysis of samarium chloride.** O. J. Stewart and C. James. diag Am Chem Soc J 39:2605-14 D '17
- Twenty-fifth annual report of committee on atomic weights; determinations published during 1917.** G. P. Baxter. Am Chem Soc J 40:1009-14 Jl '18
- Variable atomic weights with some reference to geologic time.** H. S. Shelton. Sci Am S 86:66-7 Ag 3 '18
- Atoms**  
Applications of electromagnetic theory to matter. A. C. Crehore. Am Inst E E Pro 37: 283-315 Ap '18



**Atoms—Continued**

- Arrangement of electrons in atoms and molecules. I. Langmuir. *diags* Am Chem Soc J 41:868-934 Je '19; Same. Gen Elec R 22:505-16, 587-600, 789-804 Jl-Ag, O '19; Abstract. J Fr Inst 187:359-62 Mr '19; Abstract. Mech Eng 41:772-3 S '19
- Atoms and molecules. J. Becquerel. *il diags* Sci Am S 88:260-3 N 8 '19
- Evaporation from surfaces of crystals. Sci Am S 85:374 Je 15 '18
- Langmuir postulates. E. Hendrick. *diags* Chem & Met Eng 21:73-81 Jl 15 '19; Same. Sci Am S 88:210-11, 246-7+ O 11, 25 '19
- Non-molecular structure of solids. A. H. Compton. *diags* J Fr Inst 185:745-74 Je '18
- Positions of atoms in metals. A. W. Hull. *il diags* Am Inst E E Pro 38:1171-92 O '19
- Positive nucleus of the atom. Sci Am S 85:71 F 2 '18
- Problems of atomic structure. J. J. Thomson. *diag* Sci Am S 85:290-1, 306-7, 326-7, 346-7, 358-9, 378-9 My 11-Je 15 '18
- Scattering of alpha rays as evidence on the Parson magneton hypothesis. D. L. Webster. Am Chem Soc J 40:375-9 F '18
- Spectrum analysis and atomic structure. J. J. Thomson. Sci Am S 87:382-3 Je 14 '19

*See also* Atomic weights; Electrons; Stereochemistry

**Atropine**

- Analogues of atropine and homatropine. L. F. Werner. Am Chem Soc J 40:669-74 Ap '18

**Audion**

- Audion amplifier. J Fr Inst 187:525-6 Ap '19
- See also* Vacuum tubes

**Auditing**

- American institute of accountants board of examiners; November, 1917, examination questions. J Account 24:413-14 D '17; Answers. S. Walton and H. A. Finney. 25:148-54 F '18
- American institute of accountants board of examiners; May, 1918, examinations. J Account 25:401-3 Je '18; Answers. S. Walton and H. A. Finney. 26:143-9 Ag '18
- American institute of accountants examination, November, 1918. S. Walton and H. A. Finney. J Account 27:68-77 Ja '19
- American institute of accountants board of examiners examination in auditing, May 15. J Account 27:401-3 Je '19; Answers. S. Walton and H. A. Finney. J Account 28:226-35 S '19
- Audit working papers. W. H. Bell. J Account 28:104-12 Ag '19
- Auditor's responsibility in regard to verification of inventories. E. H. Moeran. J Account 25:176-86 Mr '18
- Examination, for credit purposes, of a book publishing house. H. S. Morse. J Account 26:278-89 O '18
- Procedure in a bank audit. F. Thulin. J Account 26:191-211 S '18
- Stock brokerage audits. E. S. Halter. J Account 26:349-54 N '18
- See also* Accounting

**Auditoriums**

- Municipal auditorium, Savannah, Ga.; views and plans. Am Arch 116:pl 7-9 Jl 4 '19
- Municipal structure will provide community auditorium and civic center. *il plan* Am Lumberman 2305:46-7 Jl 19 '19

**Auditors**

- Election of auditors in Canada. J Account 25:54-6 Ja '18

**Auroras**

- Aurora borealis. H. S. Jones. Sci Am S 85:197 Mr 30 '18
- Aurora; is it possible to explain it by means of a corpuscular ray theory? O. Stuhlmann, Jr. *il diag* Sci Am S 86:132-4 Ag 31 '18
- Aurora of March 7. H. C. Wilson. Sci Am S 85:247 Ap 20 '18
- Photographic determination of auroral heights. Sci Am S 85:217 Ap 6 '18
- Physics of the air. W. J. Humphreys. *il J Fr Inst* 186:481-4 O '18
- See also* Atmospheric electricity

**Austenite**

- Grain-size inheritance in iron and carbon steel. Z. Jeffries. *il Am Inst Min E Bul* 131:1883-99 N '17; Discussion. 135:699-700; 136:727-34; 137:1023-5 Mr-May '18
- Supposed reversal of inheritance of ferrite grain size from that of austenite. H. M. Howe. Am Inst Min E Bul 129:1365-7 S '17; Discussion. 133:105-6 Ja '18

**Austin, Texas****Public works**

- Will cost half million to make Austin dam usable. D. W. Mead. *diags* Eng N 80:353-4 F 21 '18

**Rapid transit**

- Fighting the private automobile at Austin by one-man operation. *il Elec Ry J* 52:551-2 S 28 '18

**Australasia****Industries and resources**

- See* Mines and mineral resources—Australasia

**Australia**

- Impressions of Australia and the Australians. G. C. Stone. Eng & Min J 107:5-7 Ja 4 '19

*See also* Irrigation—Australia

**Commerce**

- Agricultural implements and machinery in Australia and New Zealand. J. Homs. *il U S Bur For & Dom Com* 166:1-195 '18

- American tools in Australia. Iron Age 103:810-11 Mr 27 '19

- Electrical goods in Australia. R. A. Lundquist. *il U S Bur For & Dom Com* 155:1-64 '18

- Railway materials, equipment and supplies in Australia and New Zealand. F. Rhea. *il U S Bur For & Dom Com* 156:1-164 '18; Same (conclusions). Ry Age 64:697-702 Mr 23 '18

- Shoe and leather trade in Australia. C. E. Bosworth. U S Bur For & Dom Com 159:1-39 '18

**Directories**

- Trade directory of South Australia. H. P. Starrett. U S Bur For & Dom Com misc ser 83:1-31 '19

**Industries and resources**

- Australia studies wider use of woods. C. E. Lane-Poole. Am Lumberman 2246:33 Je 1 '18

- High achievement in Australia. T. J. Swain. *il Iron Tr R* 65:285-6 Jl 31 '19

- Queensland wool trade. Textile World 54:894 Ag 24 '18

*See also* Mines and mineral resources—Australia

**Railroads**

*See* Railroads—Australia

**Austria-Hungary****Commerce**

- Statistics of Austro-Hungarian trade 1909 to 1913. J. J. Kral. U S Bur For & Dom Com misc ser 77:1-64 '19

**Authorship**

- Perspicacity and perspicuity. F. H. Teall. Inland Ptr 63:159 My '19

*See also* Journalism; Proofreading

- Auto-buses. *See* Jitney buses; Motor buses

**Autoclaves**

- Fusion apparatus. F. Pope. *diags* Met & Chem Eng 17:704-9 D 15 '17

- Autogenous welding. *See* Welding

**Automata**

- Electric dog; use of the selenium cell to make an orientation mechanism. B. F. Miessner. *il diags plan* Sci Am S 87:376-7 Je 14 '19

- Automatic arresting motion for power presses. *il diags* Engineer 127:135 F 7 '19; Abstract. Mech Eng 41:394 Ap '19

- Automatic machinery. See Machinery, Automatic
- Automatic sprinklers. See Sprinkling systems
- Automatic stop. See Steam engines—Safety devices
- Automatic train-stop. See Railroads—Automatic stop
- Automobile accidents  
Effect of prohibition on motoring public. Motor Age 36:16-18 Ag 21 '19  
Motor car accidents. J. L. Walsh. Ry R 65: 662-3 N 1 '19  
Prevention of automobile accidents. W. H. Moore. Elec Ry J 51:1194-5 Je 22 '18  
See also Grade crossings
- Automobile brakes. See Brakes, Automobile
- Automobile dealers' association, National. See National automobile dealers' association
- Automobile driving  
Driving and care of motor vehicles. J. E. Bullard. Gas Age 43:873-5 Je 16 '19
- Automobile engines  
Accessible oiling system features new Allen engine. diags Automotive Ind 41:106-7 Jl 17 '19  
Adjustable circuit for low-grade fuels. diags Sci Am 120:148 F 15 '19  
Advantages of scavenging. Automotive Ind 38:554-5 Mr 14 '18  
Allen features accessibility. II Motor Age 35:46-8 Je 26 '19  
American sleeve valve engine. diags Automotive Ind 38:284-5 Ja 31 '18  
Application of Liberty engine materials to the automotive industry. H. F. Wood. Am Mach 51:557-62 S 18 '19  
Automobile power plant. C. F. Kettering. W Soc E J 24:31-50 Ja '19  
Ball bearing crankshaft advantages. W. J. P. Moore. II Automotive 37:457-8 S 13 '17  
Beaver tractor engine comes in two sizes. diags Motor Age 34:34 N 28 '18  
Brown piston sleeve valve engine. II diag Motor Age 35:30-1 My 22 '19  
Brown piston valve engine. diag Automotive 37:506 S 20 '17  
Buda adds four-cylinder engine. II Motor Age 34:44 Ag 1 '18  
Buda model HTU engine for truck and tractor service. II Automotive Ind 39:282-3 Ag 15 '18  
Buda series varied-duty engines. II diags Automotive Ind 41:764-6 O 16 '19  
Changes in Peerless eight and reasons therefor. diags Automotive Ind 38:372-3 F 14 '18  
Constant compression engines adapted for automobile use. C. K. Salisbury. Automotive Ind 39:929 N 28 '18  
Constitutional defect of four-cylinder engine and remedy. L. H. Pomeroy. diags Automotive Ind 41:556-8 S 18 '19  
Continental adaptation of class B war truck engine. II diags Automotive Ind 40:211-13 Ja 23 '19  
Continental model 9N engine. II diags Automotive Ind 38:860-1 My 2 '18  
Data wanted on oil dilution. Automotive Ind 37:1053 D 13 '17  
Development of a heavy oil engine for trucks and tractors. C. E. Sargent. II diags Automotive Ind 38:1267-9+ Je 27 '18; Discussion. P. S. Tice. 39:330-1 Ag 22 '18  
Diesel engines for automobile work. diags Automotive Ind 40:1159 My 29 '19  
Diesel engines for motor vehicles; abstract. Am Soc M E J 40:958-9 N '18  
Doman tractor engines. II diag Automotive Ind 39:194-5 Ag 1 '18  
Double crankcase for Union six cylinder air engine. II Automotive 37:594-6 O 4 '17  
Duesenberg stock engine. II Automotive Ind 37:1136-7 D 27 '17  
Early difficulties with detachable heads now overcome. J. E. Schipper. diags Automotive Ind 38:498-9 Mr 7 '18  
Emerson-Brantingham model AA tractor. P. M. Heldt. II diags Automotive Ind 38: 1128-33 Je 18 '18; Motor Age 33:40-3 Je 27 '18  
Engine for the fuel of to-morrow. W. L. Dempsey. Automotive Ind 39:331 Ag 22 '18  
Engine of the side car motorcycle. E. Caudwell. diags Automotive Ind 40:842-4, 911-13 Ap 17-24 '19  
Engine-supporting methods. P. M. Heldt. diags Automotive 37:662-5 O 18 '17  
Engineering features of a popular British truck; product of the Guy motors co. M. W. Bourdon. II diags Automotive Ind 41:662-5 O 2 '19  
Erd engine for tractors only. diags Automotive 37:464 S 13 '17  
Fittings for magneto, pump and generator couplings. II diags Automotive Ind 38:1083 Je 6 '18  
Four-cylinder engines. L. H. Pomeroy. Automotive Ind 40:840-1 Ap 17 '19  
Fundamentals of engine practice reopened for discussion. J. E. Schipper. diags Automotive Ind 38:1003-5 My 23 '18  
Grant changes give higher speed engine. J. E. Schipper. II Automotive Ind 38:114+ Ja 10 '18  
Gray to concentrate on one engine model. II diag Motor Age 35:42-3 Je 5 '19  
Gray victory four-cylinder engine. II diags Automotive Ind 40:370-1 F 13 '19  
Heavy duty engine for tractors and trucks. II diags Automotive Ind 41:576-7 S 18 '19  
Heavy oil engines for automotive purposes. P. L. Scott. II diags Automotive Ind 39:20-5 Jl 4 '18  
High-speed motor and the fuel question. E. Planche. Am Soc M E J 40:394-5 My '18  
Improving the automobile engine. R. M. Anderson. Sci Am S 84:406-7 D 29 '17  
Kessler super-charge engine developed for automotive purposes. II charts diags Automotive Ind 40:1289-93+ Je 12 '19  
Lanchester-Packard vibration damper. diags Automotive Ind 37:823 N 8 '17  
Laurel adds sixteen-valve head. II diag Motor Age 34:42-8 Ag 23 '18  
Liberty line of Wisconsin engines. II diags Automotive Ind 40:796-8 Ap 10 '19  
Light Diesel engine possible. C. Newman. Automotive Ind 37:1134-5 D 27 '17; Abstract. Am Soc M E J 40:194 F '18  
Making the Ford fleet-footed. II Motor Age 35:40 Je 5 '19  
Methods of engine support. D. K. Ferguson. diags Automotive Ind 37:837 N 8 '17  
Mid-West issues new engine series. II Motor Age 36:27 N 13 '19  
Models for 1918, 1917, 1916 and 1915, showing changes in proportion of sizes, fours and other engine types; tabulation. Automotive Ind 38:18-19 Ja 3 '18  
Moline universal model D tractor. P. M. Heldt. II diags plan Automotive Ind 38:1090-4 Je 6 '18  
National 1920 has overhead valve engine. II diags Automotive Ind 41:656-60 O 2 '19  
New Chevrolet eight. II diags Automobile 37: 491-3 S 20 '17  
New engine for trucks and tractors. II Motor Age 35:42-3 Mr 20 '19  
New Golden, Belknap & Swartz truck and tractor engine. II Automotive Ind 40:645-7 Mr 20 '19  
New power & transmission units. II Horseless Age 43:67 Ja 1 '18  
New series Buda engine is out. II diags Motor Age 36:43-4 O 9 '19  
1919 cars not strictly post-war. J. E. Schipper. Motor Age 35:19-23 Ja 23 '19  
Oil burning tractor engine. H. T. Sward. Automotive Ind 38:913 My 9 '18  
Outstanding problems in aeronautics; engine problems—carbureters, ignition and lubrication. W. F. Durand. Automotive Ind 39:424-6 S 5 '18  
Pierce-Arrow brings out dual-valve engine. II Motor Age 34:33 S 5 '18  
Possible effect of aircraft experience on automobile practice. H. C. Marmon; O. E. Hunt; H. M. Crane. Automotive Ind 40:317-22 F 6 '19  
Power of an automobile in unique instance; mounting a 40° incline. J. S. A. Johnson. diags Power 48:245 Ag 13 '18

**Automobile engines—Continued**

- Power plants of the German war trucks. A. J. Slade. *II* Automotive Ind 41:814-21 O 23 '19
- Radial engine revived in England. *diags* Automotive Ind 40:1120-1 My 22 '19
- Ricardo engine made good in tanks. *II* *diags* Automotive Ind 40:407-10+ F 20 '19
- S. S. V. motor has single sleeve valve. *diag* Automotive Ind 38:953 My 16 '18
- Six engines in Wisconsin new Liberty line. *II* Motor Age 35:49 F 20 '19
- Sixteen-cylinder engines. Automotive Ind 39:463 S 12 '18
- Specially designed engine and axle for Cleveland car. *II* *diags* Automotive Ind 41:304-6 Ag 14 '19
- Suere eight cylinder engine only 1.77 by 2.54. *II* Automotive Ind 41:760-1 O 16 '19
- Theoretical indicator diagram; a method of predetermining the gas temperatures and pressures for various points in the engine cycles. O. A. Malychevitch. *diag* Automotive Ind 39:499-502, 546-7 S 19-26 '18
- To keep the automobile engine from stalling. *II* Sci Am 119:332+ O 26 '18
- Truck and tractor engine governors. R. B. Shoon. *diags* Automotive Ind 40:374-5+ F 13 '19
- Two-cycle super-induction gas engine for the automobile. *II* Sci Am 119:171+ Ag 31 '18
- 260-hp. Mercedes engine. *II* *diags* Automobile 37:395-8, 452-5, 585-6 S 6-13. O 4 '17
- Unconventional British engine; aluminum jackets with cast-iron cylinder sleeves inserted. *II* *diags* Automotive Ind 41:26-8 J1 3 '19
- Unit produces single engine. *II* Automotive Ind 41:758-9 O 16 '19
- Unit power plant for light trucks developed by A. B. R. engineering co., Stamford, Conn. *diag* Automotive Ind 38:183 Ja 17 '18
- Valve-in-head and L engines built of common parts. P. M. Heldt. *II* *diags* Automotive Ind 41:157-61 J1 24 '19
- War truck engine for commercial use. Motor Age 35:38-9 Ja 30 '19
- Weidely offers truck and tractor engine. *II* *diags* Motor Age 36:44-5 Ag 14 '19
- Wonder engine made by Elbridge engine co. *II* Automotive Ind 37:955 N 29 '17
- See also* Automobiles; Carbureters; Crank cases; Cylinders (engines); Gas and oil engines; Motor cycles; Pistons; Tractors

**Bearings**

- Proportioning engine bearings. O. M. Burkhardt. *diags* plan Automotive Ind 40:651-5 Mr 20 '19

**Cleaning**

- Removing carbon deposit. *diags* Motor Age 34:34-5 O 24 '18
- Removing carbon from an engine. B. M. Ikert. *II* *diags* Motor Age 34:24-5 J1 18 '18

**Cooling**

- Cooling fan problems. L. Schwitzer. Automotive Ind 40:967+ My 1 '19
- Cooling links up with vaporization. Automotive Ind 37:751-2 N 1 '17
- Corrosion tests on commercial calcium chloride used in automobile anti-freeze solutions. P. Rudnick. *J Ind & Eng Chem* 11:668-70 J1 '19
- Flocontrol cooling regulator. *diag* Automotive Ind 40:1235 Je 5 '19
- Keeping the cooling system hot. J. S. Harwhite. Sci Am 118:11 Ja 5 '18
- Kerosene for cooling. Motor Age 35:33 Ja 9 '19
- Motor age winter service maintenance data sheet; cooling water capacities for 1919 and 1920 cars and trucks. Motor Age 36:100, 103-4 N 6 '19
- Oil-cooled kerosene engine. Sci Am 119:396 N 16 '18
- Radiator cooling fans. G. W. Hoyt. *diags* Automotive Ind 40:630-3 Mr 20 '19
- Radiator cooling fans. L. Schwitzer. *diags* Automotive Ind 40:202-5 Ja 23 '19
- System for maintaining constant high temperature in waterjackets; Cammen cooling control systems. *diags* Automobile 37:625 O 11 '17

Thermostatic control considerations; shortening of warming-up period reduces crankcase dilution. J. E. Schipper. *II* *diags* Automotive Ind 38:637-9 Mr 28 '18

Tractor radiators, their calculation and design. A. B. Modine. *diags* Automotive Ind 38:179-81+ Ja 17 '18

*See also* Automobiles—Fans; Automobiles—Radiators

**Design**

- Details of the Minerva engine. *diags* Automotive Ind 38:586 Mr 21 '18
- Engine design for 1918. Automotive Ind 38:8-10 Ja 3 '18
- Factors in high-speed engine development. D. M. White. *II* Automotive Ind 40:622-7+, 698-701 Mr 20-27 '19
- Fuels control engine design. *diags* Automotive Ind 37:749-51 N 1 '17
- Fundamentals of tractor engine design. H. C. Buffington. *diags* Automotive Ind 38:810-13 F 7 '18
- Hupmobile now smaller. *II* *diags* Automotive Ind 37:870-5 N 15 '17
- Importance of combustion chamber shape. J. E. Schipper. *diag* Automotive Ind 38:550-1 Mr 14 '18
- Intake manifold design. R. B. Hall. Automotive Ind 38:679 Ap 4 '18
- New fuel system on Paige. *II* *diags* Automotive Ind 37:762-3 N 1 '17
- Proportioning engine bearings. O. M. Burkhardt. *diags* plan Automotive Ind 40:651-5 Mr 20 '19
- Reasons behind the class B engine. A. F. Milbraith. *diags* Automotive Ind 38:169-71 Ja 17 '18; Abstract. Am Soc M E J 40:184 F '18
- Revised manifold and detachable head among Reo engine changes. J. E. Schipper. *diags* Automotive Ind 41:256-8 Ag 7 '19
- Three Hinkley engines built around class B design. *II* *diags* Automotive Ind 40:587-9 Mr 13 '19; Same cond. Motor Age 35:42-3 Mr 13 '19
- Truck and tractor engine discards carbureter; Hvid design is adapted to lowgrade fuels. D. S. Hatch. *II* Motor Age 33:24-5 Je 6 '18
- Two-cycle and four-cycle. *II* *diags* Motor Age 34:31-3 J1 25 '18
- Two-stroke cycle engine analysis. E. H. Sherbondy. *diags* Automobile 37:588-91, 629-32+ O 4-11 '17
- Unconventional design of a British after-war car. *II* *diag* Automotive Ind 41:312-15 Ag 14 '19

**Exhaust**

- Automobile exhaust dangerous. G. A. Burrell and A. W. Gauger. Gas Age 44:148 Ag 15 '19
- Motor age winter service maintenance data sheet; exhaust pipe diameters for 1919 and 1920. Motor Age 36:101-2 N 6 '19
- Using exhaust to supercharge intake. E. E. Fraizer. *II* *diags* Motor Age 36:20-1 J1 31 '19

**Fuel**

- Acetylene as motor fuel. Automotive Ind 40:364 F 13 '19
- Acetylene motors. Sci Am 121:194+ Ag 23 '19
- Appearance, disappearance and probable reappearance of the gas bag in English traffic. T. Singleton. Am Gas Eng J 111:317-18 O 11 '19
- Australia wants alcohol fuel. *II* Automobile 37:669-70 O 18 '17
- Bellem wins French kerosene tests. W. F. Bradley. *II* Automotive Ind 39:792-4 N 7 '18
- Benzol as a motor fuel. J. H. Clegg. Met & Chem Eng 18:39 Ja 1 '18
- Benzol as fuel for gasoline engines. Sci Am 121:355+ O 4 '19
- Benzol superior to gasoline as auto fuel. Gas Age 42:548-50 D 16 '18
- British engineers approve coal gas as fuel. Automotive Ind 38:1063-5 My 30 '18
- Changes in the quality of motor fuel. chart Automotive Ind 41:703 O 9 '19
- City gas has big place as motor fuel. Am Gas Eng J 111:201-3, 209-11 S 6 '19
- Coal gas as motor vehicle fuel. R. P. Skinner. Gas Age 41:22 Ja 1 '18

**Automobile engines—Fuel—Continued**

- Coal gas for motor vehicles. *Il* Engineer 124: 226 S 14 '17; Same. Automobile 37:726-7 O 25 '17; Same. Sci Am S 84:300-1 N 10 '17.
- Combustible mixtures should be dry. J. E. Schipper. *diag* Automotive Ind 38:730 Ap 11 '18.
- Distillate as automobile fuel. L. R. Smith. Horseless Age 43:46 F 15 '18.
- English motor fuel restrictions. H. A. McBride. Gas Age 41:466-7 My 15 '18.
- Filling of gas containers on automobiles; discussion at annual meeting of British commercial gas association. N. H. Humphrys. Am Gas Eng J 108:226-7 Mr 9 '18.
- First automobile using artificial gas as fuel in this country, made its appearance in New York city. *Il* Am Gas Eng J 107:555-6 D 15 '17; Same. Gas Age 40:594 D 15 '17.
- France decides to market alcohol; 22,000,000 gallons to be sold after the war for use of automobiles only. W. F. Bradley. Automotive Ind 38:656 Mr 28 '18.
- France stages kerosene contest. W. F. Bradley. *Il* Motor Age 34:30-1 O 24 '18.
- Fuel demand outstripping supply. Motor Age 35:24-5 F 13 '19.
- Fuel for automotive apparatus. E. W. Dean. Automotive Ind 38:224-8+ Ja 24 '18.
- Fuel supply trebled by dry gas vaporizing. W. P. Deppé. Automotive Ind 37:971-2 N 29 '17.
- Gas-bag bus—it will not down. *Il* Sci Am 118:169 F 23 '18.
- Heated passage vs. hot-spot system. P. S. Tice. Automotive Ind 38:546-7 Mr 14 '18.
- Heating the mixture thoroughly. V. P. Cramer. *diag* Automobile 37:458 S 13 '17.
- Heavy fuel engines. Automotive Ind 38:1170-2 Je 20 '18.
- Heavy oil burning arrangement for motor cars. *diags* Engineer 126:227-8 S 13 '18; Abstract. Am Soc M E J 40:961-2 N '18.
- How the automotive industry can help avert a fuel crisis; with discussion. J. E. Pogue. Automotive Ind 40:1430-1+ Je 26 '19.
- Increasing the supply of motor fuel. C. F. Kettering. Motor Age 36:20-1 S 11 '19.
- Indications are that consumption of motor fuel within next decade will be double present total of gasoline production. J. E. Bulard. Am Gas Eng J 108:49-51 Ja 19 '18.
- Interpretation of the engine-fuel situation. J. E. Pogue. Automotive Ind 40:357-61 F 13 '19; Abstract. Power 49:262 F 13 '19.
- Lubrication and fuel tests. P. J. Dasey. Automotive Ind 39:875-7 N 21 '18.
- McElroy kerosene engine. *Il* *diag* Automotive Ind 39:371 Ag 29 '18.
- Methods of kerosene carburetion. Automotive Ind 38:558 Mr 14 '18.
- Motor fuel problem. W. R. Ormandy. Sci Am S 87:311 My 17 '19.
- New farm tractor burning kerosene. *diag* Sci Am 118:76 Ja 19 '18.
- New Haven tests indicate that benzol is best motor fuel. J. A. Norcross. Am Gas Eng J 110:443 My 24 '19.
- New heavy fuel system for trucks and tractors. *diag* Automotive Ind 41:669 O 2 '19.
- 1918 test development. Motor Age 34:9-10 D 26 '18.
- Operating the farm tractor with coal gas. *Il* Sci Am 118:436 My 11 '18.
- Plan to use exhaust heat in vaporization of low grade fuels. F. C. Mock. *diags* Automotive Ind 41:110-14 Jl 17 '19.
- Prerequisites for using kerosene as motor fuel. W. L. Dempsey. Automotive Ind 38:596 Mr 21 '18.
- Review of the motor-fuel situation. J. E. Pogue. *charts* Automotive Ind 40:1819-24 Je 12 '19.
- Scott's electric fuel heater. *diag* Automotive Ind 38:490 Mr 7 '18.
- Studying the knocks. C. F. Kettering. Sci Am 121:364 O 11 '19.
- Substitute for gasoline tested by Bureau of standards. Automotive Ind 39:933+ N 23 '18.
- Superheated gas methods. W. P. Deppé. Automotive Ind 38:596 Mr 21 '18.
- System for heavy fuel. *Il* *diag* Motor Age 36:49 Jl 31 '19.
- Ten commandments of fuel economy. *Il* Motor Age 34:36-7 Jl 11 '18.
- Tests of benzol as motor fuel. Automotive Ind 39:834+ N 14 '18.
- To run cars on straw for fuel saving. *Il* Motor Age 34:16 O 31 '18.
- Use of city gas as motor fuel to be permanent and to increase vastly in volume. J. Richmond. Am Gas Eng J 109:53-4 Jl 20 '18.
- Use of gas for automobiles; French discussion upon intensive trials both in England and France. Gas Age 42:199-200 S 3 '18.
- Use of gas in automobile traction. *Il* *diag* Gas Age 41:126-7 F 1 '18.
- Utilization of heavy fuels; abstract. Am Soc M E J 40:781 S '18.
- What shall we burn in our cars? Sci Am 119: 313 O 19 '18.
- Wrinkle for clarifying benzol. A. Rix. *diag* Gas Age 41:263 Mr 15 '18.
- See also* Gas and oil engines—Fuel; Gasoline; Kerosene; Liberty fuel

**Ignition devices**

- Atwater Kent system for Fords. D. P. Moreton and D. S. Hatch. *Il* *diags* Motor Age 34: 32-3 Jl 11; 28-9 Jl 18; 28-9 Jl 25 '18.
- Double ignition advantages. C. E. Manierre. Automotive Ind 37:837-8 N 8 '17.
- Effect of spark position on engine. *diags* Motor Age 33:39 Je 6 '18.
- Energization of the ignition coil. H. F. Geist. *diags* Automotive Ind 41:824-8 O 23 '19.
- Ignition and lighting on war trucks. A. L. Clayden. Automobile 37:536 S 27 '17.
- Magneto and battery ignition. J. A. Williams. *Il* Horseless Age 43:37-8 F 15 '18.
- Philbrin ignition equipment. *Il* Automotive Ind 38:716 Ap 11 '18.
- Philbrin ignition system for Fords. D. P. Moreton and D. S. Hatch. *Il* *diags* Motor Age 34:32 S 5 '18.
- Spark gaps. Sci Am S 87:198 Mr 29 '19.
- Two spark generator-battery type ignition. *Il* Automotive Ind 41:511 S 11 '19.
- Vibrator-Les ignition for Fords. D. P. Moreton and D. S. Hatch. *diags* Motor Age 34: 28-9 Ag 29 '18.
- Wagner electrical systems. D. P. Moreton and D. S. Hatch. *Il* *diags* Motor Age 35:28-9 Ja 16 '19.

*See also* Automobile engines—Timing; Automobiles—Electric equipment; Gas and oil engines—Ignition; Magnetos

**Lubrication**

- Air cleaners and lubrication. Motor Age 34: 17 N 14 '18.
- Cold weather lubricants. Motor Age 35:38 Ja 16 '19.
- Further increase in pressure feed may result from shortage of alloy steel. *Il* plans Automotive Ind 38:42-3 Ja 3 '18.
- Lubrication and fuel tests. P. J. Dasey. Automotive Ind 39:875-7 N 21 '18.
- Oiling system of 1914 Cadillac. *diags* Motor Age 36:31-2 O 16 '19.
- Simple and effective oiling system for truck motor. *diags* Sci Am 119:234 S 21 '18.

**Manifolds**

- Carburetion of low grade fuels. O. H. Ensign. *diags* Automotive Ind 40:1269+ Je 12 '19.
- Heated manifold which is controlled; can change according to climatic conditions. *diags* Motor Age 36:40 Ja 16 '19.
- Hot-spot manifolds criticised. Automotive Ind 38:337 F 7 '18.
- Modern manifolds. *diags* Automotive Ind 38: 12-13 Ja 3 '18.
- Motor car carburetion in cold weather. B. M. Ikert. *Il* *diags* Motor Age 34:22-4 N 14 '18.
- Plan to use exhaust heat in vaporization of low grade fuels. F. C. Mock. *diags* Automotive Ind 41:110-14 Jl 17 '19.

**Manufacture**

- Connecting rod production in a 50-engine-a-day plant. J. E. Schipper. *Il* Automotive Ind 41:613-19 S 25 '19.

**Automobile engines—Manufacture—Continued**

- Continental plant layout facilitates production. J. E. Schipper. *Il diag plan Automotive Ind* 40:1122-6, 1168-73 My 22-29 '19
- Cylinder boring and reaming. F. D. Jones. *Il diags Mach* 25:383-94 Ja '19
- Cylinder boring and reaming fixtures. F. D. Jones. *Il diags Mach* 25:822-5 My '19
- Cylinder grinding. F. D. Jones. *Il diags Mach* 25:615-21, 711-15 Mr-Apr '19
- Machining a six-cylinder motor. J. V. Hunter. *Il Am Mach* 50:851-3, 887-90 My 1-8 '19
- Making automobile cylinders without flasks. P. Dwyer. *Il Foundry* 47:421-5 Jl 1 '19
- Manufacturing operations in making a gasoline motor. *Il Am Mach* 48:1-4 Ja 3 '18
- Modern methods of making motor cylinders. F. H. Colvin. *Il diags Am Mach* 50:1099-1103 Je 5 '19
- Planer milling practice in automobile plants. E. K. Hammond. *Il Mach* 25:965-71, 1044-9 Je-Jl '19

**Rating**

- Proposed horsepower rating. *Automotive Ind* 41:734-5 O 9 '19

**Repair**

- Drilling pistons to prevent oil pumping. *diags Motor Age* 34:30-1 O 10 '18
- Engine trouble chart; repairman's ready reference for shooting trouble. *diag Motor Age* 36:73 N 6 '19
- Engine troubles and how to locate them. *Motor Age* 35:26 My 22 '19
- Removing engine from car. *Motor Age* 35:34 Ja 2 '19
- Spring overhauling—engines. T. P. Bowman. *Il diags Motor Age* 35:7-9 Mr 20; 28-30 Mr 27 '19

**Specifications**

- Specifications of stock engines for passenger cars, trucks and tractors. *Automotive Ind* 40:1300-3 Je 12 '19

**Standards**

- Characteristics of a high-grade standardized engine. J. H. W. Kerston. *Automotive Ind* 40:527+ Mr 6 '19
- S. A. E. standards recommendations. *Automotive Ind* 38:1175 Je 20 '18

**Starting devices**

See Automobiles—Starting devices

**Testing**

- Altitude effects on tractor engines. *Automotive* 37:724-5 O 25 '17
- Automobile performance analyzed by mechanical differentiation. A. Elmdorf. *Il Automotive Ind* 40:11-16 Ja 2 '19
- Engine test laboratory; special building of tractor manufacturing plant for experimental development of engines. *Il diag plan Automotive Ind* 38:868-9 My 2 '18
- First use of S. A. E. standard test. *Il Automotive Ind* 37:838 N 8 '17
- Laboratory testing as applied to the automobile industry. R. M. Anderson. *Automotive* 37:722-3+ O 25 '17
- Performance test by accelerometer. H. C. Skinner. *Automotive Ind* 38:816-17+ Ap 25 '18
- Small inlet valves satisfactory in overhead valve design. L. H. Pomeroy. *diags Automotive Ind* 40:432-5, 471-5 F 20-27 '19
- Testing department of the Fiat company. Turin. *Il Engineer* 124:504 D 7 '17
- Tests of a sleeve valve engine. *Il diags Automotive Ind* 39:494-8 S 19 '18

**Timing**

- Average setting for timing an engine. *diag Motor Age* 36:33 S 4 '19
- Timing an engine after reassembling. *diag Motor Age* 34:30-1 Ag 29 '18

See also Automobile engines—Valves

**Valves**

- Advantages of a hand-controlled air valve. C. H. Manierre. *Automotive Ind* 38:374 F 14 '18

- Air flow through poppet valves. *diag Automotive Ind* 39:1047-51 D 19 '18
- Ceco valve rotator to eliminate pitting. *diags Automobile* 37:455 S 13 '17
- Effect of heat and cold on valve tappet settings. V. P. Cramer. *Horseless Age* 43:38 Mr 15 '18
- Howard cuff-valve engine. *diags Am Soc M E J* 40:195 F '18
- Improvement in engine valves. J. E. Schipper. *Il diag Automotive Ind* 38:900-1 My 9 '18
- Overhead valve adjustments. *Il Motor Age* 35:38-9 F 20 '19
- Pierce-Arrow adopts dual valves in new series five cars. *Il Automotive Ind* 39:420-1 S 5 '18
- Removing engine valves. *Il diags Motor Age* 34:36-7 Ag 1 '18
- Rotary-valve engines. *diags Motor Age* 35:35 Ja 2 '19
- Small inlet valves satisfactory in overhead valve design. L. H. Pomeroy. *diags Automotive Ind* 40:432-5, 471-5 F 20-27 '19
- Tests of a sleeve valve engine; engine of the American sleeve valve motor corp. has a single sleeve rotating at uniform speed. *Il diags Automotive Ind* 39:494-8 S 19 '18
- Timing of engine valves. *diag Motor Age* 34:28-9 N 21 '18
- Tools that reduce the cost of grinding valves. *Horseless Age* 43:27-9+ F 15 '18
- Valve timing. *Motor Age* 36:51 Jl 31; 41 Ag 7; 35 Ag 14; 51 Ag 21; 49 Ag 28; 47 S 4; 49 S 11; 51 S 18; 49 S 25; 49 O 2 '19

**Automobile factories**

- Automobile factory transportation systems. E. K. Hammond. *Il Mach* 26:1-7, 123-8 S-O '19
- Automotive industry just stripped for action when Germany quit. J. E. Schipper. *Il Automotive Ind* 40:485-9 F 27 '19
- European expansion under war pressure. D. Beecroft. *Automotive Ind* 40:345-8, 403-6 F 13-20 '19
- How the factory handles your repair parts order. H. C. Skinner. *Motor Age* 36:26-7 Ag 7 '19
- If I were to build again; written largely out of experience at the Packard motor car company. *Il Factory* 20:34-6 Ja '18
- Layout of machinshop, assembly and test floor for Essex engine manufacture, showing progression of parts from raw material to finished engines. *Automotive Ind* 41: supp Ag 28 '19
- Visit to Basingstoke; John I. Thornycroft & co. *Il Engineer* 127:54-5, 58 Ja 17 '19
- See also Automobile engines—Manufacture; Automobile parts; Automobiles—Manufacture; also Ford motor company

**Employees**

- Are you creating centers of quiet unrest by neglecting your salaried workers? H. Tipper. *Automotive Ind* 41:682-3 O 2 '19
- Detroit motor car manufacturer has training school for women; photographs. *Iron Tr R* 62:610-11 Mr 7 '18
- Female labor's place in automotive industry. A. Sinsheimer. *Il Automobile* 37: 525-31, 592-3 S 27-O 4 '17; Abstract. *Am Soc M E J* 39:966-7 N '17
- Packard gives women complete mechanical training. *Il chart diags Automotive Ind* 38: 986-8+ My 23 '18
- Revolutionizing the wage and industrial system in France. W. F. Bradley. *Il Automotive Ind* 41:670-4, 712-16 O 2-9 '19
- Solving the problems of female labor in a car making plant. *Il Automotive Ind* 39:57-9 Jl 11 '18
- Wanted—sane handling. H. Tipper. *Automotive Ind* 40:253-5 Ja 30 '19
- Women can handle exacting work. J. E. Schipper. *Il Automotive Ind* 40:266-7 Ja 30 '19

**Lighting**

- Improved lighting of automobile manufacturing plants. F. H. Bernhard. *Il Elec R* 73: 205-11 Ag 10 '18
- Automobile fuel. See Automobile engines—Fuel

Automobile headlights. See Automobiles—Lighting

#### Automobile Industry and trade

Auto builders must get war work. Iron Tr R 63:394-5 Ag 15 '18  
 Automobile after the war. N. S. Diamant. Automotive Ind 39:1057-8+ D 19 '18  
 Automobile commissions. C. C. Sherlock. Horseless Age 44:40 My 15 '18  
 Automotive chronology for 1917. Automotive Ind 37:1143-9 D 27 '17  
 Automotive chronology for 1918. Automotive Ind 39:1123-6 D 26 '18  
 Automotive export problems during post-war period. A. Sinsheimer. charts Automotive Ind 40:1325-30 Je 12 '19  
 Better business methods for the dealer. H. Paulman. Motor Age 35:23-5 F 27 '19  
 Dealer's warranty. Motor Age 33:27 Je 20 '18  
 Dealers who have departmentalized their businesses prove success of intensive merchandising by their books. Il plan Motor Age 35:7-9 Je 19 '19  
 Departmentalizing a business. F. M. Loomis. Motor Age 35:23 Je 12 '19  
 Dozen success rules for dealers. L. G. Herbert. Horseless Age 44:45 My 1 '18  
 European expansion under war pressure. D. Beecroft. Automotive Ind 40:345-8 F 13 '19  
 Foreign import restrictions continued and increased. Automotive Ind 40:438 F 20 '19  
 Four-year range of wages in the automotive industry. charts Automotive Ind 40:1316-18 Je 12 '19  
 Good credit more desirable than cash assets. W. D. Isham. Horseless Age 42:20-1 D 15 '17  
 Helping dealers become better credit risks; prize essays. Horseless Age 43:39-41+ Ap 1 '18  
 Helping the dealer select his stock; prize essays. Horseless Age 44:31-2 My 15 '18  
 High tariffs and prohibitions hold industry back. D. Beecroft. Automotive Ind 40:453-5+ F 27 '19  
 How being systematic helps the salesman. F. Farrington. Horseless Age 43:24 Ja 15 '18  
 How one dealer charts province of departments. charts Motor Age 36:30-2 N 6 '19  
 How the jobber can help the dealer. A. Champion. Horseless Age 43:44 Ap 1 '18  
 How the jobber's salesman can help the dealer; prize essays. plan Horseless Age 43:33-5+ Mr 1 '18  
 How the jobber's salesman can use an automobile; prize essays. Horseless Age 44:33-5+ My 1 '18  
 How the Pierce-Arrow motor car co. trains automobile salesmen. H. H. Hodge. Il Munic Eng 53:217-18 N '17  
 How the telephone can aid in selling; prize essays. Horseless Age 43:32-4+ Ap 1 '18  
 Industry's year in brief, including airplane and tractor activities. Motor Age 34:11, 22-7+ D 26 '18  
 Jobbing business of Beers brothers co. built in three years. Il Horseless Age 43:34-5 Ja 15 '18  
 Kind of salesmanship that builds business. E. A. Bowman. Horseless Age 42:23 D 15 '17  
 Know what the other fellow is doing. J. R. Godfrey. Am Mach 50:1126 Je 12 '19  
 Looking forward; the place of the automobile in the years to come. J. R. Eustis. Il Sci Am 118:18+ Ja 5 '18  
 Manufacture of passenger automobiles; statement authorized by the War Industries board announcing curtailment during remainder of this year. Good Roads n s 16:95 S 7 '18  
 Over the top in service and repairs. T. P. Bowman. Motor Age 34:8-9 Ag 22; 10-11 Ag 29; 10-11 S 5; 12-13 S 12; 10-11 S 19; 11 S 26; 10-11 O 3; 10 O 10; 11-12 O 17; 12-13 O 24 '18  
 Prepare now for after-war trade. J. K. Clark. Automotive Ind 38:461-3 F 28 '18  
 Profitable distributor's stock management. H. W. Drew. Motor Age 36:25-6 N 27 '19  
 Ramifications of the industry; material drawn from many industries. Horseless Age 43:57+ Ja 1 '18

Some ways to sell your winter service.

Motor Age 36:10-15 N 6 '19  
 Ten fundamentals for reconstruction. E. S. Jordan. Motor Age 34:25 D 12 '18  
 Unjust claims and how to adjust them; prize essays. Horseless Age 43:24-6+ Mr 15 '18  
 Way to win the car owner's confidence; prize essays. Horseless Age 42:26-7 D 15 '17  
 What the automobile user is demanding. J. B. Schipper. Automotive Ind 38:314-16 F 7 '18  
 Where good roads are built, thence will come export trade. A. Sinsheimer. Automotive Ind 41:226-7 Jl 31 '19

See also Automobile factories; Automobile service stations; Electric vehicles; Garages; Motor truck industry; Tractor industry; also Ford motor company, Willys-Overland company

#### Advertising

Advertising. T. P. Bowman. Motor Age 35:32 F 6 '19  
 All-year automobile exhibit of Kissel, Kar dealers. Il Horseless Age 42:31 D 15 '17  
 Business boosting cold wave window. A. J. Edgell. Il Horseless Age 43:46-7 Ja 1 '18  
 Economy window that will increase sales. A. J. Edgell. Il Horseless Age 43:20-1 Mr 15 '18  
 Helping the jobber through the dealer. A. Sinsheimer. Automotive Ind 38:642 Mr 28 '18  
 How jobber salesmen are using manufacturers' advertising; prize essays. Horseless Age 43:31-3 F 15 '18  
 How to capitalize the spring cleaning custom. A. J. Edgell. Il Horseless Age 43:22-3 Mr 1 '18  
 How to display accessories for Fords. A. J. Edgell. Il Horseless Age 44:20-1 My 15 '18  
 How to make a window display sell tire service. A. J. Edgell. Il Horseless Age 43:22-3 F 1 '18  
 How to make the postal service help you. F. Farrington. Horseless Age 43:22 Mr 15 '18  
 How to make your show window sell lubricants. A. J. Edgell. Il Horseless Age 44:24-5 Ap 15 '18  
 How to use the manufacturers' advertising matter; prize essay. J. S. Clemence. Il Horseless Age 43:18-19+ Mr 1 '18  
 Ideas for medium-sized agencies. Motor Age 35:24-5 Je 26 '19  
 Is sales promotion by mail necessary? prize essays. Horseless Age 44:26-7+ My 15 '18  
 Let the new automobile lighting laws work for you. A. J. Edgell. Il Horseless Age 42:18-19 D 15 '17  
 Let your local newspaper help your business. L. G. Sullivan. Motor Age 36:7-10+ N 27 '19  
 Make your show window help Uncle Sam. A. J. Edgell. Il Horseless Age 43:28-9 Ap 1 '18  
 Making prospects by letter. Motor Age 35:20-2 F 27 '19  
 Patriotic window displays for February. A. J. Edgell. Il Horseless Age 43:20-1+ Ja 15 '18  
 Real motor car demonstration. Il Motor Age 36:29-30 N 20 '19  
 Spark plug display any dealer can make. Il Horseless Age 43:38-9 Mr 15 '18  
 Spring business building window display. A. J. Edgell. Il Horseless Age 43:20-1 F 15 '18  
 Talk on dealer problems. N. Jordan. Motor Age 35:10-11 F 6 '19  
 Tire window display with a punch. A. J. Edgell. Il Horseless Age 44:22-3 My 1 '18

#### Automobile accessories

Accessory store layout. plan Motor Age 34:33 N 21 '18  
 How to get the Christmas spirit into service and accessory sales. R. Sanders. Il Motor Age 34:7-11 D 5 '18  
 How to promote accessory sales. T. P. Bowman. Il Motor Age 35:24-5 Mr 6 '19  
 Making profits by recording every sale. Il Horseless Age 44:22-4 My 15 '18  
 Money back accessory store; Auto aero supply co. Il Horseless Age 44:18-19 My 1 '18

**Automobile industry and trade—Automobile accessories—Continued**

Opening an accessory store outside the business section. plan Horseless Age 43:48-9 Ap 1 '18

See also Automobiles—Equipment and supplies

**Prices**

See Automobiles—Prices

**Service**

Automotive service and the farmer. F. M. Loomis. II Motor Age 35:7-10 Ap 10 '19

How far should we go with free service? J. B. Bray. Motor Age 36:22-3 N 27 '19

N. A. C. C. annual convention of service managers. Detroit. Motor Age 36:7-12 N 20 '19

N.A.C.C. truck service policy, responsibility of maker, distributor and dealer to user. Motor Age 35:29-4 Je 26 '19

Repair parts stock a service necessity. H. C. Skinner. Motor Age 36:7-9 Jl 17 '19

Service from factory to owner. II diag Motor Age 34:26-7 O 17 '18

Service men gain strength by associations. Motor Age 36:7-10 O 23 '19

Service profits depend on: the policy. H. C. Skinner. Motor Age 36:7-9 Ag 21 '19

Service starts at the factory. B. M. Ikert. II Motor Age 36:7-9 Ag 14 '19

Systematic free service on Studebaker cars. Horseless Age 44:43 My 15 '18

See also Automobile service stations; Motor truck industry—Service; Tractor industry—Service

**Used cars**

Breaking even on used cars. F. M. Loomis. Motor Age 35:20-1 Ap 17 '19

Buying a used car. B. M. Ikert. diag Motor Age 34:7-9 S 5 '18

French war-worn vehicles sold. W. F. Bradley. II Automotive Ind 39:1116 D 26 '18

How Chicago values used cars. II Horseless Age 44:47 Ap 15 '18

How to appraise used cars. See bi-monthly numbers of the Horseless age

Used car sales and new car production; prize essays. Horseless Age 43:26-8 Mr 1 '18

**War service**

Automobile industry unjustly censured in Senate report. J. E. Schlipper. Automotive Ind 39:354-6+ Ag 29 '18

Dealer's part in the war. A. Reeves. Horseless Age 43:24+ Mr 1 '18

Ford stops building passenger cars; company to devote entire plant to war work—Franklin and Hudson quit, too. Automotive Ind 39:479 S 12 '18

Whole automobile industry back of the government. Horseless Age 42:38 D 15 '17

**Argentina**

Argentine market for motor vehicles. D: Beecroft. II U S Bur For & Dom Com misc ser 62:1-27 '17; Excerpts (Automobile trade with Argentina). Automotive Ind 37:999+ D 6 '17

**Belgium**

Destruction of the Belgian industry. W. F. Bradley. II map Automotive Ind 40:1149-55, 1210-16, 1274-7 My 29-Je 12 '19

**Canada**

Canada has 199,302 cars and trucks. Automotive Ind 38:244 Ja 24 '18

How Canada is rapidly becoming a manufacturer of accessories. Automotive Ind 38:864-5 My 2 '18

100,000 cars for Canada. Automobile 37:693+ O 18 '17

Restrictions in U.S. affect Canada; comparative balance sheet of the Canadian Ford company for the past 4 years. Automotive Ind 39:473 S 12 '18

Toronto trade convention. Horseless Age 44:43+ Ap 15 '18

**China**

China offers poor prospect for automotive industry. H. B. Wilson. Automotive Ind 39:536 S 19 '18

Five means of direct selling in China. Automotive Ind 41:382 Ag 21 '19

Motor vehicles in Japan, China, and Hawaii. T. O. Jones. II U S Bur For & Dom Com 170:43-63 '18; Excerpts. Automotive Ind 39:1106-7+ D 26 '18

**Far East**

Far eastern demand for motor cars. II Sci Am 120:124 F 8 '19

**France**

American cars popular in southern France. Automotive Ind 38:661 Mr 28 '18

France has potential production of 300,000 cars a year. W. F. Bradley. Automotive Ind 41:811-13 O 23 '19

France prohibits auto imports. W. F. Bradley. Automotive Ind 40:439+ F 20 '19

France's post-war automobile program. W. F. Bradley. II diag Automotive Ind 40:1-4 Ja 2 '19

French automobile industry after war. G. Lumet. Automotive Ind 38:761-3 Ap 18 '18

Post-war foreign cars. W. F. Bradley. Motor Age 35:26-7 Ja 23 '19

Queer phases of the automobile situation in France. W. F. Bradley. Automotive Ind 41:74-6 Jl 10 '19

**Germany**

Automobile builders protected. Iron Tr R 65:1115 O 23 '19

Automobile preparedness in Germany and U. S.; a comparison of organization, resources and methods. E. A. Langdon. Automotive 37:441-3 S 13 '17

Present status of German motor industry. Automotive Ind 40:1059-61 My 15 '19

Teutonic trade after the war. E. A. Langdon. Automotive Ind 38:870-2 My 2 '18

**Great Britain**

British government co-operating with its industries. Automotive Ind 37:1035-6 D 13 '17

England prepares for South African trade. Automotive Ind 39:422-3 S 5 '18

European expansion under war pressure. D: Beecroft. Automotive Ind 40:403-6 F 20 '19

Great Britain to continue war-time restrictions on automobile apparatus. Automotive Ind 40:290+ F 6 '19

No British post-war models in low-price field. D: Beecroft. Automotive Ind 40:85-7 Ja 16 '19

What Britain lost in passenger car exports during the war. Automotive Ind 41:376-7 Ag 21 '19

What is the matter with the British motor industry? Automotive Ind 41:273-5 Ag 7 '19

**Hawaiian Islands**

Hawaii has more automobiles than China and Japan together. Automotive Ind 39:535-6 S 26 '18

**Iowa**

Automotive dealers in Iowa. F. M. Loomis. II Motor Age 35:24-7 My 15; 22-5 My 22 '19

**Japan**

Japan wants small chassis. H. Sibley. II Automotive Ind 37:1138-40 D 27 '17

Motor vehicles in Japan, China, and Hawaii. T. O. Jones. II U S Bur For & Dom Com 170:1-42 '18; Same cond. Automotive Ind 39:867-8, 923-4, 970-1, 1011-12+, 1059-61 N 21-D 19 '18

**Latin America**

Six months' trade with Latin America larger than year ago. Automotive Ind 41:427-8 Ag 28 '19

**Mexico**

Many conditions limit automobile exports to Mexico. C. H. Cunningham. Automotive Ind 41:780-1 O 16 '19

**Nebraska**

On the firing line in Nebraska. F. M. Loomis. II Motor Age 36:18-21 S 4 '19

**Automobile industry and trade—Continued****Netherlands**

Automobile outlook in Holland. Automotive Ind 39:412 S 5 '18

**New Zealand**

Analysis of automobile merchandising. G. A. Worrall. II map Automotive Ind 39:572-7, 634-7, 751-3 O 3-10, 31 '18

**North Dakota**

Trade year short in North Dakota. F. M. Loomis. II plan Motor Age 35:22-4 My 1 '19

**Rhode Island**

Rhode Island registrations analyzed by makes. Automotive Ind 37:992 D 6 '17

**Scandinavia**

American cars will lead in Scandinavia. II Automotive 37:666-7 O 18 '17

**South Africa**

Automobile conditions in South Africa. II maps Automotive Ind 38:507-8 Mr 7 '18  
South Africa has gasoline shortage. M. Edward. II Automotive Ind 39:708-11 O 24 '18  
South African farmers buying heavily in 1918. M. Edward. II Automotive Ind 38:942-5 My 16 '18

**Switzerland**

Switzerland has 6140 vehicles. Automotive Ind 39:774 O 31 '18

**United States**

American automobiles wanted in the Far East. Sci Am 118:134 F 9 '18  
American motor vehicles in foreign markets. Am Mach 51:23-6 J1 3 '19  
America's automobile industry. chart Sci Am 121:511+ N 22 '19  
Analysis of automotive exports during 1918-1919. Automotive Ind 41:336-7 Ag 14 '19  
At the end of the detour. D. S. Hatch. Motor Age 35:7-10 Ja 23 '19  
Automobile as war factor. J. N. Willys. Iron Tr R 62:1187-8 My 9 '18  
Automobile preparedness in Germany and U. S.; a comparison of organization, resources and methods. E. A. Langdon. Automobile 37:441-3 S 13 '17  
Automobile tax hearing before the Ways and means committee; statement made by Alfred Reeves. Automotive Ind 38:1124-5 Je 13 '18  
Compulsory restrictions forestalled; N.A.D.A. tells how association is taking lead in showing patriotism of dealers. Motor Age 34:9 J1 25 '18  
Cut car production to 25 per cent. Automotive Ind 39:379 Ag 29 '18  
Dealers' peace problems that must be faced now. D. S. Hatch. Motor Age 34:8-9+ N 14 '18  
Export managers enthusiastic; optimism the keynote of well-attended N.A.C.C. convention. Automotive Ind 40:569, 572-4 Mr 13 '19  
Exports of automobiles, trucks and parts for December and 11 previous months. Automotive Ind 38:335 F 7 '18  
Exports of automotive equipment for July and six previous months; tabulation. Automotive Ind 39:474 S 12 '18  
Exports of automotive parts for 12 years. Automotive Ind 40:106-7 Ja 16 '19  
Exports of cars, trucks and parts for 4 years. Automotive Ind 37:1148 D 27 '17  
Exports of passenger automobiles for years 1907 to 1918 inclusive. Automotive Ind 40:104-5 Ja 16 '19  
Farmer chief buyer in Twin Cities territory. II Automotive Ind 38:350-3 F 14 '18  
5,000,000 motor cars in United States. Eng & Contr 50:18-19 J1 3 '18  
4,941,276 cars and trucks in the United States. maps Automotive Ind 38:534-8+ Mr 14 '18  
Government to protect markets. F. M. Loomis. II Motor Age 35:7-9 Ja 2 '19

Great economic mistake to restrict the third manufacturing industry in the country without sufficient facts upon which to base conclusions. H. E. Coffin. Automotive Ind 37:814-15+ N 8 '17

How the motor car industry is organized; chart. Automotive Ind 37:1068 D 13 '17  
Import duties on American automotive products. Automotive Ind 41:328-9 Ag 14 '19

Importance of automobile industry. Mach 24:632 Mr '18

Imports of passenger cars for 11 years. Automotive Ind 40:106 Ja 16 '19

Is the motor car a non-essential?; how conditions in the United States differ from those in England. A. R. Bond. Sci Am 119:188+ S 7 '18

Is your truck or tractor barred in these countries? Automotive Ind 41:530-1 S 11 '19

May be more than 25 per cent cars; coal curtailment does not mean production will be reduced three-fourths. Motor Age 34:14 J1 25 '18

Motor car companies' securities as investments; with abstracts of company reports. Ry Age 65:102-6 sec 2 J1 12 '18

Motor vehicle for every 18 persons. maps Automotive Ind 40:98-102 Ja 16 '19

Motors in use; dealers, garages, etc. Motor Age 36:26-8 S 11 '19

Our duty in foreign trade. D: Beecroft. Automotive Ind 36:877 My 2 '18

Proper balance between commercial and war work not yet struck. J. E. Schipper. Automotive Ind 38:858-9+ My 2 '18

Reconstruction congress stresses need of cooperation. D. S. Hatch. Motor Age 34:20-3 D 12 '18

6,353,233 cars and trucks in use in United States. map Automotive Ind 41:402-6 Ag 28 '19

Slight prospect of trade with Europe. C. C. Hanch. Automotive Ind 40:1363 Je 12 '19

Special opportunities for the extension of business; prize essays. Horseless Age 44:35-6+ Ap 15 '18

Trends of the American automobile for 10 years, showing variations of most important factors in design and manufacture. Automotive Ind 40:86a Ja 16 '19

U.S. using 5,466,931 cars and trucks. map Motor Age 34:22-5 S 12 '18

War conditions and the dealers' sales; prize essays. Horseless Age 43:24-6 F 15 '18

War influence in motor vehicle industries; 1917 in review. Automotive Ind 37:1125-6 D 27 '17

War's effect on the industry. A. L. Clayden. Automotive Ind 38:25 Ja 3 '18

What return of railroads means to automotive industry. A. Sinsheimer. Automotive Ind 40:1226-7 Je 5 '19

**West Indies**

Why our exports to West Indies should continue to grow. Automotive Ind 41:124-8 J1 17 '19

**Automobile laws and regulations**

Application of headlight law not entirely satisfactory. Automotive Ind 39:900 N 21 '18

California gets model motor vehicle law. Motor Age 35:44 My 22 '19

National motor theft law operative. A. C. Vane. Motor Age 36:12 O 30 '19

New automobile law for Maryland. Automotive Ind 38:433 F 21 '18

New York state automobile headlight law. F. M. Hugo. Illum Eng Soc 14:61-3 no 2 '19

Proposed regulations for incorporation in a model law in regard to headlamps on motor vehicles. L. B. Marks. Illum Eng Soc 14:100-4 no 2 '19

**Automobile lighting. See Automobiles—Lighting****Automobile mechanics**

Engineering colleges teach fighting mechanics for army. II diag Eng N 81:674-7 O 10 '18

Many crippled soldiers choose study of motor mechanics. D. C. McMurtrie. II Elec R 74:130 Ja 25 '19

Mechanics while you wait. II Motor Age 34:24-6 N 7 '18



**Automobile mechanics—Continued**

Training soldiers as mechanics. R. E. Berg. II Motor Age 35:7-8 F 27 '19  
 Vocational training for disabled soldiers will mean more mechanics as one result. R. Sanders. II Motor Age 34:8-9+ O 31 '18  
*See also Automobile schools*

**Automobile mufflers**

Aircraft muffler also adapted to automobile engines. W. F. Bradley. II Automotive Ind 41:555 S 18 '19  
 Exhaust muffler based on gun silencer principle. diags Automotive Ind 38:415 F 21 '18  
 Vacuum muffler based on new principle. II Automotive Ind 39:373 Ag 29 '18

**Automobile parts**

Forging ball levers. H. F. Salomon. II Am Mach 47:1046-7 D 13 '17  
 How the factory handles your repair parts order. H. C. Skinner. Motor Age 36:26-7 Ag 7 '19  
 Profitable distributor's stock management. H. W. Drew. Motor Age 36:25-6 N 27 '19  
 Systematic parts list. R. C. Barron. diag Automotive Ind 38:271-4+ Ja 31 '18  
 Where to obtain repair parts for orphan cars. See latest number of Horseless age

**Automobile racing**

Chevrolet victor at Chicago. II Motor Age 33:28-9 Je 27 '18  
 Chevrolet wins Derby at Uniontown; time for 112½ miles is 95 m.p.h. Motor Age 34:16 JI 25 '18  
 De Palma smashes four records. II Motor Age 34:19-20 Ag 22 '18  
 De Palma smashes world's records. II Motor Age 35:20-1 F 20 '19  
 De Palma wins sweepstakes at Chicago. B. M. Ikert. II Motor Age 34:18-19 Ag 1 '18  
 Elgin victory is Milton's. D. S. Hatch. II Motor Age 36:7-9 Ag 28 '19  
 Harkness trophy race, Sheepshead bay, June 1. S. P. McMinn. II Motor Age 33:20-2 Je 6 '18  
 Indianapolis speedway adopts the 3-liter limit for future races. Automotive Ind 40:1201-3 Je 5 '19  
 New records for old. Motor Age 34:8-9 D 26 '18  
 Peace lifts war's pall on racing. D. S. Hatch. II Motor Age 35:7-12, 21-3 My 29 '19  
 Race from the pits. B. M. Ikert. II Motor Age 35:10-15 Je 5; 36:11-12 Ag 28 '19  
 Race is plea for smaller cars. D. S. Hatch. II Motor Age 35:7-10 Je 5 '19  
 Ralph De Palma wins five races. Automotive Ind 39:337 Ag 22 '18  
 Three records fall at Sheepshead bay. II Motor Age 35:16-17+ Je 19 '19

**Automobile sales buildings**

Built for automotive service; building occupied by the Hahn-Jonas motor co., Sioux Falls, S. D. II diag plans Motor Age 36:22-4 JI 10 '19  
 Combined sales and service establishment. II plan Motor Age 36:22-5 Ag 14; 19-23 Ag 21 '19  
 Co-operation in the sales and service station. diag plans Motor Age 34:7-10 S 12 '18  
 Ford building, 54th street and Broadway, New York; views and plans. Am Arch 115:pl 78-82 Mr 12 '19

*See also Automobile service stations*

**Automobile schools**

Where practice makes mechanics; Rahe auto and tractor school puts students through laboratory course. II Motor Age 34:24-6 JI 26 '18

**Automobile service cars**

Useful service car tackle and equipment; prize essays. diags Horseless Age 43:28-9+ Ja 15 '18

**Automobile service stations**

Building layout. H. C. Skinner. diags plans Motor Age 36:18-19 S 11 '19  
 Cleanliness is essential to quality service. Motor Age 36:7-8 S 4 '19  
 Combination sales and service plan. plans Motor Age 36:26-7 JI 31 '19

Combined sales and service establishment. II plan Motor Age 36:22-5 Ag 14; 19-23 Ag 21 '19

Complete battery service all year for \$4 flat rate. II chart Motor Age 35:7-10 Je 12 '19

Co-operation in the sales and service station. diag plans Motor Age 34:7-10 S 12 '18

Cowle's electric service station. B. M. Ikert. II plans Motor Age 35:7-10 Mr 13 '19

Dealer plus factory service. II Motor Age 23:24-7 Je 20 '18

Defects in poor service building. II plan Motor Age 35:24 Ap 3 '19

Equipment. diag plan Motor Age 36:24-5 S 18 '19

Equipment + system = efficiency. II Motor Age 35:18-20 Ap 3 '19

Final inspection. H. C. Skinner. Motor Age 36:41 O 30 '19

Good and bad in Southern service. B. M. Ikert. II plan Motor Age 35:24-5 My 8 '19

Hints from Marmon service plant for the dealer. D. S. Hatch. II Motor Age 36:19-23 Ag 21 '19

Ideal service station. B. M. Ikert. diag plan Motor Age 36:7-9 S 11 '19

Independent repairman from factory standpoint. L. C. Voyles. Motor Age 36:23-4 N 27 '19

Knowledge of car spelled success; Motor car service co. II Motor Age 35:20-1 Je 12 '19

Layout of salesrooms and service station for distributor in South Africa. plans Motor Age 36:34-5 JI 3 '19

Mastering service problems with a master sheet. Motor Age 36:7-9 JI 10; 22-5 JI 17 '19

Motto of cleanliness in repairs. B. M. Ikert. II diags plans Motor Age 35:20-3 My 15 '19

New automobile center, Social Hall avenue, Salt Lake City. II diags plan Am Arch 115:281-7 F 19 '19

New ideas in an electric service station. II Elec R 73:224-5 Ag 10 '18

160,000 square feet of service in new building of the Gibson company, Indianapolis, Ind. II Horseless Age 43:40-1 Mr 1 '18

Organizing the service station. charts Motor Age 36:27 Ag 28 '19

Parts stock. Motor Age 36:28-9 S 25 '19

Routing of job. H. C. Skinner. diags plans Motor Age 36:22-3 S 4 '19

Sales and service building for Gomery-Schwartz co., Philadelphia, Pa.; view and plans. Am Arch 113:pl 185-6 My 29 '18

Sales and service buildings for an automobile manufacturer. G. V. Rhines. II plans Am Arch 113:361-7 Mr 20 '18

Service profits depend on: the organization. H. C. Skinner. Motor Age 36:25-6 Ag 28 '19

Service station layout and equipment. J. W. Lord. diags plans Motor Age 36:26-7 S 18 '19

Shop machinery—what to have and where to have it. B. M. Ikert. plan (supp) Motor Age 36:7-9 O 2 '19

Simons sales co. service station increases good will. C. C. Casey. II Horseless Age 43:18-19 Ja 15 '18

Small tool equipment for ideal service plant. B. M. Ikert. Motor Age 36:13-14 O 9 '19

Standardized Ford service station. J. T. Shaw. II Horseless Age 44:22-3 Ap 15 '18

Stockroom. H. C. Skinner. diags Motor Age 36:23-6 O 2 '19

Tools to supplement machines in service stations. B. M. Ikert. diags Motor Age 36:21 N 20 '19

Two important service rules. Motor Age 35:24 Ja 9 '19

Underwood service building, Vesey street and West Broadway, New York city. Arch & Bldg 49:detail sheets 18-19, pl 175 D '17

Women as solution of automobile service problem. Motor Age 34:17 Ag 15 '18

Women prove efficient mechanics. II Motor Age 34:25 Ag 22 '18

*See also Automobile industry and trade—Service; Automobile mechanics; Garages*

**Forms, blanks, etc.**

Car record joins master sheet. Motor Age 36:20-1 S 18 '19

- Automobile service stations**—Forms, blanks, etc.—*Continued*  
 Charts divide work and place responsibility. *Il* Motor Age 36:32-3 N 6 '19  
 Master sheet; repair operations analyzed to give basis for estimating. Motor Age 36:37 N 6 '19  
 Repair contracts. H. C. Skinner. Motor Age 36:26-7 O 16 '19  
 Selling service. K. Herrick. Motor Age 36:7-11 S 25; 11-15 O 2; 10-12 O 9; 24-5 O 16 '19  
 Service records. H. C. Skinner. Motor Age 36:47 O 9 '19  
 Simple service record system. Motor Age 36:35-4 N 6 '19  
 Standardized tags for service stations and garages. Motor Age 35:23-4 Je 26 '19  
 Stockroom system. H. C. Skinner. Motor Age 36:31-2 O 23 '19  
 System and efficiency in the service station. H. C. Skinner. *Il* plan Motor Age 36:7-11 S 18; 24-6 S 25 '19
- Automobile storage buildings**  
 Three stories serving for five in automobile storage and sales building. St. Louis. *Il* diags plan Am Arch 113:305-6 Mr 6 '18
- Automobile tires.** See Tires, Automobile
- Automobile touring**  
 Over the Andes in a motor car; South American Studebaker crosses the continent from Atlantic to Pacific on pioneer tour. *Il* map Motor Age 34:22-4 Ag 22 '18  
*See also* Road signs
- Automobile trucks.** See Electric trucks; Motor trucks
- Automobile wrench.** See Wrenches
- Automobiles**  
 Abbott 1918 line. *Il* Automobile 37:514 S 20 '17  
 After the motor car got religion. Motor Age 36:39-40 O 30 '19  
 Allen features accessibility. *Il* Motor Age 35:46-8 Je 26 '19  
 America influences Europe's new cars. W. F. Bradley. *Il* Automotive Ind 40:727-37 Ap 3 '19  
 Anderson motor company has convertible sport-touring model. J. E. Schipper. *Il* Automotive Ind 38:117 Ja 10 '18  
 Angus Sanderson, a new British assembled car. *Il* diags Automotive Ind 40:888-90 Ap 24 '19  
 Automobile development during 1918. V. W. Page. diags Sci Am 118:16-+ Ja 5 '18  
 Automobiles as war necessities; prize essays. Horseless Age 44:28-30-+ Ap 15 '18  
 Ballot racing cars built for Indianapolis track conditions. W. F. Bradley. *Il* Automotive Ind 40:1066-8 My 15 '19  
 Bignan new French car is sporting type on rational lines. W. F. Bradley. *Il* Automotive Ind 41:202-5 Jl 31 '19  
 Buick for 1920 shows minor improvements. *Il* Motor Age 36:47-+ Jl 31 '19  
 Case adopts Continental engine. *Il* diags Automobile 37:624-5 O 11 '17  
 Chevrolet eight. New. *Il* diags Automobile 37:491-3 S 20 '17  
 Cleveland car now ready for distribution. *Il* Motor Age 36:30-1 Jl 17 '19  
 Combination land and water vehicle. *Il* Sci Am 118:152 F 16 '18  
 Comparison of average American car for 8 years. chart (supp) Automotive Ind 38:18 Ja 3 '18  
 Darracq 8-cylinder, 20-hp. engine has American features. *Il* Automotive Ind 41:756-7-+ O 16 '19  
 Dealers' interpretation of public's desires real show lesson. J. E. Schipper. *Il* diags Automotive Ind 40:291-5 F 6 '19  
 DeDion eight-cylinder model. New. *Il* diags plan Automotive Ind 40:954-5 My 1 '19  
 Elcar 1920 shows refinements. *Il* Motor Age 36:32-3 N 27 '19  
 Elgin models, 1918. *Il* Horseless Age 43:41 F 15 '18  
 Engineers discuss better and more efficient car. Automotive Ind 41:12-14 Jl 3 '19  
 European cars show influence of American design. W. F. Bradley. *Il* Motor Age 36:23-6 N 20; 29-31-+ N 27 '19  
 Fewer new cars this year. B. M. Ikert. *Il* diags Motor Age 35:19-22 Ja 30 '19  
 Fiat has six and two four-cylinder models. *Il* Automotive Ind 41:754-5 O 16 '19  
 Ford completely rebuilt. *Il* diags plan Motor Age 36:28-9 Je 3 '19  
 Gardner four-cylinder car made in St. Louis. *Il* Motor Age 36:24 O 23 '19  
 Grant six is larger and has new body lines. *Il* Motor Age 36:43 O 16 '19  
 High transportation efficiency object of Essex car. *Il* Automotive Ind 38:946-8 My 16 '18; Horseless Age 44:38 My 15 '18  
 Holmes air-cooled car. *Il* diag Automotive Ind 38:155 Ja 10 '18  
 Hupmobile now smaller. *Il* diags Automotive Ind 37:870-5 N 15 '17  
 Jordan adds new model—Sport-Marine. *Il* Automotive Ind 37:1142 D 27 '17  
 Jordan Sport Marine. *Il* Horseless Age 42:24 D 15 '17  
 Kissel Kar 1918 models. *Il* Horseless Age 43:23 Ja 15 '18  
 Kissel-Silver specials. *Il* Automotive Ind 37:1149 D 27 '17  
 Lighter cars; smaller engines. Automotive Ind 40:1425-9 Je 26 '19  
 Lighter cars with smaller engines predicted. *Il* Motor Age 36:17-20 Jl 3 '19  
 Looking ahead three years in design of cars. J. E. Schipper. *Il* Automotive Ind 41:206-8 Jl 31 '19  
 Marmon—new detail changes. *Il* diag Automotive Ind 37:922-3 N 22 '17  
 Maxwell ease of adjustment is feature of 1920. *Il* Motor Age 36:43-+ Jl 10 '19  
 Mechanical tendencies revealed by the show. P. M. Heldt. diags Automotive Ind 38:106-9-+ Ja 10 '18  
 Mercury a semi-custom car with stock chassis. *Il* diags Automotive Ind 38:231-2 Ja 24 '18  
 Nash six an entire new design. *Il* Automobile 37:448-9 S 13 '17  
 National 1920 is overhead-valve six. *Il* diags Motor Age 36:38-41 O 9 '19  
 New British quantity-production car. *Il* Automotive Ind 40:807-8 Ap 10 '19  
 New models at Lyons fair. W. F. Bradley. *Il* Automotive Ind 40:677-83-+ Mr 27 '19  
 1919 cars not strictly post-war. J. E. Schipper. Motor Age 35:19-23 Ja 23 '19  
 Oakland six—more power. *Il* diags Automobile 37:716-18 O 25 '17  
 Olympian (New) uses Brush deep frame chassis. J. E. Schipper. *Il* Automotive Ind 38:113-14 Ja 10 '18  
 Overland four definitely in production. *Il* Motor Age 36:42-3 O 2 '19  
 Owen-Magnetic refined new overhead valve engine. J. E. Schipper. Automotive Ind 38:118 Ja 10 '18  
 Pilot new improved series is offered. *Il* diag Motor Age 33:41 Je 20 '18  
 Post-war cars designed by Europe. W. F. Bradley. *Il* diags Motor Age 35:24-7 Ap 10 '19  
 Protecting finish during drive-aways. *Il* Automotive Ind 38:866-7 My 2 '18  
 Remodeled Ford cars for industrial trucking purposes. *Il* diags Ry R 62:53-4 Ja 12 '18; Same. Eng & Contr 49:480-1 My 15 '18  
 Revere car has Duesenberg engine. *Il* Automotive Ind 38:683 Ap 4 '18  
 Scripps new six has Northway overhead valve engine. J. E. Schipper. *Il* Automotive Ind 38:112-13 Ja 10 '18  
 Selden extension adapts Ford truck to long body. *Il* Automotive Ind 38:1197 Je 20 '18  
 Serial numbers of passenger cars. See bi-monthly numbers of Motor age  
 Serial numbers of the leading cars for the past six years. See latest number of Horseless age  
 6,353,233 cars and trucks in use in United States. map Automotive Ind 41:402-6 Ag 28 '19  
 Space-grabbing automobile; with section of Beeler report. Elec Ry J 52:147-9 Jl 27 '18  
 Stephens brings out six-passenger. *Il* Motor Age 34:37 Jl 25 '18  
 Stephens post-war models in open cars. *Il* Motor Age 35:48-9 Je 19 '19

**Automobiles—Continued**

- Stephens Sallient six. *Il Horseless Age* 43:27 Ap 1 '18  
 Studebaker has new line. *Il Automotive Ind* 38:38-9 Ja 3 '18  
 Studebaker line for 1918. *Il Horseless Age* 43:36-7 F 15 '18  
 Studebaker new series five-passenger. *Il Automotive* 37:707 O 25 '17  
 Studebaker sedan. *Il Motor Age* 34:42 Jl 11 '18  
 Technical details of the Redden universal attachment, designed to convert passenger car into motor truck. *diags Automotive Ind* 39:322-3 Ag 22 '18  
 Templar cars for the 1918 season. *Il Horseless Age* 43:31 Ja 15 '18  
 Templar exhibits for first time. J. E. Schipper. *Automotive Ind* 38:117-18 Ja 10 '18  
 Templar four employs improved overhead valve construction. *Il diags Automotive Ind* 38:1038-41 My 30 '18  
 Three closed models among new Chandler offerings. *Il Motor Age* 36:42 O 9 '19  
 Transforming used passenger cars into trucks; prize essays. *diags Horseless Age* 43:29-31 Mr 1 '18  
 Unconventional design of a British after-war car. *Il diags Automotive Ind* 41:312-15 Ag 14 '19  
 Velle 1920 handles low-grade fuels. *Il Motor Age* 36:48 Jl 31 '19  
 Westcott arrowline seven. *Il Automotive Ind* 39:381 Ag 29 '18; *Motor Age* 34:43 Ag 22 '18  
 Willys-Overland exhibits forerunner of low-priced product. J. E. Schipper. *Il Automotive Ind* 38:111-12 Ja 10 '18

*See also* Automobile engines; Electric trucks; Electric vehicles; Fire apparatus, Motor; Flywheels, Automobile; Garages; Jitney buses; Motor buses; Motor cycles; Motor trucks; Street cleaning apparatus, Motor; Tires, Automobile; also other headings beginning Automobile

**Accessories**

*See* Automobile industry and trade—Automobile accessories; Automobiles—Equipment and supplies

**Accidents**

*See* Automobile accidents

**Axles**

- Accessibility and sturdiness feature new line of axles. *diags Automotive Ind* 41:559-61 S 13 '19  
 Columbia axles of standard design. *diags Automotive* 37:465 S 13 '17  
 Draftsman, the purchasing agent and the forge shop. J. E. Schipper. *Automotive Ind* 38:597-8 Mr 21 '18  
 Kline undivided driving axle. *diags Automotive Ind* 40:759 Ap 3 '19  
 Maintenance of rear axles. *Il diags Motor Age* 34:26-7 Ag 29; 25-7 S 5; 22-3 S 12; 28-9 S 19; 26-8 S 26; 28-9 O 3; 26-7 O 10 '18  
 Rear axle care and adjustment. *Il Motor Age* 36:59 N 6 '19  
 Removing rear axles broken inside the housing; prize essays. *diags Horseless Age* 42:28-9 D 15 '17  
 Shaping the front axle forging on the Nash motor car. J. Ledin. *diags Am Mach* 49:679-80 O 10 '18  
 Specially designed engine and axle for Cleveland car. *Il diags Automotive Ind* 41:304-6 Ag 14 '19

*See also* Automobiles—Gearing; Automobiles—Wheels; Axles; Motor trucks—Axles

**Batteries**

*See* Storage batteries

**Bearings**

- Floating bearing for propeller shafts. *Il diags Automotive Ind* 38:865 My 2 '18  
 For main bearing jobs. *Il Motor Age* 36:45 Ag 7 '19  
 Testing bearings for parallelism. *diags Motor Age* 34:30-1 Jl 4 '18  
 When bearings wear. *diags Motor Age* 34:40-1 S 5 '18

**Bibliography**

List of books on automobiles and motor cycles. A. R. Blessing. 79p '18 H. W. Wilson co., 958-964 University av., N.Y.

**Bodies**

- Analyzing body design at New York passenger car show. G. J. Mercer. *Il diags Automotive Ind* 40:298-302 F 6 '19  
 Better body engineering wanted. *Automotive Ind* 37:880 N 15 '17  
 Body design tendencies shown in the car model for 1918. *Il diags Automotive* 37:462-3 S 13 '17  
 Body details at the salon and the palace. G. J. Mercer. *diags Automotive Ind* 38:416-18 F 21 '18  
 British cabriolet design. G. J. Mercer. *diags Automotive Ind* 38:269-70+ Ja 31 '18  
 Building bodies for used cars. *Il diags Motor Age* 36:70-2 N 6 '19  
 Closed body construction. G. J. Mercer. *diags Automotive Ind* 38:548-9 Mr 14 '18  
 Cole offers new closed car models. *Il Motor Age* 36:36 O 30 '19  
 Custom bodies guide stock designs. P. E. Stone. *Il Motor Age* 35:24-5+ Ja 23 '19  
 Dealers' interpretation of public's desires real show lesson. J. E. Schipper. *Il diags Automotive Ind* 40:291-5 F 6 '19  
 Finishing bodies for automobiles. C. A. Marston. *Il diags Ind Management* 58:207-11 S '19  
 Four passenger town car design. G. J. Mercer. *diags Automotive Ind* 37:950-1 N 29 '17  
 Front entrance inside drive body. *diags Automotive Ind* 40:5+ Ja 2 '19  
 Latest Lexington shows body improvement. *Il diags Motor Age* 34:40-1+ S 26 '18  
 Making sheet metal for an automobile body. *diags plan Metal Work* 91:204-6 F 14 '19  
 New design touring body top. G. J. Mercer. *diags Automotive Ind* 40:1166-7 My 29 '19  
 Quantity production of sheet metal bodies. J. E. Schipper. *Il Automotive Ind* 38:1188-93+, 1262-6 Je 20-27 '18  
 Special bodies at New York. J. E. Schipper. *Il Motor Age* 35:20-1 F 6 '19  
 Staggered door sedan. G. J. Mercer. *diags Automotive Ind* 38:734-5 Ap 11 '18  
 Stephens has new sedan and coupe. *Il Motor Age* 36:21-2 O 23 '19  
 Stock bodies uniformly of good design. G. J. Mercer. *Il diags Automotive Ind* 38:119-24 Ja 10 '18  
 Suggested touring sedan. G. J. Mercer. *diags Automotive Ind* 40:812-13 Ap 10 '19  
 Technical analysis of salon bodies. G. J. Mercer. *Il diags Automotive Ind* 38:176-8 Ja 17 '18

*See also* Automobiles—Tops

**Brakes**

*See* Brakes, Automobile

**Chassis**

- 1918 chassis design features. *Automotive Ind* 38:11 Ja 3 '18  
 Voisin's initial chassis. W. F. Bradley. *Il Automotive Ind* 40:1178-9 My 29 '19

*See also* Automobiles—Lubrication

**Cleaning**

- Car washed every 20 minutes. *Il Motor Age* 36:22-3 S 11 '19  
 London company cleans motor vehicles with caustic soda and reclaims old oil and grease. *Eng & Contr* 49:sup24 F 6 '18  
 Washing a motor car. *diags Motor Age* 35:30-1 Ja 30 '19  
 Washing the car. *Motor Age* 34:34-5 Ag 22 '18  
 Ways of shop cleaning. *diags Motor Age* 34:38-9 D 19 '18

**Clutches**

- Adjusting Dodge clutch. *diags Motor Age* 34:33-4 D 19 '18  
 Borg & Beck eliminates clutch brake. *diags Automotive Ind* 38:584-5 Mr 21 '18  
 Clutch care and adjustment. *Il diags Motor Age* 36:56 N 6 '19  
 Clutches, transmissions and axles. *Il diags plan Motor Age* 35:35-7 My 22 '19

**Automobiles—Clutches—Continued**

- Electromagnetic clutch indicating device. V. Karapetoff. diags Sibley J 32:56-8 Ja '18  
 Hoosier clutch redesigned. diag Automotive Ind 40:415 F 20 '19  
 Levers used to multiply spring pressure in clutch. II diags Automotive Ind 41:661 O 2 '19  
 M. & E. multiple dry disc clutch. diags Automotive Ind 40:798 Ap 10 '19  
 One-way clutch in new Pierce transmission. diags Automotive Ind 41:561 S 18 '19

*See also Automobiles—Gearing*

**Control**

- Control for C-H magnetic shift. II Motor Age 33:40+ Je 20 '18  
 Control layout design analyzed. J. E. Schipper. diags Automobile 37:435-40 S 13 '17

**Cost of operation**

- Cost of automobile and motor truck operation at San Diego, Cal. Eng & Contr 49: sup26 Ap 17 '18  
 Motor vehicle operating costs of water department of Pasadena, Cal. Eng & Contr 49:sup26 F 6 '18  
 Running a car one year; what it cost two persons for operation, accessories and kindred expenses. A. G. Vestal. Motor Age 34:26-7 JI 11 '18

*See also Electric trucks—Cost of operation; Motor trucks—Cost of operation*

**Design**

- Automotive design and transportation as developed by the war. J. E. Schipper. Automotive Ind 38:453-5+ F 28 '18  
 Changes in chassis and body design found in the cars at the New York show. II Horseless Age 43:35-45 Ja 1 '18  
 Current tendencies in automobile design. E. de Normandie. II diags Engineer 128:406-9 O 24 '19  
 Efficient transportation demanded of engineers; necessary to eliminate extravagance of wheelbase and engine size. J. E. Schipper. Automotive Ind 38:1-4 Ja 3 '18  
 Egotism in business a grave error; consulting engineer can help to guide executives along broader lines of progressive thought. J. E. Schipper. Automotive Ind 40:576-7+ Mr 13 '19  
 Fuel tanks and other sheet metal parts. diags Automotive Ind 38:364-5+ F 14 '18  
 How to lower the center of gravity of a Ford. II Horseless Age 42:37 D 15 '17  
 Left-side drive for export cars. A. C. Woodbury. Automotive Ind 40:19+ Ja 2 '19  
 Motor car show at Olympia. II diags plan Engineer 128:479-84 N 14 '19  
 1918 engineering trends. A. L. Clayden. Automotive Ind 38:6-8 Ja 3 '18  
 1919 engineering trends. A. L. Clayden. Automotive Ind 40:88+ Ja 16 '19  
 Overland-4 design has high production merit. II diags Automotive Ind 41:704-8 O 9 '19  
 Seventy changes are made in the Maxwell design. diags Automotive Ind 41:214-16 JI 31 '19  
 Some immediate problems. Automotive Ind 40:1253-4 Je 12 '19  
 Tubular propeller shafts most economical. Automotive Ind 38:781 Ap 18 '18

*See also Automobile engines—Design*

**Differential**

- Allen self-locking differential. II diags Automotive Ind 39:1099 D 26 '18  
 Badger two-wheel-drive differential. II Automotive Ind 38:1050 My 30 '18  
 Bailey differential for heavy trucks. diags Automotive Ind 37:885 N 15 '17  
 Lidsen differential now is offered. diags Motor Age 35:41 Ja 18 '19  
 M & S differential explained. II Motor Age 34:34 Ag 15 '18  
 Patch self-locking differential gear. diags Automotive Ind 38:909 My 9 '18  
 Positive pull differentials. A. C. Woodbury. II diags Automotive Ind 38:1201-4+ Je 20 '18

- Traction on bad roads or land; abstracts. L. A. Legros. Engineer 125:86-7 Ja 25 '18;  
 Automotive Ind 38:488-90, 556-7 Mr 7-14 '18

**Electric equipment**

- Bijur electrical systems. D: P. Moreton and D. S. Hatch. diags Motor Age 35:104 Ja 23;  
 29 Ja 30; 34-5 F 6; 26-7 F 13; 36-7 F 20 '19  
 Care of electric system in cold weather. B. M. Ikert. diags Motor Age 34:18-20 O 31 '18  
 Changing generator polarity of Overland model 90. diags Motor Age 35:34-6 Mr 6 '19  
 Dayton starting and lighting system. II Automotive Ind 40:1007 My 8 '19  
 Designing a testing board. diags Motor Age 36:30-1 JI 3 '19  
 Effects of low temperatures on starting. O. W. A. Oetting. II map Automotive Ind 38:400-4 F 21 '18  
 Electric system—its care. II diags Motor Age 36:60-1 N 6 '19  
 Electrical equipment of the motor car. D: P. Moreton and D. S. Hatch. *See weekly numbers of Motor age beginning June 6, 1918*  
 Electrically heated auto primer. II Elec W 71: 75 Ja 5 '18  
 Gray & Davis starting and lighting systems for Fords with regulator cut-out, left, and third-brush regulation, right. diags Motor Age 35:30 F 13 '19  
 Gray & Davis systems. D: P. Moreton and D. S. Hatch. diags plans Motor Age 35:32-4 My 29 '19  
 Leece-Neville systems. diags Motor Age 35: 30-2 Je 19 '19  
 Method of installing an ammeter on a 1916 Pullman. diag Motor Age 35:32 F 13 '19  
 Motor car body wiring. M. R. J. Crosley. diags Motor Age 35:23 Ap 17 '19  
 Regulation of automotive generators. W. A. Dick. diags Elec J 16:148-51 Ap '19  
 Remy electrical systems. D: P. Moreton and D. S. Hatch. II diag Motor Age 35:32-3 F 27; 28-9 Mr 6; 28-9 Mr 13; 30-1 Mr 20; 32-3 Mr 27 '19  
 Remy thermostat control on generators. diags Motor Age 34:40 Ag 15 '18  
 Repairs by parcel post; Reinhard brothers co., inc., Minneapolis. F. M. Loomis. II Motor Age 35:7-10 Ap 24 '19  
 Shooting electrical troubles. diags Motor Age 36:7-10 O 16; 28-30 O 23; 11 O 30; 62-4+ N 6; 11+ N 13; 31+ N 20 '19  
 Simms-Huff electrical systems. D: P. Moreton and D. S. Hatch. diag Motor Age 35:28 Ap 3; 28 Ap 10; 28 Ap 17; 30 Ap 24; 32-3 My 1 '19  
 Simple wiring diagram in which an Auto-Lite generator is used. diag Motor Age 35:42 F 20 '19  
 Specifications of the electrical equipment that is found on 1919 and 1920 passenger cars. Motor Age 35:46-9 My 22; 36:44-7 JI 17; 44-7 Ag 21; 46-9 S 18; 48-51 O 16; 48-51 N 20 '19  
 Testing device for automobiles. II Elec W 71: 74 Ja 5 '18  
 Thermostatic generator control now proved success; compensation for atmospheric temperature found by Remy to result in saving of battery life. diags Automotive Ind 39:460 S 12 '18  
 To keep the automobile engine from stalling. II Sci Am 119:332+ O 26 '18  
 USL electrical systems. D: P. Moreton and D. S. Hatch. II diags Motor Age 35:32-3 Je 12 '19  
 Westinghouse cam regulated generator. II Automotive Ind 38:139-40 Ja 10 '18  
 Westinghouse electrical systems. D: P. Moreton and D. S. Hatch. II diags Motor Age 35:32-3 My 8; 48-9 My 15; 42-4 My 22 '19  
 Wiring diagram charts. Motor Age 34:30-1 N 7; 38 N 14; 44 N 21; 44 N 28; 45 D 5; 47 D 12; 45 D 19; 42 D 26 '18; 35:40 Ja 2; 45 Ja 9; 44 Ja 16; 30 Ja 23; 44 Ja 30; 48 F 6; 40 F 13; 27 F 20; 42 F 27; 26 Mr 6; 30 Mr 13; 44 Mr 20; 47 Mr 27; 45 Ap 3; 30 Ap 10; 43 Ap 17; 44 Ap 24; 35 My 1; 29 My 8; 46 My 15; 34 My 22; 28 My 29; 29 Je 5; 50 Je 12; 50 Je 19; 50 Je 26; 36:48 JI 3; 46 JI 10; 52 JI 17;

**Automobiles—Electric equipment—Continued**

- 50 JI 31; 35 Ag 7; 34 Ag 14; 50 Ag 21; 48 Ag 23; 46 S 4; 48 S 11; 50 S 18; 48 S 25; 27 O 2; 46 O 9; 52 O 16; 51 O 23; 51 O 30; 97 N 6; 36 N 13; 45 N 20; 38 N 27 '19  
 Wiring diagram for Overland; Bosch and Chalmers. Motor Age 35:38-9 F 6 '19  
 Wiring diagram of Bosch two-spark magneto. Motor Age 35:39 F 27 '19  
 Wiring diagram of electric system on 1915 Buick with ammeter installed. Motor Age 35:31 F 13 '19  
 Wiring diagram of electric system used on the 1917-18 Monroe car; Stanley steamer, Dort, 1916 Hupmobile. Motor Age 35:34+ Mr 13 '19  
 Wiring diagram of 1917 Cadillac and of electric system on 1915 Maxwell. Motor Age 35: 33 F 13 '19  
 Wiring diagram of the 1917 Crow-Elkhart. diag Motor Age 35:37 Ja 16 '19  
 Wiring diagram of Velle 28. diag Motor Age 35:40 F 27 '19

See also Automobile engines—Ignition devices; Automobiles—Equipment and supplies; Automobiles—Lighting; Automobiles—Starting devices; Automobiles—Transmission; Magnetos

**Engines**

See Automobile engines

**Equipment and supplies**

- Accessory corner. See weekly numbers of Motor age  
 Air cleaners analyzed and compared. W. G. Clark. diag Automotive Ind 39:678-80+ O 17 '18  
 Automatic guide for the motorist. II Sci Am 421:192 Ag 23 '19  
 Automotive equipment association 4th annual convention. II Motor Age 36:12-14+ N 13 '19  
 Foiling the car thieves by a lock. M. A. Carpenter. diag Motor Age 34:28-9 Ag 23 '18  
 Gasograph dash fuel gage. diag Automotive Ind 38:1005 My 23 '18  
 Leaving winter outside the car. B. M. Ikert. II Motor Age 34:22-4 N 21 '18  
 New ideas in automobile accessories. II Sci Am 118:20-1 Ja 5 '18  
 New selling opportunities for the dealer; accessories and appliances. See bi-monthly numbers of Horseless age  
 Putting the hood and spare wheel out of sight. II Automotive Ind 41:637 S 25 '19  
 Selling and installing winter equipment. Motor Age 36:20-9 N 6 '19  
 Service equipment. See weekly numbers of Motor age  
 Why bumpers are needed on automobiles. Horseless Age 43:36 Ja 15 '18  
 See also Accelerometer; Automobile engines; Automobile industry and trade—Automobile accessories; Automobile mufflers; Automobile parts; Automobiles—Electric equipment; Automobiles—Fans; Automobiles—Feeding systems; Automobiles—Radiators; Automobiles—Wheels; Brakes, Automobile; Carbureters; Magnetos; Shock absorbers; Spark plugs; Speedometers; Tire pumps; Tires, Automobile; Vaporizers; Windshields

**Exhibitions**

- Abandoning national shows during war. Automotive Ind 39:432 S 5 '18  
 American design influences European car makers. W. F. Bradley. II Motor Age 36: 7-10, 28-9 N 13; 23-6 N 20; 29-31+ N 27 '19  
 Boston show. II Automotive Ind 38:491-2 Mr 7 '18  
 Changes in chassis and body design found in the cars at the New York show. II Horseless Age 43:35-45 Ja 1 '18  
 Chicago dealers' 19th annual show has national aspect. II Automotive Ind 40:243-8 Ja 30 '19  
 Chicago 18th national show. J. T. Shaw. Horseless Age 43:18-19 F 1 '18

Chicago's 18th annual automobile show and its first war show. II Automotive Ind 38:253-8 Ja 31 '18

Chicago's nineteenth annual show. D. S. Hatch. Motor Age 35:7-10 Ja 30 '19

Do exhibits in local automobile shows pay; prize essays. Horseless Age 43:49-50 Ja 1 '18

First war show justified by success. II Automotive Ind 38:101-5 Ja 10 '18

14th annual automobile salon exhibits show individuality. Automotive Ind 38:41 Ja 3 '18

Garden show, New York, the real thing. D. S. Hatch. II Motor Age 35:18-20 F 6 '19

High priced cars predominate at Olympia show. M. W. Bourdon. Automotive Ind 41: 762-3 O 16 '19

Latest in coach work at New York salon. II Motor Age 36:11-13 N 27 '19

Lyons fair discloses new post-war models. W. F. Bradley. Automotive Ind 40:509-11 Mr 6 '19; Same abr. Motor Age 35:15 Mr 13 '19

Motor car show at Olympia. II Engineer 128:460-2, 479-84 N 7-14 '19

National show plans for New York and Chicago car exhibitors. Automobile 37:652-4 Q 11 '17

120 motor cars exhibited at Paris show. W. F. Bradley. Motor Age 36:11-12 O 16 '19; Same. Automotive Ind 41:751-3+ O 16 '19

Production and economy features characterize new cars at show. J. E. Schipper. II Automotive Ind 38:110-18 Ja 10 '18

Public interest in automobiles. Sci Am 120: 136 F 15 '19

Refinement in detail principal new feature at Chicago. J. E. Schipper. diag Automotive Ind 40:249-51 Ja 30 '19

Show circuit opens with boom this month. map Motor Age 35:11-13 Ja 23 '19

Space rentals for Paris show exceed records. II Automotive Ind 41:620-1 S 25 '19

Suggestion for our national shows. D. Beecroft. Automotive Ind 39:289 Ag 15 '18

**Fans**

Radiator cooling fans. G. W. Hoyt. diag Automotive Ind 40:630-3 Mr 20 '19

Radiator cooling fans. L. Schwitzer. diag Automotive Ind 40:202-5 Ja 23 '19

**Feeding systems**

Fuel feed line installations. O. H. Ensign. diag Automotive Ind 38:954+ My 16 '18

Vacuum tank patent not infringed. Automotive Ind 38:923+ My 9 '18

**Fuel**

See Automobile engines—Fuel

**Gearing**

Adjusting gears. diag Motor Age 34:43+ Ag 8 '18

Fabricated Bakelite materials. R. P. Jackson. diag Automobile 37:544-5+ S 27 '17

Front end drives. II diag Motor Age 34:29 Ag 15 '18

Gear ratios of the motor cars; 1917 and 1919 models. Motor Age 35:51 Je 19; 51 Je 26; 36:49 JI 8 '19

Gearset repairs. diag Motor Age 34:28-9 Ag 15 '18

High gear performance and acceleration. Motor Age 36:22-4 O 30 '19

Mechanism for changing gears automatically adapted for use on passenger cars, motor trucks and similar vehicles. diag Automotive Ind 39:416-17 S 5 '18

More speed for the Ford car considered. II Motor Age 34:32-3 Ag 29 '18

Problems of the Hotchkiss drive. J. E. Schipper. Automotive Ind 38:487 F 28 '18

Story of origin of the Hotchkiss drive. W. F. Bradley. II diag Automotive Ind 41:407-8 Ag 28 '19

Traction on bad roads or land; abstracts. L. A. Legros. Engineer 125:86-7 Ja 25 '18; Automotive Ind 38:488-90, 556-7 Mr 7-14 '18

Variety in auxiliary drives. diag Automotive Ind 38:14-17 Ja 3 '18

White changes heavy-duty drive. II Motor Age 34:42-3 O 10 '18

**Automobiles—Gearing—Continued**

Worms and worm gears. G. W. Carlson. *Am Mach* 50:809-11 Ap 24 '19

*See also* Automobiles—Clutches; Automobiles—Differential; Automobiles—Steering gear; Automobiles—Transmission; Brakes, Automobile; Motor trucks—Gearing; Tractors—Gearing

**Heating**

Leaving winter outside the car. B. M. Ikert. *Il Motor Age* 34:22-4 N 21 '18  
Various ways to heat cars and manifolds. *Il Motor Age* 36:26-7 N 6 '19

**History**

Automobile landmarks of 1895. *Il Automotive Ind* 38:1071-3 Je 6 '18  
Motoring of early days recalled by merging of Horseless age with *Class Journal* co. publications. *Il Motor Age* 33:5-11 Je 6 '18

**Ignition**

*See* Automobile engines—Ignition devices

**Lighting**

Anti-glare devices approved by New York. *Motor Age* 34:28 S 26 '18  
Application of headlight law not entirely satisfactory. *Automotive Ind* 39:900 N 21 '18  
Automobile headlight; abstract. A. H. Ford. *Illum Eng Soc* 13:538 no 9 '18  
Automobile headlights and glare-reducing devices. L. C. Porter. *Il diags Gen Elec R* 21: 627-32 S '18  
Automobile headlights of excessive brilliancy; report of London safety first committee. *Illum Engr* 11:165 Je '18  
Dividing headlight rays into three beams. M. E. Faber. *Horseless Age* 43:42 Mr 1 '18  
Electric headlights and flood-lighting units. *Illum Engr* 10:259-62 O '17  
Electrical equipment of the motor car; lighting installation for Fords. D. P. Moreton and D. S. Hatch. *diags Motor Age* 34:28-9 JI 4 '18  
Equipping an old car with electric lights. *diags Motor Age* 34:34-5 O 3 '18  
Headlight illumination requirements. *Il diags Automotive Ind* 38:769-71 Ap 18 '18  
How to wire enclosed cars for lights. M. R. J. Crosley. *diags Horseless Age* 44:39-40 My 15 '18  
Ignition and lighting on war trucks. A. L. Clayden. *Automobile* 37:536 S 27 '17  
Lamp bulbs for 1919 passenger cars. *Motor Age* 35:46-7 My 3 '19  
Lamp voltages for 1918, 1917, 1916, 1915, 1914, 1913, and 1912 cars. *Motor Age* 34:23 N 28; 31 D 5; 27 D 12; 27 D 19; 61 D 26 '18; 35:41 Ja 2; 40-1 Ja 9 '19  
Lights that shine where they are wanted. *Il diags Sci Am* 118:23+ Ja 5 '18  
New ideas concerning glare; the Cellbeam projector. *diag Automotive Ind* 38:214 Ja 24 '18  
New York approves anti-glare devices. *Automotive Ind* 39:514 S 19 '18  
New York glare law criticized. *Motor Age* 34:19 N 21 '18  
New York state automobile headlight law. F. M. Hugo. *Illum Eng Soc* 14:61-3 no 2 '19  
Proposed regulations for incorporation in a model law in regard to headlamps on motor vehicles. L. B. Marks. *Illum Eng Soc* 14: 100-4 no 2 '19  
Recommendations for focusing automobile headlamps. G. L. Sealey. *Il diag Automotive Ind* 38:414-15 F 21 '18  
Report of the 1916-17 committee on automobile headlamps. *biblog Illum Eng Soc* 13: 259-83 no 5 '18; Abstract. *Illum Engr* 11: 208-11 S '18; Discussion. *Illum Eng Soc* 13: 283-91 no 5 '18  
Report of 1917-18 committee on automobile headlighting specifications. *Il Illum Eng Soc* 14:84-84; Discussion. 84-99 no 2 '19  
Roffy non-glaring headlamp. *diag Automotive Ind* 40:223 Ja 23 '18  
Standard method of testing headlamps for glare. *diag Motor Age* 34:18-19 JI 18 '18  
Starting and lighting equipment of the 1918 cars. *Horseless Age* 43:22+ Ja 15 '18

Tests exhibit Shaler roadlitter ability. *Il Motor Age* 34:41 JI 18 '18  
Where gravity acts as lamplighter. *Il Sci Am* 118:110 F 2 '18

*See also* Automobiles—Electric equipment

**Lubrication**

Centralized lubricating system. *Il diags Motor Age* 34:27+ O 31 '18  
Chassis lubrication system. *diags Automotive Ind* 39:95-6 JI 18 '18; *Motor Age* 34:42-3 Ag 1 '18  
Cold weather lubrication. *Il diags Motor Age* 36:51-2 N 6 '19  
Grease vs. oil for chassis lubrication. *Il charts Automotive Ind* 39:186-7 Ag 1 '18  
Lubrication of motor cars. G. W. A. Brown. *diags Automotive Ind* 40:693-7, 751-4 Mr 27- Ap 3 '19  
New methods of chassis lubrication. C. T. Myers. *diags Automotive Ind* 38:441-6 F 28 '18  
Single-feed system oils car from seat. *Il diags Automotive Ind* 39:719 O 24 '18  
*See also* Automobile engines—Lubrication

**Manufacture**

Assembly plants for Buick and Chevrolet companies will contain novel equipment. *Il Iron Tr R* 65:575 Ag 28 '19  
Continuous movement in the Essex production line. J. E. Schipper. *Il plans (supp) Automotive Ind* 41:416-21 Ag 28 '19  
Conveyors speed assembly. *Il Iron Age* 104: 374 Ag 7 '19  
Draw tools for automobile side-rails. P. Bal-dus. *diags Am Mach* 47:1140 D 27 '17  
Elevator reverses automobile. C. L. Edholm. *Il Am Mach* 48:232 F 7 '18  
Experimental car. C. R. Watson. *Automotive Ind* 40:1342-5 Je 12 '19  
Ferris wheel for assembling automobiles. *Il Sci Am* 118:35 Ja 5 '18  
Finishing bodies for automobiles. C. A. Marston. *Il diag Ind Management* 58:207-11 S '19  
Future production plans will require special machinery. J. E. Schipper. *Il Automotive Ind* 40:145-9 Ja 16 '19  
Heat-treatment of automobile parts. A. W. Medhurst. *Mach* 24:478 Ja '18  
Machine forging in automotive plants. *Il Automotive Ind* 39:327-9 Ag 22 '18  
Machining versus metal. A. L. Clayden. *Sci Am S* 85:56 Ja 26 '18  
Manufacturing automobile steering posts. P. J. Visco. *diags Mach* 24:576 F '18  
Methods of the Nash motors co. M. E. Hoag. *Il Am Mach* 47:1109-11; 48:101-3, 326-8 D 27 '17; Ja 17, F 21 '18  
More casting—less forging. J. E. Schipper. *Automotive Ind* 38:68 Ja 3 '18  
Organization in Hupp motor car corporation—a material planning department. C. A. Marston and J. E. Schipper. *charts Automotive Ind* 37:1046-8 D 13 '17  
Plywood for automobile bodies. O. M. Baxter. *Automotive Ind* 41:333 Ag 14 '19  
Quantities of material handled by Ford. *Automotive Ind* 38:585 Mr 21 '18  
Quantity production of sheet metal bodies. J. E. Schipper. *Il Automotive Ind* 38:1188-93+, 1262-6 Je 20-27 '18  
Safety engineering in automotive plants. *Il Automotive Ind* 37:1056-7 D 13 '17  
Tooling a foreign car in America. T. Orchard. *diags Mach* 24:410-12, 534-5 Ja-F '18  
Why of aluminum in motor cars. H. M. Taylor. *Il Motor Age* 35:7-9 Ap 17 '19  
Work of the factory metallurgist; report of a committee of the Detroit section of the S. A. E. *Automobile* 37:483-90 S 20 '17  
*See also* Automobile engines—Manufacture; Automobile factories; Automobile parts

**Mufflers**

*See* Automobile mufflers

**Painting**

How to go about painting a car at home. B. M. Ikert. *Motor Age* 34:30-1 Ag 22 '18

**Automobiles—Painting—Continued**

Repainting an old car. Motor Age 36:44 N 13 '19  
Rustproofing steel. il Mach 25:736-7 Ap '19

**Prices**

Automobile illustrated—1918 models. Automotive Ind 38:69-97 Ja 3 '18  
Buyer's guide to car body styles. Motor Age 35:33-5 Ja 23 '19  
Few prices are likely to drop. D. S. Hatch. Motor Age 34:11+ N 28 '18  
Price classification of motor cars for 1918; tabulation. Sci Am 118:30+ Ja 5 '18  
Prices of motor vehicles going up. Motor Age 36:21 Jl 10 '19  
Three more cars at higher prices. Automotive Ind 41:234 Jl 31 '19

**Radiators**

Anti-freeze solutions. B. M. Ikert. il Motor Age 34:18-19 N 7 '18  
Antifreezing solutions for automobile radiators. J Fr Inst 185:828 Je '18  
Auto radiator repair racks. diags Metal Work 91:246-7 F 21 '19  
Building radiators for automobiles and other purposes. E. Sheldon. il diags Am Mach 49:1165-9 D 26 '18  
Care and repairs of radiators. diags Motor Age 36:49-50 N 6 '19  
Cellular radiator core construction. diags Motor Age 36:27 O 23 '19  
Field of automobile work widening. il Metal Work 91:720-1 Je 6 '19  
Government warns against manufactured anti-freezing compounds. Eng N 80:748 Ap 11 '18  
Jolt test for automobile radiators. E. A. Thanton. il Am Mach 49:744 O 24 '18  
Keeping the cooling system hot. J. S. Harwhite. Sci Am 118:11 Ja 5 '18  
Manufacture of the Sperry-type automobile radiator. il diags Am Mach 49:522-4 S 19 '18  
Manufacturers producing major part of automobile and aeroplane radiators use gas for every operation requiring heat. C. A. Drum. il Am Gas Eng J 111:505-8 N 29 '19  
New type of radiator for Dart truck. il Automotive Ind 37:1080 D 20 '17  
Radiator and hood covers. il Motor Age 36:24-5+ N 6 '19  
Removing deposits from radiator. Motor Age 33:43 Je 13 '18  
Repairing automobile radiators. Metal Work 90:561 N 15 '18  
Repairing cracked radiator. diags Motor Age 34:41 S '18  
Solution for use in radiators. Sci Am 118:179 F 23 '18  
Sperry radiator is new type. il Automotive Ind 38:585 Mr 21 '18  
Tractor radiators, their calculation and design. A. B. Modine. diags Automotive Ind 38:179-81+ Ja 17 '18  
Underhood automatic radiator heater. diags Automotive Ind 37:828 N 8 '17

See also Automobiles—Fans

**Registration**

Universal system of licensing. W. B. Humphrey. Motor Age 35:28-9 Mr 20 '19

**Repair**

Autogenous welding in automotive repairs. T. P. Bowman. il Motor Age 36:22-4 Jl 3; 26-7 Jl 10; 32-3 Jl 17; 32-4 Jl 31; 28-9 Ag 7; 26-7 Ag 14; 30-1 Ag 21; 32-3 Ag 28; 24-5 S 4; 30-1 S 11; 28-9 S 18; 30-1 S 25; 28-9 O 2; 36-7 O 9; 38-9 O 16; 36-7 O 23; 29-30 O 30; 98-9 N 6; 32-3 N 13 '19  
Autogenous welding in automotive repairs. D. S. Hatch. Automotive Ind 35:7-8 Je 26 '19  
Cashing in on spring overhauling. Motor Age 35:7-9 Mr 27 '19  
Easily constructed wrecking wagon. diags Motor Age 36:47 O 16 '19  
Estimate basis for repairs. H. C. Skinner. Motor Age 35:22-3 Je 12 '19  
Field of automobile work widening. il Metal Work 91:720-1 Je 6 '19

First standardized repair depot for quarter-master mechanical transport. A. Sinsheimer. il Automotive Ind 38:552-3 Mr 14 '18

French transport service highly organized. W. F. Bradley. Automobile 37:497, 548-50 S 20-27 '17  
Getting away from getting under. il Sci Am 121:87 Jl 26 '19  
Growth of repairshop in Northwest slow but sure. F. M. Loomis. il Motor Age 35:26-8 My 8 '19  
How to repair broken aluminum crank-cases; prize essays. diags Horseless Age 43:51-2+ Ja 1 '18

Machine for straightening a dented fender. il Motor Age 36:29+ S 11 '19  
Making lead battery parts. il Motor Age 36:22-3 O 16 '19

Mastering service problems with a master sheet. Motor Age 36:7-9 Jl 10; 22-5 Jl 17 '19

Motor car repair shop. See weekly numbers of Motor Age

Motto for the repair shop owner. B. M. Ikert. il diags plans Motor Age 34:7-11 O 24 '18

Pits and their substitutes. diags Motor Age 34:33 O 17 '18

Portable disassembling bench. diags Motor Age 34:32-3 O 3 '18

Preparing men for war tasks; General motors truck co., Pontiac, furnishes school to train men for the sanitary corps. il Automotive Ind 39:374-5 Ag 29 '18

Removing rear axles broken inside the housing; prize essays. diags Horseless Age 42:28-9 D 15 '17

Repairing automobile radiators. Metal Work 90:561 N 15 '18

Repairing cracked frame. diags Motor Age 35:33 Ja 2 '19

Repairing pipe line. diags Motor Age 34:31 D 12 '18

Repairs by parcel post; Reinhard brothers co., inc., Minneapolis. F. M. Loomis. il Motor Age 35:7-10 Ap 24 '19

Running a repair shop on a cash basis. C. C. Casey. il Horseless Age 43:18-19 Mr 15 '18

Selling service. K. Herrick. Motor Age 36:7-11 S 25; 11-15 O 2; 10-12 O 9; 24-5 O 16 '19

Shooting electrical troubles. diags Motor Age 36:7-10 O 16; 28-30 O 23; 11 O 30; 62-4+ N 6; 11+ N 13; 31+ N 20 '19

Some of the things you can do with a wheel puller. il Motor Age 36:68-9 N 6 '19

Standardized tags for service stations and garages. Motor Age 35:23+ Je 26 '19

Straightening bent parts. il Motor Age 34:30-1 Jl 18; 36 Jl 25 '18

Three essentials of the repairshop: good foreman, good equipment and good system. B. M. Ikert. diags Motor Age 34:5-7 Ag 22 '18

Tools of the automobile repair shop. D. A. Hampson. diags Horseless Age 40:36-7 Ap 1; 26-7 Ap 15; 40-1+ My 1; 44-5+ My 15; 36-7+ Je 1; 32-3 Je 15; 41:40-1+ Jl 1; 32-3+ Jl 15; 34-5+ Ag 1; 30-1+ Ag 15; 34-5+ S 1; 36-7+ S 15; 42:36-7+ O 1; 34-5+ O 15; 40-1+ N 1; 44-5+ N 15; 36-7+ D 1; 34-5+ D 15 '17; 43:54-5+ Ja 1; 32-3+ Ja 15; 38-9+ F 1; 42-3+ F 15; 38-9+ Mr 1; 36-7+ Mr 15; 45-6+ Ap 1; 44:40-1 Ap 15; 36-7+ My 1; 36-7+ My 15 '18

Training the fighting mechanic. il Motor Age 33:22-3 Je 20 '18

See also Automobile engines—Repair; Automobile service stations

**Service stations**

See Automobile service stations

**Shock absorbers**

See Shock absorbers

**Signals**

Electrical and mechanical warning signals for automobiles. F. I. Hofman. diags Automotive Ind 40:47-50 Ja 9 '19

**Specifications**

Average car of 1919. Motor Age 35:29 Ja 23 '19

**Automobiles—Specifications—Continued**

Cars in brief; models offered for 1919 and their changes as compared with year ago. *Il Motor Age* 35:92-102 Ja 23 '19  
 Motor age monthly passenger car specification tables. *Motor Age* 36:106-8 N 6 '19  
 1918 passenger automobiles listed with their technical specifications; tabulation. *Automotive Ind* 38:60-7 Ja 3 '18  
 1919 passenger automobiles listed with their technical specifications; tabulation. *Motor Age* 35:36-41 Ja 23 '19

**Speed**

Chart for finding car speed when given wheel diameter, gear ratio and engine speed. *Motor Age* 35:30 Ap 17 '19  
 Engine and car speed chart. *Motor Age* 36:37 N 13 '19

**Springs**

Houdaille brings out adjustable car suspension. *F. W. Bradley, Il diag Automotive Ind* 39:1004-5 D 12 '18  
 Laminated steel-spring proportions. *H. H. Kennedy, Am Mach* 48:182-3 Ja 31 '18  
 Leaf springs, their capacity for dissipation of energy; abstract. *C. P. Schwarz, Am Soc M E J* 40:pt 1, 591-2 Jl '18  
 New system of truck springing. *diag Automotive Ind* 38:731 Ap 11 '18  
 Philadelphia section S. A. E. discusses springs. *diag Automotive Ind* 37:758 N 1 '17  
 Removing and replacing Ford clutch springs; prize essays. *diag Horseless Age* 43:35-7 Ap 1 '18  
 Spring replacement chance for dealer. *Il Motor Age* 35:30-1 Je 26 '19  
 Temporary spring repairs. *diag Motor Age* 34:32-3 D 26 '18  
 Testing automobile springs. *Il Mach* 35:506 F '19  
 Trott spring suspension absorbs horizontal shocks. *diag Automotive Ind* 38:496-7 Mr 7 '18

**Standards**

S. A. E. standardization work in 1918. *diag Automotive Ind* 40:159-62 Ja 16 '19  
 S. A. E. standards recommendations. *Automotive Ind* 38:1175-8 Je 20 '18  
 Standard specifications for automobile carbon and alloy steels; English and Spanish. *diag U S Bur For & Dom Com Ind Stand* 42:1-23 '19  
 Standards committee of the Society of automotive engineers acts on division reports. *diag Automotive Ind* 40:307-11 F 6 '19  
 Standards committee rejects only one proposal of divisions. *diag Automotive Ind* 40:1437-42 Je 26 '19

**Starting devices**

Bosch brings out impulse starter. *Il Automotive Ind* 38:1009 My 23 '18  
 Characteristics of starting and lighting batteries of the lead acid type. *O. W. A. Oetting, diag Elec J* 16:134-9 Ap '19  
 Christensen self-starter system. *Il diag Motor Age* 34:39 Ag 29 '18  
 Court decides Vincent Bendix is first and original inventor; Bijur interferences not allowed. *Automotive Ind* 38:1101 Je 6 '18  
 Devices to make the engine start easily. *Il diag Motor Age* 36:28-9 N 6 '19  
 Electrical auxiliary devices for starting systems. *F. J. Hoffman, diag Automotive Ind* 41:568-70 S 18 '19  
 Non-electric starter for trucks and tractors. *Il Sci Am* 120:148 F 15 '19  
 Operation of Miller starter. *plan Motor Age* 34:34-5 Ag 15 '18  
 Primer with electric heater. *diag Automotive Ind* 37:1043 D 13 '17  
 Starting and lighting equipment of the 1918 cars. *Horseless Age* 43:22+ Ja 15 '18  
 Wagner electrical systems. *D. P. Moreton and D. S. Hatch, Il diag Motor Age* 35:24-5 Ja 2; 23-3 Ja 9 '19

*See also Automobiles—Electric equipment*

**Steering gear**

Positive adjustable screw and nut steering gear. *Il diag Automotive Ind* 41:375 Ag 21 '19

Steering gear maintenance. *Il diag Motor Age* 36:54-5 N 6 '19

**Stepping**

Distances required for emergency stops for trucks and passenger cars. *F. E. Ertzman, Good Roads n s* 16:45 Ag 3 '18

**Taxation**

Case for the National automobile dealers' association. *F. W. A. Vesper, Motor Age* 34:10-11+ Jl 4 '18  
 France to add 10 per cent car tax. *W. F. Bradley, Automotive Ind* 38:521-2 Mr 7 '18  
 New revenue bill. *Automotive Ind* 40:495+ F 27 '19  
 Taxation of cars protested by American automobile association. *Automotive Ind* 39:344 Ag 22 '18; *Same, Motor Age* 34:15 Ag 22 '18  
 3 per cent tax becomes a law. *Automobile* 37:806 O 4 '17  
 Treble tax on cars; double tax on trucks. *Automotive Ind* 39:433 S 5 '18  
 Truck chassis tax clear at last. *Motor Age* 36:10 Ag 7 '19  
 12 points on tax handling. *Automobile* 37:668+ O 18 '17

*See also Motor vehicles—Taxation*

**Testing**

Drum car tester. *Motor Age* 35:31 Ap 24 '19  
 Experimental car. *C. R. Watson, Automotive Ind* 40:1342-5 Je 12 '19  
*See also Automobile engines—Testing; Automobile racing*

**Theft**

Hunting for 900 A.E.F. cars. *W. F. Bradley, Automotive Ind* 41:265-6 Ag 7 '19  
 National motor theft law operative. *A. C. Vane, Motor Age* 36:12 O 30 '19  
 Sunk without trace thievery. *Il Horseless Age* 42:39 D 15 '17

**Tires**

*See Tires, Automobile*

**Tops**

New design for Victoria top. *G. J. Mercer, diag Automotive* 37:621-2 O 11 '17  
 Rex all-season tops. *Il Automotive Ind* 38:598 Mr 21 '18  
 Tops that help make driving in cold weather free from chill. *B. M. Ikert, Il Motor Age* 34:23-7+ D 5 '18

*See also Automobiles—Bodies*

**Transmission**

Deering uses Entz transmission. *Il Automotive Ind* 38:40 Ja 3 '18  
 Electromagnetic clutch indicating device. *V. Karapetoff, diag Sibley J* 32:55-8 Ja '18  
 Entz magnetic transmission on Fifth Avenue bus. *Automotive Ind* 39:373 Ag 29 '18  
 Fuller gearset. *Il diag Automotive Ind* 38:133 Ja 10 '18  
 New power & transmission units. *Il Horseless Age* 43:67 Ja 1 '18  
 What is the principle of the Owen-Magnetic transmission? *diag Motor Age* 35:31-2 Mr 8 '19

**Transportation**

Carbo steel deck for loading automobiles. *diag Automotive Ind* 39:763 N 7 '18  
 Crating automobiles for export. *J. H. Teagan, Il Automotive Ind* 40:570-1 Mr 13 '19  
 Draining automobile tanks before shipping unnecessary. *B. W. Dunn, Automobile* 37:458 S 13 '17  
 Forty-foot automobile cars for Illinois Central. *Il diag plan Ry Age* 66:440-3 F 21 '19; *Same, Ry Mech Eng* 98:141-5 Mr '19  
 Proper methods of loading automobiles. *Il diag Ry R* 63:665-8 O 19 '18  
 Two-story packing of automobiles. *Il diag Sci Am* 119:134 S 7 '18  
 Work of the Ford company's traffic department. *Il Ry Age* 65:402-5 Ag 30 '18



**Automobiles—Continued****Tubing and hose**

Tubing and hose sizes for cars; 1912-1918 models. *Motor Age* 35:31 Mr 13; 32 Mr 20; 31 Mr 27; 29 Ap 3 '19

**Washing**

See Automobiles—Cleaning

**Wheels**

Blomquist-Eck wheel inspection and truing machine. *Il Mach* 24:1056-7 Jl '18

Disk wheels for passenger cars. W. F. Bradley. *Il diags Automotive Ind* 40:947-8 My 1 '19

Disteel pressed steel disk wheels now being manufactured. *Il diag Automotive Ind* 37:1059 D 13 '17

Facts the dealer should know about wood wheels. *Il map Horseless Age* 44:49 My 1 '18  
Fiat's now have steel wheels. *Automotive Ind* 37:1037 D 13 '17

Kelsey wheel with metal felloe saves hickory. *Il Automotive Ind* 38:737 Ap 11 '18

Reference table giving relation between wheel diameter, gear ratio, road speed and engine revolutions. *Automotive Ind* 37:924 N 23 '17  
Robertson cradlelock wheel. *Il Motor Age* 33:42 Je 13 '18

Stanweld no. 76 rim. *Il Automotive Ind* 40:434 F 20 '19

Wheels will be metal. A. L. Clayden. *diags Automobile* 37:569-72 O 4 '17

See also Automobiles—Axles; Motor trucks—Wheels; Tires, Automobile; Tractors—Wheels

**Automobiles, Care of**

Care of electric system in cold weather. B. M. Ikert. *diags Motor Age* 34:18-20 O 31 '18

Care of the car in cold weather. B. M. Ikert. *diags chart Motor Age* 34:20-2 O 17 '18

Driving and care of motor vehicles. J. E. Bullard. *Gas Age* 43:673-5 Je 16 '19

Spring overhauling—engines. T. P. Bowman. *Il diags Motor Age* 35:7-9 Mr 20; 28-30 Mr 27 '19

Storing cars for winter. *Il diags Motor Age* 36:74-5 N 6 '19

See also Automobile driving; Automobiles—Cleaning; Automobiles—Painting; Automobiles—Repair

**Automobiles, Electric. See Electric trucks; Electric vehicles****Automobiles, Industrial**

Automobile and the truck in the plumbing business. R. Falconer. *Dom Eng* 89:377-8 N 23 '19

Types and sizes of gas company automobiles. J. E. Bullard. *Il Gas Age* 43:453-5 Ap 15 '19

See also Motor trucks

**Automobiles, Military**

Army motor-transport vehicles. J. Younger. *Il Mech Eng* 41:859-63+ N '19

Sleeping car for war uses. W. F. Bradley. *Il Automotive Ind* 39:37 Jl 4 '18

See also Automobiles in war and army service; Motor trucks, Military

**Automobiles, Municipal**

Seattle keeps accurate records of auto trucks and automobile operations. C. A. Osier. *Il Eng N* 80:655-6 Ap 4 '18

See also Motor trucks, Municipal

**Automobiles, Steam**

Advantages of steam. S. Morse. *Automotive Ind* 40:967 My 1 '19

Advantages of steam outlined. *Automotive Ind* 38:686+ Ap 4 '18

Future of steam cars. *Motor Age* 36:38-9 Jl 31 '19

Schematic diagram to show the operation of the Stanley steam cars. *Motor Age* 35:34 Je 12 '19

Stanley steamer in new form. *Il diag Automotive Ind* 38:464-5 F 28 '18

Steam car again. W. J. Parrish. *Sci Am* 121:461 N 8 '19

Steam engines in the automotive field. E. T. Adams. *Sci Am S* 86:214-15 O 5 '18

Steam power and fuel conservation. C. P. Schwarz. *Automotive Ind* 40:633 Mr 20 '19

Steam viewed from two angles. *diags Motor Age* 35:38-9 My 15 '19

To study steam automobile. *Iron Age* 104:376 Ag 7 '19

See also Motor trucks, Steam

**Automobiles, Used. See Automobile industry and trade—Used cars****Automobiles and roads**

Bad roads make drive-aways difficult. H. W. Glisan. *Automotive Ind* 38:693 Ap 4 '18

Effect of tractive resistance in terms of gasoline consumption. charts *Eng & Contr* 51:483 My 7 '19

English experience with road corrugation. E. L. Leming. *Eng & Contr* 51:21-2 Ja 1 '19

**Automobiles in war and army service**

Buses deliver army's meat. W. F. Bradley. *Il Automotive Ind* 37:906-6+ N 22 '17

Equipment floated to A. E. F. *Motor Age* 34:17 D 26 '18

French transport service highly organized. W. F. Bradley. *Automobile* 37:494-7, 548-50 S 20-27 '17

See also Ambulances; Automobiles, Military; Motor cycles, Military; Motor trucks, Military; Motor trucks in war and army service; United States—Army—Motor transport corps

**Automobiles on rails**

Motor car that carries its own turntable. *Il diags Elec Ry J* 51:766 Ap 20 '18

Railroading automobile. *Il Sci Am* 121:369 O 11 '19

**Automobiling. See Automobile touring; Automobiles****Automotive engineers, Society of. See Society of automotive engineers****Automotive equipment association**

4th annual meeting, Chicago. *Il Motor Age* 36:12-14+ N 13 '19

**Auto-transformers. See Electric transformers****Aviation**

Admiral Mark Kerr's account of St Johns-Parrsboro flight. *Il Flying* 8:617 Ag '19

Aerial derby around the world with over \$1,000,000 in prizes being organized. *Il Flying* 8:757-61 O '19

Air race fixes cross country route. *Automotive Ind* 41:654-5 O 2 '19

Danger in flying through clouds. B. C. Hucks. *Sci Am S* 85:375 Je 15 '18

Fog problem in aviation. *Sci Am* 119:26 Jl 13 '18

Great aerial contests to come. *Flying* 8:544-5 Jl '19

High flying in modern aeroplanes. B. C. Hucks. *Sci Am S* 85:368 Je 8 '18

High-lights of air-travel. M. Luckiesh. *Sci Am* 121:280+ S 20 '19

How animals act in aeroplanes. H. Woodhouse. *Il Flying* 8:771-4 O '19

My New York-Washington aerial Pullman flight in the Lawson cloudland liner. E. J. David. *Il Flying* 8:766-8 O '19 (to be cont)

New world's altitude record. *Il Aviation* 7:84 Ag 15 '19

New York-Toronto airplane race. *Il Aviation* 7:180-1 S 15 '19

New York-Toronto race; commercial flying test. *Automotive Ind* 41:434-7 Ag 28 '19

Pacific as a field of aerial activity; White hydro-monoplane. *diag plan map Aviation* 7:87-90 Ag 15 '19

Pathfinding aeroplane tourists will visit aircraft factories. *Il Flying* 8:610-11 Ag '19

Pioneer aeroplane tours being organized by aerial league. *Il Flying* 8:517-20+ Jl '19

Progression of altitude records; tabulation. *Flying* 8:770 O '19

Stunt flying and the commercial pilot. F. T. Courtney. *Sci Am S* 88:259 N 8 '19

Transcontinental air race. *Il map Sci Am* 121:423+ O 25 '19

**Aviation—Continued**

War aviation; reviewing the flying experience of a British expert. B. C. Hucks. *diags Sci Am S 85:284-5 My 4 '18*

*See also* Aerodynamic laboratories; Aeronautics; Airplanes; Aviators; Balloons; Explorations; Aeronautic; Flying boats; Parachutes; Seaplanes; Wireless telephone in aviation

**Accidents**

Aeroplane accidents. H. G. Anderson. *Sci Am S 87:30-1 Ja 11 '19*

Helium or hydrogen. *Sci Am 121:104 Ag 2 '19*

**Safety devices**

Life preservers for air passengers. *Sci Am 121:162 Ag 16 '19*

*See also* Airplanes—Safety devices; Parachutes

**Study and teaching**

All thru system of flying instruction. W. E. Johnson and others. *Flying J 6:695-9, 776-8+ S-O '19*

Gaining flying experience without leaving the ground. *Il Sci Am 120:547 My 24 '19*

*See also* Aviation schools

**Transatlantic flight**

Airplanes for the transatlantic flight. *Il Sci Am 120:202+ Mr 1 '19*

Atlantic flight, a matter of mathematical analysis. M. A. S. Rlach. *Sci Am S 87:38 Ja 18 '19*

By air across the Atlantic. A. Sinsheimer. *Il map Motor Age 33:5-9 Je 27 '18; Same cond. Automotive Ind 38:1247-8+ Je 27 '18*

Cockpit of the transatlantic seaplanes. *Il Sci Am 120:547+ My 24 '19*

Doubtful factors in the problem of transatlantic flight. *Sci Am 120:196 Mr 1 '19*

How the NC boats were equipped for the pioneer flight. J. C. Hunsaker. *Automotive Ind 41:172-6 Jl 24 '19; Same. Sci Am S 88:108-9+ Ag 16 '19; Same. Am Mach 51:613-16 S 25 '19*

Lessons of the trans-Atlantic flight. *Sci Am 120:596 Je 7 '19*

Log of the pioneer dirigible trip. *Il Automotive Ind 41:53-8, 79-81 Jl 10 '19*

Lunch in America—breakfast in Europe. *Sci Am 120:680 Je 28 '19*

Naval transatlantic flight expedition with official description of the NC seaplanes. *Il Aviation 6:420-1 My 15 '19*

Navigational safeguard for trans-Atlantic flight. R. G. Skerrett. *Il diags Sci Am 119:101+ Ag 10 '18*

Navy planes ready for ocean flight. *Il Automotive Ind 40:993-6 My 8 '19*

Non-stop transatlantic flight brings new problems. *Il diags map Automotive Ind 40:1375-80 Je 19 '19*

Non-stop trans-Atlantic flight; describing the Handley-Page and the Vickers Vimy bomber entries. *Il Sci Am 120:656-7 Je 21 '19*

Oddities of the trans-Atlantic flight. *Il Sci Am 120:574-5+ My 31 '19*

Our navy's bid for the great trans-Atlantic flight. *Il Sci Am 120:479+ My 10 '19*

Precautions that spelled success. J. L. Breese. *diags Sci Am 121:56 Jl 19 '19*

Preparations for the transatlantic flight. *Il Aviation 6:284-6 Ap 1 '19*

Proposed aeroplane route across the Atlantic. W. H. Hobbs. *Il Flying 8:243 Ap '19*

R-34 flies from Scotland to America and return. E. J. David; E. M. Maitland; Z. Lansdowne. *Il map Flying 8:603-9+ Ag '19*

Small airplanes and the trans-Atlantic flight. *Il Sci Am 120:427 Ap 26 '19*

Transatlantic airplane flight. *Sci Am 119:4 Jl 6 '18*

Trans-Atlantic dirigible R-34. *Il chart Sci Am 121:58-9+, 86 Jl 19-26 '19*

Trans-Atlantic flight. *Il Flying 8:348-9+ My '19*

Trans-Atlantic flight. *Sci Am 120:332 Ap 5 '19*

Transatlantic flight achieved. *Il Automotive Ind 40:1097-1101 My 22 '19*

Trans-Atlantic flight from the meteorologist's point of view. W. R. Gregg. *diag maps Flying 8:357-61+ My '19; Same. Sci Am S 87:274-5, 300-2 My 3-10 '19; Same cond. Aviation 6:370-2, 422-5 My 1-15 '19*

Trans-Atlantic flights. H. Woodhouse. *Il Flying 8:445-51 Je '19*

Vickers Vimy bomber makes first non-stop flight from America to Europe. *Il Flying 8:521-4+ Jl '19*

Who will be the first to cross the Atlantic? H. Woodhouse. *Il Flying 8:240-2+ Ap '19*

Winds and the trans-Atlantic flight. F. T. Tucker. *Aviation 6:85 F 15 '19*

Aviation engines. *See* Airplane engines

Aviation fields

American combat—airdromes. C. G. Loring. *Il diags plans Arch Rec 46:311-24 Ap '19*

Permanent pavements at new aeronautical station at Langley field town site, Hampton, Va.; abstracts. S. H. Lea. *Il diag Eng N 81:447-9 S 5 '18; Munic J 45:241-3 S 28 '18*

Water supply and sewage disposal at the military aviation fields, posts, depots, etc., in the United States. R. H. Craig. *Am Water Works Assn J 6:664-78 N '19*

Aviation landing stations

Finding aircraft landing stations by means of audio frequency receivers. E. C. Hanson. *Il diags Flying 8:442-3 Je '19*

Landing fields for commercial aviation. *diags Automotive Ind 40:1362-3 Je 12 '19*

Municipally-owned landing fields. A. F. Herold. *Eng N 83:413 Ag 28 '19*

Organization of aerial ports. G. Bastogi. *Aviation 6:35 F 1 '19*

Aviation schools

Grounding navigators for the joy hop. W. Connely. *Il Motor Age 34:20-2 N 28 '18*

San Diego aviator factory. E. C. Crossman. *Sci Am 118:481+ My 11 '18*

Uncle Sam's ground schools for flyers; giving observers practical experience in spotting on a miniature battlefield. C. H. Claudy. *Il Sci Am 118:69+ Ja 19 '18*

United States aeronautical schools, Kelly field no. 2, South San Antonio, Texas. D. B. Niederlander. *Il Arch Rec 45:441-9 My '19*

Aviation sickness. *See* Aviators

Aviators

Accuracy training most rigorous test. *Automotive Ind 39:615 O 10 '18*

Effect of altitude on the eye. C. Berens. *Sci Am 120:21 Ja 11 '19*

Electrically-heated soles for the aviator's cold feet. *Il Sci Am 119:519 D 28 '18*

Heroic deeds in the air. *Flying 8:45-6, 163+ F-Mr '19*

Heroic deeds of American aviators. *Il Flying 8:354 My '19*

International medical requirements for aerial navigation. *Automotive Ind 41:199-200 Jl 31 '19*

Making airmen surprise-proof. R. H. Moulton. *Il Sci Am 119:114+ Jl 6 '18*

New physical tests for airmen. *Automotive Ind 39:384-5 Ag 29 '18*

Physiological study of the flier. G. O. Squier. *Il Am Inst E E Pro 38:79-85 F '19*

Points in British air policy. *Automotive Ind 38:676-9 Ap 4 '18*

Sense of stability and balance in the air. H. Head. *Sci Am S 88:175 S 13 '19*

Sixty-three American aces. *Flying 8:43-4 F '19*

*See also* Guynemer, Georges; Richthofen, M., freiherr von; Rickenbacker, Edward V.

Diseases and hygiene

Effects of high flying. B. C. Hucks. *Sci Am S 85:227 Ap 13 '18*

Flying sickness; its cause and the best means of combatting it. M. Flack. *Sci Am S 87:262 Ap 26 '19*

Medical problems of air service. *Automotive Ind 39:26 Jl 4 '18*

Axles

Heat treatment of axle steel. E. A. Pearson. *Coal Age 14:232-3 Ag 1 '18*

**Axles—Continued**

- Heat treatment of axles. D. D. Miller. *Il Ry Mech Eng* 92:419-21 J1 '18  
 Mine-car axles. B. P. Lieberman. *Il Coal Age* 14:219-22 Ag 1 '18  
 Standard specifications for cold-rolled steel axles; English and Spanish. *diag U S Bur For & Dom Com Ind Stand* 40:1-15 '19  
*See also* Automobiles—Axles; Bearings; Car axles; Locomotives—Axles; Motor trucks—Axles

Ayer, Frederick. 1822-1918

Sketch. *Textile World* 53:4365 Mr 23 '18

**Azides**

Sensitiveness of azides. L. Wohler and F. Martin. *Sci Am* 85:236 Ap 13 '18

**B**

**Babbitt hammers.** *See* Hammers

**Babbitt metal**

- Analyses of brass or bronze and babbitt. E. W. Hagmaier. *Metal Ind* 15:520-2 D '17  
 Babbitt and other bearing metals; compositions recommended by the committee of the Manufacturers' war service association. *Mech Eng* 41:254 Mr '19  
 Babbitt—brightness or brand? *Factory* 20:1178+ Je '18  
 Babbitt metals and solders; abstracts. A. A. Greene. *Power* 49:507-8 Ap 1 '19; *Elec Ry J* 53:699-700 Ap 5 '19; *Iron Age* 103:874-5 Ap 3 '19  
 Babbitt separator. J. V. Henry. *diag Ry Mech Eng* 92:422 J1 '18  
 Babbitts used by automobile makers. *Foundry* 46:168a Ap '18  
 Bronzes, bearing metals, and solders. G. K. Burgess and R. W. Woodward. *Am Inst Min E Bul* 144:1742-6 D '18; *Same. Chem & Met Eng* 19:660-1 N 1 '18  
 Characteristics of babbitt alloys. *Power* 47:865 Je 18 '18  
 Conservation of tin in bearing metals, bronzes, and solders. G. K. Burgess and R. W. Woodward. *U S Bur Stand Tech Pa* 109:1-9 '19  
 Formation of blow-holes in babbitted bearings. *Mach* 24:1140 Ag '18  
 Formulas for the brass foundryman; babbitt and antifriction metals. *Foundry* 46:66a F '18  
 Notes on babbitt and babbitted bearings. J. L. Jones. *Il diag Am Inst Min E Bul* 140:1395-1401 Ag '18; *Same. Metal Ind* 16:402-4 S '18; *Abstract. Iron Age* 102:440 Ag 22 '18; *Abstract. Mach* 25:1075 J1 '19; *Discussion. Am Inst Min E Bul* 145:95-6 Ja '19  
 Pouring and scraping babbitt bearings. C. P. Macey. *diag Elec R* 73:382-3 S 7 '18  
 Tentative specifications proposed by American society for testing materials. *Foundry* 46:305 J1 '18; *Same. Metal Ind* 16:332-3 J1 '18; *Same (tables). Power* 48:264 Ag 13 '18  
**Babbitt metal, Substitutes for**  
 Hard-lead alloy. F. C. Frary and S. N. Temple. *Il Chem & Met Eng* 19:523-4 S 28 '18  
 Uleo hard metal—a substitute for babbitt. *Eng & Min J* 106:133 J1 20 '18; *Same. Am Mach* 49:524 S 19 '18  
 White brass bearing metals as substitute for high-grade babbitt. L. D. Staplin. *Am Mach* 49:479 S 12 '18

**Babbitting**

- Babbitting compressor armature bearings. J. W. Brown. *Il diag Elec Ry J* 53:1091-2 D 21 '18  
 Form for babbitting crosshead shoes. J. F. Donellan. *diag Ry Mech Eng* 92:576 O '18  
 Molds for babbitting cross heads. *diag Ry R* 62:322 Mr 2 '18  
 War-time repairs in the navy. F. A. Stanley. *Il diag Am Mach* 50:383-7 F 27 '19

**Babson statistical organization**

5th annual conference, Wellesley Hills, Mass., Sept. 4-6. *Am Mach* 49:749-52 O 24 '18

**Back venting.** *See* Plumbing—Traps; Plumbing—Ventilation

**Backfilling.** *See* Trenches

**Backwashers.** *See* Woolen and worsted machinery

**Backwater computations.** *See* Hydraulics

**Bacteriology**

- Aerobic spore-forming bacillus in canned salmon. A. C. Hunter and C. Thom. *J Ind & Eng Chem* 11:655-7 J1 '19  
 Anaerobic culture volumeter. Z. Northrup. *diag J Ind & Eng Chem* 10:624-5 Ag '18  
 Bacteria in Antarctica. A. L. McLean. *Sci Am* 86:242-3 O 19 '18  
 Bacteriology and sanitation. I. M. Lewis. *Texas U Bul* 1732:16-22 Je 10 '17  
 Critical study of the bacterial count in water and sewage. M. F. Stein. *Eng & Contr* 51:166-8 F 15 '19  
 How bacteria in milk are counted. F. H. Hall. *Sci Am* 86:122-3 Ag 24 '18  
 Iron ores formed by bacteria. *Sci Am* 121:303 S 27 '19  
 Numerical interpretation of bacteriological tests. M. F. Stein. *Eng N* 82:1106-9 Je 5 '19  
 Utility of blanching in food canning effect of cold shock upon bacterial death rates. E. M. Bruett. *J Ind & Eng Chem* 11:87-9 Ja '19  
*See also* Cheese—Bacteriology; Microorganisms; Water—Bacteriology

**Badges**

National awards for steady work by the U.S. Department of labor. *Coal Age* 14:650-2 O 3 '18; *Same cond. Am Mach* 49:635-6 O 3 '18

**Baedeker family**

Baedeker as an office of military intelligence. *Sci Am* 119:354+ N 2 '18

**Baffles**

- Boiler baffles of Betson plastic material. *Il Iron Age* 101:743 Mr 21 '18; *Iron Tr R* 62:791 Mr 28 '18; *Eng & Min J* 105:1049 Je 8 '18; *Power* 47:838-9 Je 11 '18; *Discussion. Power* 48:243, 394 Ag 13, S 10 '18  
 Development of steam-boiler baffles. A. A. Straub. *diag Power* 48:656-9 N 5 '18  
 Effect upon fuel economy of different arrangements of baffles in boiler tubes. W. G. Eager. *diag Am Soc M E J* 40:737-42 S '18  
 Turner baffle-wall construction. *Il diag Power* 47:622-3 Ap 30 '18

**Bag houses**

- Baghouse of the St Joseph lead co. S. P. Lindau. *Il diag plans Eng & Min J* 103:291-4 F '17; *Discussion. P. C. Choate. 103:383 Mr 3 '17*  
 Baghouses for zinc oxide. J. F. Cregan. *Il diag plans Eng & Min J* 106:126-32 J1 20 '18

**Bagasse**

- Bagasse as a source of fuel. E. C. Freeland. *Am Soc M E J* 39:919-21 N '17; *Abstract. Power* 46:779 D 4 '17; *Discussion. Am Soc M E J* 40:135-7 F '18  
 Use of lignite, bagasse and wood waste for power generation and other purposes. J. B. C. Kershaw. *Engineer* 126:133 Ag 16 '18; *Same. Coal Age* 15:437 Mr 6 '19

**Bagdad railway**

Bagdad railway and its part in the war. H. C. Woods. *map Ry Age* 64:204-6 Ja 25 '18

**Baggage and express cars**

- Railroad administration's standard baggage cars. *diag plan Ry Age* 65:584-6 S 27 '18; *Same. Ry Mech Eng* 92:561-4 O '18  
 Steel baggage car for the United States railroad administration. *diag plan Ry R* 63:341-3 S 7 '18  
 Utility express car of the Pennsylvania railroad. *Il Ry R* 65:1-2 J1 5 '19

**Baggage cars.** *See* Baggage and express cars

**Baggage handling**

Rubber mat for baggage transfer. *Sci Am* 121:172+ Ag 16 '19

*See also* Trucks

**Bakelite**

Bakelite-micarta airplane propellers. N. S. Clay. *Il Elec J* 16:482-4 N '19

**Bakelite—Continued**

- Drilling bakelite at high speed. *Il Mach* 24:1024 J1 '18  
 Fabricated bakelite materials. R. P. Jackson. *diags Automobile* 37:544-5 + S 27 '17  
 Making molded bakelite products. E: K. Hammond. *Il diags Mach* 25:187-91 N '18

**Baker, Chauncey B.**

- Brigadier-General Baker's military service. *por Automobile* 37:649 O 11 '17

**Bakers and bakeries**

- Gas can monopolize fuel end of bakery industry. E: F. Davis. *Il diag Am Gas Eng J* 108:585-90 Je 22 '18  
 Modern electrical bakery in a large department store. *Il Elec R* 74:535-7 Ap 5 '19  
 Operating features of motor drive in a bakery. *Il Elec R* 72:751-4 My 4 '18  
 Plumbing details for bakery. *diag Dom Eng* 38:597 S 27 '19  
 Type of oven used for jappanning adapted to bakery use and output of 10,000 loaves of bread a day obtained. *Il Am Gas Eng J* 108:533-5 Je 3 '18

*See also Bread*

**Balance**

- Standardizing balance. N. W. Akimoff. *Iron Age* 101:393 F 7 '18

**Balance sheets**

- Influence of the war on balance-sheets. R. H. Montgomery. *J Account* 28:1-8 J1 '19

**Balancer sets**

- Electrical study course—adjustment of voltage or balancer sets. *diags Power* 49:318-20 Mr 4 '19  
 Electrical study course—putting balancer sets into service on three-wire system. *diags Power* 49:404-5 Mr 18 '19  
 Electrical study course—shunt balancer sets for three-wire systems. *diags Power* 49:282-4 F 25 '19  
 Electrical study course—testing balancer sets on three-wire systems. *diags Power* 49:455-7 Mr 25 '19  
 How to determine rating of d.-c. balancers required. H. H. Metzheim. *Elec W* 74:761 O 4 '19  
 Supply of single-phase power from three-phase systems. M. Walker. *diags Inst E E J* 57:109-39: Discussion. 139-48 Ja '19

**Balances**

- Illuminating an assay or chemical balance. B. D. Porritt. *Eng & Min J* 106:356-7 Ag 24 '18  
 Vacuum balance cases. B. Blount and W: H. Woodcock. *Il Engineer* 125:148-9 F 15 '18

*See also Scales*

**Balancing machines**

- Akimoff static and dynamic balancing machine. *Il diag Iron Age* 101:317 Ja 31 '18  
 Correcting the balance of revolving parts. *Il Sci Am* 121:485+ N 15 '19  
 Crawford dynamic balancing machine. *Il Am Mach* 50:863-4 My 1 '19  
 Dynamic and static balancing. E: K. Hammond. *Il chart diags Mach* 25:285-92, 422-6 D 18-Ja '19  
 Fitz-empire dynamic balancing machine. *Il Am Mach* 48:81-2 Ja 10 '18  
 Recent developments in balancing apparatus. N. W. Akimoff. *Il diags Am Soc M E J* 39:987-90 D 17; Same. *Am Mach* 47:1121-4 D 27 '17; Same cond. *Mach* 24:497-9 F '18; Excerpts. *Automotive Ind* 37:1054-5 D 13 '17; Discussion. *Am Soc M E J* 40:146-7 F '18

**Balancing of machinery**

- Balancing on parallels. N. W. Akimoff. *Automotive Ind* 38:554 Mr 14 '18  
 Balancing stand. *Il Ry Mech Eng* 92:232 Ap '18  
 Chart for balancing revolving elements. *Elec R* 72:571 Mr 30 '18  
 Commercial crankshaft balancing. J. E: Schipper. *Il diags Automotive Ind* 38:21-2 Ja 3 '18  
 Drive crankshafts with air blast in balancing. *diags Automobile* 37:680 O 18 '17  
 Dynamic and static balancing. E: K. Hammond. *Il chart diags Mach* 25:285-92, 422-6 D 18-Ja '19

- Dynamic balancing of rotating sections. C. Hering. *diag Elec W* 72:389-90 Ag 31 '18  
 Enter the balancing engineer. N. W. Akimoff. *Ind Management* 55:15 Ja '18  
 Knowledge needed in balancing. N. W. Akimoff. *Automotive Ind* 37:883-4 N 15 '17  
 Ridgway crankshaft balance system. *diag Automotive Ind* 38:89 Ja 2 '18

**Balata**

- Industrial and agricultural chemistry in British Guiana; with a review of the work of Professor J. B. Harrison. C. A. Browne. *Il J Ind & Eng Chem* 11:877-9 S '19

**Baldwin locomotive works**

- Report for 1917. *Ry Age* 64:953 Ap 5 sec 2 '18

**Baling presses**

- Baling presses for knit goods and other textiles. *Il Textile World* 53:5243 My 4 '18  
 Electric baling press. *Textile World* 54:1977 O 26 '18  
 Yarn baling press. *Il Textile World* 53:5579 My 18 '18

**Balkan states****Commerce**

- Engineering markets of the Near East. *Engineer* 126:213-14 S 13 '18

**Ball bearings**

- Ball and roller bearings. J. B. Swan. *diags Mech Eng* 41:771-2 S '19  
 Ball bearings for electric motors. G: Andrus. *Am Mach* 47:1079-81 D 20 '17  
 Ball bearings for machine shop equipment. E: K. Hammond. *Il diags chart Mach* 24:1097-1103; 25:50-8 Ag-S '18  
 Boring and reaming ball bearing housings on a turret lathe. P. S. Thomas. *diags Mach* 25:86 S '18  
 Equipping plain bush pulley with ball bearings. *diags Mach* 25:1170 Ag '19  
 Fafnir ball bearings. *Il Textile World* 53:3585+ F 2 '18  
 Fafnir dragon type ball bearing. *Il Mach* 25:75-6 S '18; *Textile World* 54:1603+ O 5 '18  
 Load characteristics of radio-thrust bearing. F. W. Gurney. *diags Am Mach* 50:1233-6 Je 26 '19  
 Lubrication of ball bearings. O. Bruenauer. *diags Am Mach* 48:316-22 F 21 '18  
 Lubrication of ball-bearings. H. R. Trotter. *diags Mech Eng* 41:811-15 O '19  
 Manufacture of ball bearings. *Il diags Engineer* 125:309-11, 356, 358-9, 362 Ap 12, 26 '18  
 Recent Fafnir developments. *Il Motor Age* 34:41 Ag 22 '18  
 Renewing a ball bearing. J. K. Matthews. *diags Am Mach* 51:130 J1 17 '19  
 Rolling babitted bearings. *diag Eng & Min J* 106:1033 D 14 '18  
 Saving power by efficient bearings. F. H. Lennox. *Il diag Textile World* 54:2853+ D 7 '18  
 Saving power in woodworking. *Factory* 21:456+ S '18  
 Studies in the wear of armature ball bearings. W. Fink. *Elec Ry J* 52:339 Ag 24 '18  
 Use of ball bearings on electric railways. *Elec Ry J* 51:284-5 F 9 '18  
 Why do ball bearings sometimes fail? F. J. Jarosch. *diags Am Mach* 50:209-13 Ja 30 '19

*See also Bearings*

**Ball mills. See Crushing machinery****Ball vices. See Die balls****Ballast**

- Ballast gang organization. *diag Eng & Contr* 51:384 Ap 16 '19  
 Cinders for ballast should receive more consideration. L. A. Mitchell. *Elec Ry J* 53:106 Ja 11 '19  
 Contract system for ballasting track disapproved by engineers. *Eng N* 80:811 Ap 25 '18  
 Methods of cleaning track ballast. *Eng & Contr* 51:386 Ap 16 '19  
 Modern track needs good ballast. R. C. Cram. *Il diags Elec Ry J* 52:1080-5 D 21 '18  
 Report of A.R.E.A. committee on ballast. *Ry R* 62:420-1 Mr 28 '18  
 Steam roads are experimenting with concrete ballast. *Elec Ry J* 53:217 F 1 '19

*See also Railroads—Track; Stone, Crushed*

**Ballistics**

Formulae for trajectories of anti-aircraft shells. G. Manetti. *diags Am Soc M E J* 40: 350-2 Ap '18

Internal ballistics. A. G. Hadcock. *Engineer* 135:490 Je 7 '18; *Same. Sci Am S* 86:71 Ag 3 '18

Long range artillery calculation. G. Greenhill. *Sci Am S* 85:362 Je 8 '18

Modern artillery ammunition. H. M. Brayton. *charts Am Mach* 50:707-10 Ap 10 '19

*See also* Gunnery; Projectiles; Shooting

**Balloonet. See Balloon fabric****Balloon fabric**

Balloon fabrics. J. D. Edwards and others. U S Nat Advisory Com for Aeronautics 1917:459-78 '18

Balloon fabrics and their testing. J. D. Edwards. *il Textile World* 55:1047+ F 8 '19

Determination of permeability of balloon fabrics. J. D. Edwards. *diags U S Bur Stand Tech Pa* 113:1-31 '18

Effect of solar radiation upon balloons. J. D. Edwards and M. B. Long. U S Bur Stand Tech Pa 128:1-29 '19

How moisture affects the strength of aircraft fabrics. G. B. Haven. *Automotive Ind* 39: 100-2+ Jl 18 '18

Notes on balloon fabrics. J. D. Edwards. *il Aviation* 6:626-7 Jl 15 '19

Permeability of balloon fabrics. *Sci Am S* 86: 115 Ag 24 '18

Stretching of the fabric and the deformation of the envelope in nonrigid balloons. R. Haas; A. Dietzius. *il diags U S Nat Advisory Com for Aeronautics* 1917:149-271 '18

**Testing**

Method for determining the permeability of balloon fabrics. J. D. Edwards and S. F. Pickering. *diags J Ind & Eng Chem* 11:966-8 O '19

**Balloon gas**

Gas for balloon use. F. L. Welsser. *Am Gas Eng J* 109:99-101 Ag 3 '18

Significance of oxygen in balloon gas. J. D. Edwards and P. G. Ledig. *Aviation* 6:325-6 Ap 15 '19

*See also* Hellum

**Balloons**

Captive balloon and the fruit grower. *il Sci Am* 121:372 O 11 '19

Captive balloons aid telephoning in war. *Elec R* 73:415 S 14 '18

Causes and preventions of fires in balloons. W. F. Swann. *Sci Am S* 88:258+ N 8 '19

Manufacture of war balloons in U.S. A. Sinsheimer. *il diag Automotive Ind* 39:925-7 N 28 '18

New Dutch export industry. I. I. Brants. *Sci Am* 118:406 My 4 '18

Our aerial sausages. C. H. Claudy. *il Sci Am* 119:408-9+ N 23 '18

Role of the kite-balloon in anti-submarine operations. R. W. Neeser. *il Sci Am* 119:25+ Jl 13 '18

*See also* Aeronautics; Airships; Aviation; Balloon fabric; Balloon gas; Hangars

**Balloons, Dirigible. See Airships****Balls**

Forming an accurate ball on the end of a rod. *diags Am Mach* 50:1141; 51:283, 329, 584-5, 665-6 Je 12, Ag 7-14, S 18, O 2 '19

*See also* Ball bearings

**Balls, Steel**

Elastic indentation of steel balls under pressure. C. A. Briggs, W. C. Chapin and H. G. Hall. *charts Am Soc M E J* 40:388-8 My '18;

*Same. Am Mach* 48:1105-9 Je 27 '18; *Abstract. Chem & Met Eng* 20:192 F 15 '19

Steel ball manufacture. *Iron Age* 101:1272 My 16 '18

Steel ball polishing and burnishing. T. C. Eichstaedt. *il Metal Ind* 16:24-6 Ja '18

Use of balls in measuring. G. C. Haneman. *diags Mach* 25:1077-8 Jl '19

Use of precision balls for accurate measurements. R. L. Rankin. *il diags Mach* 26: 236-8 N '19

**Baltimore, Maryland**

Baltimore area and waterfront doubled by annexation. J. W. Shirley. *map Eng N* 81:570-1 S 26 '18

Baltimore civic improvement. *il diags plans Am Arch* 113:57-62, pl 28-32 Ja 16 '18

Short-lived attempt to unionize Baltimore city departments. W. E. Lee. *Eng N* 80:966 My 16 '18

**Churches**

Latrobe's designs for the cathedral of Baltimore. F. Kimball. *il plans Arch Rec* 42:540-50; 43:37-45 D '17-Ja '18

**Lighting**

Street lighting in Baltimore. *Munic J* 47:107 Ag 16 '19

**Railroads**

Municipal harbor railroad completed. *map Munic J* 45:20 Jl 6 '18

**Rapid transit**

Relieving congestion in Baltimore's delivery district. L. H. Palmer. *il Elec Ry J* 53: 1082-6 Je 7 '19

**Sanitary affairs**

Baltimore receives bids for garbage disposal as part of general plan for improved collection and disposal of municipal waste. W. E. Lee. *Munic Eng* 55:34-7 Jl '18

Recommended garbage and rubbish disposal methods; abstracts. W. E. Lee. *Eng & Contr* 49:273 Mr 13 '18; *Eng N* 80:522-3 Mr 14 '18

**Sewerage**

Truth about Imhoff sewage tanks at Baltimore. T. D. Pitta. *Eng N* 81:84 Jl 11 '18; *Discussion. 81:374 Ag 22 '18*

**Water supply**

Design of a tilting dam and its relation to backwater on the Gunpowder river. V. B. Siems. *diags Am Water Works Assn J* 6: 297-304 Je '19

**Baltimore & Ohio railroad**

Individual fuel performance records. W. L. Robinson. *Ry R* 62:205-9 F 9 '18; *Same cond. Ry Age* 63:1131-6 D 21 '17

Weighing bureau. L. D. Davis. *Ry Age* 64: 541-2 Mr 15 '18

**Balustrades. See Railings****Bamboo**

Phonograph needles of bamboo. *il Sci Am* 121:6 Jl 5 '19

**Bamboo roads. See Roads, Bamboo****Bananas**

Banana as a food. *Sci Am S* 85:52 Ja 26 '18

**Band stands**

Concrete band stands for memorials. *il diag plan Concrete* 15:129 S '19

**Bandages and bandaging**

Paper for bandages. *Textile World* 53:4831 Ap 20 '18

**Bank buildings**

Bank building for American trust co., St Louis, Mo. *Am Arch* 116:pl 28-32 Jl 23 '19

Bank of Pennsylvania, 1799; an unknown masterpiece of American classicism. F. Kimball. *il plans Arch Rec* 44:132-9 Ag '18

Beneficial saving fund society building, Philadelphia. *Arch Forum* 30:pl 65-6 My '19

Building for the Colonial trust co., Philadelphia. *il Am Arch* 115:877-8, pl 207-11 Je 25 '19

Building of American bank & trust co., New Haven, Conn.; view and plans. *Am Arch* 113:pl 8 Ja 2 '18

Corn Exchange bank, 28th street branch, New York city; views. *Arch & Bldg* 49:pl 158-9 N '17

Dollar savings bank, New York city. *Arch & Bldg* 51:57, pl 107-9 Jl '19; *Am Arch* 116: 271-2, pl 74-84 Ag 27 '19

**Bank buildings—Continued**

- Equitable trust building. Arch & Bldg 50:17, pl 129-35 J1 '18  
 First national bank, St Johnsville, New York; views and plan. Am Arch 115:pl 39-41 Ja 29 '19  
 Merchants' national bank, Asbury Park, N.J.; views and plan. Am Arch 116:pl 52-3 Ag 6 '19  
 National bank of commerce, Detroit, Mich. II plans Am Arch 113:pl 125-33 Ap 10 '18  
 People's national bank of Brooklyn. II Am Arch 115:705, pl 162-5 My 21 '19  
 Peoples saving & loan association building of Sidney, Ohio. T: E. Tallmadge. II Am Arch 114:477-82, pl 121-8 O 23 '18  
 Sixtieth street branch of the Guaranty trust company of New York. C: O. Cornelius. II plans Arch Rec 43:491-504 Je '18  
 Steel blockhouses for the robber-proof bank. II Sci Am 121:207 Ag 30 '19

**Electric equipment**

- Mechanical department of a modern bank. F. E. Church. II J Elec 43:258-60 S 15 '19

**Heating and ventilation**

- Heating and ventilation of banking rooms. C: L. Hubbard. diags Dom Eng 88:497-500 S 13 '19

- Mechanical equipment of the Peoples savings & loan association building. diags plan Am Arch 114:497-500 O 23 '18; Same. Metal Work 91:212-14 F 14 '19

- Bank protection. See Rivers—Bank protection; Shore protection

- Banks, Federal reserve. See Federal reserve banks

**Banks and banking**

- Banking and industry. See Monthly numbers of American Industries  
 Banking and the war. F. C. Schwedtmann. Am Ind 20:34-5 S; 30-1 O '19  
 Banking facilities key to trade expansion. A. Walker. Textile World 55:2526-7+ Ap 26 '19  
 Banking institutions to finance our future abroad. A. Breton. Ry Age 64:940-2 Ap 5 sec 2 '18  
 British Metal bank. Am Mach 48:944 Je 6 '18  
 Cooperation as a bankable asset. C. W. Banta. J Elec 43:211, 304-5 S 1, O 1 '19  
 How banks assist foreign trade. H. Lawton. Am Ind 19:28-9 F '19  
 How ships and banks will help our export trade. Sci Am 119:280 O 5 '18  
 Innovation in bank balance sheets. Am Ind 19:7-8 Ag '18  
 Manufacturing and banking. F. C. Schwedtmann. Am Ind 19:22-3 N; 22-3 D '18; 28-9 Ja '19  
 Manufacturing in relation to banking, research and management. W. Rautenstrauch. Am Soc M E J 40:459-63 Je '18  
 National organization of banking. J: E. Rovensky. Am Ind 19:30-1 Mr '19  
 Present banking outlook and the needs of the future. F. C. Schwedtmann. Am Ind 20:31-2 N '19  
 Problems of the national banks in war time. W. P. G. Harding. Ry Age 65:887-9 N 15 sec 2 '18  
 Procedure in a bank audit. F. Thulin. J Account 26:191-211 S '18  
 Truck that collects deposits after banking hours. II Sci Am 118:364 Ap 20 '18  
 See also Acceptances; Bank buildings; Checks; Credit; Federal reserve banks; Interest; Negotiable Instruments

**Bantu**

- Some native industries of German Cameroon. II Sci Am S 87:344-5 My 31 '19

**Bar diagram. See Graphic methods****Baraga county, Michigan**

- Design and constructional features of the Baraga road in Baraga county. G. C. Dillman. II Munic Eng 56:115-17 Mr '19

**Barbed wire**

- Barbed-wire gun. J: W. Havens. II Sci Am 118:313 Ap 6 '18

- Fence wire corrosion and its causes. O. W. Storey. Iron Age 100:1449-51 D 13 '17

- Gauntlets and gaiters that defy barbed wire. II Sci Am 118:571 Je 22 '18

- How the barbed wire fence was conceived and perfected. Am Lumberman 2267:40-2 O 26 '18

- Intrenchments and the wire barrier. H. H. Manchester. II Am Mach 49:991-3 N 28 '18

- Overcoming barbed wire with the wire-cutting tank. II Sci Am 119:169 Ag 31 '18

**Barberries**

- Banish the barberry; common barberry a menace in spring-wheat states. II diag Sci Am S 86:76 Ag 3 '18; Am Lumberman 2242:34 My 4 '18

**Barges**

- Government's Mississippi barge fleet now building. B. L. Brown. Eng N 81:621 O 3 '18; Same. Ry R 63:56+ O 19 '18; Same. Sci Am S 86:338 N 23 '18

- Modern barge line transports ore. II Iron Tr R 63:1127-8 N 14 '18

- Revival of Mississippi river traffic. M. von Pagenhardt. II Int Marine Eng 24:80-2, 160-5 F-Mr '19

- Richborough transportation depot and train ferry terminus. II diags Engineer 127:147-50, 154, 219-20, 226 F 14, Mr 7 '19

**Barges, Concrete**

- Air placed concrete for ships and barges—Tortore, shipbuilding co. diags Concrete 11:170+ D '17

- Barge built on canal bottom. E. S. Hanson. II Concrete 14:226-6 Je '19

- Barges built with gravity placing equipment. II Concrete 14:184 My '19

- Build boats in dry docks at new yard in Detroit. II diags plans Eng N 82:21-4 Ja 2 '19

- Building a concrete barge. L. L. Livingston. II diags plans Concrete 13:15-16 J1 '18

- Concrete barge built with precast frames. II Concrete 13:201-2 D '18

- Concrete barge survives launching at Singapore. II Eng N 83:361 Ag 21 '19

- Concrete barges. L: L. Brown. II diags plan Int Marine Eng 23:450-2 Ag '18

- Concrete barges and ships. diags Int Marine Eng 23:285-9 My '18

- Concrete barges at New Orleans. II Concrete 13:116 O '18

- Concrete barges built true to design dimensions. II diags plan Eng N 81:704-7 O 17 '18

- Concrete barges designed for New York state canal. diags plan Eng N 81:271-2 Ag 8 '18; Int Marine Eng 23:586-8 O '18

- Concrete coal and oil barges for the navy. II Int Marine Eng 24:494-5 J1 '19

- Concrete coal barges. J. F. Springer. II Coal Age 14:623-32 O 3 '18

- Concreting barges in floating plant. Concrete 13:113 O '18

- Construction of concrete car floats for the government. II diags Concrete 14:180-3 My '19

- Design and construction of navy concrete oil barges. R. M. Burkhalter. II diags plan Eng N 82:1056-8 My 29 '19

- Developments in concrete barges and ships. J. E. Freeman. Int Marine Eng 23:520-2 S '18

- Form work and timbering details in concrete barge construction. II diags plan Concrete 14:222-5 Je '19

- How concrete barges are built by ingenious methods. H. Whipple. II diag Concrete 13:180-4 D '18

- How the New York canal concrete barge is being built. II diags plans Eng N 82:268-74 F 6 '19

- Hudson river shipyard layout to build concrete car floats. H. W. Eldridge. II diags Eng N 82:732-4 Ap 10 '19

- Launch stone ship by new method. F. B. Jacobs. diags Marine R 49:127 Mr '19

- Method of building concrete barges at yard of Aberthaw construction co. II diags plan Eng & Contr 50:333-4 O 23 '18; Same cond. Int Marine Eng 23:584-5 O '18

- Navy concrete barge side-launched. II Eng N 83:309 Ag 14 '19

**Barges, Concrete—Continued**

- Precast members used for British concrete barges. diag plans Eng N 83:507-8 S 11 '19  
 Precast plates form shell of concrete barge. W. N. Twelvetees. diag Eng N 82:1171 Je 12 '19  
 Progress in the application of concrete to barge and shipbuilding. J. E. Freeman. W Soc E J 23:205-20 Mr '18; Same cond. Am Soc M E J 40:292-7 Ap '18; Excerpts. Eng & Contr 49:505-8 My '18  
*See also* Boats, Concrete; Ships, Concrete

**Repair**

- Patching a hole in a concrete barge. diag Concrete 14:248 Je '19

**Barges, Steel**

- Construction of steel barges. T. Leach. il diag plan Eng Soc W Pa 35:243-74; Discussion. 275-82 Je '19  
 Electrically-welded barge. il Engineer 126: 122-3 Ag 9 '18; Same. Eng & Contr 50:416 O 30 '18; Abstract. Metal Work 90:184 Ag 16 '18; Abstract. Am Arch 114:261-2 Ag 28 '18  
 Large programme of river and canal vessel construction now under way. diag Int Marine Eng 24:670-8 O '19; Same cond. Marine R 49:460-3 O '19  
 Steel barges for Mississippi river. il Sci Am 121:481 N 15 '19  
 Structural shop diverted largely to ship fabrication. il diag Eng N 81:1169-70 D 26 '18  
 Bario metal  
 Heat and acid resisting material. Metal Ind 16:41 Ja '18

**Barite**

- Barite deposits of Missouri. W. A. Tarr. maps Econ Geol 14:46-67 Ja '19; Discussion. J. V. Lewis. 14:568-70 N '19  
*See also* Barium sulfate

**Barium**

- Data of interest in the barium industry. L. S. Potsdamer. J Ind & Eng Chem 11:970 O '19  
 Future of the barium industry. W. H. Rollin. Chem & Met Eng 20:163-4 F 15 '19

**Barium sulfate**

- Estimation of sulfates in a concentrated electrolyte and the determination of sulfur in foods. V. K. Kriebel and A. W. Mangum. Am Chem Soc J 41:1317-28 S '19  
*See also* Barite

**Barley**

- Barley falls on its feet. W. A. Freehoff. Sci Am 121:183 Ag 23 '19

**Barns and stables**

- Action of wind on barns and proper methods of bracing. diag Bldg Age 40:476-7 O '18  
 Building a sanitary bank barn. G. E. Walsh. diag Bldg Age 40:559 D '18  
 Dairy barn and manure pit on modern farm. il Bldg Age 41:140 Ap '19  
 Farm improvements mean more business for you. H. H. Shepard. il diag plan Bldg Age 41:93 Mr '19  
 Fireproof dairy barn for 50 cows. il diag plans Bldg Age 41:170-3 My '19  
 Frame that is well adapted to large barns. W. E. Frudden. il diag plan Bldg Age 40: 285-7 Je '18  
 Gambrel roof dairy barn with large storage mow. diag Am Lumberman 2239:40 Ap 13 '18  
 House of C. S. Mott, esq., Flint, Mich.; stable and lodge; views and plans. Arch Forum 31:pl 73 N '19  
 How a dairy barn and silo were planned for convenience. il diag plans Bldg Age 40: 67-72 F '18  
 How a successful builder frames the barns he builds. diag Bldg Age 40:140-1 Mr '18  
 How rafters for a Gothic-roof barn were laid out. C. E. Kelly. il Bldg Age 40:284-5 Je '18  
 How to build a dairy barn. W. E. Frudden. diag plan Bldg Age 40:186-7 Ap '18  
 Milking barn and cow shed built at Juliettown, N.J. il diag plans Bldg Age 40:194-7 Ap '18

- Plans for small horse barn. diag plans Am Lumberman 2304:62 Ji 12 '19  
 Remodeling of barns demands the retailer's early attention. il Am Lumberman 2266:44-6 O 19 '18

**Small horse barn. diag plans Am Lumberman**

- 2263:47 S 28 '18  
 Stable ventilation. diag Am Lumberman 2271:42a N 23 '18  
 Stables for Detroit creamery company, Detroit, Mich.; views and plans. Arch Forum 31:pl 9 Ji '19  
 Types of barn doors and how to make them weather-tight. E. J. G. Phillips. diag plan Bldg Age 40:232-5 My '18  
*See also* Garages

**Barns and stables, Concrete**

- Barns, sheds, silos of concrete. il diag plans Concrete 13:23-4 Ji '18  
 How to design a concrete dairy barn. H. C. Campbell. diag plan Bldg Age 40:579-80 D '18  
 Large concrete building at stockyards. il Eng N 83:413 Ag 28 '19  
 Ventilation for concrete barns. diag Concrete 12:67-8 F '18; Same. Bldg Age 40:254-5 My '18

**Barograph**

- Altitude errors in aerial navigation. J. G. Coffin. diag Aviation 6:624-6 Ji 15 '19

**Barometer**

- Barometer vs. outflow of gas. Coal Age 15:634, 1009-10; 16:159-61, 502-3 Ap 3, My 29, Ji 24, S 18 '19  
*See also* Barograph

**Barometric pressure. See Atmospheric pressure****Barracks**

- Barracks group and hospital for the U.S. army school of military aeronautics of Ohio state university, Columbus, Ohio. H. D. Smith. il diag plans Arch Rec 44:387-405 N '18  
 Southern pine barracks for Pershing's army. il Am Lumberman 2231:39 F 16 '18  
 Ventilation of army barracks. W. J. Mauer. il diag plans Am Soc Heat & V E 23:431-45; Discussion. 446-51 '17

**Barrels**

- Cooperage industry. H. Maxwell. il Sci Am S 88:228-30 O 11 '19  
 Welding blocks for galvanized barrel bodies. J. A. Haward. il Mach 25:855 My '19  
 Why wooden barrels are better than steel barrels. il Am Lumberman 2320:53 N 1 '19

**Barrels, Steel**

- Manufacture of steel barrels. E. K. Hammond. il diag Mach 25:526-33 F '19

**Bartlett, Robert A.**

- Portrait. Flying 8:48 F '19

**Bartol, George Edward, 1858-1917**

- Sketch. J Fr Inst 185:429-30 Mr '18

**Baruch, Bernard M.**

- Chairman of the War industries board. por Iron Tr R 62:683 Mr 14 '18  
 Portrait. Iron Tr R 64:33 Ja 2 '19

**Bascule bridges. See Bridges, Bascule****Base sorting plant, Inc.**

- History of Base sorting plant. J. C. Benson. Textile World 55:1893+ Mr 29 '19

**Baseball**

- Pitched baseball. W. W. Griffin. diag Sci Am S 87:12-14 Ja 4 '19

**Basements**

- Efficiency in construction and arrangement of basement. A. Weindorf. diag Bldg Age 40:243-5, 293-5 My-Je '18  
 Waterproofing a damp basement. diag Bldg Age 40:309-10 Je '18  
*See also* Cellars

**Bates college****Jordan scientific society**

- Jordan scientific society of Bates college. Chem & Met Eng 21:194 Ag 15 '19

**Bath, Maine**

- United States housing corporation; project no. 59. il plans Arch Rec 45:21-5 Ja '19

**Bathhouses**

Bathing pavilion at Jackson park, Chicago. II map plan Am Arch 116:461-5, 483-90 O 1-8 '19

Strong background for community work is formed by bathhouses and laundries. D. J. Baker. II Coal Age 16:634-7 O 16 '19

**Bathing beaches**

Bathing pavilion at Jackson park, Chicago. II map plan Am Arch 116:461-5, 483-90 O 1-8 '19

**Batholith. See Boulder batholith****Bathrooms**

Built-in features for the modern bath room. C: A. Byers. II plans Bldg Age 40:23-6 Ja '18  
Suggested standard of floor areas for bathrooms. C: B. Ball. Dom Eng 84:12 Jl 6 '18;  
Same abr. Metal Work 90:246 Ag 30 '18

**Baths**

Era of the bath. W. Hutchinson. Am Arch 114:569-71 N 13 '18

See also Bathrooms; Shower baths; Swimming pools

**Baths, Public**

Era of the bath. D. W. Hyde, jr. Am Arch 114:675 D 4 '18

**Batik work**

Handicraft dyeing in America. E. C. Gray. II Color Tr J 4:144-8 Je '19

**Baton Rouge, Louisiana****Water supply**

Unusual ground water supply conditions at Baton Rouge. L. R. Howson. Am Water Works Assn J 6:271-5 Je '19; Same cond. Eng & Contr 52:40-1 Jl 9 '19; Abstract. Eng N 82:1175-6 Je 12 '19

**Batrachia**

Anomalies of the animal world. R. W. Shufeldt. II Sci Am S 85:873-4 Je 15 '18

**Bats, Vampire. See Vampire bats****Batteries, Electric. See Electric batteries; Storage batteries****Battery service corporation of Philadelphia**

Complete battery service all year for \$4 flat rate. II chart Motor Age 35:7-10 Je 12 '19

**Battlefields**

Animal life at the front. W: Beebe. Sci Am S 86:19 Jl 13 '18

Flora of the Somme battlefield. A. W. Hill. Sci Am S 85:200 Mr 30 '18

**Battleships. See Warships****Baucq, Philippe**

Sketch. Am Inst Arch J 7:888-9 S '19

**Bauxite**

Bauxite in the coastal plain of Georgia. H. K. Shearer. diag Eng & Min J 105:13-16 Ja 5 '18

Bauxite mining in Arkansas. T. Shiras. II Eng & Min J 107:1074-5 Je 21 '19

Extensive bauxite deposits in British Guiana. Eng & Min J 106:264 Ag 10 '18; Same. Chem & Met Eng 19:573 O 1 '18

Our mineral supplies; bauxite and aluminum. J. M. Hill. U S Geological Survey Bul 686-O: 1-4 '17

Preparing bauxite for furnace lining and crucibles. Engineer 126:159 Ag 23 '18

**Bay State street railway**

Annual report for 1916. Elec Ry J 50:1175-6 D 29 '17

Receiver for Bay State. Elec Ry J 50:1092 D 15 '17

Saving \$400,000 a year on the Bay State. Elec Ry J 50:1115 D 22 '17

Temporary agreement on Bay State wages. Elec Ry J 51:246 F 2 '18

**Beach, Frederick Converse, 1848-1918**

Sketch. por Sci Am 118:563 Je 23 '18

**Beacons**

Automatic lights aid lake navigation. Eng N 79:1102 D 13 '17

See also Light ships; Lighthouses

**Beams. See Girders****Beans**

Translocation of the mineral constituents of the jack bean. G. D. Buckner. Am Chem Soc J 41:282-7 F '19

**Bear grass**

Desert feed for drought seasons. II Sci Am 119:357 N 2 '18

**Bearings**

Anti-friction metal; physical properties of copper in lead and antimony alloys. G. C. Holder. Metal Ind 15:153-5 Ap '17

Babbitt and other bearing metals; compositions recommended by the committee of the Manufacturers' war service association. Mech Eng 41:254 Mr '19

Bearing metals and solders. Ry R 65:208-9 Ag 9 '19

Bearings for machine shop equipment. E: K. Hammond. II diag Mach 24:975-87 Jl '18

Care of gas engine bearings. A. L. Brennan, jr. Power 46:859 D 25 '17

Caring for bearings. Factory 20:1094-+ Je '18

Casting bearings in sand and metal moulds. R. R. Clarke. Metal Ind 15:485-7, 516-17 N-D '17

Chemist and the brass-founder. R. T. Rolfe. II Metal Ind n s 15:24-6 Ja '17

Common errors in machining of bearings. C. H. Bierbaum. II diag Mech Eng 41: 879-80-+ N '19

Conservation of tin in bronze bearing metals. G. H. Clamer. Am Inst Min E Bul 144:1739-33 D '18; Same. Am Mach 49:773-5 O 24 '18;

Same. Metal Ind 16:452-3 O '18; Same. Chem & Met Eng 19:656-7 N 1 '18; Same cond. Foundry 46:582-3 N '18; Same cond. Sci Am S 86:406 D 28 '18; Excerpt. Iron Age 102:964 O 17 '18

Data on bearing metal. Elec Ry J 52:926 N 23 '18

Device for twin screw propeller bearings. H. E. A. Raabe. diag Int Marine Eng 23: 543 S '18

Die-casting bearing metals in place. Mach 26:38 S '19

Differences in bearings. Motor Age 35:35-6 Ja 16 '19

Echoes from the oil country. W. Osborne. Am Mach 51:83-4 Jl 10 '19

Finishing babbitt bearings by burnishing. S. B. Royal. II Am Mach 51:726 O 16 '19

Fundamentals of rolling support; abstract. F. W. Gurney. Am Soc M E J 40:432 My '18

Hard-lead alloy. F. C. Frary and S. N. Temple. II Chem & Met Eng 19:523-4 S 28 '18

Hard wood a substitute for brass. M. Meredith. Mach 24:618 Mr '18

Hardness of bearing metals. Foundry 46:408a S '18

Hot gas-engine-bearing remedy. C. A. Merton. diag Power 47:448 Mr 26 '18

How treatment affects bearing metal. H. E. Fry and W. Rosenhain. Foundry 47:820 N 15 '19

Investigation on bearing metal alloys; report of American society of mechanical engineers' committee. Foundry 47:435-6 Jl 1 '19; Excerpt. Power 50:123 Jl 15 '19

Keeping engine bearings cool. W. T. Brown. diag Power 47:777 My 28 '18

Lead or clearance of large bearings. Power 47: 133 Ja 22 '18

Lubricating bearings. diag Iron Age 103:631 Mr 6 '19

Making shafts turn easier. C: L. Hubbard. II diag Factory 23:289-93 Ag '19

Manufacture of a self-lubricating bearing material; graphalloy. II Mach 24:631-2 Mr '18

Manufacture of white metal for friction bearings. Metal Ind 17:74 F '19

Michell journal bearing. II diag Engineer 128: 202-4 Ag 29 '19

Notes on babbitt and babbitted bearings. J. L. Jones. II diag Am Inst Min E Bul 140:1395-1401 Ag '18; Same. Metal Ind 16: 402-4 S '18; Abstract. Iron Age 102:440 Ag 22 '18; Abstract. Mach 25:1075 Jl '19;

Discussion. Am Inst Min E Bul 145:95-6 Ja '19

Oiling system and bearing designs. A. E. Windram. diag Int Marine Eng 24:745-6 N '19



**Bearings—Continued**

- Pouring and scraping babbitt bearings. C. P. Macey. *diag Elec R* 73:382-3 S 7 '18
- Reclaiming worn motor axle bearings. *II Elec Ry J* 54:565 S 20 '19
- Report of sub-committee on bearing metals. *Mech Eng* 41:537-8 Je '19
- Saving power by efficient bearings. F. H. Lennox. *II diag Textile World* 54:2853+ D 7 '18
- Secrets of antiquity; an ancient bronze revived for modern service. R. G. Skerrett. *II Sci Am* 121:282+ S 20 '19
- Self-adjusting spring thrust bearing. H. G. Reist. *II Gen Elec R* 21:481-4 JI '18; Same. *Am Mach* 48:1022-3 Je 13 '18; Same abr. *Am Soc M E J* 40:393-4 My '18; Excerpta. *Power* 48:253 Ag 13 '18
- Single-collar vs. multi-collar thrust bearings for propeller shafts. H. G. Reist. *diag Gen Elec R* 22:133-7 F '19
- Special pullers for bearings. H. C. Satterthwaite. *diag Am Mach* 50:351-3 F 20 '19
- Substitutes for brass bearings. *Sci Am* 118:52 Ja 12 '18
- Substitutes for tin in bearing metals and solders. *Mach* 25:634 Mr '19
- Tentative specifications proposed by American society for testing materials for bronze bearing metals for turntables and movable railroad bridges. *Foundry* 46:302-3 JI '18; Same. *Metal Ind* 16:331-3 JI '18; Same cond. *Ry Age* 65:27 JI 5 '18
- Thrust bearings. E. U. Gibbs. *II diag Eng & Min J* 108:147-9 JI 26 '19
- Truck box lubricator. *diag Ry Mech Eng* 92:425-6 JI '18
- Ulco hard metal—a substitute for babbitt. *Eng & Min J* 106:133 JI 20 '18; Same. *Am Mach* 49:524 S 19 '18
- Use of bronzes in railroad turntables and movable bridges. O. E. Selby. *Metal Ind* 15:439-41, 469-70 O-N '17; Same. *Foundry* 46:368-71 Ag '18
- White brass bearing metals as substitute for high-grade babbitt. L. D. Staplin. *Am Mach* 49:479 S 12 '18
- See also* Airplane engines—Bearings; Automobiles—Bearings; Babbitt metal; Babbitt; Ball bearings; Cars—Bearings; Electric motors—Bearings; Lubrication and lubricants; Roller bearings

**Beaumont, Texas****Rapid transit**

- Beaumont converts cars to the safety type. *II Elec Ry J* 52:550-1 S 28 '18
- Beaux-Arts Institute of design  
Official notification of awards. *II Am Arch* 115:133-9 Ja 22 '19
- Becker, George Ferdinand, 1847-1919  
Sketch. *por Eng & Min J* 107:836 My 10 '19
- Bed springs  
Manufacture of metal beds. F. A. Stanley. *II diag Am Mach* 49:427-31 S 5 '18
- Bedford cord  
Bedford cord weave and cloth constructions. *II Textile World* 55:3311+ My 31 '19
- Bedquills, Electric. *See* Electric fabric
- Beds  
Built-in beds cleverly concealed. C. A. Byers. *II Bldg Age* 41:825 O '19
- Beds, Metal  
Manufacture of metal beds. F. A. Stanley. *II diag Am Mach* 49:427-31 S 5 '18
- Bedspreads. *See* Coverlets
- Beer, Sondheimer & company  
German metal interests. *Eng & Min J* 107:532-4 Mr 22 '19
- Bees  
How honeybees produce honeycomb. E. F. Bigelow. *II Sci Am* S 88:100-1, 140-1+ Ag 16, 30 '19
- Odors emitted by bees; abstracts. *Sci Am* S 85:3 Ja 5 '18; *Sci Am* 118:184 Mr 3 '18
- Scent-producing organ of the honeybee. N. E. McIndoo. *Sci Am* S 85:22 Ja 12 '18

**Beets and beet sugar**

- Acetic acid and acetone from beets. *Sci Am* 118:223 Mr 9 '18
- American beet sugar industry. M. J. Kermer. *W Soc E J* 24:153-63; Discussion. 163-76 Mr '19
- Electricity in beet-sugar factories. J. P. Collopy. *II Elec W* 74:178-81 JI 26 '19
- Electricity in beet-sugar factories. E. M. Ellis. *II Gen Elec R* 21:185-95 Mr '18
- Making America self-supporting; breaking Germany's monopoly on sugar-beet seed. T. G. Palmer. *II Sci Am* 118:550+ Je 15 '18
- Simple sugar extraction from beet. *Sci Am* 119:167 Ag 31 '18

**Belghton, Henry**

- Links in the history of engineering. R. Jenkins. *Engineer* 127:471 My 16 '19

**Belfast****Rapid transit**

- Car body maintenance in Belfast. P. Williamson. *II Elec Ry J* 53:1058-9 My 31 '19
- Zone fare in practice. W. Jackson. *II plan Elec Ry J* 53:909-14, 1005-11 My 10, 24 '19

**Belgian Congo. See** Congo, Belgian**Belgium**

- Belgian coöperative buying society. *Am Mach* 49:33 JI 4 '18

**Commerce**

- Appointing agents for Belgium—the other side of the question. G. R. Woods. *Am Mach* 47:256-7 Ag 9 '17; Discussion. 47:884, 934, 1043-4 N 22-29, D 13 '17
- Machine tools in Belgium. E. G. Todd. *Am Mach* 47:1045-6 D 13 '17
- Sales question in Belgium. H. Benedictus. *Am Mach* 48:1099-1100 Je 27 '18; Discussion. R. G. Pilkington. 49:366 Ag 22 '18

**Economic conditions**

- Belgium and France form new trade alliance. F. Miltoun. *map Iron Tr R* 65:897-9 O 3 '19
- Devastation wrought by the great war in Belgium, Serbia and Italy. D. T. Pierce. *Eng N* 82:627-9 Mr 27 '19

**German occupation**

- Belgian foundries tricked Germans. I. Lamoureux. *II Foundry* 47:528-9 Ag 1 '19
- Destruction of the Belgian automotive industry. W. F. Bradley. *II map Automotive Ind* 40:1149-55, 1210-16, 1274-7 My 29-Je 12 '19
- How Huns destroyed Belgian plants. *Iron Tr R* 62:1177-8 My 9 '18
- How the Germans destroyed Belgian plants. W. F. Bradley. *II Iron Age* 103:1509-14 Je 5 '19
- Recounts damage to Belgian works. L. Greiner. *Iron Tr R* 64:1484-7 Je 5 '19; Same cond. *Iron Age* 103:1514-16 Je 5 '19

**Industries and resources**

- Belgian coal and coke industry in the war. *Coal Age* 12:713-15 O 27 '17; Same. *Eng & Min J* 104:880-2 N 17 '17; Excerpt. *J Fr Inst* 185:278 F '18
- Belgian industrial tide rising. F. Miltoun. *Iron Tr R* 65:436-7 Ag 14 '19
- Belgians receive foreign orders. F. Miltoun. *Iron Tr R* 65:1448 N 27 '19
- Elaborate survey of Belgium's industries. *Iron Age* 103:1357 My 22 '19
- Future of Belgium zinc industry. M. F. Chase. *Iron Age* 104:436-7 Ag 14 '19
- Reconstruction of Belgian industries. *Engineer* 127:216-17, 243-4, 250, 280-1, 304, 306-3, 332-3, 382-3, 393-4, 425 Mr 7-Apr 4, 18-May 2 '19

*See also* Electric industries—Belgium; Iron industry and trade—Belgium; Mines and mineral resources—Belgium; Steel works—Belgium

**Reconstruction**

- How Belgium will be rebuilt after the war. J. M. Goodell. *Eng N* 80:247-8 F 7 '18
- Nation planning; an analysis of M. Louis van der Swaelmen's Preliminaires d'art civique. N. Hammarstrand. *Am Inst Arch J* 5:405-7; 6:81-4 Ag '17, F '18

**Belgium—Reconstruction—Continued**

Rebuilding of Belgium. E. Debrun. Am Mach 49:311-12 Ag 15 '18

**Bellingham, Washington****Rapid transit**

Everett and Bellingham have 100 per cent safety operation. Il Elec Ry J 52:554-6 S 28 '18

**Bells**

English locomotive bell. diag Ry R 62:441-2 Mr 23 '18

Steel and bronze bells compared. Iron Age 103:877 Ap 3 '19

See also Carillons

**Bells, Electric. See Electric bells****Beloit, Wisconsin**

Industrial housing developments in America. L. Vellier. Il diag plans Arch Rec 43:281-56 Mr '18

Wage earners' community development at Beloit. R. F. Warner. Il diag plans Am Arch 113:657-66 My 22 '18

**Belt elevators. See Hoisting machinery****Belt guards**

Methods of an enterprising sheet metal shop. Il diag Metal Work 90:549-51 N 15 '18

**Belt shifters**

Belt-shifting appliance. diags Mach 24:1084 Ag '18

General safety measures. diags Am Ind 19: suppl-4 Ap '19

Manufacturing a safety belt shifter. R. Mawson. Il Am Mach 50:743-5 Ap 17 '19

**Belt tighteners**

Discussion of belt tighteners. C. Crane. Power 49:176 F 4 '19

Trouble with belt tighteners. diags Power 48:856-7, 963-4; 49:66-7 D 10, 31 '18, Ja 14 '19

**Belting**

Belt driving. Engineer 127:613-14, 635; 128: 55, 110, 131, 164, 314 Je 20-27, Jl 18, Ag 1-15, S 26 '19

Belt selection and installation. J. F. Engler. Power 50:509-10 S 23 '19

Belt transmission waste. J. F. Engler. Concrete 13:sup28 S '18

Belted motors and group drives. W. H. Wakeman. diags Power 49:654 Ap 29 '19

Belting problems discussed at Chicago meeting. Elec R 73:161-5 Ag 3 '18

Care and repair of belts. G. W. McCuen. diags Sci Am 118:502 Je 1 '18

Choosing the right belting. R. Trauttschold. Factory 20:1081-3 Je '18

Coal cost of avoidable belt slip. chart Gas Age 41:281 Mr 15 '18; Same. Am Ind 18:35 Ap '18; Excerpt. Am Inst Min E Bul 136:sup2+ Ap '18

Comparison of belt materials. Power 49:796 My 20 '19

Computing length of belt in rolls. W. F. Schaphorst. diag Eng & Min J 105:383 F 23 '18

Cruban coupling for steel belts. diags Am Mach 49:90 Jl 11 '18

Data on belts and pulleys. W. L. Tryon. diag Foundry 47:584a, 648a, 704a, 788a, 820a S 1-O 1, N 1-15 '19

Detroit bulldog belt lacer. Il Am Mach 48:1077 Je 20 '18

Doing away with the cross belt. R. C. Leibe. diags Am Lumberman 2234:70 Mr 9 '18

Economy of cork inserts. W. F. Schaphorst. Eng & Min J 106:835 N 9 '18

Effecting economies in the selection of belts and pulleys. W. F. Schaphorst. Am Gas Eng J 107:516-17 D 8 '17

Evaluation and saving of power loss in belt slippage. chart Eng & Min J 106:345 Ag 24 '18

Fabric belt formula. W. F. Schaphorst. Coal Age 13:860-1 My 11 '18

Finding what belt slip costs. Factory 21:1134+ D '18

Horsepower pull of belts. W. F. Schaphorst. Iron Age 102:687 S 19 '18

How far does a belt slip? W. F. Schaphorst. Am Gas Eng J 108:535 Je 8 '18; Same. Coal Age 13:1192 Je 29 '18; Abstract. Iron Age 102:338 Ag 8 '18

Inspection of leather belting. H. A. Hey. Il diags Ind Management 53:273-81 O '19

Length of belting in coils. H. Gwinner. Am Mach 47:1038 D 18 '17

Maximum power and speed of belt pulleys and gear wheels; abstract. W. Kummer. Am Soc M E J 40:718 Ag '18

Mechanics of the belt drive; abstract. W. Stiel. Am Soc M E J 41:175-7 F '19

Methods of obtaining length of belts. diags Mach 25:757 Ap '19

More about belt slip. J. F. Engler. Concrete 13:sup7 Jl '18

Motor age belt speed chart—maintenance data sheet no. 10. Motor Age 34:40-1+ O 31 '18

Paper belting in Germany. Textile World 53:4705 Ap 13 '18

Paper driving belts; note. Sci Am S 86:406 D 28 '18

Power transmission by belting. E. D. Wilson. Il diag Textile World 55:3709 Je 14 '19

Preparation of belt dressings. Chem & Met Eng 19:308 S 15 '18

Shafting and belting. R. S. Lewis. charts diags Eng & Min J 107:1132-40 Je 28 '19

Some figures on belt tension. W. F. Schaphorst. Concrete 12:sup58-9 Je '18

South American machine belting market. Engineer 124:531 D 14 '17

Specification for leather belting. H. E. Weightman. Power 49:691 My 6 '19

Specifications for leather belting. H. A. Hey. Il diag Ind Management 57:271-6 Ap '19

Excerpt. Chem & Met Eng 20:543 My 15 '19

Substitutes for belting in Germany. Sci Am 120:388 Ap 12 '19

Substitutes for leather belting. H. A. Hey. Ind Management 57:237-8 Mr '19

Suggestions on the care of belts. M. L. Lowrey. Il Am Mach 51:500 S 11 '19

Tight belts not essential to positive and efficient transmission. W. F. Schaphorst. Am Gas Eng J 107:526 D 8 '17

Treating belts to last. Factory 22:524 Mr '19

What reduced belt slip means. diag Textile World 53:2791 Ja 5 '18

See also Power transmission; Pulleys; Shafting

**Accidents**

Injuries from belts. C. C. Sherlock. Am Mach 49:1037-9 D 5 '18

**Benches, Concrete**

Concrete makes good benches for interurban shelters and parks. Il diags Elec Ry J 51:242 F 2 '18

**Benches (work). See Workbenches****Benchmarks**

Depressed permanent bench marks set in concrete floors. L. C. Scott. diag Eng N 83:365 Ag 21 '19

**Bend, Oregon**

Making lumber in attractive surroundings. Il Am Lumberman 2259:48-9 Ag 31 '18

**Bending**

Bending and drilling tubes, angles and flat sections. F. A. Stanley. Il diags plan Am Mach 48:697-701 Ap 25 '18

Bending short rods having threaded ends. J. V. Hunter. Il diag Am Mach 48:1111 Je 27 '18

Bending stirrup brake hangers in a bulldozer. B. S. Lyon. diags Ry Mech Eng 93: 493 Ag '19

Face plates aid straightening and bending work in the shop. Il diags Elec Ry J 54:559-60 S 20 '19

How to bend reinforcing. diags Concrete 12: 62 F '18

Improved jack or rail bender. Il diags Coal Age 13:860 My 11 '18

Middle ordinate for bending rails. diag Coal Age 16:249 Ag 7 '19

Press tools for bending spring stock. E. C. Williams. diag Am Mach 49:161 Jl 25 '18

Using a punch press in lieu of bending rolls.  
J. V. Hunter. 11 diagrs Am Mach 49:243-5  
Ag 8 '18

**Bending and forming of brass rod and tubes.**  
P. W. Blair. 11 diagrs Metal Ind 17:172-3 Ap '19

- Benzyl acid**  
Aromatic arsenic compounds; substituted benzyl, phenoxyethyl, and phenacylarsanilic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1826-33 N '19
- Bernini, Giovanni Lorenzo**  
Studies on Adam and Bernini. R. F. Bach. *Arch Rec* 43:85-9 Ja '18
- Beryllium**  
Glucinum. J. S. Negru. *Chem & Met Eng* 21:353-9, 417-18 S 15-O 1 '19
- Bessel's functions**  
Bessel-Clifford function; abstract. G. Greenhill. *Mech Eng* 41:477-8 My '19
- Bessemer process**  
Technical study of acid Bessemer steel; abstracts. R. S. McCaffery. *Iron Age* 103:626-7 Mr 6 '19; *Chem & Met Eng* 21:155 Ag 1 '19  
*See also* Steel; Steel metallurgy
- Bethlehem shipbuilding corporation**  
Design departments of Bethlehem shipbuilding corporation centralized at Bethlehem. II plan *Int Marine Eng* 24:767-9 N '19
- Bethlehem steel company**  
Bethlehem plan of employee representation. charts *Iron Age* 103:1020-2 O 24 '18; Abstract. *Iron Tr R* 63:972-3 O 24 '18  
Labor board's award in Bethlehem case. *Iron Age* 102:326-7 Ag 8 '18  
Labor the next great problem: Bethlehem steel co.'s plan for dealing with labor. H. Tipper. *Automotive Ind* 39:873-4 N 21 '18  
Safety in industry; first aid and accident prevention in a great manufacturing plant. II *Sci Am S* 84:392-3 D 22 '17
- Better community conference**  
3d annual conference, University of Illinois, Urbana-Champaign, April 4-7. *Am Lumberman* 2240:39 Ap 20 '18
- Betterment, industrial.** *See* Industrial betterment
- Bevel gearing.** *See* Gearing, Bevel
- Beverages**  
European apple beverages. *Sci Am S* 87:205 Mr 29 '19  
Use of gas in the manufacture of drinks of the beer type. G. C. Shadwell. *Am Gas Eng J* 111:204-6+ S 6 '19  
*See also* Cocoa; Coffee; Liquors; Mineral waters; Root beer
- Beverly Farms, Massachusetts**  
Beverly Farms library. M. R. Rogers. II diag plans *Arch Rec* 42:528-39 D '17
- Biculba oil**  
Biculba oil. *Sci Am* 118:244 Mr 16 '18
- Bicycles**  
Winged bicycles which are said to fly. II *Sci Am* 121:391 O 18 '19
- Big Sioux river**  
Short-circuiting floods in the big Sioux river. F. C. Shenehon. II diag plan *Eng N* 82:961-4 My 15 '19
- Bighorn canyon, Montana**  
Early survey for a railroad through the Bighorn canyon. G. W. Pease. *Ry R* 63:310-11 Ag 31 '18
- Bile**  
Presence of food accessories in urine, bile and saliva. A. M. Muckenfuss. *Am Chem Soc J* 40:1606-11 O '18
- Billboards.** *See* Billposting
- Billposting**  
Billing by machine makes large saving. *Elec W* 71:259-60 F 2 '18  
Billing plan that hastens collections. *Elec W* 72:497-8 S 14 '18  
Combination gas and electrical billing. *Elec W* 71:468 Mr 2 '18  
Duplicate form of power and light bill. *Elec R* 73:178 Ag 3 '18  
Houston bill saves lots of trouble. *Elec W* 72:449 S 7 '18  
Innovation in advertising on customers' statements. *Elec W* 71:936-7 My 4 '18
- Method of handling billing in city of 70,000.**  
*Elec W* 72:63-9 J1 13 '18  
More economy in bill delivery is necessary. O. M. Booher. *Elec W* 72:262-3 Ag 10 '18  
Ninety per cent collections by twentieth of each month. *Elec W* 71:833 Ap 20 '18  
Postal cards for billing used by Oklahoma properties. *Elec W* 71:730 Ap 6 '18  
Rubber stamps save expense in billing. *Elec W* 71:572 Mr 16 '18  
Using bill form with two detachable slips. *Elec W* 71:781 Ap 13 '18  
War-time methods of bill delivery. *Elec W* 71:562-3 Mr 16 '18  
*See also* Collecting of accounts
- Billposting**  
Billboards as affecting real estate values. E. L. Millard. *Am Arch* 116:78 J1 16 '19  
Effect of zoning on billboards. *Munic J* 45:354 N 2 '18  
Ubiquitous billboard. *Am Arch* 113:827-8 Jo 19 '18  
Zoning the billboard in New York. H. S. Swan. *Am Arch* 115:288 F 19 '19
- Bills and notes**  
Accounting methods; modern methods of handling notes and principles involved. R. H. Butz. *Textile World* 54:3251+ D 28 '18  
Demand note presented for payment fourteen months after date cannot be collected in suit against endorser. *Dom Eng* 83:128-9 Ap 27 '18
- Bills of exchange, Domestic.** *See* Acceptances
- Bills of lading**  
Bill of lading dispute; when a consignor must pay the freight on merchandise. R. H. Butz. *Textile World* 53:4471 Mr 30 '18  
I. C. C. report in bill of lading case. *Ry R* 64:667-8 My 3 '19  
Necessary document in foreign trade. II *Sci Am* 119:110+ Ag 10 '18  
Through bill of lading in foreign trade. H. Scott-Young. *Sci Am* 121:190 Ag 23 '19
- Bimetallic**  
Bimetallic and the monetary situation. R. H. Tingley. *Am Ind* 13:11-12 F '18
- Binder twine.** *See* Twine
- Binders, Loose-leaf**  
Binder for detached pages. F. A. Combe. diag Power 47:410-11 Mr 19 '18
- Binding.** *See* Bookbinding
- Bins**  
Bin for soiled laundry. H. Simon. diag Bldg Age 40:555-6 D '18  
*See also* Coal bins; Grain bins; Ore bins
- Bins, Concrete**  
Building rectangular clay storage bins of concrete. diag Concrete 13:27 J1 '18  
Circular concrete coal pockets and grain bins. II diag plan Concrete 12:149-50 Ap '18  
Concrete in bleach houses. diag Textile World 54:1439+ S 28 '18
- Biogeography.** *See* Plants, Geographical distribution of
- Biological chemistry**  
Bio-chemical characteristics of species. L. Legrand. *Sci Am S* 86:322-3+ N 23 '18  
Life and the structure of molecules. A. Pic-tet. *Sci Am S* 87:50-1+ Ja 25 '19  
*See also* Botanical chemistry; Physiological chemistry
- Biology.** *See* Bacteriology; Cells; Enzymes; Evolution; Heredity; Hybridization; Proto-plasm; Variation (biology); Zoology
- Biplanes.** *See* Airplanes
- Birch**  
Effect of incomplete distillation on the yield of products in the destructive distillation of birch. R. C. Palmer. *J Ind & Eng Chem* 10:260-2 Ap '18
- Birch oil**  
Work of sheet metal man in new industry; making apparatus for use in distillation of volatile oils from birch and wintergreen. W. B. Metzger. II diag Metal Work 91:302-4 Mr 7 '19

**Birds**

- Anomalies of the animal world. R. W. Shufeldt. *Il Sci Am S* 85:4-5, 68-9, 168-70, 245-6 Ja 5, F 2, Mr 16, Ap 20 '18
- Bird life of a big city. L. S. Crandall. *Sci Am S* 86:3 Jl 6 '18
- Question of identity; were flying reptiles merely unfeathered birds, or birds merely feathered reptiles? W. H. Ballou. *Il Sci Am* 120:570-1 My 31 '19
- Roadrunner now said to be the friend of men. *Il Sci Am S* 86:328 N 23 '18
- Some familiar bird friends; the nuthatches and the chickadees. A. A. Allen. *Il Sci Am S* 85:280-1 My 4 '18
- Where the birds of the N.Y. zoological park come from. L. S. Crandall. *Sci Am S* 86:87 Jl 20 '18

**Birds, injurious and beneficial**

See also Hawks

**Birmingham, England****Sewerage**

- Sewage treatment works of Birmingham and utilization of sludge. J. D. Watson. *plan Eng & Contr* 53:126-8 Jl 30 '19; Same. *Munic J* 47:210-13 O 4 '19

**Birney cars. See Street cars—Safety cars****Bismuth**

- Bismuth. W. R. Ingalls. *Eng & Min J* 107:102 Ja 11 '19
- Bismuth: its special value, and crystallization. J. Scott. *Il Metal Ind* 16:169-70 Ap '18
- Chemically pure bismuth. M. Mylius and E. Groschuff. *Met & Chem Eng* 18:38 Ja 1 '18
- Colorimetric determination of bismuth. H. A. B. Motherwell. *Eng & Min J* 104:1091-2 D 22 '17; Discussion. W. T. Phillips. 105:882-3 My 11 '18
- Pure bismuth. *J Ind & Eng Chem* 10:229 Mr '18
- Quantitative analysis of bismuth in lead bullion. D. W. Jessup. *Eng & Min J* 105:603-4 Mr 30 '18

**Bismuth oxychloride**

- Solubility of bismuth oxychloride in hydrochloric acid and its relation to complex formation. A. A. Noyes, F. W. Hall and J. A. Beattie. *Am Chem Soc J* 39:2526-32 D '17

**Bismuthinite**

- Photoelectric sensitivity of bismuthinite and various other substances. W. W. Coblenz. *diag U S Bur Stand Bul* 14:591-604 Jl 12 '19

**Bitoslag pavements. See Pavements, Bitoslag****Bitulithic pavements. See Pavements, Bitulithic****Bitumen. See Asphalt****Bituminous materials**

- Bituminous roofing materials and construction. G. L. Wilson. *Chem & Met Eng* 20:425-8, 484-6 Ap 15-May 1 '19
- Determination of softening point of bituminous materials. *diags Eng & Contr* 52:174 Ag 6 '19
- Government restrictions on bituminous materials for roads and streets. *Good Roads n s* 15:254 My 18 '18
- State highway departments and bituminous material conservation. *Good Roads n s* 16:104-5 S 14 '18
- Studies in the production of oils and tars from bituminous materials. J. C. Ingram. *Il diag Mo U Sch Mines & Met Bul tech ser* 3:1-65 My '17
- See also Asphalt; Pavements, Bituminous; Roads, Bituminous; Tar

**Testing**

- Standard tests for bituminous materials; committee report. *Good Roads n s* 16:142-1 O 12 '18

**Bituminous pavements. See Pavements, Bituminous****Bituminous roads. See Roads, Bituminous****Bituminous shales. See Oil shales****Black body**

- Experiments on the black body at the melting point of platinum as a fixed point in photometry. H. E. Ives. *J Fr Inst* 186:122-3 Jl '18
- High temperature scale and its application in the measurement of true, brightness, and color temperatures. E. P. Hyde. *Am Inst Min Bul* 153:1969-74 S '19
- Luminous radiation from a black body and the mechanical equivalent of light. W. W. Coblenz and W. B. Emerson. *biblog U S Bur Stand Bul* 14:255-66 Je 17 '18

**Black locust wood**

- Black locust needed for ships. *Sci Am S* 85:174 Mr 16 '18

**Black powder. See Gunpowder****Black stem rust. See Rusts (botany)****Blackdamp**

- Blackdamp on pitches. *Coal Age* 14:568, 753; 15:157-8 S 19, O 17 '18, Ja 16 '19
- Origin of blackdamp. J. I. Graham. *Sci Am S* 86:183 S 21 '18

**Blacklisting**

- Liability of a trade association which publishes list of delinquent debtors for use of its members. *Dom Eng* 88:351-2 Ag 23 '19

**Blacksmith shops**

- Utilization of waste heat from blacksmith furnaces. *Il diags Ry Mech Eng* 93:91-2 F '19

**Blacksmith shops, Municipal**

- Small municipal blacksmith shop. *Munic J* 46:436-7 Je 14 '19

**Blacksmithing**

- Blacksmithing at coal mines. J. F. Springer. *Il diags Coal Age* 13:318-22 F 16 '18
- Chain making and repairing in the mine blacksmith shop. J. T. Springer. *diags Coal Age* 15:220-4 Ja 30 '19
- International railroad master blacksmiths' association 25th convention, Chicago. *Ry Age* 67:425-9 Ag 29 '19; *Ry Mech Eng* 93:541-7 S '19

See also Blacksmith shops; Forging; Ironwork; Welding

**Blackwell, Robert W., 1858-1918**

- R. W. Blackwell and the electric railway industry. P. Dawson. *Elec Ry J* 51:867-8 My 4 '18

**Blade screws**

- General summary of the de Bothezat blade-screw theory. G. de Bothezat. *diags Aviation* 6:520-4 Je 15 '19

**Blankets**

- Blanket purchases by War department. *Textile World* 53:4021 Mr 2 '18
- Making the new army blanket. *Textile World* 53:5575 My 18 '18
- New specifications for blankets. *Textile World* 53:4811 Ap 20 '18

**Blast furnace gas**

- Burning blast furnace gas under boilers; discussion. *diags Eng Soc W Pa* 33:167-98 Ap '17; Same cond. *Iron Age* 100:1534-6 D 27 '17; Abstract. *Am Soc M E J* 39:565-6 Je '17; Excerpt. H. C. Cronmeyer. *Iron Tr R* 61:191-2 Jl 26 '17
- Checking up on Cottrell process. N. H. Gellert. *diags Iron Tr R* 64:448-50 F 13 '19
- Cleaning furnace gases without the use of water. J. C. Barrett. *Il Chem & Met Eng* 20:359-61 Ap 1 '19
- Conditions favoring and factors influencing electrical utilization of blast-furnace gases. W. A. Bone. *Elec R* 75:775 N 8 '19
- Importance of blast furnace gas. *Iron Tr R* 63:813 O 10 '18
- Use of waste gases for steam generation. J. B. C. Kershaw. *Engineer* 124:27-9 Jl 13 '18; Same. *Coal Age* 14:591-4 S 26 '18

**Blast furnace slag. See Slag****Blast furnace stoves**

- Blast preheater for stoves. W. S. Raudenbush. *diag Iron Age* 101:323 Ja 31 '18
- Forced draft for hot-blast stoves. *diags Iron Age* 103:630-1 Mr 6 '19

**Blast furnaces**

- Air drying for blast furnaces. L. Cammen. *diag Eng Soc W Pa* 33:199-204 Ap '17; Abstract. *Iron Age* 100:1429 D 13 '17
- Australian iron and steel plant erected on American principles; plant of the Broken Hill proprietary co., Newcastle, N. S. W. *il diag plan Iron Tr R* 63:1118-24 N 14 '18
- Blast-furnace bears. J. E. Stead. *Sci Am S* 86:27 JI 13 '18
- Blast-furnace charge at the Bunker Hill smelter. C. T. Rice. *il map Eng & Min J* 106:436-8 S 7 '18
- Blast-furnace design effects operation. G. L. Colford. *Iron Tr R* 63:559-60 S 5 '18
- Blast-furnace explosions. B. B. Hood. *il diag plan Eng & Min J* 108:47-9 JI 12 '19
- Blast-furnace hoist installations. D. L. Lindquist. *il diag Iron Tr R* 63:1548-9 Je 20 '18
- Blast-furnace plant for smelting copper ore. F. Rutherford. *plan Eng & Min J* 106:123-3 JI 20 '18
- Blast furnace practice in the United Kingdom: report of committee of iron and steel institute; abstracts. *Engineer* 125:399-400 My 10 '18; *Iron Tr R* 62:555-6 Je 20 '18; *Iron Age* 102:86-7 JI 11 '18; Discussion. *Engineer* 125:400 My 10 '18
- Blast furnace preheater. *diag Iron Tr R* 62:541-2 F 28 '18
- Blast-furnace refractories. R. M. Howe. *Am Inst Min Bul* 153:1791-1803 S '19; Discussion. 155:3049-50 N '19
- Blast-furnace uptakes; patent. *diag Chem & Met Eng* 21:49 JI 1 '19
- Blast-roasting and its effect on blast-furnace design. W. K. Mallette. *Chem & Met Eng* 21:67-8 JI 15 '19
- Coal and iron deposits of the Pen-hsi-hu district, Manchuria. C. F. Wang. *diag Am Inst Min E Bul* 134:246-8 F '18; Same. *Iron Age* 101:387-8 F 7 '18; Same cond. *Iron Tr R* 62:433-5 F 14 '18
- Copper tuyeres for blast-furnaces. A. K. Reese. *diag Engineer* 125:404 My 10 '18
- Dorr thickener in blast-furnace field. *il diag Iron Age* 103:112-15 Ja 9 '19
- 800-ton blast furnace plant. *il diag (supp) Engineer* 127:564-6 Je 6 '19
- Fuel economy and consumptions in the manufacture of iron and steel. W. A. Bone, R. Hadfield and A. Hutchinson. *diag Engineer* 128:316-17, 341-3 S 26-O 3 '19; Abstract. *Iron Age* 104:1065-6; Discussion. 1067-9 N 27 '19
- Fuel economy in blast furnaces; abstracts. T. C. Hutchinson. *Engineer* 125:400-1 My 10 '18; *Iron Age* 102:689-91 S 19 '18
- Furnace bung distributes blast evenly. *il diag Iron Tr R* 64:446-7 F 13 '19
- German iron practice analyzed. *il diag Iron Tr R* 65:1105-9 O 23 '19
- How to prevent blast furnace slips. *il Iron Tr R* 65:1114 O 23 '19
- How to save manganese and coke. *Iron Tr R* 63:1347-8 D 12 '18
- Introducing fuel through tuyeres; patent. *diag Chem & Met Eng* 19:779 D 1 '18
- Lackawanna steel co. increases blast furnace capacity. J. D. Knox. *il diag Iron Tr R* 63:17-21 JI 4 '18
- Mid-Continent iron company, Kansas City, builds charcoal furnace in Mid-West. *il Iron Tr R* 65:99-102 JI 10 '19
- Mixture for blast furnace tuyeres. Foundry 46:373 Ag '18
- New Brier Hill furnace. *il Iron Tr R* 63:727-9 S 26 '18
- New Iroquois furnace now in blast. *il plan Iron Tr R* 62:1237-42 My 16 '18
- Novel arrangement of uptakes. *diag Iron Tr R* 65:360 Ag 7 '19
- Production of ferromanganese in blast furnaces. P. H. Royster. *U S Bur Mines War Minerals Investigations Ser* 5:1-31 '18 (Typew); Same cond. *Iron Tr R* 64:405-7, 429-43 F 6-13 '19
- Production of ferromanganese in the blast furnace. P. H. Royster. *Am Inst Min E Bul* 146:367-78 F '19
- Production of spiegeleisen in blast furnaces. P. H. Royster. *U S Bur Mines War Minerals Investigations Ser* 6:1-19 '18 (Typew)
- Progress in blast-furnace design. J. G. West, jr. *diag Iron Tr R* 64:499-504 F 20 '19
- Pulverized coal at the Tennessee copper co. N. H. Emmonds. *Eng & Min J* 108:583 O 4 '19
- Pulverized coal for blast furnaces. E. P. Mathewson and W. L. Wotherspoon. *diag Eng & Min J* 108:274-8 Ag 16 '19
- Pyrometry in blast-furnace work. P. H. Royster and T. L. Joseph. *Am Inst Min Bul* 153:1953-67 S '19; Same cond. *Iron Tr R* 65:1452-6 N 27 '19; Discussion. *Am Inst Min Bul* 156:3199-3202 D '19
- Recent progress of blast-furnace lines. W. Mathesius. *diag Iron Tr R* 64:697-8 Mr 13 '19
- Removing old Virginia stack across continent. *il Iron Tr R* 62:914-15 Ap 11 '18
- Renew furnace foundation. *diag Iron Age* 104:430 Ag 14 '19
- Reverberatory fore-hearth. L. Duncan. *diag plan Eng & Min J* 106:534 S 21 '18
- Smelting and lead refining at the Bunker Hill plant. C. T. Rice. *il Eng & Min J* 106:743-9 O 26 '18
- Supporting blast furnace while replacing foundation. C. W. Lush. *il diag Eng N* 82:1123-4 Je 5 '19
- Tapping-floor ventilators. *diag Chem & Met Eng* 21:118 Ag 1 '19
- Third stack now in operation. *il Iron Tr R* 65:419-21 Ag 14 '19
- Unique feat in blast furnace building. *il diag Iron Age* 101:989-93 Ap 18 '18
- Use of bosh tuyeres in the blowing of basic pig iron. J. S. Hollings. *Engineer* 126:258-9 S 27 '18
- Use of electricity in the iron and steel trades; Newcastle local section; chairman's address. A. H. W. Marshall. *Inst E E J* 56:23-9 D '17
- Volume regulator for blast-furnace engines. L. C. Loewenstein. *il diag Am Soc M E J* 40:224-33 Mr '18; Same. *Iron Tr R* 63:603-10 S 12 '18; Excerpts. *Met & Chem Eng* 18:29-32 Ja 1 '18; Excerpts. *Iron Age* 101:737 Mr 21 '18; Discussion. *Am Soc M E J* 40:149 F '18
- Whitaker-Glessner blast furnace now in operation. *il Iron Tr R* 62:429-32 F 14 '18
- Wlerton steel builds modern furnace. *il Iron Tr R* 65:921-4 O 2 '19
- See also Blast furnace gas; Blast furnace stoves; Blowers; Cupola furnaces; Iron metallurgy; Iron works; Slag; Slag pots

**By-products**

- Artificial manures from blast-furnaces. *Engineer* 125:80 Ja 25 '18
- Cottrell process for potash recovery. L. Bradley. *Chem & Met Eng* 19:457-60 S 26 '18; Same. *J Ind & Eng Chem* 10:834-8 O '18; Same cond. *Iron Age* 102:1151-3 N 7 '18
- Potash as a by-product. J. S. Grasty. *il Chem & Met Eng* 19:434-8 S 26 '18
- Potash from blast furnace gas. A. L. Leigh; K. M. Chance. *Met & Chem Eng* 18:420-1 Ap 15 '18
- Potash from coal-burning blast furnaces. R. A. Berry and D. N. McArthur. *Met & Chem Eng* 18:547-8 My 15 '18
- Potash from iron ores and fluxes. J. J. Porter. *Chem & Met Eng* 19:462 S 26 '18
- Recovery of potash from blast furnaces. K. A. Chance. *Iron Age* 102:604 S 5 '18

**Charging**

- Charging raw material into blast furnaces; abstracts. J. A. Mohr. *diag Iron Age* 103:1432-6 My 29 '19; *Iron Tr R* 64:1413-15 My 29 '19
- Distributing system aids furnace yield. R. V. McKay. *Iron Tr R* 64:1491 Je 5 '19

**Safety devices and measures**

- Blast furnace breakouts, explosions, and slips, and methods of prevention. F. H. Willcox. *diag U S Bur Mines Bul* 130:1-280 '17; Excerpts. *Iron Age* 100:1300-3 N 29 '17; Excerpts. *Iron Tr R* 61:1882-4, 1377-80; 62:149-53 D 20-27 '17, Ja 10 '18
- Occupational hazards at blast-furnace plants and accident prevention. F. H. Willcox. *il U S Bur Mines Bul* 140:1-155 '17; Excerpts. *Iron Tr R* 62:917-21 Ap 11 '18

Blast stoves. See Blast furnace stoves

# Blasting

Advantageous method of firing a drift round. diag plan Eng & Min J 105:1183 Je 22 '18  
 Advantages of electrical method of setting off blasts. J. B. Stoneking. diags Eng & Contr 52:217-19 Ag 20 '19; Same. Concrete 15:sup 41-3 S '19  
 Advantages of using stemming in blasting. Eng & Contr 52:227 Ag 20 '19  
 Attaching fuse to primers. W: Crocker. diag Coal Age 14:303 Ag 1 '18  
 Blasting a ditch in a mine. G: Smith. diag Coal Age 13:1128 Je 15 '18; Discussion. 14: 326, 415-16 Ag 15, 29 '18  
 Blasting a ditch through a swamp. Munic Eng 56:226 Je '19  
 Blasting a frozen iron-ore pile within a building. Eng & Min J 106:83 JI 13 '18  
 Blasting down a brick building. H. Gough. Eng & Contr 50:493 N 20 '18  
 Blasting practice in Joplin zinc district. R. H. Summer. diags Eng & Contr 52: 75-6 JI 16 '19  
 Blasting safely and silently. Factory 20:672 Ap '18  
 Blasting with electricity. A. S. Anderson. Eng & Contr 51:67 Ja 15 '19  
 Blasting with the lighting circuit. T: J. Pascoe. II Eng & Min J 106:267 Ag 10 '18; Same. Coal Age 14:342 Ag 22 '18  
 Breaking up frozen iron ore with dynamite. Eng & Contr 51:201 F 19 '19  
 Chamber blasting, cable drilling and block-holding methods. S. U. Champe. diags Eng & Contr 50:196-7 Ag 21 '18  
 Chamber blasting methods and costs. E. E. Baker. Eng & Contr 50:279-83 S 18 '18  
 Coal, explosives, war. H. J. Broughton. Coal Age 14:158-61, 214-16, 258-61 JI 25-Ag 8 '18  
 Delayed action fuses. M. Cranston. diags Coal Age 13:817 My 4 '18  
 Digging pole holes with dynamite. Eng & Contr 50:284 S 18 '18  
 Drilling and blasting in construction of Halifax ocean terminals railway. B. H. Smith. Eng & Contr 50:480-1 N 20 '18  
 Dynamiting a city street. Munic J 45:469 D 14 '18  
 Dynamiting concrete piers. F. A. Huntington. Concrete 15:142 O '19; Same. Munic Eng 57:192 O '19  
 Dynamiting devastated orchards in France. M. A. Pledallu. Sci Am 120:111 F 8 '19  
 Electric blasting equipment. L. D. Rowell. diag Eng & Min J 108:45-6 JI 12 '19  
 Explosives efficiency. S. R. Russell. Concrete 12:sup36-9 Ap '18  
 Firing wet holes. T. F. Price. diag Coal Age 14:48 JI 13 '18  
 Handling electric detonators. Coal Age 14:80 JI 13 '18  
 Improved method of igniting fuse. El. M. Weston. diags Eng & Min J 105:1046-7 Je 8 '18; Same abr. Eng & Contr 50:69 JI 17 '18  
 Increasing flow of water in drilled wells by shooting. C: F. Higgs. Eng & Contr 51:48 Ja 8 '19  
 Lasting benefits of soil blasting. Sci Am 119: 253 S 28 '18  
 Loosening hard soil in water pipe line trench without picking. C: F. Higgs. Munic Eng 56:242-3 Je '19  
 Lowering dynamite into blast holes. diag Eng & Min J 107:925-6 My 24 '19  
 Method and cost of clearing cut over land with powder. II Eng & Contr 48:505-7 D 19 '17  
 Method of blasting green stumps. Eng & Contr 52:67 JI 16 '19  
 Method of blasting out ice gorge. H. W. Stickie. Eng & Contr 50:283-4 S 18 '18  
 Method of breaking up ice gorges with dynamite. S. R. Russell. II diags Eng & Contr 51: 217-18 F 26 '19  
 Methods employed and precautions observed in blasting in city streets. L. B. Steele. II Munic Eng 54:359-60 Je '18  
 Munitions of peace. C. H. Claudy. II Sci Am 121:366-7 O 11 '19  
 Negligence in blasting operations. A. L. H. Street. Eng & Min J 106:531 S 21 '18

Notes on blasting stumps in sandy ground.

Eng & Contr 49:204 F 20 '18  
 Powder blast at the Perseverance mine, Juneau, Alaska. R. L. Healy. diags plan Eng & Min J 106:922-3 My 18 '18; Same. Eng & Contr 49:623 Je 19 '18  
 Precautions to be observed in quarry blasting with electricity. Eng & Contr 50:577 D 18 '18  
 Priming a cartridge. diags Coal Age 14:327, 521 Ag 15, S 12 '18  
 Procedure in the use of explosives on road maintenance work with specific examples. W. H. Dawson. Munic Eng 55:12-13 JI '18  
 Recommended procedure in the use of explosives on road construction. II Munic Eng 55:187-90 N '18  
 Rock quarrying for cement manufacture. O. Bowles. II diags plan U S Bur Mines Bul 160:46-106 '18; Excerpts. Eng & Contr 50: 571-2; 51:56-7 D 18 '18, Ja 15 '19  
 Safety in shotfiring. R. A. Marshall. Coal Age 15:416-17 F 27 '19  
 Safety in shotfiring in mines. Coal Age 13: 754-5, 800, 846-7, 1029, 1078; 14:234, 327-8 Ap 20-May 4, Je 1-8, Ag 1, 15 '18  
 Safety in the use of explosives. A. La Motte. Coal Age 14:490-2 S 13 '18; Same. Eng & Min J 106:488-93 S 14 '18; Excerpts. Eng & Contr 50:365-6 O 16 '18  
 Saving labor in limestone quarries. O. Bowles. Concrete 13:sup54-5 N '18  
 Shotfiring in gaseous and nongaseous mines. Coal Age 12:647, 1031 O 13, D 15 '17  
 Shotfiring in mines. Coal Age 12:774, 1030-1; 13:33 N 3, D 15 '17, Ja 5 '18  
 Simple device for cleaning smoke stack. diag Am Lumberman 2259:59 Ag 31 '18  
 Some blasting technicalities. A. J. Averell. Sci Am 121:281 S 20 '19  
 Squibs vs. electric fuse. Coal Age 14:145 JI 20 '18; Discussion. 14:328-9, 519-20 Ag 15, S 12 '18  
 Suggestions on the use of explosives in quarrying. Eng & Contr 49:622-3 Je 19 '18  
 TNT as a blasting explosive. C: E. Munroe and S. P. Howell. U S Bur Mines 14p Je '19; Abstract. Eng & Contr 52:225-6 Ag 20 '19  
 Use and abuse of safety fuse. Eng & Min J 107:229-31 F 1 '19; Same. Eng & Contr 51: 189-91 F 19 '19  
 Use of permissible explosives in the coal mines of Illinois. J. R. Fleming and J: W. Koster. II diags plans map U S Bur Mines Bul 137:1-110 '17  
 Use of powder in opencut blasting. El. S. Jacobson. Eng & Min J 105:365-6 F 23 '18; Discussion. 105:601, 1130-1 Mr 30, Je 22 '18  
 Well drilling method of blasting at quarries. II Eng & Contr 50:276 S 18 '18  
 See also Coal mines and mining—Explosives; Detonators; Explosives; Mines, Military; Mines, Submarine; Mining engineering; Quarries and quarrying

**Blasting caps.** See Detonators

**Blauvelt, Warren S.**  
 Coke director of the Fuel administration. por Iron Tr R 62:745 Mr 21 '18

**Bleaching**  
 Acids in cotton bleaching. Color Tr J 4:83 Ap '19  
 Action of bleaching agents in fibres. J. M. Matthews. J Fr Inst 186:831-2 Je '18  
 Allen-Moore cell in the pulp and paper mill. F. H. Mitchell. II Chem & Met Eng 21:370-5 S 15 '19  
 Amount of caustic soda used in kier boiling. Textile World 54:303 JI 20 '18  
 Bleachery forms and records. Textile World 54:941 Ag 31 '18  
 Bleaching and finishing bedspreads. diags Textile World 56:479-4 JI 26 '19  
 Bleaching apparatus. diags Color Tr J 5:46-7 Ag '19  
 Bleaching colored cotton pieces. A. C. Walsh. Color Tr J 4:138 Je '19  
 Bleaching cotton goods with peroxide. Textile World 53:4147 Mr 9 '18  
 Bleaching cotton knit goods. Textile World 55: 921 F 1 '19

**Bleaching—Continued**

- Bleaching hosiery. Textile World 54:3103+ D 21 '18  
 Bleaching mercerized hosiery. Textile World 54:1975 O 26 '18  
 Bleaching merino and worsted knitted fabrics. Textile World 53:2525 D 15 '17  
 Bleaching powder for hot climates. Color Tr J 4:33 F '19  
 Bleaching towels with colored stripe. Textile World 53:4707 Ap 13 '18  
 Bleaching wool on sheep skins. Textile World 55:1457 Mr 1 '19  
 Building a sulphur bleach house. Textile World 54:1443 S 28 '18  
 Changing from chloride of lime to liquid chlorine. Textile World 54:2985 D 14 '18  
 Concrete in bleach houses. diags Textile World 54:1439+ S 28 '18  
 Dyeing and bleaching plant of Woodlawn finishing co. II Textile World 53:3259+ Ja 12 '18  
 Efficient use of bleaching powder; producing full strength solution—arrangement and control of chemic house. E. R. Darling. Textile World 54:399 J 27 '18  
 Electrolytic bleaching. R. Manners. Color Tr J 4:32 Ap '19  
 Material for bleaching tanks. Textile World 53:5677 My 18 '18  
 Suggestions for increasing production in bleaching and finishing. E. R. Darling. Textile World 55:1283+ F 22 '19  
*See also* Cotton fabrics—Stains; Dyes and dyeing; Decolorization

**Blind**

- Blind employes tape colls. II Elec R 72:852 My 18 '18  
 Double duty finger guld. M. Harris. II Am Mach 48:290-1 F 14 '18  
 Experiment in employing the blind. D. Wolf. Ind Management 57:105-7 F '19  
 Eyes in the finger tips. Sci Am 119:167 Ag 31 '18  
 Instruction of blind workers in plant of Crocker-Wheeler company. II Elec W 71:114 Ja 12 '18  
 Rehabilitating the blind. S. S. Wheeler. Elec W 71:1255 Je 15 '18  
 Talking glove for the blind-deaf. II Sci Am 120:342 Ap 5 '19

*See also* Thermometers for the blind

**Printing and writing systems**

- How books for the blind are manufactured, and what they mean to their readers. II Sci Am 119:226-7 S 21 '18  
**Blind, Books for the**  
 Books for blinded soldiers. Sci Am 119:224 S 21 '18  
 How books for the blind are manufactured, and what they mean to their readers. II Sci Am 119:226-7 S 21 '18  
**Block signals.** See Electric railroads—Signals; Railroads—Signals  
**Blooming mills.** See Rolling mills  
**Blotters**  
 Advertising blotters. F. L. Martin. II Inland Ptr 62:69-71; 64:69-71 O '18, O '19  
**Blow, Albert Allmand, 1858-1918**  
 Sketch. por Eng & Min J 105:152-3 Ja 19 '18  
**Blow-off valves.** See Boilers—Blow-off  
**Blowers**  
 Air syphon blowers for rivet furnaces. diags Eng & Contr 51:223 F 26 '19  
 American blowing engine in Italy. A. R. Decker. II Power 47:22 Ja 1 '18  
 Blower facts shown in test; delivery of P. H. & F. M. Roots co. blowers. diags Gas Age 43:43-4 J 1 '18  
 Carling turbo blower. II diag Power 48:774-5 N 26 '18  
 Coppus turbo blower. II Power 48:382-3 S 10 '18  
 Economical forge blower. A. C. Delfield. diags Am Mach 51:74-5 J 10 '19  
 Effect of steam blowers on combustion. W. D. Owens. Coal Age 15:53 Ja 9 '19  
 Fan, blower and air-compressor applications. C. E. Clewell. II Elec W 71:196-9 Ja 26 '18

- Fans and blowers in the power plant. R. T. Strohm. diags Power 49:152-5 F 4 '19  
 1500 h.p. gas blowing engine. II diags (supp) Engineer 126:10, 16, 207 J 15, S 6 '18  
 Hand control for forced-draft blowers. L. B. Case. diags Power 48:228 Ag 13 '18  
 Hot cable runs cooled by portable blowers. G. B. McCabe. II Elec W 74:582 S 13 '19  
 Improved turbo-blower unit. W. L. Wother-spoon. II Eng & Min J 107:881 My 17 '19  
 Large motor-driven turbo-blower. II Power 50:370 S 2 '19  
 Large turbo blower for copper smelting. II Iron Age 103:429 F 13 '19  
 Measuring air delivered by a turbo-blower; abstract. T. G. Estep, Jr. Am Soc M E J 40: 104 Ja '18  
 Measuring air-flow from rotary blowers. diag Iron Tr R 62:1374-5 My 30 '18  
 Railway shop fans and blowers. J. H. Wick-man. Ry Mech Eng 92:166 Mr '18  
 Spencer slow-speed foundry turbo-compressor. II Iron Age 101:1549 Je 13 '18  
 Testing rotary blowers. diag Foundry 46:337 J 1 '18  
 Tests on rotary blowers and exhausters; abstract. Am Soc M E J 40:716-17 Ag '18  
 Turbo-blower valve control. F. M. Nourse. II Power 49:621 Ap 22 '19  
 Use of displacement blowers in cupola practice. W. Trinks. II diags Foundry 47:356-9 Je 1 '19  
*See also* Blast furnaces; Fans, Mechanical; Mechanical draft; Mine ventilation; Ventilation

**Blowoff meters**

- Yarway blowoff meter. II diag chart Power 48:532 O 8 '18

**Blowoff tanks**

- Blowoff-tank pointers. J. E. Noble. diag Power 48:313 Ag 27 '18

- Blue coal; utilizing the energy of waves and tides. diags plans Sci Am S 87:156-7+ Mr 8 '19

Blue vitriol. See Copper sulfate

**Blueprinting machinery**

- Blueprinting in war work. II Iron Age 103: 764-5 Mr 20 '19  
 Electrical blue-printing machine. II Elec W 72:139 J 1 20 '18  
 Speeding up the old blueprint machine. J. S. Carpenter. diag Am Mach 48:366 My 23 '18  
 Wagenhorst electric blueprinter. II Mach 25: 665-6 Mr '19

**Blueprints**

- Automatic blueprint washer. M. H. Potter. diags Am Mach 50:653-4 Ap 8 '19  
 Blue and brown print paper; characteristics, tests and specifications. F. P. Veitch, C. F. Sammet and E. O. Reed. J Ind & Eng Chem 10:222-6 Mr '18  
 Blueprints bound in center, each on separate gummed strip. diag Eng N 80:428 F 28 '18  
 Blue prints holder. H. J. Harms. diag Concrete 12:132 Ap '18  
 Business methods in the drafting-room. E. K. Hammond. II diags Mach 24:697-702 Ap '18  
 Detail-drawing method used for 5800-ton steel ships. diags Eng N 82:188-90 Ja 23 '19  
 Drafting-room labor-saving devices. F. T. Harding. II diags Mach 25:61-2 S '18  
 Filing rack that makes blue prints quickly accessible. diag Bldg Age 41:311 S '19  
 Filing system for blue prints and drawings. II Eng & Contr 51:230 F 26 '19  
 Handy clip for hanging wet blueprints. E. H. Gibson. diags Am Mach 49:86 J 11 '18  
 Making blueprints from printed pages. H. O. Garland. Elec R 72:388 Mr 2 '18  
 New arc lamp for blue-printing in the field. diags Elec R 74:669 Ap 26 '19  
 Notes on blueprinting. diags Eng & Min J 104:1129-30 D 29 '17  
 Presto blueprint and drawing holder. II Am Mach 47:1059 D 13 '17  
 Simple holder for filing drawings. II diag Elec Ry J 50:1086 D 15 '17  
 Simple rack files many prints. C. P. Rumpf. diag Eng N 83:581-2 S 11 '19  
 Bluestone. See Copper sulfate



- Board measures.** See Building—Tables, calculations, etc.
- Boards of health.** See Health boards
- Boat building**  
 First electrically welded boat. J: Liston. 11 plan Gen Elec R 21:844-8 D '18  
 Manufacturing standardized lifeboats. M. M. Whitaker. 11 Int Marine Eng 24:167-9 Mr '19  
 See also Barges, Concrete; Barges, Steel; Boats, Concrete; Shipbuilding; Submarine boats
- Boat houses**  
 Boat house built of glass. 11 Bldg Age 41: 67 F '19  
 Glass boat houses. 11 Am Arch 114:630 N 20 '18
- Boats, Concrete**  
 Building concrete lighters; construction methods used by the Aberthaw co., at Fields Point, R.I. 11 plan Concrete 13:114-16 O '18  
 Launch of a 1000-ton concrete lighter. Engineer 126:191 Ag 30 '18  
 Reinforced concrete boat in U. S. service in Chicago. 11 diags Concrete 11:193 D '17  
 Reinforced concrete boats. diags Engineer 124:572 D 28 '17  
 Small concrete motor boat. 11 Engineer 125:391 My 3 '18  
 Small work boat of concrete. 11 diags plan Concrete 14:123 Mr '19  
 See also Barges, Concrete; Ships, Concrete
- Boats, Submarine.** See Submarine boats
- Boats and boating**  
 Indian boats and their origin. Sci Am S 85: 73 F 2 '18  
 See also Barges; Canal boats; Canoes and canoeing; Dredges; Flying boats; Freight ships; House boats; Lifeboats; Motor boats; Patrol boats; Rafts; Shipbuilding; Ships; Steamboats; Submarine boats; Torpedo boats; Towboats; Train ferries
- Boiler accidents.** See Boiler explosions
- Boiler baffles.** See Baffles
- Boiler cleaning**  
 Atlas boiler-tube cleaner. 11 Power 50:588 N 22 '19  
 Cleaning boiler tubes of outside deposits. diag Power 50:540 S 30 '19  
 Cleaning handhole plates on Babcock & Wilcox boilers. C. H. Willey. diags Int Marine Eng 24:52-3 Ja '19  
 Cleaning water sides of Babcock & Wilcox boilers. C. H. Willey. Int Marine Eng 24:174-5 Mr '19  
 C. E. C. tube scraping device. R. C. Beadle. 11 diag Gas Age 43:442 Ap 15 '19; Same abr. Power 50:99 JI 15 '19  
 Evaporation tests show effect of cleaning boiler. S. R. Blakeman. Power 48:396 S 10 '18  
 Geyser boiler cleaner. 11 Power 49:321 Mr 4 '19  
 Scraping of boiler tubes in the boiler setting. diags Elec Ry J 53:791 Ap 19 '19  
 Triple-blade tube-hole cleaner. diags Power 48:800 D 3 '18  
 See also Boiler scale; Soot blowers; Soot cleaners
- Boiler code.** See Boilers—Laws and regulations
- Boiler corrosion.** See Boilers—Corrosion
- Boiler explosions**  
 Annual report of the Manchester steam users' association. Power 48:506 O 1 '18  
 Boiler explosion at East Chicago kills seven. 11 diag Power 47:382-4 Mr 12 '18; Discussion. G. W. Cook; W. H. H. Plowman. 47:560 Ap 16 '18  
 Boiler explosion at Mobile, Ala. diags Locomotive 32:162-5 Ap '19  
 Boiler explosion at Mobile, Ala. 11 diags plan Power 49:432-6, 582, 659 Mr 25, Ap 15, 29 '19  
 Boiler explosion at Paso Robles, California. P. Hansen. 11 Power 49:488-9 Ap 1 '19  
 Boiler explosion at Providence, R.I. H. S. Knowlton. 11 diag Power 47:463-4 Ap 2 '18  
 Boiler explosions. See quarterly numbers of Locomotive  
 Cast iron heating boilers do explode. E. M. Parry. diag Locomotive 32:209-11 JI '19  
 Explosion of a hot water heating boiler. Dom Eng 82:51-4 Ja 12 '18  
 Liability in case of boiler explosions. B. B. Banger. 11 Power 48:701-3 N 12 '18  
 Liability in case of boiler explosions. C. C. Sherlock. Power 48:648-9 O 29 '18  
 Lightning explodes boiler. A. W. Kirby. 11 Power 48:281 Ag 20 '18  
 Old-time explosion preventive. Locomotive 31: 232-3 O '17  
 One life lost when boiler tube burst. 11 Power 48:310 Ag 27 '18  
 Preventing boiler explosions. C. Colver. Factory 21:32-4 JI '18  
 Preventing explosions in waste-heat boiler settings. E. Standiford. Power 48:304 Ag 27 '18  
 Rear head of steam drum falls. 11 Power 50:70 JI 8 '19  
 Story of a boiler explosion. R. L. Hemingway. diag Cal Safety News 2:3-4 Mr '18  
 Summary of boiler explosions, 1917. Locomotive 32:49-51 Ap '18  
 Theories of the Mobile explosion. Power 49: 465-6 Mr 25 '19  
 Unusual boiler explosion. Ry Mech Eng 92: 396 JI '18  
 Wadsworth boiler explosion at Detroit. J. C. McCabe. diag Power 48:775-6 N 26 '18
- Boiler feeding.** See Feed water
- Boiler furnaces.** See Furnaces, Boiler
- Boiler heads**  
 Alignment charts for finding the dimensions and volumes of bumped heads. C. H. Berry. diags Power 49:926-7 Je 17 '19  
 Allowable pressure for stayed heads of boiler. Power 48:25 JI 2 '18  
 Areas of segments of boiler heads. diags Power 49:402-4, 644-5, 782-3 Mr 18, Ap 29, My 20 '19  
 Designation of bumped heads. diags Locomotive 32:14-16 Ja '18  
 Reversed heads in pressure vessels. J. L. Lane. diags Power 49:61-2 Ja 14 '19; Same cond. Am Soc M E J 41:172-3 F '19  
 Supporting effect of boiler heads. N. M. Macdonald. Power 47:733-4 My 21 '18; Discussion. 47:924; 48:98, 171, 210, 314, 358 Je 25, JI 16, 30-Ag 6, 27-S 3 '18
- Boiler inspection**  
 Attitude of plant owners and engineers toward boiler inspectors. Power 48:391 S 10 '18  
 Boiler inspection and engineers' license in Massachusetts. Power 50:229-30 Ag 5 '19  
 Boiler inspector's work. M. T. Glenn. Power 47:620-2 Ap 30 '18  
 By-products from your boiler insurance policy. C. Colver. Factory 20:235-6 F '18  
 Final inspection of boiler plants. D. G. Wallace. 11 Power 50:55 JI 8 '19  
 Need and value of boiler inspection. A. L. G. Taylor. Power 48:389-90 S 10 '18  
 New Jersey boiler inspection bureau provided by the legislature. Power 47:418 Mr 19 '18  
 State legislation relating to the inspection of low pressure heating boilers. F. W. Herendeen. Dom Eng 87:600-5 Je 28 '19; Same. Metal Work 92:68-9+, 128-30 JI 18, Ag 1 '19  
 Summary of the work of the inspection department for the year 1918. Locomotive 32:177-9 Ap '19  
 Work of the Massachusetts boiler inspection department. Power 47:442 Mr 26 '18  
 See also Locomotive boilers
- Boiler joints.** See Boilers—Joints
- Boiler law.** See Boilers—Laws and regulations
- Boiler manufacturers' association.** American. See American boiler manufacturers' association
- Boiler meters**  
 Meters and gages in boiler operation. E. A. Uehling. Power 48:842-4 D 10 '18  
 Meters and measuring devices for the boiler room. Eng & Contr 52:201-2 Ag 13 '19

**Boiler meters—Continued**

- New design of Blonck boiler-efficiency meter. *Il Heat & Ven* 16:65-6 Ja '19; *Power* 49:214 F 11 '19
- See also* Boiler plants—Equipment; Carbon dioxide recorders
- Boiler plants**
- Air supply to boiler rooms. R: W. Allen. *diags Engineer* 126:198-9, 228-9 S 6-13 '18
- Atmospheric vapor-absorption system. G. C. Derry. *Power* 47:801 Je 4 '18
- Avoiding a preventable loss; soot and its effect on heat transfer through boiler-heating surface. *Elec W* 71:1203-6 Je 8 '18
- Avoiding power plant losses. *Factory* 21:460+ S '18
- Boiler equipment of the Ausberg power station; abstract. P. Koch. *Am Soc M E J* 40: 869 O '18
- Boiler fuel economy. M. Meredith. *Coal Age* 15:617 Ap 3 '19
- Boiler-house operation with reference to various fuels; abstract. *Am Soc M E J* 40:727-8 Ag '18
- Boiler room and fuel practice from the conservation standpoint. *Elec Ry J* 53:1001-3 My 24 '19
- Boiler-room bonus that satisfies the men. *Elec W* 73:274 F 3 '19
- Boiler-room efficiencies. G: F. Weaton. *Power* 47:98-101 Ja 15 '18; Abstract, with discussion. *Elec W* 70:1243-4 D 29 '17
- Boiler-room efficiency. A. H. Blackburn. *Power* 48:437-8 S 17 '18; Discussion. O. D. Cotton. 48:605 O 22 '18
- Boiler-room management plan. T. N. Wynne. *Elec W* 72:549-52 S 21 '18; Same cond. *Power* 48:542-4 O 8 '18
- Boiler room operation. J. Harrington. *Power* 49:339-40 Mr 4 '19
- Bonus plan for boiler-plant operatives. H. O'Neill. *Power* 47:467-71 Ap 2 '18
- Carbon dioxide and fuel saving. F. A. Uehling. *Elec R* 75:919 N 29 '19
- Chart to determine money lost up the chimney. *Am Gas Eng J* 108:396 Ap 27 '18; Same. *Met & Chem Eng* 18:551-2 My 15 '18; Same cond. *Coal Age* 14:268-9 Ag 8 '18; Same cond. *Heat & Ven* 15:60 N '18
- Chemical and physical control of boiler operation. E. A. Uehling. *charts Am Soc M E J* 41:137-41+ F '19; Same. *Elec R* 74: 622-8 Ap 19 '19; Same cond. *Power* 49:32-4 Ja 7 '19; Discussion. F. Odone. 49:142 Ja 28 '19
- Clinker grinder in modern boiler practice. C: H. Bromley. *Il diags Power* 49:592-8 Ap 22 '18
- Coal accounting in the boiler room. B. K. Hough. *Power* 49:586 Ap 15 '19
- Coal and wood furnaces under Stirling boilers. *Il diags plan Power* 50:414-17 S 9 '19
- Coal conservation in the boiler room; abstracts. R. H. Kuss. *Power* 48:322-3 Ag 27 '18; *Am Soc M E J* 40:848-9 O '18
- Coal economy in mine boiler firing. *diag Eng & Min J* 106:529-30 S 21 '18
- Coal saving by the scientific control of steam boiler plants. D. Brownlie. *Power* 48:822-5 D 3 '18
- Combustion and flue gas analysis. *diags U S Bur Mines Tech Pa* 219:1-12 '19
- Concrete used in boiler-house structure and fittings. G: S. Nobles. *Il Eng N* 83:262-3 Ag 7 '19
- Conservation in fuel oil boiler plants. E. A. Rogers. *Ry Mech Eng* 92:599-600 N '18
- Consuming bituminous and anthracite coal. *Elec W* 73:843-4 Ap 26 '19
- Co-ordinating furnace requirements with boiler performance. L. Linnell. *diag Elec R* 72:121-2 Ja 19 '18
- Cross-section through one unit of boiler plant of Old Hickory powder plant. E. A. Wardenburg. *Power* 49:752 My 20 '19
- Development of power from the standpoint of the boiler room. C. F. Hirshfeld. *Il diag Sibley J* 32:64-9 F '18; Same cond. *Power* 48:284-6 Ag 20 '18
- Division of coal consumed between units of light and water plants. W. G. Kirchoffer. *Munic Eng* 55:28-9 Jl '18

- Does a bonus system for firemen pay? L. L. Sprague. *Power* 47:480 Ap 2 '18
- Economies in power-plant operation. F. N. Lawton. *Il Elec R* 71:967-70 D 8 '17
- Economy in the use of fuel in power stations. C: H. Parker. *Il diags Boston Soc C E J* 5:163-85 Ap '18; Excerpts. *Elec W* 71:762-3 Ap 13 '18; Discussion. *Boston Soc C E J* 5:185-9 Ap '18
- Education of boiler-room men necessary. E. A. Hunger. *Elec W* 72:344-7 Ag 24 '18; Excerpts. *Eng & Contr* 51:374-6 Ap 9 '19
- Efficient use of coal is patriotic. E. P. Later. *Iron Tr R* 61:1328-31 D 20 '17
- Excellent results with pulverized coal at Milwaukee. *diags Power* 48:556-9 O 15 '18
- Fans and boilers. W. D. Owens. *Coal Age* 14:937-40 N 21 '18
- Flue gas analysis. *Locomotive* 32:166-76 Ap '19
- Formula for calculating the heat carried to waste by the flue gases. E. A. Uehling. *Stevens Ind* 34:124-36 Ap '17; Same abr. *Am Gas Eng J* 107:62-4 Jl 21 '17; Excerpt. *Power* 47:395 Mr 19 '18
- Fuel economy in the boiler house. J: B. C. Kershaw. *diags Chem & Met Eng* 20:176-8, 241-5, 291-5 F 15-Mr 15 '19
- Fuel economy in the Singer building. N. King. *Power* 48:710-11 N 12 '18
- Fuel saving and other advantages of heating a group of related buildings from a single boiler plant. H. E. Dart. *plan Locomotive* 32:76-83 Jl '18
- Fuel-saving experience. W. D. Ball. *Power* 48:659-60 N 5 '18
- Fuel saving suggestions. C: H. Bromley. *Il diag Power* 46:786-9 D 11 '17
- Getting better economy in the power house. G. H. Kelsey. *diags Elec Ry J* 53:455-60 Mr 8 '19
- Helping power plants save coal by mail. J. Harrington. *Elec R* 73:941-2 D 14 '18
- High-grade coal fired in Moline plant during period of peak. *Elec W* 71:935 My 4 '18
- High-pressure boilers for Joliet (Ill.) plant. *Il Elec Ry J* 51:146-7 Ja 19 '18
- High steam pressures; with discussion. *Power* 49:910-12 Je 10 '19
- Improving boiler-room operation. I. L. Ken-tish-Rankin. *diags chart plan Elec R* 72: 986-9 Je 15 '18
- Improving boiler room piping connections. *diags Heat & Ven* 16:37-9 N '19
- Improving operation in typical industrial plant boiler room. J. T. Beard, jr. *Power* 49:987-9 Je 24 '19
- Improving plant conditions. A. W. Blom. *diags Power* 48:11-12 Jl 2 '18
- Incidents indicating inexcusable conditions in boiler rooms. M. O'Leary. *Elec R* 73:704 N 2 '18
- Lifting power plant capacity by its boot straps. C: L. Hubbard. *Il Factory* 21:833-5 N '18
- Logan, West Virginia, power plant. *Il diags plan Power* 46:819-22 D 18 '17
- Losses in the boiler room from incomplete combustion and high stack temperature. *charts Textile World* 54:1616+ O 5 '18
- Making the CO<sub>2</sub> recorder pay dividends. M. A. Saller. *Power* 49:95-6 Ja 21 '19
- Making the power plant more efficient. K. B. Lamb. *Textile World* 53:4603+ Ap 6 '18
- Management of the power plant. R. June. *Il diag Textile World* 54:1611+ O 5 '18; Same. *Concrete* 13:sup41-3 O '18
- Massachusetts fuel administration shows how to save coal; bulletin for firemen and engineers. *Textile World* 54:1615+ O 5 '18
- Methods for reducing coal consumption; 20 don'ts for firemen and water tenders. G. H. Kelsey. *Eng & Contr* 51:372-3 Ap 9 '19
- Methods of increasing boiler-room efficiency. D. S. Jacobus. *Power* 50:122-3 Jl 15 '19; Same. *Eng & Contr* 52:306-7 S 10 '19
- Methods of increasing power-plant efficiency. *Elec W* 72:163-4 Jl 27 '18
- Methods to improve plant fuel economy. S. J. H. White. *Iron Age* 100:1528-9 D 27 '17

**Boiler plants—Continued**

- Mine plant saves forty-five tons of coal per day. diag plans Power 47:292-3 F 26 '18
- New boiler plant of the A. S. & R. co. at Omaha. R. N. Robertson. II diag plan Power 49:514-18 Ap 8 '19
- New furnace design; a Cleveland company puts the stoker under the mud drum. diag Elec Ry J 53:972 My 17 '19
- New plant of the Pennsylvania salt manufacturing company. II diag plan Power 48:406-13 S 17 '18; Abstract. Am Soc M E J 40: 963-4 N '18
- Personal safety around the boiler room. Elec R 74:111-12 Ja 18 '19
- Power-plant practice during 1917. I. L. Kentish-Rankin. II Elec R 72:25-30 Ja 5 '18
- Practical operation of industrial boilers. W. E. Snyder. Eng Soc W Pa 35:59-101 Mr '19; Excerpt. Eng & Contr 52:49-51 JI 9 '19; Abstract. Iron Age 103:306-7, 345 Ja 30 '19; Discussion. Eng Soc W Pa 35:101-16 Mr '19
- Practical phases of boiler-room practises. E. Marshall. Elec R 74:275 F 15 '19
- Practical rules for burning coal in the power plant. Eng & Contr 50:471 N 13 '18
- Prevent smoke and save coal. diag Elec Ry J 52:621 O 5 '18
- Preventable boiler-room losses. diag Power 47:873-5 Je 18 '18
- Pulverized coal plant of Puget Sound traction, light and power co. Eng & Contr 52: 307-10 S 10 '19
- Pulverized-coal tests conducted at Milwaukee. J. Anderson. diag Elec R 73:615, 658-9 O 19-26 '18; Same. Ry R 63:606-7 O 28 '18; Same. Ry Age 65:667-9 O 11 '18
- Reconstruction of a two-phase station for the Iowa railway & light company of Cedar Rapids. II diag Elec W 72:644-6, 738-90 O 5, 26 '18
- Reducing difficulties in burning Iowa coal. T. A. Marsh. diag Elec W 72:1166-8 D 21 '18; Same. Power 48:940-1 D 31 '18
- Remodeling the St Louis Baden station. K. Toensfeldt. II diag plan Power 47:862-5 Je 18 '18; Same cond. Eng N 80:1135-6 Je 13 '18
- Reorganization of bleachery power plant. Textile World 55:519+ Ja 11 '19
- Saving coal in boiler plants. H. Krelsinger. diag U S Bur Mines Tech Pa 205:1-21 '18; Same cond. Factory 22:166+, 344+ Ja-F '19; Excerpt. Metal Work 91:237 F 21 '19
- Saving coal in the Blackstone power plant. W. A. Eberman. II Power 49:632-4 Ap 29 '19
- Saving money in the boiler room. Power 48: 535 O 8 '18; Discussion. F. Odone. 48:606 O 22 '18
- Significance of the rate of combustion in coal conservation. Locomotive 32:110-14 O '18
- Some boiler-house economies. E. P. Humphrey. II Coal Age 16:570-2 O 2 '19
- Stoker capacity vs. boiler forcing rates. J. T. Foster. Power 47:576-8 Ap 23 '18
- Suggestions for saving coal in construction operations. G. E. Ladd. Eng & Contr 49: 475-7 My 15 '18
- Summer time conservation in the power plant. Locomotive 32:66-76 JI '18
- Systematic boiler-room operation. A. A. Straub. Power 48:923-4 D 24 '18
- 34 boiler room pointers. Eng & Contr 51: 638-9 Je 11 '19
- Turn light on the boiler room. Elec R 72:951 Je 8 '18
- Vigorous fuel-saving campaign. Elec W 71: 1308-9 Je 22 '18
- War emphasizes need of intelligence in the boiler room. C. H. Bromley. II Power 46: 860-1 D 25 '17
- Watching the steam plant. P. R. Duffy. Power 48:390 S 10 '18
- Water works operation; pumping plants. diag Munic J 45:244-6, 264-6, 300-1, 322-4, 344-6 S 28-O 5, 19-N 2 '18
- Where the worst leak is. Factory 20:314+ F '18
- See also* Air chambers; Boilers; Steam plants

**Equipment**

- Abuses of stokers. M. O'Leary. Power 48:902 D 17 '18
- Boiler-room essentials. H. F. Gauss. Power 50:589-90 N 22 '19
- Boiler-room gage and control board. II Power 47:508 Ap 9 '18
- Draft recording device. II Ry Mech Eng 92: 476-7 Ag '18
- Electrical recording of boiler-heat losses. J. B. C. Kershaw. diag Power 49:524 Ap 8 '19; Same. Engineer 127:213 F 28 '19
- Installation of measuring devices helps good firing. Elec W 71:205-6 Ja 26 '18
- Instruments improve plant economy. J. J. Spangler. charts Power 47:882-3 Je 18 '18
- Power-plant measuring instruments. H. Taylor. Power 47:539 Ap 16 '18
- Use of boiler-room instruments. R. June. diag Elec R 74:419-21 Mr 15 '19
- What instruments are useful and desirable in the boiler room as aids in saving coal; symposium. II Am Soc M E J 40:pt 2, 629-33 JI '18; Excerpts. Power 48:180 JI 30 '18
- See also* Carbon dioxide recorders; Pressure gages; Stokers, Mechanical
- Boiler plates**
- Cause of failure in boiler plates. W. Rosenhain and D. Hanson. II diag Iron Age 102: 632-6 S 12 '18; Abstract. Engineer 125:444-5 My 24 '18
- Failure of boiler plates and the stresses in riveted joints. E. B. Wolff. diag Engineer 124:456-7 N 23 '17; Same cond. Power 47:166-7 Ja 29 '18; Excerpts. Met & Chem Eng 18: 313 Mr 15 '18
- Testing**
- Are there any advantages in welding boiler plate? H. L. Boyd. II Cal Safety News 2:5-13 Mr '18; Same. Power 48:504-6 O 1 '18
- Physical tests of boiler-steel plates. F. Biggam. Power 50:252-3 Ag 12 '19
- Boiler scale**
- Boiler scale and water treatment. G. Austin. II Ry Mech Eng 92:161-3 Mr '18
- Boiler scale costs money. Factory 20:76 Ja '18
- Boiler-scale prevention. Coal Age 14:1163 D 26 '18; Same. Power 48:852 D 10 '18; Same cond. Elec W 73:1218 Je 7 '19; Abstract. Marine R 49:374 Ag '19
- Boiler-water treatment. Power 50:198-9 JI 29 '19
- Factors affecting heat absorption of boilers. R. June. II diag Elec R 75:270-3 Ag 16 '19; Same abr. (Management of the power plant). Textile World 55:935+ F 1 '19
- Helping power plants save coal by mail. J. Harrington. Elec R 73:899 D 7 '18
- Kerosene as boiler-scale remover. Power 47: 451 Mr 26 '18
- Treating boiler scale with kerosene. L. Linnell. Elec R 71:985 D 8 '17
- Why a different rate of scale formation? A. Bennett. Power 47:231 F 12 '18
- See also* Feed water
- Boiler setting.** *See* Boilers—Setting
- Boiler skimmers**
- Skimmer in 800-hp. boiler eliminates suspended matter. T. N. Wynne. diag Elec W 74:581-2 S 13 '19; Abstract. Mech Eng 41: 900 N '19
- Yarway automatic boiler skimmer. diag Power 49:165 F 4 '19
- Boiler tests.** *See* Boilers—Testing
- Boiler tubes**
- Boiler-tube failures. S. B. Applebaum; W. D. Lewis. Power 50:477-8 S 16 '19
- Boiler-tube failures. W. Weaver. II Power 49:887 Je 10 '19
- Capstan for pulling boiler tubes. R. E. McNamara. diag Power 48:279 Ag 20 '18
- Causes of boiler-tube failures. R. Cederblom. diag Power 48:43-6 JI 9 '18
- Device for pulling out boiler tubes. II Elec Ry J 53:194 Ja 25 '19
- Diameters of fire tubes of boilers. Power 47: 377 Mr 12 '18
- E. J. & E. has efficient flue shop. II plan Ry Mech Eng 93:261-3 My '19

**Boiler tubes—Continued**

- Heat transfer in tubes. W. Nusselt. Am Soc M E J 40:204-5 F '18
- Morris improved tube header. diags Power 47:122-3 Ja 22 '18
- Process of repairing bagged and ruptured tubes of water tube boilers by welding. Elec Ry J 52:1107 D 21 '18
- Renewing tubes, headers and baffles in water-tube boilers. J. H. Davis. diags Power 48:584-90 O 22 '18
- Replacing boiler-tube headers. T: J. Pascoe. diags Power 47:62 Ja 8 '18
- Standard specifications for lap-welded and seamless steel and wrought-iron boiler tubes for stationary service; English and Spanish. diags U S Bur For & Dom Com Ind Stand 19:1-19 '19
- Standard specifications for lap-welded and seamless steel boiler tubes for locomotives; English and Spanish. diags U S Bur For & Dom Com Ind Stand 18:1-19 '19
- Standard specifications for lap-welded charcoal-iron boiler tubes for locomotives; English and Spanish. U S Bur For & Dom Com Ind Stand 23:1-15 '19
- Tests by prominent metallurgist shows inferiority of German boiler tubes. Iron Tr R 62:274 Ja 24 '18
- Tube failure in water-tube boilers. Power 47:739-40 My 21 '18; Discussion. A. C. McHugh. 48:134 Jl 23 '18
- Tube failure in water-tube boilers. R. B. Dale. Power 48:942-3 D 31 '18
- Tube thickness considered at Massachusetts hearing. Power 47:714 My 14 '18
- Water-tube boiler tube ruptures. W. Melroy. il Power 49:302-3 Mr 4 '19

See also Boiler cleaning

**Boiler water. See Feed water****Boilermakers**

- Should boilermakers be licensed? Power 48:893; 49:103-4 D 17 '18, Ja 21 '19

**Boilers**

- Baffling important factor in boiler efficiency. Elec R 72:384-5 Mr 2 '18
- Boiler control, coal economy and production. A. T. Baldwin. chart Textile World 53:3203+ Ja 12 '18
- Boiler efficiency and stack temperatures. W. F. Schaphorst. chart Elec R 73:336-7 Ag 31 '18
- Boiler log sheet for oil-fired boilers. diag Elec R 72:688 Ap 20 '18
- Boiler losses you can prevent. E. J. Dreyer. Factory 22:1364+ Je '19
- Boilers reclaim melting furnace heat. C. D. Townsend. il Iron Tr R 62:719-20 Mr 21 '18
- Boilers with air heaters; abstract. diags Am Soc M E J 40:436-7 My '18
- Burning blast furnace gas under boilers; discussion. diags Eng Soc W Pa 33:167-98 Ap '17; Same cond. Iron Age 100:1534-6 D 27 '17; Abstract. Am Soc M E J 39:565-6 Je '17; Excerpt. H. C. Cronmeyer. Iron Tr R 61:191-2 Jl 26 '17
- Chart for finding factor of evaporation. F. Szabo. Power 48:702-3 N 12 '18
- Chemical and physical control of boiler operation. E. A. Uehling. charts Am Soc M E J 41:137-41+ F '19; Same. Elec R 74:622-8 Ap 19 '19; Same cond. Power 49:32-4 Ja 7 '19; Discussion. F. Odone. 49:142 Ja 28 '19
- Coal required by boiler of given capacity and efficiency. Power 48:433 S 17 '18
- Combustion in boiler breechings. Power 47:448, 744 Mr 26, My 21 '18
- Control of concentrated boiler water is essential. H. L. Smith. il charts Elec Ry J 52:1087-91 D 21 '18
- Controlling efficiency of combustion. E. A. Uehling. Power 48:921-3 D 24 '18
- Difference in water level. diag Power 49:65-6, 411, 624 Ja 14, Mr 18, Ap 22 '19
- Difference in water levels in boilers. F. R. McLean. Power 49:201 F 11 '19
- Domes, manholes and steam nozzles. W. H. Wakeman. diags Power 50:338-9 Ag 26 '19
- Double-service boiler. diags plan Power 49:634-5 Ap 29 '19

**Double suspension arch for stationary boilers. diags Ry Mech Eng 93:106 F '19**

- Dry crown-sheet firebox boiler. S. P. Black. il diags Power 47:732 My 21 '18
- Economical generation of thermal power at coal mines. J. B. C. Kershaw. il diag Coal Age 13:284-7, 325-8 F 9-16 '18
- Effect of ash on boiler efficiency. Elec W 73:322 F 15 '19
- Effect upon fuel economy of different arrangements of baffles in boiler tubes. W: G. Eager. diags Am Soc M E J 40:737-42 S '18
- Efficiency in the use of oil fuel; boiler efficiency, capacity and rating. J. M. Wadsworth. U S Bur Mines p 60-70 '18
- Efficient boiler operation. J. F. Tutein. Power 48:336 S 3 '18
- Electrically-heated steam-boilers. il Sci Am 121:394 O 18 '19
- Energy stored in a steam boiler. F. R. Low. il diags Power 50:369-70 S 2 '19
- Extending the life of cast iron boilers. Locomotive 31:235-7 O '17
- Factors affecting heat absorption of boilers. R. June. il diags Elec R 75:270-3 Ag 16 '19; Same abr. (Management of the power plant). Textile World 55:935+ F 1 '19
- Fuel-burning equipment of some large modern central stations. J. G. Worker. il diags Elec R 74:411-15 Mr 15 '19; Same. Elec J 16:55-60 F '19
- Fuel economy in the operation of hand fired power plants. A. C. Willard and others. diags plan Ill U Eng Exp Sta Circ 7:44-51 '18
- Gas firing boilers. T. M. Hunter. Inst E E J 56:57-74 Ja '18; Same cond. Am Gas Eng J 108:441-6, 455-60 My 11 '18; Discussion. Inst E E J 56:74-91, 163-8, 209-11, 325-30 Ja-Mr, My '18
- Generation of heat from bituminous coal and its absorption by the boiler. H: Misostow. diags Power 48:898-9 D 17 '18
- Heat balance of boiler. Power 48:175 Jl 30 '18
- Heat-insulating linings for breechings. N. A. Hayward. Elec R 73:626 O 19 '18
- Horizontal tubular boilers for heating and power. A. G. King. diags Dom Eng 87:324-6 My 24 '19
- Improvement in boiler economy. M. V. B. Potts. Power 47:669 My 7 '18
- Improving boiler efficiency at the Dayton water works. H. C. Wight. charts Am Water Works Assn J 6:187-9 Je '19
- Improving performance of gas-fired boilers; abstracts. L. A. White. Elec R 72:772 My 4 '18; Elec Ry J 51:976 My 18 '18; Am Gas Eng J 108:548 Je 8 '18; Elec W 71:1142-3 Je 1 '18; Gas Age 41:532 Je 1 '18
- Keeping the wheels turning—boiler defects. Locomotive 31:237-40 O '17
- Links in the history of engineering; boiler making. R. Jenkins. Engineer 126:52 Jl 19 '18
- Loss due to carbon in furnace refuse. C. H. Berry. chart diag Power 50:500-2 S 23 '19
- Loss of heat by radiation; common brick versus nonpareil insulating brick. S. L. Barnes. Metal Ind 16:42 Ja '18
- Mathematics of boiler construction. H. J. Vander Eb. diags Locomotive 32:230-3 O '19
- Maximum allowable working pressure for cylindrical boiler shell. Power 48:363 S 3 '18
- Maximum allowable working pressure for dome head. Power 48:363 S 3 '18
- Multi-drum boiler equalizer pipe plugged. I. R. Tait. Power 46:839-40 D 18 '17
- Needed improvements in boiler construction. F. W. Dean. diags Power 50:232-3 Ag 5 '19
- Pitch as a fuel for power generation. J: B. C. Kershaw. Power 47:904-6 Je 25 '18; Abstract. Am Soc M E J 40:496 Je '18
- Points in steam-boiler management. C. E. Stromeyer. Power 47:242-3 F 12 '18
- Powdered coal for power plants. F: Seymour. diags Elec R 72:590-3 Ap 6 '18
- Power required to feed a boiler. Power 48:375 S 10 '18
- Proper use of cast iron boilers. Locomotive 32:106-10 O '18

**Boilers—Continued**

- Pulverized coal as a fuel for boilers. E: R. Welles and W. H. Jacobi. *diags Mech Eng* 41:744-9+ S '19; Excerpts. *Power* 50:520-1 S 23 '19
- Pulverized coal for stationary boilers. F: A. Scheffler and H. G. Barnhurst. *Mech Eng* 41:650-2 Ag '19; Same. *Elec R* 75: 817-21 N 15 '19; Discussion. T: A. Marsh. *Mech Eng* 41:652-3 Ag '19; Abstract. *Power* 50:291-6 Ag 19 '19
- Safety methods for laying-up boilers. L. Linnell. *Elec R* 72:161 Ja 26 '18
- Short talk on boiler efficiency. C: H. Bromley. *Power* 48:668-9 N 5 '18
- Smokeless combustion with chaingrate stokers. T: A. Marsh. *diags Elec R* 73:448-9 S 21 '18; Same. *Power* 48:544-5 O 8 '18
- Some old firebox boilers. R. E. McNamara. *Il Power* 47:545 Ap 16 '18
- Steam-boiler regulation and control. A. A. Straub. *charts diag Power* 48:442-6 S 24 '18
- Steam boilers and economizers; abstract. M. R. Schulz. *Am Soc M E J* 40:114 Ja '18
- Suggestions on the management of boilers. L. R. Hoffman. *Power* 47:504 Ap 9 '18
- Supporting effect of boiler heads. N. M. MacDonald. *Power* 47:733-4 My 21 '18; Discussion. 47:924; 48:98, 171, 210, 314, 358 Je 25, Jl 16, 30-Ag 6, 27-S 3 '18
- Table of B. t. u.'s per boiler horsepower at various efficiencies. C: H. Bromley. *Power* 48:446 Jl 9 '18; Discussion. C. H. Berry. 48: 538-9 O 8 '18
- Tables for computing the area for boiler lagging. W. N. Allman. *Ry Mech Eng* 93:47 Ja '19
- 34 boiler room pointers. *Eng & Contr* 51: 638-9 Je 11 '19
- Unpreventable losses in coal combustion under boilers. H. O'Neill. *Power* 47:502-4 Ap 9 '18
- Vanishing factor of safety. *Power* 47:919 Je 25 '18
- Visits of Inspector Brown. J. E. Terman. *chart diags Power* 45:355-8, 422-5, 488-9, 627-9, 664-6, 695-7, 757-9; 48:153-4, 200-1, 231-3, 268-70 Mr 13, 27, Ap 10, My 8-22, Je 5 '17, Jl 30-Ag 20 '18
- Waste-heat boiler for malleable furnaces. A. D. Pratt. *diags Foundry* 46:221-6 My '18
- Water-hammer action in boilers. *diags Locomotive* 32:195-208 Jl '19
- What percentage of CO<sub>2</sub> can be obtained? *Power* 48:956-7 D 31 '18
- Why does one seam groove more than another? C: H. Herter. *diag Power* 50:544 S 30 '19
- Why does the water disappear? *Power* 48: 315-16, 608 Ag 27, O 22 '18
- Woolson boiler access doors. *diags Ind Management* 56:516 D '18
- See also* Ash pits; Baffles; Boiler cleaning; Boiler explosions; Boiler inspection; Boiler meters; Boiler plants; Boiler plates; Boiler scale; Boiler tubes; Dampers; Draft gages; Feed water; Firing; Furnaces; Boiler; Fuel economy; Grates; Injectors; Locomotive boilers; Pumps; Feed water; Safety valves; Staybolts; Steam engines; Stokers; Mechanical; Water gages
- Blow-off**
- Blowoff failure and remedy. P. E. Merriam. *diags Eng & Min J* 106:358-9 Ag 24 '18
- Boiler blowoff valves. R. B. Dale. *diag Power* 48:565 O 15 '18; Discussion. 48:718, 818, 963; 49:179-80 N 12, D 3, 31 '18, F 4 '19
- Cost of leaky blow-off valves. *chart Elec R* 74:110-11 Ja 18 '19
- Dangerous blowoff connection. W. W. Henry. *diag Power* 49:29 Ja 7 '19
- E-Z-set sectional blowoff pipe sleeves. *diag Power* 48:163 Jl 30 '18
- Installation of blow-off valves on heating systems. W. H. Wakeman. *diags Dom Eng* 87:191-2 My 3 '19
- Overcoming blow-off valve troubles. P. Eckenroth. *diags Power* 49:565 Ap 15 '19
- Standardization of boiler blowoff valves. *Power* 49:297 F 25 '19

Thermometer as a boiler blowoff indicator and tank counter. G: W. Caywood. *charts Power* 49:8 Ja 7 '19

**Cleaning**

*See* Boiler cleaning

**Contracts**

Construing boiler contracts. A. L. H. Street. *Power* 48:765-6 N 26 '18

**Corrosion**

Boiler corrosion. B. G. McLellan. *Sci Am S* 85:395 Je 22 '18

**Covering**

Boiler-setting radiation and air leakage. E. S. Hight. *diags Elec W* 72:974-5 N 23 '18; Same. *Power* 48:953-4 D 31 '18

**Failures**

Cause of failure in boiler plates. W. Rosenhain and D. Hanson. *Il diag Iron Age* 102: 632-6 S 13 '18; Abstract. *Engineer* 125:444-5 My 24 '18

Cracking of cast-iron sectional hot water boilers. C: R. Honiball. *Metal Work* 91: 750-3+ Je 13 '19; Same. *Dom Eng* 88:59-62 Jl 12 '19

Detecting a lap seam crack. E. E. Moore. *Il Locomotive* 32:105-6 O '18

Failure of boiler plates and the stresses in riveted joints. E. B. Wolff. *diags Engineer* 124:456-7 N 23 '17; Same cond. *Power* 47: 166-7 Ja 29 '18; Excerpts. *Met & Chem Eng* 18:313 Mr 15 '18

Failures of cast-iron heating boilers. E. M. Parry. *Il diag Locomotive* 32:43-9 Ap '18

Ontario boiler inspection office. *Il Power* 48: 698-700 N 12 '18

Two curious boiler failures. *Engineer* 127:136-7 F 7 '19

*See also* Boiler explosions; Boiler tubes

**Feeding**

*See* Feed water

**Heads**

*See* Boiler heads

**Inspection**

*See* Boiler inspection

**Joints**

Boiler patches and diagonal joints. C. B. Linstrom. *diags Power* 49:693-4 My 6 '19

Design of a boiler joint; abstracts from an engineer's letters. *Power* 47:144-5 Ja 29 '18

Efficiency of butt and double-strap joint, triple-riveted. *diags Power* 48:541 O 8 '18

Efficiency of double-riveted lap joint. *diag Power* 48:65 Jl 9 '18

Efficiency of quadruple-riveted boiler joint. *diags Power* 47:925 Je 25 '18

Efficiency of single-riveted lap joint. *diag Power* 48:211 Ag 6 '18

Expansion joint used in smoke breeching. T. W. Reynolds. *diags Elec W* 71:570 Mr 16 '18

Formula for longitudinal joint of boiler shell. *diag Power* 48:211 Ag 6 '18

Safe working pressure for steam boilers. H. F. Gauss. *Power* 48:772-4 N 26 '18

Simplification of riveted joint design. H. A. S. Howarth. *diags Eng Soc W Pa* 34:279-314; Discussion. 315-30 My '18

What should be the maximum length of a longitudinal joint in a boiler? *Power* 50:23, 271-2, 474-5, 593-4 Jl 1, Ag 12, S 16, N 22 '19

**Laws and regulations**

A. S. M. E. code for low-pressure boilers. *Am Arch* 115:212-16 F 5 '19

Are cast iron boiler interests menaced? *Metal Work* 91:494-5 Ap 18 '19

Areas of segments of boiler heads. C. H. Berry. *charts Power* 49:644-5 Ap 29 '19

Comparison of the new A. S. M. E. boiler code and the Massachusetts boiler rules. *Power* 49:611-12 Ap 22 '19

Progress in adoption of A. S. M. E. boiler code. *Power* 49:996 Je 24 '19

**Boilers—Laws and regulations—Continued**

Proposed revisions of boiler code. diags Am Soc M E J 40:234-47 Mr '18  
 Revision of A. S. M. E. boiler code. diags Power 49:196-8, 236-7 F 11-18 '19  
 State legislation relating to the inspection of low pressure heating boilers. F. W. Herendeen. Dom Eng 87:600-5 Je 28 '19; Same. Metal Work 92:68-9+, 128-30 JI 18, Ag 1 '19  
 Uniform boiler laws. E. A. Brooks. Am Soc M E J 40:1038-40 D '18  
 Work of the Boiler code committee. diag Am Soc M E J 40:156-7, 315-16, 397-400, 468-70, 561-2, 853, 1040 F, Ap-JI, O, D '18; Excerpt. Power 47:136-7 Ja 22 '18  
 Work of the Boiler code committee. Mech Eng 41:386, 460-1, 533, 614, 682-8, 834, 891-2 Ap-Ag, O-N '19; Excerpt. Power 49:913-14 Je 10 '19

**Moving**

How 45-ton boilers were rolled 21 miles along coast. II Eng N 82:772-3 Ap 17 '19  
 Rolling 45-ton boilers for a distance of 21 miles. Sci Am 120:601 Je 7 '19  
 Scotch boilers rolled 28 miles along California coast. C. W. Geiger. II Int Marine Eng 24:455-6 JI '19  
 Water-tube boilers are successfully removed intact. C. A. Elliott. II Power 50:189 JI 29 '19; Same cond. Elec Ry J 54:123 JI 19 '19

**Rating**

Boiler horsepower. Coal Age 13:161 Ja 19 '18  
 Heating versus power boiler rating. P. J. Dougherty. Power 49:84-5 Ja 21 '19  
 High ratings for boilers in eastern power plant. diag Elec W 73:179 Ja 25 '19  
 Influence of choice of stoker upon readiness to serve. Elec R 74:431 Mr 15 '19  
 Radiation rating of fire-tube boilers. II diags Metal Work 90:474-5+ O 25 '18

**Repair**

Boiler patches and diagonal joints. C. B. Linstrom. diags Power 49:693-4 My 6 '19  
 Electric welding stops leaks in girth seams. R. A. Grise. Power 47:402-3 Mr 19 '18  
 Fitting new sections to a warped boiler. D. C. Ashmead. diag Power 47:922 Je 25 '18  
 Process of repairing bagged and ruptured tubes of water tube boilers by welding. Elec Ry J 52:1107 D 21 '18  
 Relative advantages of diagonal and horse-shoe boiler patches. R. J. Furr. diags Power 48:943-4 D 31 '18  
 Rules for boiler repairs. Marine R 49:303-4 Je '19  
 Unusual boiler-repair job. M. L. Lowrey. diag Power 48:500 O 1 '18

See also Boilers, Water-tube

**Safety devices and measures**

Tin fusible boiler-plug manufacture and testing. L. J. Gurevich and J. S. Hromatko. II Am Inst Min Bul 152:1351-60 Ag '19; Discussion. 155:3035-8 N '19

**Setting**

Air leaks. W. F. Schaphorst. Am Gas Eng J 109:173 Ag 24 '18  
 Air-space walls for boiler settings. Power 47:671 My 7 '18  
 Approved boiler settings for burning soft coal. diags Heat & Ven 16:35-8 O '19  
 Boiler-setting radiation and air leakage. E. S. Hight. diags Elec W 72:974-5 N 23 '18; Same. Power 48:953-4 D 31 '18  
 Boiler settings. C. H. Bromley. diags Power 47:760-2 My 28 '18  
 Boiler settings—chain grate stokers. C. H. Bromley. diags Power 47:788-92 Je 4 '18  
 Boiler settings for multiple-retort underfeed stokers. E. L. Broome. diag Power 49:102 Ja 21 '19  
 Boiler settings—multiple retort under feed stokers. C. H. Bromley. II diags Power 48:112-17 JI 23 '18  
 Columns embedded in the walls of boiler settings. II Locomotive 32:181-2 Ap '19  
 Combustion and boiler settings. A. D. Williams. Power 49:57-9, 205-8 Ja 14, F 11 '19

Economies resulting from making brick settings leakless. A. A. Cary. Am Soc M E J 40:pt 2, 658 JI '18

Economy hints. Locomotive 32:2-10 Ja '18  
 Favorable performance of high setting. H. L. Strong. chart Power 47:699 My 14 '18; Discussion. W. Chiddeck. 48:133 JI 23 '18  
 Flush front vs. overhung front boiler setting. diags Power 48:65 JI 9 '18  
 Fuel saved by repairing leaks in boiler settings. Elec W 72:17 JI 6 '18  
 Fuel saving suggestions. C. H. Bromley. diag Power 46:787 D 11 '17  
 Height of settings of return-tubular boilers. Power 47:25 Ja 1 '18  
 Measuring the temperature of gases in boiler settings. H. Kreislinger and J. F. Barkley. diags U S Bur Mines Bul 145:1-66 '18  
 New boiler setting. diag Elec W 73:952 My 10 '19

Possible saving in avoiding leaks in boiler setting. J. M. Aarons. Power 47:365-6 Mr 12 '18  
 Reinforced concrete supports for horizontal tubular boilers. H. E. Dart. diags Locomotive 32:130-42 Ja '19  
 Return-tubular boiler setting. H. D. Jackson. diag Power 50:347 Ag 26 '19  
 Setting and connecting boilers for heating work. C. L. Hubbard. diags Dom Eng 82:2-4+ Ja 5 '18  
 Suspension and concrete setting of boilers at the Robert Gair plant, Brooklyn. II diags Power 49:934-5 Je 17 '19  
 Wastes due to leaky boiler settings. H. G. Hays. Power 49:121-2 Ja 28 '19; Discussion. O. C. Woolson. 49:946 Je 17 '19

**Testing**

Boiler and furnace testing. R. T. Strohm. diags (Engineering Bul. no. 1) 18p '18 U.S. Fuel administration, Washington, D.C.  
 Boiler efficiency test. diag Iron Tr R 62:542 F 28 '18  
 Chart for boiler-test results. H. B. Reynolds. Power 49:976 Je 24 '19  
 Code for testing low pressure heating boilers. Am Soc Heat & V E 24:81-4 '18; Same. Am Arch 113:446-8 Ap 10 '18; Excerpt. Heat & Ven 15:38-9 F '18; Discussion. Am Soc Heat & V E 24:84-98 '18  
 Determining boiler efficiency by CO<sub>2</sub> analyses and flue temperatures. H. O'Neill. Power 47:52-5 Ja 8 '18  
 Duration of boiler tests. Power 48:397 S 10 '18  
 Improved form of throttling calorimeter. W. R. Woolrich. chart diags Power 49:495-6 Ap 1 '19  
 Pressure drop in dry pipes and superheaters. Elec W 73:34 Ja 4 '19  
 Pulverized coal as a fuel. N. C. Harrison. Mech Eng 41:648-9 Ag '19; Same. Elec R 75:117 JI 19 '19  
 Safe working pressure for steam boilers. H. F. Gauss. Power 48:772-4 N 26 '18  
 Something about boiler testing. diags Power 48:490-2 O 1 '18  
 Standard method of testing heating boilers. Am Soc Heat & V E 23:87-93; Discussion. 93-108 '17  
 Tests with flow meters. J. A. Maguire. chart Coal Age 15:49-51 Ja 9 '19; Same. Power 49:127-9 Ja 28 '19

See also Boiler meters; Boilers, Marine—Testing; Boilers, Water-tube—Testing

**Boilers, Heating**

Air chambers in plumbing systems. R. J. Gordon. diags Dom Eng 86:216-18, 258-60 F 1-8 '19  
 Boiler rating and capacities. H. E. Longwell. Metal Work 91:457 Ap 11 '19  
 Burning bituminous coal in house-heating boilers. W. A. Pittsford. diags Heat & Ven 15:23-7 S '18  
 Care of heating and ventilating equipment. H. L. Alt. diags Power 48:527-30 O 8 '18  
 Cast iron heating boilers do explode. E. M. Parry. diag Locomotive 32:209-11 JI '19  
 Code for testing low pressure heating boilers. Am Soc Heat & V E 24:81-4 '18; Same. Am Arch 113:446-8 Ap 10 '18; Excerpt. Heat & Ven 15:38-9 F '18; Discussion. Am Soc Heat & V E 24:84-98 '18

**Boilers, Heating—Continued**

- Code relating to cast iron heating boilers. Metal Work 91:15-17 Ja 3 '19
- Cracking of cast-iron sectional hot water boilers. C: R. Honiball. Metal Work 91: 750-3+ Je 13 '19; Same. Dom Eng 88:59-62 Jl 12 '19
- Errors in engineering design and operation. diags Heat & Ven 16:19-25 N '19
- Experiences in using bituminous coal as a substitute for anthracite. A. Bement. diags Heat & Ven 16:27-30 S '19
- Firing bituminous coals in large house-heating boilers. S. B. Flagg. II diags U S Bur Mines Tech Pa 180:1-19 '17; Excerpt. Power 47:244 F 12 '18
- Fitting the boiler to the job. Metal Work 92: 286-7, 335-7 S 5, 19 '19
- Heating versus power boiler rating. P. J. Dougherty. Power 49:84-5 Ja 21 '19
- Ideal down draft boiler. II Metal Work 89:89-90 Ja 11 '18
- Illinois chapter formulates rules for handling boilers. Heat & Ven 15:49 Mr '18
- Imperial super-smokeless boiler. diags Metal Work 90:138-9 Ag 2 '18; Heat & Ven 15:67 S '18
- Improving the efficiency of heating boilers. Metal Work 90:379-81 O 4 '18
- List of manufacturers of smokeless boilers in the United States. Heat & Ven 15:63-4 S '18
- Making an operating device for damper control on fire box heating boilers. F. G. McCann. diags Metal Work 89:358-9 Mr 15 '18
- Molby magazine-feed down-draft boiler. II Heat & Ven 15:65-6 S '18
- Monarch boiler has two combustion chambers and two grates. II Heat & Ven 15:66 S '18
- New type of smokeless boiler. diags Heat & Ven 15:64-5 Ap '18
- Newport adjustable magazine-feed boiler. II Heat & Ven 15:64-5 S '18
- Ofeldt gas-fired boiler. II Am Gas Eng J 110: sup20 Mr 15 '19
- Radiation rating of fire-tube boilers. II diags Metal Work 90:474-5+ O 25 '18
- Remedy for unsteady water line caused by oil. Metal Work 88:780 D 28 '17
- Save fuel in the heating boilers. Locomotive 31:242-3 O '17
- Setting and connecting boilers for heating work. C. L. Hubbard. diags Dom Eng 82:2-4+ Ja 5 '18
- Setting and cross-connecting boilers for heating systems. F. Grant. diags Dom Eng 87:96-8+ Ap 19 '19
- Smokeless boilers for fuel conservation. II Metal Work 89:18-21 Ja 4 '18
- Standard method of testing heating boilers. Am Soc Heat & V E 23:87-93; Discussion. 93-108 '17
- State legislation relating to the inspection of low pressure heating boilers. F. W. Herendeen. Dom Eng 87:600-5 Je 28 '19; Same. Metal Work 92:68-9+, 128-30 Jl 18, Ag 1 '19
- Successful types of smokeless boilers. II diags Heat & Ven 16:49-55 S '19
- Troubled by unequal height of water line in boilers. diags Dom Eng 86:435-6 Mr 8 '19
- Use of fuel oil for house-heating boilers. II Heat & Ven 16:47-8 S '19
- What the public should know about heating boilers. E. C. Molby. II Heat & Ven 16:32-7 S '19
- Boilers, Locomotive.** See Locomotive boilers
- Boilers, Marine**
- Air supply to boiler rooms; abstract. R: W. Allen. diags Am Soc M E J 40:722-4 Ag '18
- Boiler proportions. Int Marine Eng 23:310 My '18
- Boilers of merchant ships. Engineer 127:84 Ja 24 '19
- Heine marine cross-drum boiler. II Power 50: 173 Jl 29 '19; Int Marine Eng 24:691-2 O '19
- How can soft coal be burned without smoke in marine boilers; symposium. Am Soc M E J 40:pt 2, 619-22 Jl '18; Excerpt. Sci Am S 86:137 Ag 31 '18; Abstract. Int Marine Eng 23:466-7 Ag '18

- Manufacturing marine steam boilers. E. A. Suverkrop. II diags Am Mach 49:1155-63 D 26 '18
- Rules for marine boilers. Engineer 127:381-2 Ap 18 '19
- Sediment in marine boilers. W. R. Austin. diags Int Marine Eng 24:552-3 Ag '19
- Steel boilers and the Board of trade. II Int Marine Eng 24:411-13 Je '19
- Water-tube boilers for cargo ships. diags (supp) Engineer 127:476 My 16 '19
- Work of the British marine engineering design and construction committee. A. E. Seaton. Engineer 127:411-13 Ap 25 '19
- See also Marine engines

**Standards**

- Marine boiler standardization. C. A. Seley. Int Marine Eng 24:147-8 Mr '19
- Standardisation of marine boilers. Engineer 127:276 Mr 21 '19

**Testing**

- Tests of marine boilers for the United States shipping board. U S Bur Mines Bul 178-D:96-9 '19

**Boilers, Range**

- Heating radiator from range boiler. diags Metal Work 91:558-9, 589 My 2-9 '19
- How to prevent cold water from backing up circulation pipe at range boiler. diags Dom Eng 86:222 F 1 '19
- Pressures not the same at top and bottom of range boiler. diags Dom Eng 86:346-7 F 22 '19
- Range boiler moans. Metal Work 91:69, 149 Ja 10, 31 '19
- Remedy for water hammer in steam coil of horizontal range boiler. diags Dom Eng 86: 436 Mr 8 '19

**Boilers, Water-tube**

- Boilers of merchant ships. Engineer 127:84 Ja 24 '19
- Circulation in water-tube boilers. A. Bement. diags Power 49:855-6 Je 3 '19
- Circulation in water-tube boilers. J: G. Bro-man, sr. Power 50:440 S 9 '19
- Curing boiler trouble due to impure water. J. N. Helpbringer. diags Elec W 74:296-7 Ag 9 '19
- Determination of superheater surface. C. H. Baker. chart Power 49:86-9 Ja 21 '19
- Failure of crossboxes in water-tube boilers. A. D. Palmer. II diags Power 48:464 S 24 '18
- Furnace changes bring increased boiler economy. diags Elec W 70:1242 D 29 '17
- Low-grade fuels; Bettington spray boiler. J. W. Cobb and W. Chaney. Sci Am S 86: 191-2 S 21 '18
- Neglected parts of water-tube boilers. W. D. Lewis. Power 50:433 S 9 '19
- Rating size of water-tube boiler. Power 46: 809 D 11 '17
- Renewing a water-tube boiler header. S. P. Black. diags Power 48:423-4 S 17 '18
- Renewing tubes, headers and baffles in water-tube boilers. J. H. Davis. diags Power 48:584-90 O 22 '18
- Some factors in boiler practice. F. A. Combe. Power 50:279 Ag 12 '19
- Tube failure in water-tube boilers. R. B. Dale. Power 48:942-3 D 31 '18
- Water circulation in boilers. A. D. Williams. Power 49:285-6 F 25 '19
- Water-tube boiler tube ruptures. W. Melroy. II Power 49:302-3 Mr 4 '19
- Water-tube boilers are successfully removed intact. C. A. Elliott. II Power 50:189 Jl 29 '19; Same cond. Elec Ry J 54:123 Jl 19 '19
- Water-tube boilers for cargo ships. diags (supp) Engineer 127:476 My 16 '19

**Testing**

- Results of efficiency tests on Stirling water-tube boiler in Inspiration consolidated copper company's plant. C. R. Weymouth. Mech Eng 41:526 Je '19; Same. J Elec 43:126 Ag 1 '19
- Results of evaporative test of three water-tube boilers. Power 49:329 Mr 4 '19

**Boilers, Water-tube—Testing—Continued**

Testing watertube boilers. A. Blundun. *Int Marine Eng* 24:499-500 J1 '19  
 Tests of 18-tube wide, 13-tube high B. & W. double-deck water-tube boiler, equipped with Roney stoker 80.8 sq. ft. grate area; tabulation. *Power* 43:658 N 5 '18

**Boiling points**

Determination of boiling points of solutions. F. G. Cottrell. *diags Am Chem Soc J* 41: 721-9 My '19  
 Laws of concentrated solutions; the general boiling-point law. E. W. Washburn and J. W. Read. *diag Am Chem Soc J* 41:729-41 My '19  
 Standardization of the sulfur boiling point. E. F. Mueller and H. A. Burgess. *diags U S Bur Stand Sci Pa* 339:163-84 '19; Same. *Am Chem Soc J* 41:745-63 My '19

**Bolivia****Commerce**

Advertising methods in Chile, Peru, and Bolivia. J. W. Sanger. *il U S Bur For & Dom Com* 185:1-56 '19  
 Electrical goods in Bolivia and Chile. P. S. Smith. *il U S Bur For & Dom Com* 167:1-94 '18  
 Markets for boots and shoes in Chile and Bolivia. H. G. Brock. *il U S Bur For & Dom Com* 174:1-192 '18  
 Textile markets of Bolivia, Ecuador, and Peru. W. A. Tucker. *il U S Bur For & Dom Com* 158:1-106 '18  
 Wearing apparel in Bolivia. W. A. Montavon. *U S Bur For & Dom Com misc ser* 69:1-84 '18

**Industries and resources**

Chemical trade of Chile, Peru, and Bolivia. O. P. Hopkins. *J Ind & Eng Chem* 10:808-9 O '18  
 Economic and geologic conditions pertaining to the occurrence of oil in the North Argentine-Bolivian field of South America. S. C. Herold. *il maps Am Inst Min E Bul* 141:1503-22 S '18; Discussion. 149:854 My '19  
*See also* Mines and mineral resources—Bolivia; Tin mines and mining—Bolivia

**Railroads**

*See* Railroads—Bolivia

**Bollworm**

Pink boll worm in Texas. *Sci Am* 118:63 Ja 12 '18  
 Pink bollworm invasion. C. L. Marlatt. *Textile World* 53:4364b Mr 23 '18

**Bolshevism**

Bolshevist movement in America. S. Rogers. *Am Ind* 20:22-4 N '19  
 Communism in practice. *Eng & Min J* 106: 734-5 O 26 '18  
 Essentials of Bolshevism. *Coal Age* 15:915 My 15 '19  
 How workmen fare under Bolshevism. H. Vorst. *Eng & Min J* 106:1080-1 D 21 '18

**Bolts and nuts**

Additional data on bolted connections. W. E. Belcher. *Eng N* 83:529-30 S 11 '19  
 Another idea in lock nuts. *il Sci Am* 121: 16 J1 5 '19  
 Bent nut tapper. H. M. Bogart. *diags Mach* 25:1049 J1 '19  
 Bolt manufacture in railway shops. M. H. Williams. *diags Ry Mech Eng* 92:465-70 Ag '18  
 Bolts in field connections of steel-frame buildings; a study of data and experience. R. Fleming. *il diags Eng N* 83:316-21 Ag 14 '19; Discussion. 83:771-2, 896-8 O 23, N 18 '19  
 Combination bolt, washer and locknut. *il Iron Age* 100:1413 D 13 '17  
 Forming eyebolts on the bulldozer. *diags Ry Mech Eng* 92:624 N '18  
 Grip nuts. *diags Ry R* 62:446-7 Mr 23 '18  
 Hollings indenting type of nut-forging machine. *il diags plan Mach* 25:33-5 S '18  
 Improved key bolt for parallel rods. J. H. Hahn. *diags Ry Mech Eng* 93:149 Mr '19

Lock nuts. *diags Int Marine Eng* 23:40-1 Ja '18

Matthews castellating machine. *il Am Mach* 48:724-5 Ap 25 '18  
 Minimum spacing of hexagon nuts for wrench clearance. F. H. Zeichner. *diags Am Mach* 50:403 F 27 '19  
 Nut fit for bolts with short thread length. *Elec W* 74:303 Ag 9 '19  
 Nut making machine. *il diags Engineer* 125: 510-11, 514 Je 14 '18  
 Removing frozen nuts. C. H. Willey. *diags Int Marine Eng* 23:425-6 J1 '18  
 Standard specifications for engine-bolt iron; English and Spanish. *U S Bur For & Dom Com Ind Stand* 25:1-15 '18  
 Standard specifications for quenched alloy-steel track bolts; English and Spanish. *diag U S Bur For & Dom Com Ind Stand* 33:1-15 '19  
 Standard specifications for quenched carbon steel track bolts; English and Spanish. *diag U S Bur For & Dom Com Ind Stand* 32:1-15 '19  
 Stress distribution in bolts and nuts. C. E. Stromeyer. *il diags Int Marine Eng* 23:589-91 O '18  
 Stress in column bolts. *diags Int Marine Eng* 24:433 Je '19  
 Stresses in bolts in fulcrum brackets. V. M. Summa. *diags Ry Mech Eng* 92:156-8 Mr '18  
 Tapping stud nuts in screw machines. J. J. Borkenhagen. *diags Mach* 24:833-4 My '18  
 Tight nuts on construction bolts. *Eng N* 83: 484 S 4 '19  
 Tool for removing burrs from jam nuts. F. S. Culver. *diag Am Mach* 47:1137 D 27 '17  
 Why do wedge bolts break? C. W. Peters. *diags Power* 49:139 Ja 28 '19  
*See also* Staybolts

**Bombs. See Grenades****Bombs, Aerial**

Aerial bomb sights. *il diags Engineer* 128:211-13 Ag 29 '19  
 Bombing and getting bombed. *il Sci Am* 118: 209 Mr 9 '18  
 Bombing planes and their targets. *il chart Sci Am* 119:86-4 Ag 3 '18  
 Laying the egg on the Hun; how the aviator uses smoke, incendiary, demolition and illuminating bombs. *il Automotive Ind* 39:230-3 Ag 8 '18  
 Problems involved in bomb sight design. *Automotive Ind* 39:404-5 S 5 '18  
 Problems of aerial bombing. *il Automotive Ind* 39:324-6 Ag 22 '18  
 Remarkable developments of engines of war. *il Iron Age* 103:124-6 Ja 9 '19  
*See also* Aeronautics, Military

**Bombs, Depth**

Depth bomb and the patrol boat. *il Sci Am* 119:109 Ag 10 '18  
 Thornycroft depth charge throwers. *il Engineer* 127:86-8 Ja 24 '19  
 Visit to Basingstoke. John I. Thornycroft & co. *il Engineer* 127:54-5, 58 Ja 17 '19

**Bonds**

Bond discount. S. Walton and H. A. Finney. *J Account* 26:150-6 Ag '18  
 Efficient methods of promoting highway bond issues. S. E. Bradt. *Good Roads n s* 17:139-40 Mr 29 '19; Same cond. *Eng N* 82:573-4 Mr 20 '19  
 Fall and rise of government bonds on account of war. *Power* 47:554 Ap 16 '18  
 Governmental sinking funds, serial bonds and depreciation reserves. H. S. Chase. *J Account* 26:253-68 O '18  
 Operation of proposed bond issue plan for state roads of Illinois. W. W. Marr. *Eng N* 79:1129 D 13 '17  
*See also* Railroads—Securities; Securities; War loans  
 Bonds, Municipal. *See* Municipal bonds  
 Bonds, Rail. *See* Rail bonds  
 Bonner, James Bernard  
 Vice chairman, subcommittee on steel distribution. *por Iron Tr R* 62:873 Ap 4 '18



**Bonner rail wagon system**

Freight transportation without rehandling;  
Bonner rail wagon system. *Il* diag *Elec Ry*  
J 52:658-9 O 12 '18; *Ry Age* 65:675 O 11 '18

**Bonus system**

Absences—how to reduce them. *Factory* 21:  
231-3 Ag '18

Anti-efficiency appropriation legislation. *Am*  
*Ind* 18:13 Ap '18

Applying a bonus system to an office. *W.*  
*D. Fuller. Eng & Contr* 51:400 Ap 16 '19

Applying the premium plan to a pattern shop.  
*D. M. Avey. diag Foundry* 47:95-9 Mr '19

Benefits of bonus system for small-plant fire-  
men. *H. E. Nichols. Elec W* 74:582 S 13 '19

Boiler-room bonus that satisfies the men.  
*Elec W* 73:274 F 8 '19

Bonus for laborers increases yardage and  
lowers cost of paving at Flint. *Mich. C. E.*  
*Ridley. Eng N* 80:701 Ap 11 '18

Bonus for power-plant employees. *W. B.*  
*Lewis. chart Power* 47:439-42 Mr 26 '18;

Same. *Textile World* 53:5235+ My 4 '18

Bonus plan for boiler-plant operatives. *H.*  
*O'Neill. Power* 47:467-71 Ap 2 '18

Bonus plan for salaried employees. *J. P.*  
*Goodwin. J Account* 26:333-5 N '18

Bonus plan for your foremen. *H. D. Hite.*  
*Factory* 20:1074-5 Je '18

Bonus plan reduces coal consumption at Ma-  
nila. *P. I. B. H. Blaisdell. Elec Ry J* 51:  
308-11 F 16 '18

Bonus plans for motor truck operators.  
*H. P. Gould. Eng & Contr* 52:231-2 Ag 20  
'19

Bonus system applied to mining. *W. V. De*  
*Camp. Eng & Min J* 105:461-2 Mr 9 '18

Bonus system as applied to the collection de-  
partment of a public utility. *P. Bucher. Am*  
*Gas Eng J* 109:193-7 Ag 31 '18

Bonus system for the saving of coal. *W. N.*  
*Polakov. Elec W* 71:36-9 Ja 5 '18

Bonus system reduces coal consumption at  
Denver. *W. E. Casey and E. Weber. Il Elec*  
*Ry J* 53:266-71 F 8 '19; Same. *Eng & Contr*  
51:526-8 My 14 '19; Same. *Power* 50:174-9  
Jl 29 '19

Collective systems of payment by results.  
*Eng & Contr* 52:151-2 Jl 30 '19

Day labor, force account and bonus system  
in highway work. *C. M. Upham. Eng*  
*& Contr* 51:341-2 Ap 2 '19

Does a bonus system for firemen pay? *L. L.*  
*Sprague. Power* 47:480 Ap 2 '18

Effective yet simple bonus system for power  
plants. *Il Eng & Contr* 51:369-71 Ap 9 '19

Efficiency methods triple foundry output. *C. E.*  
*Wright. Il chart Iron Age* 104:849-55 S 25 '19

Enlargement of the Yakima-Tieton main  
canal. *G. C. Finley. Il diag Eng N* 82:  
1255-8 Je 26 '19

Experience with bonus system for meter  
reading. *J. T. Kermode. Elec W* 73:485 Mr  
8 '19

Fitting the wage to the work. *W. R. Basset.*  
*Factory* 21:236-8 Ag '18

Human factor in task setting. *W. E. Camp.*  
*Ind Management* 56:372-4 N '18

Labour administration. *E. T. Elbourne. Engi-*  
*neer* 126:388-90 N 8 '18

Management of the power plant. *R. June.*  
*Textile World* 56:663+ Ag 2 '19

Mastering power production; relations of  
wages and bonus to the labor problem.  
*W. N. Polakov. Ind Management* 55:298-302  
Ap '18

Methods of wage payment in the Pittsburg  
district. *Mach* 24:523 F '18

Paying bonus when due. *Factory* 21:270 Ag '18

Payment of labor by results. *Eng & Contr*  
51:438 Ap 30 '19

Proper method of award in payment of  
wages. *H. Stephenson. Sibley J* 33:17-18 N  
'18

Securing quality by a bonus. *P. F. O'Shea.*  
*Factory* 21:1061-4 D '18

Some ideas on the bonus system. *Metal Work*  
51:645-6 My 23 '19

Task work with bonus is the only scientific  
way to pay additions to regular wages.  
*W. N. Polakov. Ind Management* 56:1-7 Jl  
'18

**Bookbinding**

Binder for periodicals. *D. R. Hibbs. diag*  
*Power* 46:808 D 11 '17

Some formulas for bookbinders. *E. R. Mason*  
*and G. Hostick. Inland Ptr* 62:413-14, 559-60  
Ja-F '19

Time required for bindery operations. *B.*  
*Daniels. Inland Ptr* 62:407 Ja '19

**Cost**

Costs of bindery operations. *R. T. Porta. In-*  
*land Ptr* 60:474-6, 617-20, 746-9; 61:38-9, 173-  
6, 313-15, 447-9, 586-9, 707-9; 62:47-8, 196-7,  
295-6 Ja-D '18

**Bookkeepers**

Definition needed. *L. A. Oates. J Account* 25:  
477-8 Je '18

**Bookkeeping**

Bookkeeping and cost finding for the plumber.  
*W. A. Fink. Dom Eng* 79:326-7, 493-4; 80:7-  
8+, 132-4, 211-12, 368-9, 411+, 445-6; 81:11+,  
176-7, 221-2+, 82:5+, 213-14+, 253-4+ Je 2,  
30-Jl 7, 28, Ag 11, S 8-22, O 6, N 3-10 '17,  
Ja 5, F 9-16 '18

How to change from single-entry to double-  
entry bookkeeping. *R. H. Butz. Dom Eng*  
86:85-6 Ja 11 '19

How to handle wages account. *W. A. Fink.*  
*Dom Eng* 82:90-2 Ja 19 '18

Over the top in service and repairs; book-  
keeping and accounting system. *T. P. Bow-*  
*man. Motor Age* 34:10-11 Ag 29 '18

Records of business for smaller tradesmen.  
*C. H. Fast. Metal Work* 58:781-2 D 28 '17

See also Accounting; Auditing; Cost ac-  
counting

**Bookkeeping machines**

Mechanical devices in railroad accounting.  
*C. O. Price. Ry R* 65:527-30 O 11 '19

**Booklets**

Costs of job-printing—booklet and better  
printing costs. *R. T. Porta. Inland Ptr* 64:  
206-8 N '19

**Books**

Restoring books and papers injured by fire.  
*Sci Am S* 86:165 S 14 '18

See also Bookbinding; Printing

**Books and reading**

What shall an engineer read in general liter-  
ature? *R. Fleming. Eng & Contr* 51:561 My  
28 '19

**Boomerangs**

Mystery of the boomerang. *P. A. Valle. Sci*  
*Am* 120:175+ F 22 '19

**Booster cases**

Electro-galvanizing booster cases, adapters  
and detonator fuse components for the  
United States government. *T. C. Eichstaedt.*  
*Il diag plan Metal Ind* 17:22-4 Ja '19

**Boosters**

Principles of booster transformers. *C. M.*  
*Jansky. diag Elec R* 75:341-4 Ag 30 '19

Standard distribution transformers connected  
inside delta transformer bank to serve as  
boosters. *J. R. Baldwin. diag Elec W* 71:  
1324 Je 22 '18

**Boots, Army. See Shoes, Army****Borax**

Sink of the Amargosa. *G. J. Young. Il Eng &*  
*Min J* 105:985-6 Je 1 '18

**Borers (animals)**

Marine borers that are destructive to un-  
treated timber. *Ry Age* 66:366 F 7 '19; Same.  
*Ry R* 64:177 F 1 '19

Marine wood borers work in deep water. *A. S.*  
*Hobby. Il Eng N* 81:551-2 S 19 '18; Discus-  
sion. 81:772-3 O 24 '18

**Boric acid**

Boric acid and borax. *J Ind & Eng Chem* 10:  
73 Ja '18

**Borides**

Metal carbides borides and silicides and their  
use in metallurgy. *Sci Am S* 88:119 Ag  
23 '19

Boring (earth and rocks). See Drilling and bor-  
ing (earth and rocks)

Boring (metal working, etc.). See Drilling and  
boring (metal working, etc.)

**Boring machinery.** See Drilling and boring machinery

**Borneo**  
Diamond fields of Dutch Borneo. Sci Am 118: 233 Mr 16 '18

#### Boron

Boronic copper, its production and varied uses. Eng & Min J 105:206 Ja 26 '18  
Boronized metals: some minute aspects. J. Scott. II Metal Ind 15:115-16 Mr '17  
Detection of boron by means of turmeric viscose silk fibers. E. M. Chamot and H. I. Cole. J Ind & Eng Chem 10:48-9 Ja '18

#### Boston, Massachusetts

Boston settlements organize industrial relations work. II Automobile 37:459-61 S 13 '17  
Concrete plant on Boston dry dock almost automatic. E. M. Blake. II diag Eng N 80: 200-5 Ja 31 '18  
Sinking six cylinder foundations a day on Boston army supply base. II diag plan Eng N 81:584-8 S 26 '18

#### Lighting

Award in Boston street-lighting arbitration. Elec R 72:680 Ap 20 '18  
Street-lighting rates are reduced in Boston. Elec W 71:532 Mr 9 '18; Same. Munic J 44: 287-8 Ap 6 '18

#### Rapid transit

Comparative costs of subway and surface lines in Boston; report to the Massachusetts public service commission. J: A. Beeler. Elec Ry J 51:313 F 16 '18  
Completion of the Boston subway. II diag Ry R 65:257-61 Ag 23 '19  
Progress on the Boston subway. II Ry R 61: 781-5 D 29 '17  
South Boston extension opened. Elec Ry J 50: 1133 D 22 '17

See also Boston Elevated railway

#### Sanitary affairs

Quantity and quality of garbage lowered by war conditions. Eng N 79:1092 D 13 '17

#### Sewerage

Recovery of grease and fertilizers from sewage; Massachusetts joint investigating board reports against applying Miles acid process. Eng N 80:319-22 F 14 '18; Same cond. Munic J 44:238-40 Mr 23 '18

#### Boston and Maine railroad

Annual report, 1917. map Ry Age 64:1456-7 Je 21 '18

Boston & Maine reorganization. Ry Age 65: 537-8 S 20 '18

Statement before the Interstate commerce commission. J. H. Hustis. map Ry Age 63: 1014-15 D 7 '17

#### Boston architectural club

Annual exhibition, November. J: T. Boyd, jr. Arch Rec 43:93-4 Ja '18

#### Boston Edison company

Boston Edison operations under the war conditions. Elec W 72:760 O 19 '18

#### Boston Elevated railway

Boston accepts wage award. Elec Ry J 52: 710 O 19 '18

Boston Elevated maintenance practice discussed by officials; hearings before Massachusetts public service commission. Elec Ry J 51:660-1 Ap 6 '18

Boston Elevated makes another statement. Elec Ry J 52:753 O 26 '18

Boston Elevated strike. II Elec Ry J 54:134, 190 JI 19-26 '19

Boston Elevated's latest surface cars. II plan Elec Ry J 50:1167 D 29 '17

Boston trustees to spend \$21,500,000. Elec Ry J 53:367-9 F 22 '19

Collecting zone fares in Boston. A. S. Richey. map Elec Ry J 53:134-8 Ja 18 '19

Electrically-operated destination signs direct traffic in a transfer station. II Elec Ry J 52:883 N 16 '18

Epoch-making law provides for the public control of the Boston Elevated railway. M. C. Brush. Elec Ry J 51:1057-8 Je 1 '18

First two weeks with 7-cent fare show gain of 30 per cent in gross. Elec Ry J 52:347 Ag 24 '18

Legislative action likely in Boston case; public control bill with service-at-cost provision reported. Elec Ry J 51:778 Ap 20 '18

Massachusetts governor's relief message. Elec Ry J 51:472 Mr 9 '18

Massachusetts public service commission recommends public control, guaranteed dividend, higher fare for Boston Elevated railway. Elec Ry J 51:272-7 F 9 '18

M. C. Brush to turn over Boston L. to state. Elec Ry J 51:1170 Je 15 '18

Operating without telephones; preparedness plans made by Boston Elevated railway during the recent strike of telephone operators. E: Dana. map Elec Ry J 54: 23-4 JI 5 '19

Publicity among the Bostonese. Elec Ry J 50: 1034-6 D 8 '17

Report for the six months ended Dec. 31, 1916. Elec Ry J 50:1049 D 8 '17

Service-at-cost plan and public control discussed at legislative hearing. Elec Ry J 51: 575-6 Mr 23 '18

Seven-cent fare for Boston on Aug. 1. Elec Ry J 52:174 JI 27 '18

State management of Boston's street railways. Eng N 80:1071-2 Je 6 '18

State operation for Boston Elevated. Munic J 44:477-8 Je 8 '18

Troubles pile up before Boston trustees. Elec Ry J 52:124 JI 20 '18

Trustees organize. Elec Ry J 52:35 JI 6 '18

#### Boston society of civil engineers

Progress report of committee on run-off. Boston Soc C E J 5:387-422 D '18

70th annual meeting. Boston, March 20. Boston Soc C E J 5:sup2-21 Ap '18

#### Boston transit commission

Goes out of existence. Eng N 81:378 Ag 22 '18

#### Botanical chemistry

Biochemistry of plants. Sci Am S 85:56 Ja 26 '18

Composition of the fruit of the Virginia creeper, ampelopsis quinquefolia. G: D. Beal and E: A. Glenz. J Ind & Eng Chem 11:959-60 O '19

Manganese content of the ash of certain drugs. L. E. Westman and R. M. Rowat. Am Chem Soc J 40:558-62 Mr '18

#### Botany

See also Bacteriology; Botanical chemistry; Fertilization of plants; Growth (plants); Hybridization; Plants. Geographical distribution of; Sap; Seeds; Translocation; Trees

#### France

Flora of the Somme battlefield. A. W. Hill. Sci Am S 85:200 Mr 30 '18

#### Botany, Economic

Interconnection of economic botany and chemical industry. E: Wheeler. Sci Am S 87: 63-4 Ja 25 '19

See also Cotton; Forest products; Grain; Grasses; Sumac; Weeds

#### Botany, Medical

Growing medicinal plants in America. A. S. Cushman. II J Fr Inst 186:267-78 S '18

#### Boulder batholith

Ore deposits of the Boulder batholith of Montana. P. Billingsley and J. A. Grimes. bibliog diags maps Am Inst Min E Bul 124:641-717 Ap '17; Discussion. 130:1869-70; 133:72-5 O '17, Ja '18

#### Box cars. See Freight cars

#### Box factories

Box shook plant of Bloedel Donovan lumber mills, Bellingham, Wash. II Am Lumberman 2280:42 Ja 25 '19

#### Boxes

Characteristics of a good box. Am Lumberman 2293:65 Ap 26 '19

Government box requirements are settled. R. E. Wood. Am Lumberman 2246:42 Je 1 '18

**Boxes—Continued**

- Knowlton motor-driven box-corner-staying machine. *Il Elec R 73:189 Ag 3 '18; Elec W 72:331 Ag 17 '18*  
 Larger box testing machine being built. *Il Am Lumberman 2238:38 Ap 6 '18*  
 Making picture frames and fancy boxes for Xmas described for the kid's benefit. *E: H. Crussel. diags Bldg Age 40:574-5 D '18*  
 Metal strapping on wooden boxes. *Sci Am S 87:414 Je 28 '19*  
 Nailing tests aid box making. *Am Lumberman 2310:70 Ag 23 '19*  
 Respective merits of wire bound and nailed and strapped boxes argued before Food purchase board. *Am Lumberman 2348:34 My 11 '18*  
 Western box makers to form one association. *Am Lumberman 2258:51 Ag 24 '18*  
*See also Box factories*

**Boxing**

- Lighting of a boxing arena. *Illum Engr 12: 134 My '19*

**Boxwood, Substitutes for**

- American substitutes for boxwood. *Il Sci Am 120:223+ Mr 8 '19*

**Boy scouts**

- Harnessing boy-power. *W: B. Ashley. Il Sci Am 120:100-1+ F 1 '19*

**Boys**

- Find-yourself campaign for employed boys. *Mach 25:1101 Jl '19*

*See also Apprentices*

**Bracing**

- Action of wind on barns and proper methods of bracing. *diag Bldg Age 40:476-7 O '18*

*See also Shoring and underpinning*

**Brackets**

- Diagrams for safe bracket loads. *F. W. Seidensticker. diags Eng N 82:1222 Je 19 '19*  
 Strength of bracket. *diags Int Marine Eng 23: 716-17 D '18*

**Braiding machines**

- Braiding and braided products. *A. Brandt. Il Textile World 53:6109+ Je 15 '18*

**Braids**

- Silk ribbon substitute and braid for millinery trade made from milkweed and wood pulp with the aid of gas. *S. E. Wardell. Il diag Am Gas Eng J 108:121-2 F 9 '18*

- Braille. *See Blind—Printing and writing systems*

**Brake beams**

- Atlas safety guard and third point support. *diag Ry Age 66:603 Mr 14 '19; Same. Ry Mech Eng 93:162 Mr '19*  
 A. & Z. brake beam hanger. *Il diag Ry Mech Eng 92:175 Mr '18*  
 Design of offset beams. *V: M. Summa. diags Ry Mech Eng 92:514-17 S '18*  
 M. C. B. brake shoe and brake beam committee report. *Ry Age 64:1492-3 Je 21 '18*

**Brake rigging**

- Brake slack adjusters assist in producing needed economy. *diags Elec Ry J 51:1019-20 My 25 '18*  
 Use of slack adjusters by Philadelphia rapid transit company. *Il diags Elec Ry J 51:625-6 Mr 30 '18*

**Brake shoes**

- Feralun brake shoe. *Il diags Coal Age 13:630 Ap 6 '18*  
 Half-solling mine-car brakeshoes. *diags Coal Age 16:505 S 18 '19*  
 M. C. B. brake shoe and brake beam committee report. *Ry Age 64:1492-3 Je 21 '18*  
 Renewable brakeshoes for induction regulators. *Elec R 73:582 O 12 '18*

**Brakes**

- Brake for high-speed machines. *D. A. Baker. Am Mach 49:584 S 26 '18*  
 Brake power on tank cars. *diags Ry R 64: 732-3 My 17 '19*  
 Cable brake for the lumber camp. *Il Sci Am 118:145 F 16 '18*  
 Combined steam and Westinghouse brake valve. *diags Engineer 125:324 Ap 12 '18; Discussion. 125:347 Ap 19 '18*

- Cutler-Hammer magnet-operated brake. *Il Am Mach 49:320 Ag 15 '18; Elec R 73:188 Ag 3 '18; Elec W 72:379 Ag 24 '18; Iron Tr R 63:445-6 Ag 23 '18*

- Electrical study course—apparatus required for brake tests on motors. *diags Power 49: 860-1 Je 3 '19*

- Electrical study course—factors entering into brake tests. *diags Power 49:938-40 Je 17 '19*

- Electrical study course—prony brake test on electric motor. *diags Power 49:980-2 Je 24 '19*

- Freight brake maintenance. *F. B. Farmer. Ry Mech Eng 92:406-8 Jl '18*

- Holding standing freight trains and cars on grades. *R. J. Watters. Ry R 64:686-7 My 10 '19; Same abr. Ry Age 66:1169-70 My 9 '19*

- Insuring the action of brakes on double-truck cars. *F. J. Foote. diag Elec Ry J 51:282 F 9 '18*

- Magnetic brake coils. *Elec R 71:1031 D 15 '17*

- Mill and hoist motor magnetic brake. *Il Iron Age 101:259 Ja 24 '18*

- New design of magnetic brakes. *diag Eng & Min J 106:1116 D 28 '18*

- Piston travel and braking power. *H. F. Wood. Ry Mech Eng 92:662 D '18*

- Practical brake horse power formula for internal combustion engines. *H. Lemp. Il Gen Elec R 22:808-9 O '19*

- Report of the M. C. B. committee on train brake and signal equipment. *diag Ry Age 64:1508-10 Je 21 '18*

- Safety brake for overhead traveling cranes. *diags Iron Tr R 65:1456-7 N 27 '19*

- Speed control of induction motors on cranes and hoists by means of solenoid load brakes. *R. H. McLain and H. H. Vernon. Il diags Gen Elec R 22:117-25 F '19*

- Vacuum brakes. *A. Fuhr. Ry Mech Eng 93: 586-7 O '19*

- Westinghouse magnetic brakes. *Il Elec R 72: 83-4 Ja 12 '18; Same. Elec W 71:127 Ja 12 '18*

- See also Air brakes; Brake beams; Brake rigging; Brake shoes; Braking, Dynamic; Braking, Regenerative; Electric railroads*

**—Braking**

- Brakes, Automatic. *See Railroads—Automatic stop*

**Brakes, Automobile**

- Care and adjustment of brakes. *diags Motor Age 36:57-8 N 6 '19*

- Determining correct location of brake levers. *W. C. Baker. Il diags Automotive Ind 40: 914-17 Ap 24 '19*

- Four-wheel brake system. *Il Motor Age 35:43 F 6 '19*

- Price of neglected brakes. *Sci Am 118:250 Mr 23 '18*

- Reasons for propeller shaft brake. *Automotive Ind 38:739 Ap 11 '18*

- Sizes of brake linings for cars, 1912-1919. *Motor Age 35:39 Ap 17; 45 Ap 24; 47 My 1; 51 My 15; 50 My 22; 29 My 29; 36:52 O 9 '19*

- What to do with those car brakes. *Motor Age 35:27 Mr 6 '19*

- Braking, Dynamic**

- Dynamic braking of electric motors; abstract. *E. M. Bouton. Elec W 72:169 Jl 27 '18*

- See also Braking, Regenerative*

- Braking, Regenerative**

- Electricity recovering from electric traction lines. *Sci Am S 86:152 S 7 '18*

- Regenerative braking; abstract. *W. V. Turner. Elec W 70:1109 D 8 '17*

- Regenerative electric braking on the locomotives of the C. M. & St P. Ry. *W. F. Coors. Il diag Gen Elec R 21:412-18 Je '18; Same cond. Ry R 62:867-9 Je 15 '18*

- Bran**

- What shall we do with wheat bran; is its use for human food the most efficient utilization of its mineral constituents? *A. D. Holmes. Sci Am 119:106 Ag 10 '18*

- Who shall eat the bran? *H. A. Vaughan. Sci Am 119:229 S 21 '18*

**Brass**

- Brass chemist. *Il Metal Ind* 15:165, 346-7, 380-2 Ap, Ag-S '17
- Brass exports for 1917. *Metal Ind* 16:514 N '18
- Brass reclaiming plant. *diag Mach* 24:628 Mr '18
- Brass weakness; a microscopical explanation. J. Scott. *Il Metal Ind* 16:319-20 J1 '18; Abstract. *Am Soc M E J* 40:774-5 S '18
- Brasses of unusual strength. O. F. Hudson. *Il Iron Age* 104:375 Ag 7 '19
- Cadmium in brass for cartridge cases. *Iron Age* 102:144 J1 '18; *Metal Ind* 16:369-70 Ag '18
- Comparison of grain-size measurements and Brinell hardness of cartridge brass. W. H. Bassett and C. H. Davis. *Il Am Inst Min E Bul* 145:57-78 Ja '19; Discussion. 148:692-9 Ap '19
- Corrosion of brass in sea water. P. T. Bruhl. *Chem & Met Eng* 20:239 Mr 1 '19; Same. *Sci Am S* 87:211 Ap 5 '19
- Early brass days in Connecticut. L. M. Ruttenber. *Metal Ind* 16:218-19 My '18
- Failure of brass; effect of corrosion on the ductility and strength of brass. P. D. Merica. *U S Bur Stand Tech Pa* 83:1-7 '16
- Failure of brass; initial stress produced by the burning in of manganese bronze. P. D. Merica and C. P. Karr. *U S Bur Stand Tech Pa* 84:1-7 '16
- Gauges and standards for manufacturing brass goods. P. W. Blair. *Il Metal Ind* 17:460-2 O '19
- Grain growth in alpha brass. F. G. Smith. *Il Am Inst Min Bul* 152:1361-88 Ag '19; Discussion. 156:3185 D '19
- Metallography and heat treatment of metals used in aeroplane construction. F. Grotts. *Il Chem & Met Eng* 19:316-17 S '18
- Metallography applied to nonferrous metals. E. J. Davis. *Il diags Foundry* 47:215-18 Ap 15 '19
- Nonmetallic inclusions in bronze and brass. G. F. Comstock. *Il Foundry* 47:79-83 F '19
- Notes on alloys used in British brass-rolling mills. A. J. Franklin. *Il Metal Ind* 17:225-8 My '19
- Notes on the influence of certain variables associated with the anneal of cold-worked alpha brass. A. Phillips and G. C. Gerner. *Il Chem & Met Eng* 20:622-8 Je 15 '19
- Prevention of season and corrosion cracks. W. B. Price. *Il Am Mach* 49:848-50 N 7 '18
- Readjustment in brass manufacturing. P. W. Blair. *Metal Ind* 17:9 Ja '19
- Reclamation of brass ashes. A. F. Taggart. *Metal Ind* 15:74-6 F '17
- Season cracking of brass discussed by manufacturers and laboratory men before American society for testing materials. *Metal Ind* 16:321-2 J1 '18; *Eng N* 81:182-3 J1 '18 '18
- Spelter for high grade brass; report of zinc producers to the committee on raw materials of the War industries board. *Metal Ind* 16:175-6 Ap '18
- Structural characteristics of rolled sheet brass. H. A. Eastick. *Il diags Metal Ind* 17:121-4, 176-8 Mr-Ap '19
- Tests on brass sweepings show good results. *Foundry* 46:373 Ag '18
- Thermal expansion of alpha and of beta brass between 0 and 600° C. in relation to the mechanical properties of heterogeneous brasses of the Muntz metal type. P. D. Merica and L. W. Schad. *Il U S Bur Stand Bul* 14:571-90 J1 12 '19
- Use of cartridge scrap. *Am Ind* 18:43 My '18
- Volatility of constituents of brass. *Am Inst Min E Bul* 145:96-7 Ja '19
- What is the cure for condenser tube corrosion? H. L. Smith. *Elec Ry J* 52:283-5 Ag 17 '18
- White brass bearing metals as a substitute for high-grade babbit. L. D. Staplin. *Am Mach* 49:479 S 12 '18
- See also Alloys; Brass founding; Brass work; Brass works; Brazing; Muntz metal; Tubes, Brass

**Analysis**

- Determination of cadmium by the hydrogen sulfide method. E. Schramm. *J Ind & Eng Chem* 11:110-13 F '19

**Coloring**

- Gold color on brass. *Metal Ind* 16:7 Ja '18
- Use of gas in coloring brass goods. G. C. Shadwell. *Il Am Gas Eng J* 111:285-90 O 4 '19

**Brass, Substitutes for**

- Manufacturers must use substitutes for brass. *Elec W* 72:802-8 O 26 '18

**Brass founding**

- Advantages of gas for brass melting. C. C. Krause. *Il diags charts Am Gas Eng J* 108:193-9 Mr 2 '18
- Annealing and heat treating of steel and melting of non-ferrous metals in the electric furnace; abstract. T. F. Bailey. *Elec W* 70:1110 D 8 '17
- Avoiding evils of the cauliflower pouring head. R. R. Clarke. *Foundry* 47:121-3 Mr '19
- Bill fishes and talks brass founding. P. Dwyer. *Foundry* 47:341-3 Je 1 '19
- Boss draws away from the hub. *diag Foundry* 47:84 F '19
- Brass for fuses and other munition products; a description of methods employed in England for the production of war-time alloys. A. E. Tucker. *Metal Ind* 16:212-14 My '18
- Brass foundry. E. A. Barnes. *Metal Ind* 15:70-1 F '17
- Brass foundry core-making points. H. M. Lane. *Metal Ind* 15:436-7 O '17
- Brass foundry practice. P. W. Blair. *Il diag Metal Ind* 15:515 D '17
- Brass foundry practice. W. R. Dean. *diag Metal Ind* 15:195-6, 388-9 My, S '17
- Brass melting. T. King. *Gas Age* 44:427 N 1 '19
- Care of the brass furnace. J. A. Fletcher, Jr. *Il Metal Ind* 16:310 J1 '18
- Casting defects remedied by changing gate. *diags plan Foundry* 47:696 O 1 '19
- Chemist and the brass-founder. R. T. Rolfe. *Il Metal Ind n s* 14:373-4, 468-9; 15:24-6 S, N '16, Ja '17
- Considerations affecting brass melting in the gray iron shop. R. R. Clarke. *diags Metal Ind* 17:453-6 O '19
- Cupola metal for bronze castings. C. Vickers. *Il diag Foundry* 47:479-81 J1 15 '19
- Difficulties in making brass bushings. *Foundry* 46:28 Ja '18
- Electric brass furnaces displace other types. W. R. Clark. *Elec W* 73:741-2 Ap 12 '19
- Electric brass melting—its progress and present importance. H. M. St John. *Elec J* 16:373-80 S '19
- Electric furnace for melting nonferrous metals. E. F. Collins. *Il chart diags Foundry* 47:284-8, 329-33 My 15-Je 1 '19; Abstract. *Elec W* 73:1110-14, 1117 My 24 '19; Excerpt. *Iron Age* 103:1288 My 15 '19; Excerpt. *Metal Ind* 17:221-4 My '19
- Electric furnace replaces crucibles. *Il Iron Age* 104:913-16 O 2 '19
- Expansion and contraction of brass castings. P. W. Blair. *Metal Ind* 16:351 Ag '18
- Flux and cleaner question of brass. E. D. Frohman. *Metal Ind* 15:499 N '17
- Formulas for the brass foundryman; cheap brass mixtures. *Foundry* 46:220a My '18
- Formulas for the brass foundryman; hardening effect of additions of commercial metals to aluminum. *Foundry* 47:354a Je 1 '19
- How and why in brass founding. C. Vickers. *Foundry* 47:349-50, 400-1, 521, 565-6, 745-6 Je 1-Ag 15, O 15 '19
- How brass carburetors are molded and cast. *Il Foundry* 46:464-9 O '18
- How to obtain uniform bright color on red brass castings. *Metal Ind* 17:35 Ja '19
- How to prevent spongy brass castings. *Foundry* 46:470 O '18
- In the brass foundry; war conditions in English metal shops. S. Jones. *Metal Ind* 16:72-3 F '18

**Brass founding—Continued**

- Inspection of bronze and brass. E. Jonson. Metal Ind n s 14:424-6 O '16; Same cond. Mach 23:265+ D '16; Same abr. Foundry 45:154-5 Ap '17; Excerpta. Iron Age 98:678-9 S 21 '16; Excerpta. Mach 24:511 F '18
- Magnesium as a deoxidizer for brass and bronze. Foundry 47:26 Ja '19
- Making alloy castings at Cramp's. II Foundry 47:641-6 S 15 '19
- Meeting of American institute of chemical engineers, June 18-21; symposium on electric furnaces. H. W. Gillett; T. E. Bailey; H. M. St John. Chem & Met Eng 21:6-16 JI 1 '19
- Melting brass in a rocking electric furnace. H. W. Gillett and A. E. Rhoads. II diag U S Bur Mines Bul 171:1-126 '18; Abstracts. J Ind & Eng Chem 10:459-68 Je '18; Met & Chem Eng 18:583-90 Je 1 '18; Am Mach 48:1013-20 Je 13 '18; Metal Ind 16:265-8 Je '18; Foundry 46:314-20 JI '18; Elec W 72:360 Ag 24 '18; Bibliography. J Ind & Eng Chem 10:468 Je '18; Chem & Met Eng 19:82 JI 15 '18
- Melting of brass in the induction furnace. G. H. Clamer. II Am Mach 48:21-2 Ja 3 '18
- Methods for reducing casting losses. E. E. Leib. Foundry 47:339-40 Je 1 '19
- Operating brass-making induction furnaces. R. N. Blakeslee, jr. II chart diag Elec W 74:642-4 S 20 '19
- Overcoming pitting in copper castings. Foundry 46:470 O '18
- Performance data on a brass-melting furnace. A. S. Witmer. Elec W 72:891 N 9 '18
- Precautions to observe in casting light work. R. R. Clarke. Foundry 47:272-3 My 1 '19
- Present status of electric brass melting. H. M. St John. II diag Chem & Met Eng 19:321-8 S 15 '18; Same cond. Elec W 71:1129-31, 1216-18 Je 1-8 '18; Abstract. Iron Age 101:1281 My 16 '18
- Preventing blow-holes in yellow brass. Foundry 46:80-1 F '18
- Preventing oxidation in naval brass. Foundry 46:166 Ap '18
- Soft core and better melting will prevent cracking. Foundry 46:28-9 Ja '18
- Substitute for charcoal for brass melting. Foundry 46:167 Ap '18
- Symposium on electric furnaces at a meeting of the American institute of chemical engineers. L. F. Bailey; C. H. Booth; H. M. St John. II Metal Ind 17:816-22 JI '19
- Trend toward electric brass melting. Met & Chem Eng 18:434-5 My 1 '18
- Trolley wheel mixture. Foundry 46:371 Ag '18
- Using scrap brass in alloys. Foundry 47:482 JI 15 '19
- Utilization of electric brass furnaces. H. W. Gillett. J Ind & Eng Chem 11:664-8 JI '19; Same cond. Chem & Met Eng 21:6-10 JI 1 '19

**Cost**

- Electric furnace performance for alloys with high zinc content. II Elec R 74:814-15 My 17 '19

**Brass foundries**

- Brass foundry with automatic ventilation. C. Vickers. II plan Foundry 46:568-74 D '18
- Foundry ventilation. diag Iron Age 103:610 Mr 6 '19
- Standards for brass and bronze foundries and metal-finishing processes. L. Erskine. Am Inst Min E Bul 146:263-75 F '19; Same. Metal Ind 17:113-17 Mr '19; Discussion. Am Inst Min Bul 148:710-11 Ap '19
- Unique brass foundry company, Buffalo. G. W. Grupp. II Metal Ind 15:159-60 Ap '17

See also Brass founding

**Brass tubes. See Tubes, Brass****Brass work**

- Brass-etto of the Borghetto. L. Lodian. II Metal Ind n s 15:19-20 Ja '17
- Chinese metal manufactures. H. K. Richardson. II diag Metal Ind 15:191-4, 477-8 My, N '17
- Light versus heavy reductions in cold working brass. W. R. Webster. II Metal Ind 15:290-1 JI '17

**Brass works**

- Connecticut brass mill. L. J. Krom. II Metal Ind 15:331-5 Ag '17
- How to obtain the accurate cost in manufacturing brass goods. F. W. Blair. Metal Ind n s 15:10-11 Ja '17
- Installing a cost system in a brass manufacturing plant. F. W. Blair. Metal Ind 16:67-8 F '18
- Modern plant for manufacturing brass; works of Cleveland brass & copper mills. II Iron Age 101:489-92 F 21 '18
- Pioneer brass plant, Haydenville, Mass. II Metal Ind 16:317-18 JI '18

**Laboratories**

- Relation of the chemist to the brass industry; Scovill manufacturing company. W. B. Price. II J Ind & Eng Chem 11:770-7 Ag '19
- Scovill manufacturing co.'s new laboratory for brass. II Iron Age 101:858-9 Ap 4 '18

**Brazil**

See also Geology—Brazil; Railroads—Brazil

**Commerce**

- Boots and shoes, leather, and supplies in Brazil. H. G. Brock. U S Bur For & Dom Com 179:1-59 '19
- Brazilian market for aniline dyes. Color Tr J 4:36-8 F '19
- Brazilian markets for paper, paper products, and printing machinery. R. S. Barrett. II U S Bur For & Dom Com 171:1-77 '18
- Chemical markets of Argentina, Brazil, and Uruguay. O. P. Hopkins. J Ind & Eng Chem 10:704-6 S '18
- Engineering opportunities of Brazil. Engineer 126:364-5, 407-8, 491-2 N 1, 15, D 6 '18
- Our opportunity in Brazil. II Sci Am 120:78 Ja 25 '19
- Wearing apparel in Brazil. W. C. Downs. U S Bur For & Dom Com misc ser 71:1-64 '18

**Industries and resources**

- Electric smelting. K. Thomas. Iron Age 101:778 Mr 21 '18
- Fuel problem of Brazil. Coal Age 14:1160-2 D 26 '18
- Sawmilling in southern Brazil. E. F. Horn. Am Lumberman 2246:45 Je 1 '18
- See also Iron ores—Brazil; Mines and mineral resources—Brazil

**Brazing**

- Bantam portable brazing torch. II Am Mach 48:1075 Je 20 '18
- Brazing high-speed steel tips to machine-steel cutting tools. Am Mach 48:43, 508 Ja 3, Mr 21 '18
- Brazing stellite to steel shanks. diag Mach 24:759 Ap '18
- Electric brazing machine. II Am Mach 50:567-8 Mr 20 '19; Iron Tr R 64:832 Mr 27 '19; Mach 25:665 Mr '19
- Furnace for brazing copper pipe. diag Ry Mech Eng 93:639 S '19
- Hoke-Phoenix melting, brazing and soldering processes. II Metal Ind 16:329 JI '18
- Metallography and heat treatment of metals used in aeroplane construction. F. Grotts. II Chem & Met Eng 19:317-19, 583-6 S 15, O 1 '18
- Soldering and brazing. P. W. Blair. Metal Ind 16:647-9 D '18
- Soldering and brazing operations. diag Motor Age 34:36-7 S 12 '18

**Bread**

- Bread making in France. Sci Am 118:395 Ap 27 '18
- Digestibility of bread; erythrodextrin in starch hydrolysis. J. C. Blake. Am Chem Soc J 40:623-36 Ap '18
- French war breads. Sci Am 118:203+ Mr 2 '18
- Gas multiplies bread wrapping operation ten times. Am Gas Eng J 111:290 O 4 '19; Excerpt. Gas Age 44:334 O 1 '19
- Improving war bread with lime-water. Sci Am 118:131 F 9 '18; Discussion. C. M. Gott. 118:255 Mr 23 '18
- Substitute bread. K. Heppe. II Sci Am 119:415 N 23 '18

**Bread—Continued**

- War bread. E. I. Spriggs. Sci Am S 86:7 J1 6 '18  
 Why bread gets stale. J. R. Katz. Sci Am 120: 184+ F 22 '19  
*See also* Bakers and bakeries; Flour

**Analysis**

Chemical analysis of wheat-flour substitutes and of the breads made therefrom. J. A. Le Clerc and H. L. Wessling. U S Agric Bul 701:1-10 '18

**Breadfruit**

Bread fruit and its possible uses. U Sci Am S 85:84 F 9 '18

**Breakwaters**

Compound type of breakwater at Gibraltar. diag Eng & Contr 50:121-2 J1 21 '18  
 Concrete caisson of new type used in breakwater. U diags plan Eng N 81:258-60 Ag 8 '18; Eng & Contr 50:361-2 O 16 '18  
 Experiments with breakwater models to determine wave action. diags plan Eng & Contr 50:133-4 J1 31 '18  
 Method of constructing rubble mound extension to breakwater at Marquette, Mich. U diag Eng & Contr 49:195-7 F 20 '18  
*See also* Jetties

**Breathing apparatus.** *See* Respiratory apparatus

**Breeding.** *See* Hybridization

**Breeding, Plant.** *See* Plant breeding

**Breweries**

Conversion of a brewery into an oil refinery. diags Chem & Met Eng 19:753-6 D 1 '18  
 Remodelling suction gas mains Anheuser-Busch brewery. R. H. Karl. U charts diags plans Power 50:48-54 J1 8 '19

**Bribery**

Commercial bribery. Ry R 62:911-13 Je 22 '18

**Brick.** *See* Bricks

**Brick construction**

Compressive strength of large brick piers. J. G. Bragg. U diags U S Bur Stand Tech Pa 111:1-39 '18; Abstract. Am Soc M E J 41:174-5 F '19; Abstract. J Fr Inst 187:221-3 F '19; Summary. Eng & Contr 50:512 N 27 '18

Country house details. A. B. Greenberg. diags Bldg Age 41:168-9 My '19

Empirical column formulas for brick piers. W. W. Pearse. diag Eng & Contr 51:427-8 Ap 23 '19

How I estimate brickwork by the superficial foot of wall. D. C. Carson. Bldg Age 41: 233-5 J1 '19

Improving looks of old brick buildings by tuck pointing. E. V. Laughlin. Bldg Age 41:137 Ap '19

*See also* Bricklaying; Concrete bricks; Pavements, Brick

**Brick pavements.** *See* Pavements, Brick

**Brick roads.** *See* Roads, Brick

**Bricklaying**

Science of bricklaying. Sci Am S 85:55 Ja 26 '18

**Brickmaking**

Brickmaking machinery for Europe. U Sci Am 119:110 Ag 10 '18

Good brick from slags. Sci Am 120:108 F 1 '19

Safety in brick making. diags Am Ind 19:sup 1-4 Ag '18

**Bricks**

Dunn wire-cut lug brick patents sustained. Munic Eng 56:67-8 F '19

How efflorescence can be removed from brickwork. Bldg Age 40:262 My '18

Idiosyncrasies of building materials: brick. Am Arch 116:326-7 S 3 '19

Interlocking self-bonding brick. U Sci Am 121:142 Ag 9 '19

Paving bricks from blast-furnace slag. J. B. Shaw. Sci Am S 86:266 O 26 '18

Removing efflorescence from brickwork. A. Redfern-Cornwell. Bldg Age 41:320-1 O '19

What important factors does strong brickwork depend on? A. B. Searle. Bldg Age 40:257 My '18

*See also* Brick construction; Bricklaying; Brickmaking; Clay; Fire brick; Masonry; Pavements, Brick; Roads, Brick

**Bibliography**

Structural service department; brick, hollow tile, and architectural terra cotta. Am Inst Arch J 6:150-3 Mr '18

**Testing**

Empirical column formulas for brick piers. W. W. Pearse. diag Eng & Contr 51:427-8 Ap 23 '19

Rattler tests for paving brick of various depths. W. C. Perkins. Good Roads n 2 15: 58-9 F 2 '18; Same abr. Eng N 80:71-2 Ja 10 '18; Same abr. Eng & Contr 49:151-2 F 6 '18

**Bricks, Concrete.** *See* Concrete bricks

**Bridge abutments.** *See* Bridges—Abutments

**Bridge accidents**

June floods cause damage to bridges in Iowa. U Eng N 81:500-1 S 12 '18

Unusual failure of a railroad draw bridge. U Ry Age 64:547-8 Mr 15 '18

*See also* Bridge failures

**Bridge design**

Approximate live-load stresses in railway bridges. H. R. White. diags Eng N 80:1137-8 Je 13 '18

Are bridge engineers losing their heads on unit stresses? J. A. L. Waddell. Eng N 82: 155-6 Ja 16 '19

Bridge engineering in active warfare. L. E. Moore and M. W. McDonald. U diags Eng N 83:688-96, 734-41 O 9-16 '19

Building an ice proof bridge. Sci Am 118:9 Ja 5 '18

Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. plans W Soc E J 24:187-214 Ap '19

Concrete bridge impact formula. A. N. Johnson. Concrete 13:98-9 S '18

Construction of the Mystic river bridge, Everett extension of the Boston Elevated railway company. C. T. Fernald. U diags plans Boston Soc C E J 5:367-78 O '18

Continuous trusses of silicon steel feature new Allegheny river bridge. U diags plans Eng N 80:848-56 My 2 '18

Design and construction features of concrete viaduct approach to Central Ave. bridge, Kansas City, Kan. U Eng & Contr 50:76-7 J1 24 '18

Design of new superstructure of Louisville bridge with 644-foot riveted span. U diags plan Eng N 82:1007-11 My 22 '19

Design of Piedmont park bridge, Atlanta. A. M. Wolf. U diags Concrete 11:133-6 N '17; Same. Am Arch 113:49-54 Ja 9 '18

Designing the 720-foot Metropolis (Ill.) span. U diags Eng N 79:1140-3 D 20 '17

Double-deck railway bridge over Kansas river with thin floor construction. F. W. Epps. U diags plans Eng N 80:466-70 Mr 7 '18

Economic span lengths for simple-truss bridges on various types of foundation. J. A. L. Waddell. diags W Soc E J 24: 215-60 Ap '19; Same cond. Ry Age 67:635-6 S 26 '19

English Channel train ferry bridge of 120-foot span. P. J. Risdon. U diags Eng N 83:666-8 O 2 '19

Equivalent uniform loads for indeterminate structures. D. B. Steinman. diags Eng N 81: 231-3 Ag 1 '18; Discussion. Eng N 81:1193-4; 82:198-9 D 26 '18, Ja 23 '19

Esthetics in bridge design. J. A. L. Waddell. U diags Ry R 62:710-14 My 18 '18

Flange bracing of through girders. H. R. Thayer. Eng N 80:184 Ja 24 '18

High-line viaduct and bridge improve rail entrance to Kansas City. F. W. Epps. U diags plan map Eng N 80:393-8 F 28 '18

Hinged polygonal steel arch carries viaduct spans. U diags Eng N 80:607-9 Mr 28 '18

In defence of the new Canadian formula for steel columns. W. C. Thomson. Eng N 82: 250-1 Ja 30 '19

**Bridge design—Continued**

- Load assumption in the design of concrete floor slabs. G. H. Tinker. Ry Age 65:332-3 N 22 '18
- Maximum live-load pier reactions for railroad bridges. F. R. Sweeny. Eng N 79:1098-9 D 13 '17
- Method and formulas for dimensioning wing wall abutments. B. L. Parker. diags Eng & Contr 51:80-2 Ja 22 '19
- Metropolis bridge over the Ohio river at Metropolis, Ill. R. Modjeski. II diags map plans W Soc E J 24:59-81; Discussion. 81-7 F '19
- Modified A.R.E.A. impact formula. F. L. Batchelder. Eng N 81:1195 D 26 '18
- New impact formulas needed in designing bridges of various types. J. A. L. Waddell. Eng N 81:924-8 N 21 '18
- New York Central sets long plate girder in bridge. II diags plans Eng N 79:1202-4 D 27 '17
- Omaha track-elevation bridges vary in type to meet local conditions. diags Eng N 82:380-2 F 20 '19
- 186 foot bascule bridge of the C. & N. W. Ry., over the north branch of the Chicago river at Deering. O. F. Dalstrom. II diags plans W Soc E J 22:453-71; Discussion. 471-8 S '17
- Prefers vertical end-posts in bridges. E. Boucher. diags Eng N 80:91 Ja 10 '18
- Questions on anchorage and lateral sway in Cumberland suspension bridge. D. Ordling; W. G. Grove. Eng N 83:527-8, 711 S 11, O 9 '19
- Radical departure in swing bridge design. diags Ry Age 66:905 Ap 4 '19
- Railway bridge impact allowances. Eng N 82:454-5 Mr 6 '19; Discussion. J. A. L. Waddell. 82:786-7 Ap 17 '19
- Railway practice in design of concrete floor slabs and flat top culverts. G. H. Tinker. Eng & Contr 50:511-12 N 27 '18
- Restudy of column loadings to unify column formulas. Eng N 82:343-5, 485-6 F 13, Mr 6 '19
- Rondout Creek bridge design condemned for excessive load on batter piles. II diags plans Eng N 83:329-32 Ag 14 '19
- Sense of art in engineering. Engineer 127:406-7, 443-4 Ap 25, My 9 '19; Excerpts. Eng & Contr 52:146-8 J1 30 '19
- Special design features and erection methods for 540-foot suspension bridge for du Pont engineering company, near Nashville. W. G. Grove. II diags plans Eng N 83:4-8 J1 3 '19
- Standardization of detail in highway bridge design. M. W. Torkelson. Eng & Contr 50:513 N 27 '18
- Structural engineering. Eng & Contr 50:427-8 O 30 '18
- Temporary swing bridge over the Suez canal. diags Engineer 128:174-6 Ag 22 '19
- Tests of large bridge columns. J. H. Griffith and J. G. Bragg. II diags U S Bur Stand Tech Pa 101:1-139 '18
- Timber bridge problems on the Alaska railway. diags plans Eng N 83:420-2 Ag 28 '19
- Unusual design and joint details of 430-foot bridge at Coal Valley, Pa. diags Eng N 83:656-7 O 2 '19
- Unusual features in Willamette river bridge at Salem, Oregon. L. W. Metzger. II diags plan Eng N 82:143-5 Ja 16 '19
- Why continuous girder design was used for the Kettle Rapids bridge; abstracts. W. C. Thomson. Eng & Contr 49:513-14 My 22 '18; Ry Age 64:1411-16 Je 14 '18; Eng N 81:388-93 Ag 29 '18
- See also* Bridges—Load; Bridges, Arched; Bridges, Cantilever; Bridges, Suspension; Elevated railroads; Extensometers
- Bridge failures**
- Are our highway bridges safe? II Munic J 46:276-9 Ap 19 '19
- Bridge collapse ascribed to earth subsidence, Hudson, N.Y. E. J. Doyle. II Eng N 80:619 Mr 28 '18; Discussion. 80:786, 830-1, 1057 Ap 18-25, My 30 '18
- Draw pier of Portland (Me.) bridge settles three feet. Eng N 81:571-2 S 26 '18
- Tabulation by states. Munic J 46:283-4 Ap 19 '19
- See also* Bridge accidents
- Bridge inspection**
- Inspection of steel bridges. G. A. Haggander. Eng & Contr 52:368 S 24 '19
- Methods of bridge inspection. Ry R 65:743-6 N 15 '19
- Periodic inspection of bridges. H. C. Keith. Eng & Contr 51:212-16 F 26 '19
- Points requiring special observation and investigation in bridge inspection. H. C. Keith. Eng & Contr 51:681-3 Je 25 '19
- Bridge lighting**
- Lighting and control for bridge over the Columbia. F. H. Murphy. II diags Elec W 73:1266-8 Je 14 '19
- Bridge moving**
- Dismantle bridge spans carefully for use elsewhere. II map Eng N 82:765-6 Ap 17 '19
- Move bridge spans 136 feet endwise on car trucks. II diags Eng N 82:530-2 Mr 13 '19
- Move 200-ton transfer bridge on pontoons in New York harbor. II Eng N 83:478 S 4 '19
- Shifting a 4,000-ton bridge on freight car trucks. II diags Ry Age 64:353-7 F 15 '18
- Bridge painting**
- Cleaning of iron with sand blast; use of spraying machine in painting. A. E. Wilson. Ry Age 65:734 O 25 '18
- Cost of painting steel highway bridges. Eng & Contr 50:454 N 6 '18
- Cost of painting steel highway bridges in Iowa. C. E. Smith. Munic Eng 55:75-6 Ag '18
- Cost of painting steel truss and I-beam bridges. F. S. Currie. Eng & Contr 51:323 Mr 26 '19
- Maintenance and painting of highway bridges. C. D. Snead. Eng & Contr 51:306-7 Mr 26 '19
- Railway bridge painting practice. Eng N 83:827 O 30 '19
- Bridge patents. See Bridges—Patents**
- Bridgeport, Connecticut**
- Bridgeport employers accept award; about four thousand employees refuse to work. Iron Age 102:570-1 S 5 '18
- Bridgeport housing development. II diags plans Am Arch 113:129-47 F 6 '18
- Bridgeport strike continues. Iron Age 102:670 S 12 '18
- Government housing work at Bridgeport. W. S. Parker. II plans Arch Forum 31:111-18 O '19
- Government's housing. S. Baxter. II diags plans Arch Rec 45:123-41 F '19
- Housing problem. W. E. Freeland. II Iron Age 101:729-34 Mr 21 '18
- New rules announced at Bridgeport. Iron Age 102:755-6 S 26 '18
- President Wilson's letter results in return to work of Bridgeport strikers. Iron Age 102:726-7 S 19 '18
- Rapid transit**
- Bridgeport well pleased with safety cars. II map Elec Ry J 53:316-19 F 15 '19
- Bridges**
- Architects as bridge builders. T. Hastings. Am Arch 115:23 Ja 1 '19
- Bridge across the river Vistula at Warsaw. diags Engineer 126:80-1 J1 26 '18
- Bridge construction with timber, concrete and stone under present war conditions. O. L. Grover. Eng & Contr 50:893-4 O 23 '18
- Bridge without a trace of metal. II Sci Am 120:515 My 17 '19
- British program for road and bridge work. Good Roads n s 17:54-5 F 8 '19
- How a county engineer builds small culverts and bridges. S. C. Knight. Munic Eng 55:37-8 J1 '18
- How round timbers were framed for a temporary bridge. diags Bldg Age 40:329 J1 '18
- Influence of the war on bridge design. J. H. Ambler. Eng & Contr 49:515 My 22 '18

**Bridges—Continued**

Interesting features in rate making brought out in reversing decree of Maryland public service commission on the Havre de Grace and Perryville bridge company rate case. *Am Gas Eng J* 108:220-4 Mr 9 '18

Longest possible bridge spans. C: E. Fowler. *Il Sci Am* 118:504-5+ Je 1 '18

Method of numbering county bridges and making bridge and drainage map. J. C. MacLean. *Eng & Contr* 50:221-2 Ag 28 '18

New bridge over the Tigris at Baghdad. Engineer 127:55 Ja 17 '19

Old toll bridge on the Missouri river. *Eng N* 80:650 Ap 4 '18

Periodic inspection of bridges. H. C. Keith. *Eng & Contr* 51:212-16 F 26 '19

Principal bridges of the world—a comparison. *diags (supp) Engineer* 125:441-2, 463-4 My 24-31 '18; Same. *Sci Am S* 86:286-8, 294 N 2-9 '18

Quantity production in bridges; bringing the river to the bridge. *Il Sci Am* 120:79 Ja 25 '19

Relative efficiency of bridge and tunnels. *Sci Am* 120:248 Mr 15 '19

Removable spans required over dredged ditches. G. F. Burch. *Eng N* 80:345 F 21 '18

Scrapped highway bridges. *Munic J* 47:184-5 S 20 '19

Some bridges of Boston's park system. J. A. Schweinfurth. *Il Am Arch* 116:329-33 S 10 '19

Some reflections on the architecture of bridges; translated and adapted from Sèjourne's *Grandes routes*. D. B. Steinman. *Eng & Contr* 48:536-7 D 26 '17

Street and highway bridge policy of U.S. Highways council. *Eng & Contr* 50:391 O 23 '18; Same. *Good Roads n s* 16:131-2 O 5 '18; Same. *Munic Eng* 55:176 N '18; Abstract. *Eng N* 81:643 O 8 '18

Two home-made bridges in a Catskill village. R. Fleming. *diags plan Eng N* 83:563 S 18 '19

*See also* Arches; Bridge design and other headings beginning Bridge; Culverts; Drawbridges; Elevated railroads; Girders; Pontoon bridges; Trestles; Trusses; also names of cities, subhead Bridges; also Brooklyn bridge, Castleton bridge

**Abutments**

Bridge abutment has pier footings and curved wings. J. Jones. *Il diags plan Eng N* 80:1006-7 My 23 '18

Determining the best angle of abutment wing walls. E. F. Kelley. *diags Eng N* 80:785-6 Ap 18 '18; Discussion. M. J. Shamray. 80:1243 Je 27 '18

Method and formulas for dimensioning wing wall abutments. B: L. Parker. *diags Eng & Contr* 51:80-2 Ja 22 '19

Standard bridge abutments on canal projects. D. C. Willett. *Il diags plans Eng N* 82:777-8 Ap 17 '19

Turning back abutment wing walls saves material. C: K. Mohler. *Il diags plans Eng N* 80:169-71 Ja 24 '18

**Accidents**

*See* Bridge accidents

**Bearings**

Expansion bearings of 1,000 ft. continuous girder Kettle Rapids bridge. *diags Eng & Contr* 50:390 O 23 '18

**Bibliography**

Esthetics of engineering; bibliographical notes. F. Weitenkamp. *Arch Rec* 45:366-9 Ap '19

**Contracts**

Choose Wilmington bridge engineer by competition. *Il Eng N* 83:806-7 O 30 '19

Cost plus fee contract for bridge construction. *Eng & Contr* 51:408-9 Ap 23 '19

Long concrete bridge contract to be let in four parts. *Il Eng N* 82:1247 Je 26 '19

**Cost**

Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. *W Soc E J* 24:210-14 Ap '19

Cost of constructing concrete arch bridge over Platte river in Nebraska. G: K. Leonard. *Eng & Contr* 49:222-3 F 27 '18

Cost of covered wood bridge. *Il Eng & Contr* 52:367 S 24 '19

Economic span lengths for simple-truss bridges on various types of foundation. J. A. L. Waddell. *diags W Soc E J* 24:215-60 Ap '19; Same cond. *Ry Age* 67:635-6 S 26 '19

Keep accurate costs on war-time fee contract. F. Gannett and J. D. Carpenter. *Il Eng N* 82:571-3 Mr 20 '19

\$230,000,000 spent in 1917 on rural roads and bridges. A. P. Anderson. *Eng & Contr* 50:158-9 Ag 7 '18

**Design**

*See* Bridge design

**Erection**

Bridge work in Guatemala torrent used armored tower. *Il Eng N* 80:303-4 F 14 '18

Cableway with equalizing girder transports material for erection of Kettle Rapids bridge. *Il diags Eng & Contr* 50:386 O 23 '18

Cantilever erection of draw in open position while old draw serves as fixed span. *Il diags plan Eng N* 82:567-9 Mr 20 '19

Erection experiences at the Sciotoville bridge. C. B. Pyle. *Il diags plan Eng N* 81:1182-6 D 26 '18

Feld Blondin ropeway as an aid to bridge erection. I. Simson. *diag Eng & Contr* 52:497 O 29 '19

Maintaining traffic during erection of Louisville bridge. *Il diags Eng N* 82:1061-4 My 29 '19

Problems and general methods of erecting the Sciotoville bridge. C. B. Pyle. *Il diags Eng N* 80:62-8, 219-27 Ja 10, 31 '18

Quebec bridge. *Il diags Engineer* 125:138-40 F 15 '18

Reconstruction of Ohio river bridge of the Pennsylvania lines at Louisville. *Il diags Ry Age* 66:238-43 Ja 24 '19

Special design features and erection methods for 540-foot suspension bridge for du Pont engineering company, near Nashville. W: G. Grove. *Il diags plans Eng N* 83:4-8 Jl 3 '19

**Failures**

*See* Bridge failures

**Floors**

Highway bridge floor replaced after corrosion. *diags plan Eng N* 83:562-4 S 18 '19

Light concrete floor slabs for truss bridges. C. E. Nagel. *Il Eng & Contr* 49:642-3 Je 26 '18

Load assumption in the design of concrete floor slabs. G: H. Tinker. *Ry Age* 65:932-3 N 22 '18

Load concentrations on steel floor-joists of wood floor highway bridges. T. R. Agg and C. S. Nichols. *diags Eng & Contr* 52:466-7 O 22 '19

Plank floor for highway bridges and railway hub guard. C. W. Dewart. *diags plan Eng & Contr* 52:351 S 24 '19

Standard methods of Pennsylvania state highway department for placing road surfaces on concrete bridge floors. *diags Eng & Contr* 52:88 Jl 23 '19

Steel-plate drip floor for Niagara railway arch. *diags Eng N* 83:620-1 S 25 '19

Successful roadway expansion joint on Cleveland bridges. *diags Eng N* 79:1160-1 D 20 '17

Tar for bridge floors. G. F. Barstow. *Munic J* 44:434 My 25 '18

Waterproofed floors for railway crossings over streets. H. T. Welty. *diags Eng N* 81:1081-6 D 12 '18

Waterproofing bridge floors with burlap. A. H. Rhett. *Eng N* 82:299-300 F 6 '19

Wheel loads on highway bridge floors. H: F. Blood. *Eng N* 83:190-1 Jl 24 '19



**Bridges—Floors—Continued**

Wood blocks on bridge floors need rigid support. C. Older. Eng N 80:579 Mr 21 '18  
 Wooden floors on highway bridges are now obsolete. J. A. L. Waddell. Eng N 80:817-18 Ap 25 '18

**Foundations and piers**

Build concrete pier in ice sheet twenty-five feet thick. Eng N 81:376-7 Ag 23 '18  
 Caisson method for foundations and mine shafts. G. R. Johnson. Il diags plans Eng Soc W Pa 34:497-502 O '18  
 Concrete caissons sunk by the open dredging method. L. W. Skov. diags plans W Soc E J 23:383-402 Je '18; Abstract. Ry Age 64:1473-5 Je 21 '18; Excerpts. Eng & Contr 51:317-19 Mr 26 '19; Discussion. W Soc E J 23:403-7 Je '18  
 Construction of the Mystic river bridge, Everett extension of the Boston Elevated railway company. C. T. Fernald. Il diags plans Boston Soc C E J 5:367-78 O '18; Excerpt. Eng & Contr 50:508 N 27 '18  
 Draw pier of Portland (Me.) bridge settles three feet. Eng N 81:571-2 S 26 '18  
 Flat arches on high piers, South Side bridge, Fairmont. Il diags Eng N 83:270-2 Ag 7 '19  
 Highway bridge piers concreted to avoid replacing. F. E. Semon. Il Eng N 82:766-7 Ap 17 '19  
 Maximum live-load pier reactions for railroad bridges. F. R. Sweeny. Eng N 79:1098-9 D 13 '17  
 Method of extending pier-foundations of the Wanganui bridge. R. W. Holmes. diags plan Eng & Contr 50:109-10 JI 31 '18  
 Metropolis bridge over the Ohio river at Metropolis, Ill. R. Modjeski. Il diags map plans W Soc E J 24:59-81; Discussion. 81-7 F '19  
 Pneumatic caissons with wooden cylinders for sinking bridge piers. diags Eng & Contr 51:562-4 My 28 '19  
 Rondout Creek bridge design condemned for excessive load on batter piles. Il diags plans Eng N 83:329-32 Ag 14 '19  
 Soundings for substructures of small bridges. C. G. Landon. Eng & Contr 49:78 Ja 23 '18  
 Special foundation work for a railroad bridge; new Burlington structure over the Platte river is supported entirely on concrete piles. J. H. Merriam. Il diags Ry Age 65:951-3 N 29 '18  
 Substructure of Michigan avenue bascule bridge, Chicago. H. E. Young and W. A. Mulcahy. Il diags plans Eng N 83:210-13 JI 31 '19

See also Bridges—Abutments; Caissons; Cofferdams

**Inspection**

See Bridge Inspection

**Load**

British joint committee report on loads on highway bridges. Eng & Contr 51:453-4 Ap 30 '19  
 Hell Gate arch, the first bridge on which strain gages were used to determine dead load stresses. Eng & Contr 49:208 F 27 '18  
 Impact effect of electric locomotives on bridges. Eng & Contr 49:408 Ap 24 '18  
 Investigating old bridges for heavier loading. C. F. Loweth. Ry Age 65:743-4 O 25 '18; Same. Eng & Contr 50:594-6 D 25 '18  
 Load concentrations on steel floor-joists of wood floor highway bridges. T. R. Agg and C. S. Nichols. diags Eng & Contr 52:466-7 O 22 '19  
 Railway bridge design loadings and actual engine loads. B. R. Leffler. Eng N 82:1270-1 Je 26 '19  
 Railway bridge live load and impact to be studied in India. Eng N 80:420 F 28 '18  
 Stress measurement. Engineer 128:117-18, 125-6 Ag 1-8 '19; Excerpt. Eng & Contr 53:506-8 O 29 '19  
 Stress measurements on Niagara gorge railway bridges. C. E. Fowler. Il diags Eng N 81:1172-5 D 26 '18

See also Bridge design

**Maintenance and repair**

Diagram indicates where weak bridges should be reinforced. T. A. Smith. chart Eng N 81:1092 D 12 '18  
 Extraordinary repairs made to a 1900-ton drawbridge. T. D. Fulton. Il diags Eng N 83:366-9 Ag 21 '19  
 Highway bridge floor replaced after corrosion. diags plan Eng N 83:562-4 S 18 '19  
 Maintenance and painting of highway bridges. C. D. Sneed. Eng & Contr 51:306-7 Mr 26 '19; Same abr. Munic Eng 56:171-2 My '19  
 Methods and equipment used in renewing timber bridges. diags Ry R 65:642-4 N 1 '19  
 Methods of maintaining and repairing old highway bridges. G. F. Burch. Il Eng & Contr 49:214-16 F 27 '18  
 New chords on drawbridge carrying traffic. diags plan Eng N 82:956 My 15 '19  
 Repairing a bascule bridge trunnion bearing. diags Ry Age 65:771-2 N 1 '18  
 Repairing and strengthening old masonry; committee report of American bridge and building assn. Ry Age 65:705-6 O 18 '18; Eng & Contr 50:390 O 23 '18  
 Special rig for jacking up bridge spans to renew baseplates. C. Baker. Il diags Eng N 83:832-3 O 30 '19  
 Survey of electric railway bridge maintenance. R. C. Cram. Il diags Elec Ry J 53:952-9 My 17 '19

See also Bridges—Reconstruction

**Painting**

See Bridge painting

**Patents**

Decision of U. S. District court of Iowa on certain Luten patents for concrete bridges. Eng & Contr 49:94 Ja 23 '18; Munic J 44:79-80 Ja 26 '18; Eng N 80:144 Ja 17 '18  
 Two more suits decided against Luten patents. Eng N 80:581 Mr 21 '18

**Protection**

Viaduct protected from snowslides by concrete walls. E. E. Adams. Il diags plan Eng N 83:470-1 S 4 '19

**Raising**

Raising Allegheny river bridge 13 feet by jacking without interruption of traffic. Il diags plans Eng N 82:850-4 My 1 '19

**Reconstruction**

Bridge on the B. & L. E. near Blacks Run, Pa. Il diags Ry Age 65:345-51 Ag 23 '18  
 Highway bridges and heavy trucks. Munic J 46:279-81 Ap 19 '19; Same. Eng & Contr 51:487-8 My 7 '19  
 Investigating old bridges for heavier loading. C. F. Loweth. Ry Age 65:744-5 O 25 '18; Same. Eng & Contr 50:597-8 D 25 '18  
 Method of strengthening the Tongabuddra bridge of Madras railway. Il Eng & Contr 50:405-6 O 30 '18  
 New method of rebuilding masonry bridges. M. Lutton. diags Eng & Contr 52:145-6 JI 30 '19  
 Progress report of the committee on methods of strengthening and reconstructing highway bridges for heavy motor truck traffic. Good Roads n s 17:149-51 Ap 5 '19  
 Rapid reconstruction of stone masonry bridges by use of metal frames and concrete. diags Eng & Contr 49:538-40 My 29 '18  
 Rebuilding an old masonry arch bridge near Delhi, Ill. Il diags plan Eng & Contr 52:238 Ag 27 '19  
 Rebuilding the Genesee river bridge, Lehigh Valley R. R., at Wadsworth, N.Y. diags Ry R 64:947-50 Je 21 '19; Same cond. Eng & Contr 52:249-50 Ag 27 '19  
 Reconstruction of Ohio river bridge of the Pennsylvania lines at Louisville. Il diags Ry Age 66:238-43 Ja 24 '19  
 Reinforcement of bridge by means of an eccentric chord. Il diags Eng N 82:912-14 My 8 '19

**Bridges—Reconstruction—Continued**

- Skew bridge spans shifted laterally by jacks on rocker blocks. S. A. Snyder. diags plan Eng N 82:346-7 F 13 '19
- Strengthening old iron bridge by reinforced concrete arch ribs. A. T. Davis. il diags plan Eng & Contr 52:118-19 J1 30 '19; Abstract. Eng N 83:431 Ag 28 '19
- Strengthening Poughkeepsie bridge superstructure. il diags Ry Age 65:473-6 S 13 '18
- Toggle relieves load on bridge posts during reinforcement work. diag Eng N 83:743 O 16 '19
- War-time economies in strengthening old bridges. E. E. Howard. il diags Ry Age 67:497-8 S 12 '19; Same. Eng & Contr 52:474 O 22 '19

See also Bridge moving; Bridges—Maintenance and repair

**Repair**

See Maintenance and repair

**Bridges, Arched**

- Bridge at Lyons named in honor of President Wilson. il diags Eng N 81:399-400 Ag 29 '18
- Concrete arch altered to carry pipes. diags Eng N 81:26 J1 4 '18
- Concrete-arch railway bridge costs less than steel. il diags Eng N 80:342-5 F 21 '18
- Design and construction of the Third avenue, South, concrete-steel arch bridge. Minneapolis, Minn. C. F. Bornefeld. il Munic Eng 53:242-3 D '17
- Design of Piedmont park bridge, Atlanta. A. M. Wolf. il diags Concrete 11:138-6 N '17; Same. Am Arch 113:49-54 Ja 9 '18
- Flat arches on high piers, South Side bridge, Fairmont. il diags Eng N 83:270-2 Ag 7 '19
- Foundations, forms and concrete distribution mark bridge construction. E. W. Stearns. il Eng N 81:68-72 J1 11 '18
- New Pennsylvania railroad bridge at Manayunk, Pa. A. M. Wolf. il Ry R 62:195-7 F 9 '18
- New type of iron-concrete arch. Sci Am S 86:184 S 21 '18
- Novel arch viaduct. il Ry Age 64:560 Mr 15 '18
- Principal bridges of the world—a comparison. diags (supp) Engineer 125:463 My 31 '18; Same. Sci Am S 86:287-8 N 2 '18
- Spreading wedge for striking arch centers. diags Eng N 83:713 O 9 '19
- Stress measurement experimental tests built Hell Gate arch bridge. diags Engineer 128:125-6 Ag 8 '19; Excerpt. Eng & Contr 52:506-8 O 29 '19
- Timber arch bridge one hundred feet in length. D. R. Walkinshaw. il diag Eng N 82:776 Ap 17 '19; Same. Coal Age 16:363 Ag 28 '19
- Wilson bridge at Lyons. il diags plan Engineer 126:387-8 N 8 '18; Same abr. Eng & Contr 51:74-6 Ja 22 '19

See also Arches

**Bridges, Bascule**

- Big bascule bridge over the Chicago river. il diags plans Ry R 65:713-17 N 15 '19
- Construction of the Mystic river bridge, Everett extension of the Boston Elevated railway company. C. T. Fernald. il diags plans Boston Soc C E J 5:367-78 O '18
- Illinois Central bascule bridge is hand operated. il diags Eng N 80:296-8 F 14 '18
- Mystic river bridge; description of superstructure. J. C. Moses. il Boston Soc C E J 5:379-85 O '18
- New bascule bridge at La Seyne. il diags (supp) plans Engineer 127:502, 508 My 23 '19
- 186 foot bascule bridge of the C. & N. W. Ry., over the north branch of the Chicago river at Deering. O. F. Dalstrom. il diags plans W Soc E J 22:453-71; Discussion. 471-8 S '17
- Repairing a bascule bridge trunnion bearing. diags Ry Age 65:771-2 N 1 '18
- Spiral drums for operation of timber lift spans. il diags plan Eng N 83:803-4 O 30 '19

- Substructure of Michigan avenue bascule bridge, Chicago. H. E. Young and W. A. Mulcahy. il diags plans Eng N 83:210-13 J1 31 '19
- Weight of counterweight concrete varied by changing mix. Eng N 80:32 Ja 3 '18

**Bridges, Cantilever**

- Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. plans W Soc E J 24:187-214 Ap '19
- Continuous trusses of silicon steel feature new Allegheny river bridge. il diags plans Eng N 80:848-56 My 2 '18
- Principal bridges of the world—a comparison. diags (supp) Engineer 125:441 My 24 '18; Same. Sci Am S 86:286-7 N 2 '18
- Quebec bridge. il diags Engineer 125:138-40 F 15 '18

**Bridges, Concrete**

- Arch bridge is concreted from cars on elevated track. il diags Eng N 80:771-3 Ap 18 '18
- Bridging the Arkansas at Fort Smith. J. B. Woods. il plan Concrete 15:185-8 N '19
- City designs forms for Portland (Ore.) grade separation. il diags plans Eng N 80:1132-4 Je 13 '18
- Concrete and steel bridges. J. W. Towle. il Good Roads ns 16:117-18+ S 28 '18; Same cond. Munic Eng 55:144-5 O '18
- Concrete-arch railway bridge costs less than steel. il diags Eng N 80:342-5 F 21 '18
- Concrete bridge impact formula. A. N. Johnson. Concrete 13:98-9 S '18
- Concrete ties hold together walls of bridge-approach fill. il diags Eng N 83:522-3 S 11 '19
- Concrete viaduct at St Louis has simple details. C. W. Martin. il diags plan Eng N 80:1080-3 Je 6 '18
- Construction features of Derby-Shelton concrete bridge. R. L. Saunders. il Eng & Contr 49:311-12 Mr 27 '18
- Construction of Shasta river bridge. A. L. Lamb. il Concrete 14:141-2 Ap '19
- Cost of constructing concrete arch bridge over Platte river in Nebraska. G. K. Leonard. Eng & Contr 49:222-3 F 27 '18
- Decision of U. S. District court of Iowa on certain Luten patents for concrete bridges. Eng & Contr 49:94 Ja 23 '18; Munic J 44:79-80 Ja 26 '18; Eng N 80:144 Ja 17 '18
- Demolishing concrete bridges. Concrete 15:181 N '19
- Derrick car places deck slabs of concrete bridges. il Eng N 81:307-8 Ag 15 '18
- Design and construction features of concrete viaduct approach to Central Ave. bridge, Kansas City, Kan. il Eng & Contr 50:76-7 J1 24 '18
- Design and construction of the Third avenue, South, concrete-steel arch bridge, Minneapolis, Minn. C. F. Bornefeld. il Munic Eng 53:242-3 D '17
- Effective concrete architecture in new viaduct. il Eng N 80:753-5 Ap 18 '18
- Electricity cuts construction-plant power costs. il diags Eng N 83:311-12 Ag 14 '19
- Form work for a small concrete through girder bridge. diag Concrete 12:146 Ap '18
- Forms for a through girder bridge. J. H. Mayer and J. F. Billas. diags Concrete 13:98 S '18
- Foundations, forms and concrete distribution mark bridge construction. E. W. Stearns. il Eng N 81:68-72 J1 11 '18
- Keep accurate costs on war-time fee contract. F. Gannett and J. D. Carpenter. il Eng N 82:571-3 Mr 20 '19
- Langwies reinforced concrete viaduct. il Eng & Contr 50:99 J1 31 '18
- Long concrete bridge contract to be let in four parts. il Eng N 82:1247 Je 26 '19
- Low-water highway bridges in Oklahoma. J. W. Evans. il Munic Eng 55:143-4 O '18
- Modernizing an old bridge. il Concrete 12:122 Ap '18
- Movable 3-ton concrete bridge. diags plan Eng & Contr 52:520 O 29 '19
- Oregon-Washington railway separates grades for three miles at Portland. il diags plans Eng N 80:1097-1101 Je 6 '18

**Bridges, Concrete—Continued**

- Placing 52-ton pre-cast beams on North Toronto bridges of C. P. Ry. II diag Eng & Contr 50:86-8 JI 24 '18
- Preliminary work for construction of 1,000 ft. concrete arch at Montgomery, Pa. II Eng & Contr 52:356 S 24 '19
- Rapid reconstruction of stone masonry bridges by use of metal frames and concrete. diags Eng & Contr 49:538-40 My 29 '18
- Rebuilding the C. B. & Q. R. bridge over the Platte river, near Grand Island, Neb. II diags Ry R 63:117-20 JI 27 '18
- Recent reinforced concrete highway bridge work in Ontario. G. G. Reid. II Eng & Contr 49:638-40 Je 26 '18
- Reinforced concrete bridge with pre-cast members. Eng & Contr 50:108-9 JI 31 '18
- Reinforced-concrete flat-slab railway bridges; abstracts. A. B. Cohen. II diags plans Ry Age 65:17-20 JI 5 '18; Eng & Contr 50:211-14 Ag 28 '18
- Reinforced-concrete lift-span towers for highway bridge. F. H. Frankland. diags Eng N 82:660 Ap 3 '19
- Reinforced concrete slab bridge design based on tests of full size slabs. A. T. Goldbeck. Eng & Contr 50:499-500 N 27 '18
- Segmental roller bearings for concrete girders. C. V. Dewart. diags Eng N 80:1159 Je 20 '18
- Two more suits decided against Luten patents. Eng N 80:581 Mr 21 '18
- Unusual concrete highway bridge. C. S. Bennett. II Munic J 46:368 My 24 '19
- See also* Trestles, Concrete

**Specifications**

- Pennsylvania specifications for culverts and short-span concrete bridges. Munic Eng 53:203-4 N '17

**Bridges, Electric railroad**

- Survey of electric railway bridge maintenance. R. C. Cram. II diags Elec Ry J 53:952-9 My 17 '19

**Bridges, Iron and steel**

- Arched steel cantilevers used in Park Avenue viaduct. H. W. Levy. II diags Eng N 81:81-3 JI 11 '18
- Bridge engineering in active warfare. L. E. Moore and M. W. McDonald. II diags plans Eng N 83:734-41 O 16 '19
- Bridge on the B. & L. E. near Blacks Run, Pa. II diags Ry Age 65:345-51 Ag 23 '18
- Comparison of five railway bridge specifications. Eng N 83:33-6 JI 3 '19
- Concrete and steel bridges. J. W. Towle. II Good Roads n s 16:117-18+ S 28 '18; Same cond. Munic Eng 55:144-5 O '18
- Continuous-span bridges and structural efficiency. Eng N 81:346-7 Ag 22 '18; Discussion. M. R. Strong. 81:508 S 12 '18
- Continuous trusses of silicon steel feature new Allegheny River bridge. II diags plans Eng N 80:848-56 My 2 '18
- Design of new superstructure of Louisville bridge with 644-foot riveted span. II diags plan Eng N 82:1107-11 My 22 '19
- Designing the 720-foot Metropolis (Ill.) span. II diags Eng N 79:1140-3 D 20 '17
- Double-deck railway bridge over Kansas river with thin floor construction. F. W. Epps. II diags plans Eng N 80:466-70 Mr 7 '18
- Hinged polygonal steel arch carries viaduct spans. II diags Eng N 80:607-9 Mr 28 '18
- Maintaining traffic during erection of Louisville bridge. II diags Eng N 82:1061-4 My 29 '19
- Methods of protecting steel work of Marshall avenue bridge, St. Paul, from high water. II diags Eng & Contr 48:538-9 D 26 '17; Eng N 79:1195-6 D 27 '17
- Mystic river bridge; description of superstructure. J. C. Moses. II Boston Soc C E J 5:379-85 O '18
- Novel arch viaduct. II Ry Age 64:560 Mr 15 '18
- Opening of the Metropolis (Ill.) bridge. II Ry R 62:113-14 Ja 26 '18
- Oregon-Washington railway separates grades for three miles at Portland. II diags plans Eng N 80:1097-1101 Je 6 '18

**Principal bridges of the world—a comparison.**

- diags (supp) Engineer 125:441-2 My 24 '18; Same. Sci Am S 86:287 N 2 '18
- Problems and general methods of erecting the Sciotoville bridge. C. B. Pyle. II diags Eng N 80:62-8, 219-27 Ja 10, 31 '18
- Railroad utilizes old steel spans in road bridges. diags plan Eng N 81:320-1 Ag 15 '18
- Raising Allegheny river bridge 18 feet by jacking without interruption of traffic. II diags plans Eng N 82:850-4 My 1 '19
- Skew subway bridges require special design. diags Eng N 81:540-2 S 19 '18
- Standard specifications for structural steel for bridges; English and Spanish. diags U S Bur For & Dom Com Ind Stand 7:1-21 '18
- Strengthening a long steel viaduct on the C. & E. I. II diags Ry Age 65:929-31 N 22 '18
- Unusual design and joint details of 430-foot bridge at Coal Valley, Pa. diags Eng N 83:656-7 O 2 '19
- Why continuous-girder design was used for the Kettle Rapids bridge; abstracts. W. C. Thomson. Eng & Contr 49:513-14 My 22 '18; Ry Age 64:1411-16 Je 14 '18; Eng N 81:888-93 Ag 29 '18

**Bridges, Lift**

- Design of new superstructure of Louisville bridge with 644-foot riveted span. II diags plan Eng N 82:1011 My 22 '19
- Mechanical features of the vertical-lift bridge. H. P. Van Cleave. II Am Soc M E J 40:938-41 N '18; Same. Eng & Contr 50:501-3 N 27 '18
- Mechanical features of vertical-lift bridge. J. A. L. Waddell. II Mech Eng 41:379-81 Ap '19; Same cond. Eng & Contr 51:413-14 Ap 23 '19
- Reconstruction of Ohio river bridge of the Pennsylvania lines at Louisville. II diags Ry Age 66:238-43 Ja 24 '19
- Reinforced-concrete lift-span towers for highway bridge. F. H. Frankland. diags Eng N 82:660 Ap 3 '19
- Well-equipped lift bridge. II Sci Am 120:148 F 15 '19

***See also* Bridges, Bascule****Bridges, Military**

- Bridge engineering in active warfare. L. E. Moore and M. W. McDonald. II diags Eng N 83:688-96, 734-41 O 9-16 '19
- Bridging the Jordan in war times. II Sci Am 121:163 Ag 16 '19
- Marcille and Henry types of military bridges in France. A. Bidault Des Chaumes. diags Eng & Contr 49:534 My 29 '18
- Portable military bridges. C. E. Inglis. II diags Engineer 128:310-12 S 26 '19
- U. S. engineers bridge Marne with German equipment. R. K. Tomlin, Jr. II Eng N 81:798-9 O 31 '18

***See also* Pontoon bridges**

- Bridges, Movable.** *See* Bridges, Bascule; Bridges, Lift; Drawbridges

**Bridges, Pontoon.** *See* Pontoon bridges**Bridges, Railroad**

- American railway bridge and building association 28th annual convention, Chicago. Ry Age 65:705-7 O 18 '18
- Approximate live-load stresses in railway bridges. H. R. White. diags Eng N 80:1137-8 Je 13 '18
- Big bascule bridge over the Chicago river. II diags plans Ry R 65:713-17 N 15 '19
- Bridge construction at Cleveland. II Ry R 63:493-4 O 5 '18
- Bridge on the B. & L. E. near Blacks Run, Pa. II diags Ry Age 65:345-51 Ag 23 '18
- Chicago, Burlington and Quincy railway bridge at Kansas City, Missouri. G. A. Haggander. W Soc E J 24:102-9; Discussion. 109-15 F '19
- Concrete viaduct at St. Louis has simple details. C. W. Martin. II diags plan Eng N 80:1080-3 Je 6 '18
- Double-deck railway bridge over Kansas river with thin floor construction. F. W. Epps. II diags plans Eng N 80:466-70 Mr 7 '18

**Bridges, Railroad—Continued**

- 89 year old masonry viaduct still in service on B. & O. R. Ry. Eng & Contr 50:388 O 23 '18
- Elevated terminal connection at Kansas City. 11 diags map Ry Age 64:493-7 Mr 8 '18
- Field Blondin ropeway as an aid to bridge erection. I. Simson. diag Eng & Contr 52:497 O 23 '19
- High-line viaduct and bridge improve rail entrance to Kansas City. F. W. Epps. 11 diags plan map Eng N 80:393-8 F 28 '18
- Inspection of steel bridges. G. A. Haggander. Eng & Contr 52:368 S 24 '19
- Investigating old bridges for heavier loading. C. F. Loweth. Ry Age 65:743-5 O 25 '18
- Same. Eng & Contr 50:594-5, 597-8 D 25 '18
- Lackawanna improvements in Orange, N.J. 11 diags Ry Age 65:845-50 N 15 sec 1 '18
- Maximum live-load pier reactions for railroad bridges. F. R. Sweeny. Eng N 79:1098-9 D 13 '17
- Mechanical features of vertical-lift bridge. J. A. L. Waddell. 11 Mech Eng 41:379-81 Ap '19; Same cond. Eng & Contr 51:413-14 Ap 23 '19
- Method of reconstruction of railway viaduct damaged in military operations. diags Eng & Contr 49:543-4 My 29 '18
- Method of strengthening the Tongabuddra bridge of Madras railway. 11 Eng & Contr 50:405-6 O 30 '18
- Metropolis bridge over the Ohio river at Metropolis, Ill. R. Modjeski. 11 diags map plans W Soc E J 24:59-81; Discussion. 81-7 F '19
- New bridge of the C. M. & St P. Ry. at Chamberlain, S. Dak. 11 Ry R 65:229-30 Ag 16 '19
- New Pennsylvania railroad bridge at Manayunk, Pa. A. M. Wolf. 11 Ry R 62:195-7 F 9 '18
- New railway in South Yorkshire. 11 diags map Engineer 128:171-3, 182 Ag 22 '19
- New York Central sets long plate girder in bridge. 11 diags plans Eng N 79:1202-4 D 27 '17
- Old impact formula preferred. J. E. Greiner. Eng N 82:736 Ap 10 '19
- 186 foot bascule bridge of the C. & N. W. Ry., over the north branch of the Chicago river at Deering. O. F. Dalstrom. 11 diags plans W Soc E J 22:453-71; Discussion. 471-8 S '17
- Pacific electric adopts flood-control measures. C. A. Elliott. 11 Elec Ry J 52:297 Ag 17 '18
- Precast bridge slabs of concrete incased I-beams used for overcrossings by Chicago & North Western railway. 11 diags Eng N 80:511-13 Mr 14 '18
- Problems and general methods of erecting the Sciotoville bridge. C. B. Pyle. 11 diags Eng N 80:62-8, 219-27 Ja 10, 31 '18
- Railway bridge design loadings and actual engine loads. B. R. Leffler. Eng N 82:1270-1 Je 26 '19
- Railway bridge impact allowances. Eng N 82:454-5 Mr 6 '19; Discussion. J. A. L. Waddell. 82:786-7 Ap 17 '19
- Railway bridge impact experiments seventy years ago. C. W. L. Jones. Eng N 82:483-4 Mr 6 '19
- Railway bridge live load and impact to be studied in India. Eng N 80:420 F 28 '18
- Railway practice in design of concrete floor slabs and flat top culverts. G. H. Tinker. Eng & Contr 50:511-12 N 27 '18
- Rebuilding the C. B. & Q. R. R. bridge over the Platte river, near Grand Island, Neb. 11 diags Ry R 63:117-20 JI 27 '18
- Rebuilding the Genesee river bridge, Lehigh Valley R. R., at Wadsworth, N.Y. diags Ry R 64:947-50 Je 21 '19; Same cond. Eng & Contr 52:249-50 Ag 27 '19
- Reconstruction of Ohio river bridge of the Pennsylvania lines at Louisville. 11 diags Ry Age 66:238-43 Ja 24 '19
- Reinforced-concrete flat-slab railway bridges; abstracts. A. B. Cohen. 11 diags plans Ry Age 65:17-20 JI 5 '18; Eng & Contr 50:211-14 Ag 28 '18
- Reports of A. R. E. A. committees. Ry R 62:422-3 Mr 23 '18
- Should railroads furnish detailed plans for steel bridges? Ry Age 64:1218-19 My 17 '18
- Special foundation work for a railroad bridge; new Burlington structure over the Platte river is supported entirely on concrete piles. J. H. Merriam. 11 diags Ry Age 65:951-3 N 29 '18
- Steel-plate drip floor for Niagara railway arch. diags Eng N 83:620-1 S 25 '19
- Stress measurements on Niagara gorge railway bridges. C. E. Fowler. 11 diags Eng N 81:1172-5 D 26 '18
- Temporary bridge of old girders has suspended floor. diags Eng N 81:538-9 S 19 '18
- Timber bridge problems on the Alaska railway. diags plans Eng N 83:420-2 Ag 28 '19
- Unusual design and joint details of 430-foot bridge at Coal Valley, Pa. diags Eng N 83:656-7 O 2 '19
- Utilize full life of light railway bridges. C. F. Loweth. Eng N 81:858-9 N 7 '18
- War-time economies in strengthening old bridges. E. E. Howard. 11 diags Ry Age 67:497-8 S 12 '19; Same. Eng & Contr 52:474 O 22 '19
- Waterproofed floors for railway crossings over streets. H. T. Welty. diags Eng N 81:1081-6 D 12 '18
- Why continuous girder design was used for the Kettle Rapids bridge; abstracts. W. C. Thomson. Eng & Contr 49:513-14 My 22 '18; Ry Age 64:1411-16 Je 14 '18; Eng N 81:388-93 Ag 29 '18

**See also Railroads—Track elevation****Specifications**

- Comparison of five railway bridge specifications. Eng N 83:33-6 JI 3 '19

**Bridges, Steel. See Bridges, Iron and steel****Bridges, Suspension**

- Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. plans W Soc E J 24:187-214 Ap '19
- Erecting a 331-foot suspension bridge with unskilled labor. A. M. Truesdell. 11 Eng N 83:241 JI 31 '19
- Longest suspension bridge in New Zealand. O. Johnson. 11 Eng N 83:263-4 Ag 7 '19
- New system of suspension bridges. diags Eng & Contr 49:529 My 29 '18
- Principal bridges of the world—a comparison. diags (supp) Engineer 125:463-4 My 31 '18; Same. Sci Am S 86:294 N 9 '18
- Questions on anchorage and lateral sway in Cumberland suspension bridge. D. Ordington. W. G. Grove. Eng N 83:527-8, 711 S 11, O 9 '19
- Special design features and erection methods for 540-foot suspension bridge for du Pont engineering company, near Nashville. W. G. Grove. 11 diags plans Eng N 83:4-8 JI 3 '19
- Brinell hardness test**
- Hardness tests for metals. Sci Am S 88:58-9 JI 26 '19
- Improved Brinell machine. 11 Iron Tr R 61:500 S 6 '17; Ind Management 55:77-8 Ja '18; Am Mach 48:347-8 F 21 '18
- Improving the technique of hardness measurements. diag Automotive Ind 38:912 My 9 '18
- New method of obtaining Brinell hardness; an impact substituted for a steady pressure to reduce the time required for applying the test. J. G. Ayers, Jr. diag Automotive Ind 39:457-8 S 12 '18; Same. Iron Age 102:581-2 S 5 '18
- Pittsburg attachment for measuring depth of Brinell impressions. 11 Am Mach 48:598 Ap 4 '18
- Speeding up Brinell tests. diag Iron Age 101:949 Ap 11 '18
- Brines**
- Determination of bromide in mineral waters and brines. W. F. Baughman and W. W. Skinner. diag J Ind & Eng Chem 11:954-9 O '19
- Determination of iodide in mineral waters and brines. W. F. Baughman and W. W. Skinner. J Ind & Eng Chem 11:563-8 Je '19
- Physical properties of brines. E. F. Mueller. Power 50:317-18 Ag 19 '19

- Briquetting**  
 Briquettes from anthracite slush. *Coal Age* 13: 1054 Je 8 '18  
 Briquettes make fuel for anthracite users. *Elec R* 72:834 My 18 '18  
 Briquetting of anthracite coal. W. P. Frey. diag plans *Am Inst Min E Bul* 133:143-9 Ja '18; Same. *Coal Age* 13:278-81 F 9 '18; Discussion. *Am Inst Min E Bul* 135:700-2; 136: 817-18; 137:1013-14 Mr-May '18; *Coal Age* 13: 578-9 Mr 30 '18  
 Briquetting of non-ferrous light metal scrap. A. L. Stillman. II charts diag plan *Metal Ind* 15:526-30 D '17; Same cond. *Mach* 24: 473, 476 Ja '18  
 Fine-grinding and porous-briquetting of the zinc charge. W. M. Johnson. *Am Inst Min E Bul* 134:593-6 F '18; Same. *Eng & Min J* 105:370-1 F 23 '18; Discussion. *Am Inst Min E Bul* 136:714-16 Ap '18; *Eng & Min J* 105: 558, 583, 1175-6 Mr 23, My 11, Je 29 '18  
 Home-made briquette plant converts waste into a useful, salable product. H. M. Balsam. II diag plan *Am Gas Eng J* 109:175-7 Ag 24 '18  
 Homemade fuel. M. S. Hachita. II *Coal Age* 14:450 S 5 '18  
 Manchester association of engineers discuss briquetting metal turnings and borings. *Engineer* 124:525 D 14 '17  
 Michaelsen briquetting machine. L. Klebra. II *Coal Age* 14:596-7 S 26 '18  
 Output of fuel briquets in 1918 greatest yet recorded. *Coal Age* 15:438 Mr 6 '19  
 Patent fuel possibilities. *Engineer* 125:530-1 Je 21 '18  
 Scrap metal briquetting machines; patent. II *Met & Chem Eng* 18:157 F 1 '18  
 Substitutes for coal. F. Hall. *Coal Age* 13: 969-70 My 25 '18  
 Use of hot liquid pitch in the making of briquettes. *Coal Age* 13:60 Ja 12 '18  
*See also* Carbocool
- Brisbane, Australia**  
 Rapid transit  
 Graduated fare at Brisbane. J. S. Badger. diag map *Elec Ry J* 54:481-4 S 6 '19
- Bristol, Pennsylvania**  
 Bristol, America's greatest single industrial housing development. C. S. Taylor. II plans *Am Arch* 113:599-615 My 15 '18
- Britannia**  
 Re-finishing Britannia ware. C. H. Proctor. *Metal Ind* 15:302 Jl '17; Same. *Mach* 25:329 D '18
- British association for the advancement of science**  
 Address to the engineering section. J. E. Petavel. *Engineer* 128:260 S 12 '19  
 British association. *Engineer* 128:259, 282-3 S 12-19 '19  
 Meetings, Bournemouth, Sept. 9-13. *Engineer* 128:259, 282-3, 298-9, 357 S 12-26, O 10 '19; *Elec R* 75:655-6 O 18 '19
- British Columbia**. *See* Coal mines and mining—British Columbia; Geology—British Columbia; Gold mines and mining—British Columbia; Mines and mineral resources—British Columbia
- British Columbia electric railway**  
 Vancouver freight earnings \$1,000 a week. II map *Elec Ry J* 52:834-6 N 9 '18
- British commercial gas association**  
 Annual meeting. N. H. Humphrys. *Am Gas Eng J* 108:226-7 Mr 9 '18
- British electric traction company**  
 Zone fare in practice; the British electric traction company. W. Jackson. II *Elec Ry J* 54:164-7 Jl 26 '19
- British engineering standards**  
 Papers on standardization work with special reference to screw threads, screw-thread gages and tolerances. *Am Soc M E J* 40: 1005-9 D '18
- British foundrymen's association**. *See* Institution of British foundrymen
- British institute of industrial art**  
 New British institute of industrial art. *Am Arch* 116:168 Ag 6 '19
- British scientific products exhibition**  
 Exhibition held in London, August 12-September 7, 1918. *Illum Engr* 11:171-6 Jl '18  
 2d exhibition, Westminster, July 3-Aug. 5. *Illum Engr* 12:183-7 Jl '19
- British textile institute**  
 Work of the British textile institute. G. D. Athey. *Textile World* 55:1679+ Mr 15 '19
- Broaches**  
 Hardening broaches and cutters. J. B. Gray. diags *Am Mach* 50:1047 My 29 '19  
 Renewable broach. S. R. Dodge. diag *Am Mach* 51:411 Ag 28 '19
- Broaching**  
 Broaching and broaching machinery. II diags plan *Engineer* 128:108-9, 112 Ag 1 '19  
 Broaching chuck bodies in a hydraulic press. J. Homewood. diags *Mach* 25:459 Ja '19  
 Broaching fixture. D. R. Gallagher. diags *Mach* 25:1079-80 Jl '19  
 Broaching holes in the lathe. W. B. Bennett. diag *Am Mach* 48:379-80 F 28 '18  
 Broaching in a shaping machine. C. Runsl. II *Am Mach* 50:1201 Je 19 '19  
 Broaching operations on one-pounder guns. F. J. Lapointe. II diags *Mach* 24:964-5 Je '18  
 Broaching square holes. S. Edwards. diags *Mach* 24:833 My '18
- Broaching machines**  
 American broaching machine. II *Mach* 25: 1094-5 Jl '19
- Broadcloth**  
 Factors affecting luster of goods. *Textile World* 55:3963+ Je 28 '19
- Brocades**  
 Finishing of brocades. *Color Tr J* 4:139 Je '19
- Brockton, Massachusetts**  
 Ordinance on gas fittings passed by Brockton council. *Am Gas Eng J* 108:528-9 Je 1 '18
- Broken Hill South silver mining company**  
 Semi-annual report, year ended June 30, 1917. *Eng & Min J* 105:250-1 F 2 '18
- Brokers**  
 Real estate broker may have right to commission even though he does not actually put deal through its final stages. *Dom Eng* 85: 369-70 D 7 '18  
*See also* Agency
- Accounting**  
 Stock brokerage audits. E. S. Halter. *J Account* 26:349-54 N '18
- Brometone**  
 Propionic and butyric esters of tribromotertiary-butyl alcohol (brometone). T. B. Aldrich. *Am Chem Soc J* 40:1948-50 D '18
- Bromination**  
 Bromination and bromine derivatives of certain  $\delta$ -ketonic esters. E. P. Kohler and H. Gilman. *Am Chem Soc J* 41:683-92 Ap '19  
 Bromination of *p*-nitrotoluene. J. F. Brewster. *Am Chem Soc J* 40:406-7 F '18  
 Halogenation of juglone: a new type of naphthalene dyes. A. S. Wheeler and J. W. Scott. *Am Chem Soc J* 41:833-41 My '19
- Bromine**  
 Bromine process decision. *J Ind & Eng Chem* 10:157-8 F '18  
 Determination of bromide in mineral waters and brines. W. F. Baughman and W. W. Skinner. diag *J Ind & Eng Chem* 11:954-9 O '19  
 Electrical conductance of solutions in bromine. E. H. Darby. *Am Chem Soc J* 40:347-56 F '18  
 Potential of the bromine electrode; the free energy of dilution of hydrogen bromide; the distribution of bromine between several phases. G. N. Lewis and H. Storch. diags *Am Chem Soc J* 39:2544-54 D '17  
 Washing and distillation of liquids. diags *Gas Age* 40:573-5 D 15 '17

**Bronx permanent international industrial exposition.** See New York international exposition

#### Bronx river

Construction plans developed for the Bronx River parkway reservation. L. G. Holleran. 11 maps Eng N 81:899-903 N 14 '18

#### Bronze

**Bronze mixture for hydraulic castings.** Foundry 46:321 JI '18

**Case-hardening bronze for dies.** Metal Ind n s 15:3 Ja '17

**Casting bronze under pressure.** Metal Ind 17:326 JI '19

**Closing the grain of bronze castings.** D. P. Falconer. Foundry 46:376 Ag '18

**Conservation of tin in bearing metals, bronzes, and solders.** G. K. Burgess and R. W. Woodward. U S Bur Stand Tech Pa 109:1-9 '19

**Constitution and hardness of aluminum bronze.** J. N. Greenwood. 11 Foundry 46:322-5 JI '18

**Cupola not suitable for melting bronze.** J. Pearson. diag Foundry 47:520+ Ag 1 '19

**Difficulties in casting large bronze rings.** Foundry 46:107 Mr '18

**Effect of heat treatment on bronze.** F. F. Hausen and O. A. Knight. 11 Iron Age 103:347-9 F 6 '19

**Formulas for the brass foundryman.** Foundry 46:562a; 47:308a D '18, My 15 '19

**Gases, oxides and blowholes in admiralty bronze.** 11 Chem & Met Eng 19:337 S 15 '18

**Government specifications for various bronzes.** Foundry 47:38-9 Ja '19

**High tensile bronze mixture.** Foundry 46:372 Ag '18

**How to alloy phosphor bronze.** W. W. Rogers. Foundry 46:340-1 JI '18

**Information for the brass foundryman; heat resisting castings.** Foundry 46:516a N '18

**Injecting iron into bronze alloy.** Foundry 46:27 Je '18

**Inspection of bronze and brass.** E. Jonson. Metal Ind 14:424-6 O '16; Same cond. Mach 23:365+ D '16; Same abr. Foundry 46:154-5 Ap '17; Excerpts. Iron Age 98:678-9 S 21 '16; Excerpts. Mach 24:511 F '18

**Magnesium as a deoxidizer for brass and bronze.** Foundry 47:26 Ja '19

**Making a special bronze mixture.** Foundry 46:271 Je '18

**Metallography and heat treatment of metals used in aeroplane construction.** F. Grotts. 11 Chem & Met Eng 19:315-17 S 15 '18

**Metallography applied to nonferrous metals.** E. J. Davis. 11 diag Foundry 47:215-18 Ap 15 '19

**Nonmetallic inclusions in bronze and brass.** G. F. Comstock. 11 Foundry 47:79-83 F '19

**Overcoming porosity in a bronze piston sleeve.** Foundry 46:321 JI '18

**Overcoming porosity in bronze bushings.** Foundry 46:270 Je '18

**Phosphor bronze alloys.** Foundry 46:168a Ap '18

**Phosphorizing copper.** Metal Ind 15:350-1 Ag '17

**Phosphorus used for making a large bronze bushing.** Foundry 46:106 Mr '18

**Results of heat-treating bronze castings.** G. F. Comstock. 11 Foundry 47:189-94+ Ap 15 '19; Abstract. Mech Eng 41:543 Je '19

**Secrets of antiquity; an ancient bronze revived for modern service.** R. G. Skerrett. 11 Sci Am 121:282+ S 20 '19

**Structural bronzes.** G. K. Burgess and R. W. Woodward. Am Inst Min E Bul 144:1746-8 D '18; Same. Chem & Met Eng 19:661-2 N 1 '18

**Tentative specifications proposed by American society for testing materials.** Foundry 46:302-3 JI '18; Same. Metal Ind 16:331-2 JI '18; Same cond. Ry Age 65:27 JI 5 '18

**Use of bronze for snap valve rings and piston surfaces.** C. E. Fuller. diag Ry R 64:992-4 Je 28 '19

**Use of bronzes in railroad turntables and movable bridges.** O. E. Selby. Metal Ind 15:439-41, 469-70 O-N '17; Same. Foundry 46:368-71 Ag '18

See also Alloys; Aluminum bronze; Bronzes; Gun metal; Manganese bronze

#### Testing

**Five foundry tests of zinc bronzes.** C. P. Karr. diag Am Inst Min Bul 153:sup2485-92 S '19; Same. Metal Ind 17:457-9 O '19; Discussion. Am Inst Min Bul 156:3161-2 D '19

**Physical properties of certain lead-zinc bronzes.** H. F. Staley and C. P. Karr. 11 diag Am Inst Min Bul 153:sup2513-22 S '19; Discussion. 156:3185-7 D '19

**Report on a series of comparative tests of zinc-bronze (88 Cu-10 Sn-2Zn) standard test bars.** C. P. Karr. Metal Ind 15:121-3 Mr '17

**Bronze finish.** See Metal finishing

#### Bronze powder

**Another German monopoly broken.** Sci Am 118:443 My 11 '18

**Manufacture of bronze powder.** O. Von-Schlenk. Metal Ind 15:77-8, 161-3, 200-3, 298-800 F, Ap-My, JI '17

#### Bronzes

**Molding and casting bronze tablets.** W. B. Jones. Foundry 46:329 JI '18

**Molding and casting ornamental bronze tablets.** C. Vickers. 11 Foundry 46:216-17 My '18

#### Brooches

**Making shell buckles and brooches.** R. Mawson. 11 Am Mach 50:20-2 Ja 2 '19

#### Brooklyn, New York

##### Architecture

**Saint Gregory's church.** 11 plans Am Arch 112:409-10, 414, pl 262-70 D 5 '17

##### Hospitals

**Carson C. Peck memorial hospital and nurses' home.** Brooklyn, N.Y. L. V. Solon. 11 plans Arch Rec 45:404-16 My '19

#### Brooklyn bridge

**To the mayor of New York.** Sci Am 120:568 My 31 '19

#### Brooklyn museum

**Another exhibition of French cathedral photographs at the Brooklyn museum.** Am Arch 114:433-4 O 9 '18

#### Brooklyn rapid transit company

**Annual report for year ending June 30, 1918.** Ry Age 65:371-2, 411-13 Ag 30 '18

**Brooklyn unionists fight discharge.** Elec Ry J 52:516-17 S 21 '18

**Income statement for calendar years 1917 and 1918.** Elec Ry J 53:292 F 8 '19

**Labor board decides Brooklyn case.** Elec Ry J 52:806-6 N 2 '18

**War finance corporation aids transit company.** Munic J 45:18 JI 6 '18

#### Broom corn

**Standard broom corn.** B. E. Rothgeb. 11 map U S Agric Farmers' Bul 958:1-20 '18

#### Brooms

**Eduard detachable broom head.** 11 Ry Mech Eng 93:501 Ag '19

#### Brotherhood of locomotive engineers

**Brotherhood leaders address president.** Ry R 65:159-60 Ag 2 '19

#### Brown, Amos Peaslee, 1864-1917

**Sketch.** Am Inst Min E Bul 141:sup 43-5 S '18

#### Brown company, Berlin, N. H.

**Brown mills.** 11 Chem & Met Eng 19:5-7 JI 1 '18

#### Brownian movements

**Brownian movements; note.** Sci Am S 86:216 O 5 '18

**Virial hypothesis and the theory of the Brownian movement.** P. Frank. Sci Am S 85:32 Ja 12 '18

#### Browning gun. See Guns (ordnance); Rifles

#### Brush, Matthew C.

**To turn over Boston L to state.** por Elec Ry J 51:1170 Je 15 '18

**Brush turkeys**

Jungle incubator. L. S. Crandall. Sci Am S 86:87 Ag 10 '18

**Brushes**

Selecting the best brush for foundry work. J. D. Coleman. Foundry 47:211 Ap 15 '19  
Unique and durable tube brush. C. H. Willey. Il Coal Age 15:982 My 29 '19

**Brushes (electric machinery)**

Application of brushes to electrical machinery. W. C. Kalb. Il diags Power 49:276-8 F 25 '19

Carbon and commutator wear. Power 49:182, 412 F 4, Mr 18 '19

Carbon-brush characteristics. Power 49:215-16 F 11 '19

Carbon brushes: considered in relation to the design and operation of electrical machinery. P. Hunter-Brown. diags Inst E E J 57:193-203; Discussion. 203-23, 257-66 F-Mr '19

Carbon brushes in relation to machinery design. P. H. Brown. Elec R 74:107 Ja 18 '19

Characteristics of carbon brushes for electrical machinery. W. C. Kalb. Il diags Power 49:202-4 F 11 '19

Devices for care of brushes and commutators. J. M. Purcell. diags Power 48:172 JI 30 '18

Dynamo brushes with phenol resin as binder. Elec W 71:41 Ja 5 '18

Electrical-machinery brush composition. W. C. Kalb. Il diags Power 49:241-3 F 18 '19

How spacing and thickness of brushes affect commutation. W. C. Kalb. diags Power 49:970-2 Je 24 '19

Motor brushes for use in gritty surroundings. W. C. Kalb. Power 48:934 D 24 '18

**Bryn Athyn, Pennsylvania**

Note on Bryn Athyn church. R. A. Cram. Am Arch 113:709-12 My 29 '18

**Buckets**

Clamshell bucket digs thirty cubic yards per dip. Il Eng N 83:279-80 Ag 7 '19

Clamshell bucket operated automatically or by a single line. Il Good Roads n s 15:318 Je 22 '18

Geared clam-shell bucket. Il Iron Age 104:868 S 25 '19

Repairing orange-peel dredge buckets without costly delays. J. C. Lamon. Il Eng N 83:391 Ag 21 '19

See also Hoisting machinery

**Buckles**

Making shell buckles and brooches. R. Mawson. Il Am Mach 50:20-2 Ja 2 '19

**Budapest, Hungary**

Municipal and state employees' residences. R. Grimshaw. plan Am Inst Arch J 6:67 F '18

**Budget**

Need for national budget system. J. A. Frear. Am Ind 20:19-21 Ag '19

**Buenos Aires, Argentina****Water supply**

16,000,000-gallon elevated reservoirs. Il diags plan Engineer 125:228-30 Mr 15 '18

Waterworks and sewerage of Buenos Aires. A. B. Lea. Il Eng & Contr 51:162-4 F 12 '19

**Buffalo, New York****Public works**

Administration of the public works of Buffalo. A. W. Kreinheder. Am Water Works Assn J 6:350-4 S '19

**Rapid transit**

Buffalo strike still unsettled. Elec Ry J 52:668 O 12 '18

Buffalo traffic recommendations accepted. Elec Ry J 51:203 Ja 26 '18

Buffalo votes on August 20 upon the matter of a higher fare for the International railway. Elec Ry J 52:259 Ag 10 '18

City an obstructionist; city council prevents International railway from carrying out commission recommendations. Elec Ry J 51:54 Ja 5 '18

City may buy and loan equipment to railway.

Elec Ry J 51:253 F 2 '18

Efforts bent toward relieving Buffalo traffic.

Elec Ry J 51:297 F 9 '18

International railway protests against proposed Buffalo bills. Elec Ry J 51:537 Mr 16 '18

Massachusetts plan of public control for Buffalo cars. Munic J 45:434 N 30 '18

Proposed street railway subway terminal. plans Munic Eng 54:167-8 Ap '18

**Streets**

Motor apparatus in use in the Department of public works, Bureau of streets. W. F. Schwartz. Good Roads n s 16:128+ O 5 '18; Same. Munic Eng 55:149-50 O '18; Same. Eng & Contr 50:445 N 6 '18

**Water supply**

Buffalo water-waste survey saves water, coal and labor. G. C. Andrews. Eng N 81:1033-4 D 5 '18

Buffalo's water supply, with special reference to the filtration problem. H. F. Wagner. Il Am Water Works Assn J 6:524-31 S '19

Reduction of water consumption by means of pitometer survey and constant inspection at Buffalo. G. C. Andrews. Munic Eng 56:236, 238-40 Je '19; Same cond. Munic J 47:51-3 JI 26 '19; Excerpts. Eng N 82:1196-7 Je 19 '19; Excerpts. Eng & Contr 52:43-4 JI 9 '19

**Wharves**

Wharf has combination timber and concrete piles. diags Eng N 79:1114-15 D 13 '17

**Buffalo, Rochester & Pittsburgh railroad**

33d annual report. may Ry Age 64:439-40, 481-2 Mr 1 '18

34th annual report. map Ry Age 66:1034-6, 1076-7 Ap 25 '19

**Buffing. See Grinding and polishing****Building**

Administrative work at Camp Merritt. Il Munic J 43:602-4 D 22 '17

Army cantonment construction at Camp Meade, Maryland. M. D. Garver. Il maps charts W Soc E J 22:666-81 D '17; Excerpt. Eng & Contr 49:635 Je 26 '18

Attitude on building situation. W. G. McAdoo. Am Arch 113:796 Je 12 '18

Big present day construction work; largest destroyer plant in the world. Concrete 13:132 O '18

Boston army supply base—construction features. C. R. Gow. Il Boston Soc C E J 6:77-113 Mr '19

Building construction necessary for good wall-board work. L. H. Harvey. diags Bldg Age 40:376-9 Ag '18

Building the New Orleans army supply base. Il plan Eng N 83:122-5 JI 17 '19

Business methods for the building contractor. G. A. Rutherford. Eng & Contr 51:415-16 Ap 23 '19

Cantonment construction. M. Knowles. Il diags map Eng Soc W Pa 34:191-225 Mr '18

Close sequence of operations cuts construction time. Il Eng N 82:62-3 Ja 2 '19

Compact central station chart to record progress. Elec W 71:101 Ja 12 '18

Construction of cantonment at Camp Grant. C. B. Burdick. Il diag plan W Soc E J 22:661-63; Discussion. 663-5 D '17

Contract organization vitally important for war work. F. Donaldson. charts Eng N 81:535-8 S 19 '18

Details of construction and structural design. E. N. Pike. diags Arch Forum 31:93-5 S '19

Early building methods in New Orleans; custom house. K. H. Pullen. Il Bldg Age 39:425-6 Ag '17; Same. Arch & Bldg 49:103 N '17

Framing details of Billy Sunday tabernacle built in Chicago. Il diags plans Bldg Age 40:329-31 JI '18

Government individual home building corporation. C. E. Schermerhorn. Am Arch 114:338-40 S 18 '18

**Building—Continued**

Government's attitude toward building operations. M. G. Bennett. Am Arch 113:209 F 20 '18

Government's vast building program. W. A. Starrett. Il Sci Am 119:186-7+ S 7 '18

Group of administrative offices to hold 10,000 government employees. diagrs plan Eng N 80:350-3 F 21 '18

How a contractor keeps tab on the job. W. F. Tubesing. Il Concrete 11:180-1 D '17

How box sills and partition stops are built in the Middle West. T. Thorsen. diagrs Bldg Age 40:418-19 S '18

How one contractor went about a housing job; building 450 small dwellings for shipyard workers. J. Meltzer. Il Eng N 82:1044-7 My 29 '19

How progress is recorded on army construction jobs. Eng N 80:993-4 My 23 '18

Is a knowledge of building essential for the contractor of to-day? Am Arch 116:173-4 Ag 6 '19

Labor-saving machinery used in building houses. S. H. Lea. Il diagrs plan Eng N 82:753-5 Ap 17 '19

Make homes tighter and coal cost lighter. Metal Work 90:154-5 Ag 9 '18

Materials and equipment appropriate for use in housing operations; condensed from data and sales statements furnished by producers. Am Arch 113:647-50 My 15 '18

Necessity for planning buildings now. Am Arch 113:815-17 Je 19 '18

Our need for buildings. Am Arch 113:249-50 F 27 '18

Reasons for failures of heating systems. J. D. Hoffman. Am Soc Heat & V E 24:367-76 '18; Same. Metal Work 90:30-4 J1 12 '18; Same cond. Heat & Ven 15:13-18 J1 '18; Discussion. Am Soc Heat & V E 24:376-8 '18

Solution of the cantonment construction problem. L. Metcalf. Am Soc M E J 40:35-9 Ja '18; Same abr. Eng & Contr 48:502-4 D 19 '17

Structural service department. D. K. Boyd. See monthly numbers of the Journal of the American Institute of architects

Systematic building superintendence. C. F. Dingman. Concrete 14:159-62 Ap '19

Systematic superintendence: routine covering field clerical work on construction operations. C. F. Dingman. Concrete 14:85-7 Mr '19

Unit house building. Il Am Lumberman 2268:31+ N 2 '18

Using second-hand lumber to reduce building costs. G. E. Walsh. Il Bldg Age 40:380-1 Ag '18

Visible record system for expediting construction contracts. Eng & Contr 50:83-4 J1 24 '18

War time conditions and efficiency in design. Am Arch 113:96-7 Ja 23 '18

*See also* Acoustics; Architectural; Arches; Architecture; Armories; Bathrooms; Bracing; Brick construction; Bricklaying; Bridges; Building contracts; Building laws and regulations; Building loans; Building materials; Building trades; Buildings; Carpentry; Cellars; Chimneys; Columns; Concrete construction; Concrete houses; Cribs; Cribs, Concrete; Doors; Earthquakes and building; Engineering; Factories; Fire escapes; Fireproof construction; Floors; Foundation soils; Foundations; Framing (building); Girders; Graphic statics; Grouting; Hangars; Hardware; Heating; High buildings; Hot water supply; Hotels; Joints; Joists; Masonry; Mine buildings; Motor trucks in construction work; Nail handling; Office buildings; Painting; Structural; Partitions; Piers; Plaster and plastering; Plumbing; Progress records; Quantity system of estimating; Railroads—Buildings; Retaining walls; Roofs; Scaffolding; Shipbuilding; Shoring and underpinning; Stair building; Stairways; Steel construction; Strains and stresses; Strength of materials; Tenement

houses; Theaters; Towers; Towers, Steel; Trusses; Ventilation; Walls; Wind pressure; Windows

**Accounting**

Keeping the costs of building the government houses. J. C. Prior and H. P. Green. diagrs charts Eng N 83:252-61 Ag 7 '19

**Contracts**

*See* Building contracts

**Cost**

Building and the cost of construction. M. A. Mikkelsen. Arch Rec 45:398-403 My '19

Building costs from 1851 to 1916. A. Peabody. Eng & Contr 49:645 Je 26 '18

Building costs in England. J. Y. Dunlop. Bldg Age 41:295 S '19

Building labor and material market. Arch Forum 31:59-60 Ag '19

Comparison of unit costs. R. B. Smith. Am Arch 113:305 Mr 6 '18

Estimating and building costs. W. F. Anderson. Am Arch 113:798-800 Je 12 '18

Estimating building costs. Concrete 12:60-1 F '18

Fire-resisting and wood offices built at same time. Eng N 81:898 N 14 '18

Housing project construction costs. C. F. Willis. Il plans Concrete 14:185-90 My '19

Investigation of building costs. Bldg Age 41:276-7 Ag '19

Percentage of increase in building costs for the last eight years. W. A. Glesen. Bldg Age 40:264 My '18

Present cost of building. W. Polk. Am Arch 113:12 Ja 2 '18

Prices in 1916 and 1918 compared. J. Upton. Bldg Age 40:339 J1 '18

Today's and pre-war costs of small house. Eng & Contr 51:692 Je 25 '19

Wood is the cheapest material for residence construction. Am Lumberman 2301:1+ Je 21 '19

*See also* Bridges—Cost; Building materials—Prices; Concrete construction—Cost

**Estimates**

American quantity system. G. A. Wright. Arch & Bldg 50:12-14+ F '18

Cost schedule simplifies estimating of new buildings. J. W. Collins. Elec R 74:689 Ap 26 '19

Estimating and building costs. W. F. Anderson. Am Arch 113:798-800 Je 12 '18

Estimating on building contracts. C. J. Parker. Eng & Contr 52:98-9 J1 23 '19

Experience in cottage building. O. Kellar. Il diagrs plans Bldg Age 40:136-9 Mr '18

How I estimate brickwork by the superficial foot of wall. D. C. Carson. Bldg Age 41:233-5 J1 '19

How to make sure of your profits. Bldg Age 41:84-5 Mr '19

Nelson form of estimating competition. Am Arch 116:465-7 O 1 '19

Quantity system. Am Arch 113:651-3 My 22 '18

*See also* Concrete construction—Estimates

**Materials**

*See* Building materials

**Mill construction**

*See* Building, Mill construction

**Rapid construction**

Boston army supply base—from the contractor's standpoint. W. F. Kearns. Il Boston Soc C E J 6:115-23 Mr '19

Construction features of government housing development at Cradock, Va. Il Eng & Contr 51:52-3 Ja 15 '19

Housing construction at Cradock, Va. Il Munic J 46:61-3 Ja 25 '19

**Repair and reconstruction**

Altering old office building requires heavy underpinning. Il diagrs plans Eng N 81:610-13 O 3 '18

Finishing building at Botany worsted mills. Textile World 53:3255 Ja 12 '18



**Building—Repair and reconstruction—Cont.**

- How a house was enlarged. J. F. Hobart. *Il Bldg Age* 40:201-2 Ap '18
- How a two-story house was remodeled into a three-story. O. B. Maginnis. *diags Bldg Age* 40:129-30 Mr '18
- Lessons from experiences with emergency construction work. G. W. Fuller. *Eng & Contr* 49:643-4 Je 26 '18
- New houses for old. *Il plans Am Arch* 115: 679-80, pl 156-9 My 14 '19
- Placing an old building on a new financial basis. H. C. Severance. *Il diags plans Am Arch* 116:221-6 Ag 13 '19
- Realm of the retailer. *plans Am Lumberman* 2289:38h-1 Mr 29 '19
- Reconstruction at Appleton mills. Lowell, Mass. *Il plans Textile World* 53:3235+ Ja 12 '18
- Replacing rotted sills and studs. W. A. Giesen. *Il Bldg Age* 41:18 Ja '19
- Shoring and replacing columns under a 15-story office building. *Il diags plans Am Arch* 114:121-5 Jl 24 '18
- Substructure replaced without the use of shores. A. A. Aegerter. *Il diags plan Am Arch* 113:541-5 My 1 '18
- Turning white elephants into profit makers. R. F. Salade. *Bldg Age* 40:518-19 N '18

**Safety devices and measures**

- Accident prevention in construction a source of profit. F. L. Hurlbutt. *Eng & Contr* 52: 442-4 O 15 '19
- Measures for preventing accidents in building construction. F. J. C. Dresser. *Eng & Contr* 52:475-6 O 22 '19
- Safe construction of scaffolds and false-work. T. F. Foltz. *Am Arch* 114:530-2, 564-6 O 30- N 6 '18; Same cond. *Eng & Contr* 50:285-8 S 18 '18
- Safety measures for preventing accidents in steel erection. E. A. Gibbs. *Eng & Contr* 52:460-1 O 22 '19; Same cond. *Eng N* 83: 801-3 O 30 '19

**Specifications**

- Some reasons why standard structural specifications are necessary. E. Godfrey. *Eng N* 83:437-8 Ag 28 '19
- Specification clauses. F. W. Grant. *Am Arch* 113:800, 803-4; 114:10-11; 115:570-1; 116:373-4+ Je 12, Jl 3 '18, Ap 23, S 17 '19
- Uniform specifications, plans and bidding for building work. *Eng & Contr* 51:581-2 My 28 '19

**Standards**

- Establishing standards in construction. A. B. Segur. *diags Eng & Contr* 52:242-4 Ag 27 '19
- Fabricated lumber and the housing problem. R. G. Skerrett. *Il diag Sci Am* 121: 107+ Ag 2 '19
- Standardization in buildings. *Am Inst Arch J* 7:427-32 O '19
- Standardization of building materials. D. K. Boyd. *Arch Forum* 31:31-3 Jl '19
- Standardization of building products. R. D. Kohn. *Am Arch* 115:498-500 Ap 2 '19
- Standardization of details for school buildings. *diags Eng & Contr* 51:427 Ap 23 '19
- Standardization of structural steelwork. R. B. Reid. *Il diags Eng & Contr* 52:514 O 29 '19

See also Buildings, Standard

**Tables, calculations, etc.**

- Approximate formulas useful in structural design. R. Fleming. *Eng N* 82:534-5 Mr 13 '19
- How to find the proper size steel beams for various spans. G. E. Thackery and W. A. Giesen. *diags Bldg Age* 41:183-5 Je '19
- How to find the proper size steel channels for various spans. G. E. Thackery and W. A. Giesen. *Bldg Age* 41:324-5 O '19
- How to read board measure. *Bldg Age* 41: 131-2 Ap '19
- Timber sizes for balloon and mill type frames. *Bldg Age* 40:389 Ag '18

Building, Fireproof. See Fireproof construction

**Building, Mill construction**

- Mill buildings and laminated floors. C. G. Paul. *Eng N* 80:673-4 Ap 4 '18
- Planning the industrial plant. H. M. Wharton. *Il diags Ind Management* 58:47-50 Jl '19
- Some new suggestions on mill construction standards. *Am Lumberman* 2243:26 My 11 '18
- Some prominent features of mill construction. J. W. Parker. *Arch Forum* 31:9-12 Jl '19
- Timber sizes for balloon and mill type frames. *Bldg Age* 40:389 Ag '18
- Uses of wood in building construction; report of National fire protection association committee. *Am Lumberman* 2243:40-1 My 11 '18
- What is mill building construction? F. W. Dean. *diags Eng N* 79:1184-9 D 27 '17; Discussion. *Am Lumberman* 2225:30 Ja 5 '18
- What is mill construction? *Factory* 20:664 Ap '18
- What will your building cost? *Concrete* 12:226 Je '18
- Wood in the construction of mill buildings. W. Kynoch and R. J. Blair. *Eng & Contr* 50:225-6 Ag 28 '18

**Building accidents**

- Accidents in building industry. *Eng & Contr* 50:386 O 23 '18
- Character and frequency of accidents to workmen in erection of structural steel work. F. W. Gardiner and S. Johannesson. *Eng & Contr* 49:87-8 Ja 23 '18

**Building and loan associations**

- Financing of home building. J. R. Moorehead. *Am Lumberman* 2292:48-9 Ap 19 '19
- Iowans launch strong building association. *Am Lumberman* 2251:37 Jl 6 '18
- War time activities affecting building and loan associations. J. R. Moorehead. *Am Lumberman* 2254:47 Jl 27 '18

**Building contracts**

- Actual cost of a contract. F. K. Armstrong. *Dom Eng* 81:497-8+ D 22 '17
- Architects and the building contract. *Am Inst Arch J* 7:156-7 Ap '19
- Architects, building contracts and contractors. *Dom Eng* 83:44 Ap 13 '18
- Architects' responsibility for contracts and bonds. R. J. O. Culver. *Eng & Contr* 51: 220-1 F 26 '19
- British view of various forms of construction contracts. F. L. Dore. *Eng & Contr* 52:504-5 O 29 '19
- Building construction under the cost-plus-fixed-fee contract. A. E. Wells. *Heat & Ven* 16:27-9 O '19
- Building contract of the future. S. W. Jones. *Am Inst Arch J* 7:119-22 Mr '19; Same. *Eng & Contr* 51:418-20 Ap 23 '19; Abstract. *Am Arch* 115:595-6 Ap 23 '19
- Competitive contract system. P. Waterhouse. *Eng & Contr* 52:516 O 29 '19
- Concrete building selling campaign. J. P. H. Perry. *Munic Eng* 53:264-5 D '17
- Contract organization vitally important for war work. F. Donaldson. *charts Eng N* 81: 535-8 S 19 '18
- Contractors required to install heating and plumbing. *Dom Eng* 82:29+ Ja 5 '18
- Cost plus contract forms of Fred T. Ley and co., inc., Hurley-Mason co., and Ferro concrete construction co. *Eng & Contr* 48:525-8 D 26 '17
- Drawing the ideal contract. J. A. L. Waddell. *Bldg Age* 41:344-6 O '19
- Future of government villages. C. W. Braxer. *Am Arch* 115:219-21 F 12 '19
- Government's emergency construction contract. W. A. Starrett. *Il Sci Am* 119:213+ S 14 '18
- More business for the dealer. *Bldg Age* 40: 115-16 F '18
- New decision on contractors' responsibility under owners' plans. C. A. Brodek. *Heat & Ven* 16:49-50 Ap '19
- Operation of the government's building contract system. W. A. Starrett. *Eng & Contr* 49:325-6 Mr 27 '18

**Building contracts—Continued**

- Preliminaries to taking bids and letting contracts. F. W. Grant. Am Arch 112:424-6, 471-2; 113:279-82, 313-15 D 12, 26 '17, Mr 6-13 '18
- Protecting the owner under a cost-plus building contract. Arch Forum 31:103-5 S '19
- Specification clauses. F. W. Grant. Am Arch 114:10-11 JI 3 '18
- What constitutes cost in a cost plus contract? Arch Forum 31:139-41 O '19
- What recourse has contractor if owner stops work before completion? Dom Eng 89:221-2 N 1 '19
- What relation does an architect bear to an owner, and what powers has he to bind the owner to contracts for extras, and the like? Dom Eng 86:127-8 Ja 18 '19
- Who shall do it? selecting a contractor for government emergency construction work. W. A. Starrett. Sci Am 119:296+ O 12 '18
- See also* Bridges—Contracts; Contractors; Contracts, Letting of; Heating contracts; Plumbing contracts

**Bibliography**

- Structural service department; contractual relations, specifications, and drawings. Am Inst Arch J 6:42-3 Ja '18
- Building equipment. *See* Construction plants
- Building failures. *See* Concrete construction—Failures; Earthquakes and building
- Building fittings
- Simplicity in architectural accessories; hardware. W. R. Hill. Am Arch 114:547-8 N 6 '18
- Building heights. *See* High buildings
- Building laws and regulations
- All construction must be essential to the war. Eng N 81:567+ S 19 '18
- Building codes in relation to standards of wood construction. R. S. Whiting. Am Lumberman 2298:55-6 Ap 26 '19
- Building restrictions greatly modified. Am Lumberman 2270:35 N 16 '18
- Chicago reinforced-concrete flat-slab ruling amended. Eng N 79:1153-5 D 20 '17; Same. Eng & Contr 49:79-81 Ja 23 '18
- The code, the building department and the architect. Am Arch 115:398-400 Mr 12 '19
- Elimination of waste due to building codes. Am Arch 115:128-9 Ja 22 '19; Same. Concrete 14:39-40 F '19
- Home-building law of North Dakota. J. I. Bright. Am Inst Arch J 7:224-5 My '19
- How Pittsburgh's new building code is being made. J. A. Ferguson. Eng N 80:729-30 Ap 11 '18
- Important code revision. Am Arch 115:149-50 Ja 22 '19
- Important departure in building codes; new code of Detroit. Am Arch 114:25-30 JI 3 '18; Discussion. 114:275 Ag 28 '18
- Iowa's housing law. Am Arch 115:677-8 My 14 '19
- Is owner or contractor liable when building is destroyed in course of erection or repair? Bldg Age 40:360 JI '18
- Legislation is needed at once to make funds available for construction on a wider scale. F. T. Miller. Am Arch 116:459-60 O 1 '19
- Municipal stair regulations. Am Arch 113:218-21 F 20 '18
- New code for automatic sprinklers. 11 plans Am Arch 115:588-95 Ap 23 '19
- Peculiar workings of the zoning resolution. Am Arch 116:28 JI 2 '19
- Puzzling variations in important building-law clauses. R. Fleming. Eng N 81:579-81 S 26 '18
- Reasons for building curtailment order. Am Lumberman 2263:40 S 28 '18
- Restrictions on the building of small houses. L. H. Allen. Bldg Age 40:26 Ja '18
- Roofing ordinance for Dallas, Tex. Metal Work 89:756-7 Je 7 '18
- Scientific principles involved in building a building code. J. A. Ferguson. Eng & Contr 49:85-7 Ja 23 '18

Skyscraper and building heights in the United States. R. Fleming. 11 W Soc E J 23:432-9 Je '18; Excerpt. Eng & Contr 51:315-16 Mr 26 '19

Suggested reforms in floor-load requirements of city building laws. R. Fleming. Eng N 80:1227-30 Je 27 '18

Tenement house provisions for United States housing. Am Arch 114:572-3 N 13 '18

Useless waste in concrete construction due to legal requirements. W. S. Tait. Am Arch 114:717-18, 750-2; 115:147-9, 187-9, 211-12, 254-6 D 11-18 '18, Ja 22-F 12 '19

War industries board to fix status of building permits. B. M. Baruch. Am Lumberman 2261:38-9 S 14 '18; Am Arch 114:371 S 25 '18

Why the Chicago flat-slab ruling was revised. J. Krippner. diags Eng N 79:1155-7 D 20 '17

*See also* Building contracts; Building loans; Garages—Laws and regulations; Heating—Laws and regulations; Mechanics' liens; Plumbing laws and regulations

**Building loans**

Build now! Am Arch 115:363-6 Mr 12 '19

Building loans and the building revival. Am Arch 114:167 Ag 7 '18

Dominion of Canada housing loan. S. T. J. Fryer. diags plans Arch Forum 31:41-5 Ag '19

Elimination of income taxes from real estate mortgages urged. B. L. Fenner. Am Arch 116:185-6 Ag 6 '19

Federal aid to home building. F. R. Howe. Arch Forum 30:137-40 My '19

Financing home building is the problem of today. Am Arch 116:387-8 S 17 '19

Housing in Canada. Am Inst Arch J 7:271-3 Je '19

Promotion and financing of building operations. C. A. Whittemore. Arch Forum 30:41-5 F '19

Senator Calder urges 2 billion home loan bank measure. Am Arch 116:248-9 Ag 20 '19

What I have learned about financing building operations. J. R. McAfee. Bldg Age 41:254-5+ Ag '19

*See also* Building and loan associations

**Building materials**

Building materials and government programs. A. E. Beals. Concrete 13:67 Ag '18

Construction materials and machinery in Chile, Peru, and Ecuador. W. W. Ewing. 11 U S Bur For & Dom Com 175:1-205 '19

Construction materials and machinery in Colombia. W. W. Ewing. 11 U S Bur For & Dom Com 160:1-75 '18

How the War Industries board controls building. Eng N 81:811-14 O 31 '18

Idiosyncrasies of building materials: brick. Am Arch 116:326-7 S 3 '19

Losses of heat through engineering and building materials; abstract. R. B. Fehr. Am Soc M E J 40:pt 1, 596-7 JI '18

Materials and equipment appropriate for use in housing operations; condensed from data and sales statements furnished by producers. Am Arch 113:647-50 My 15 '18

Materials for the household. 11 diags map U S Bur Stand Circ 70:19-139 '17

Nalecode—a nailing base and insulator. Am Arch 113:360 Mr 20 '18

New heat transmission tables. W. R. Jones. Heat & Ven 15:36-41 O; 24-9 N; 36-40 D '18; 16:22-7 Ja '19

Plentiful supply of building stone and brick clays. J Fr Inst 186:242 Ag '18

Profiles and materials. W. L. Mowll. Arch Rec 45:142-7 F '19

Properties of flooring materials. Am Arch 114:116-20 JI 24 '18

Report of research on transmission of heat through heavy building materials. A. H. Barker and M. Kinoshita. Eng & Contr 51:442-3 Ap 30 '19

Standardization of building materials. D. K. Boyd. Arch Forum 31:31-3 JI '19

Structural material made of thin sheet steel. 11 diags Am Arch 115:249-54 F 12 '19

**Building materials—Continued**

- Structural service department. D. K. Boyd. See monthly numbers of the Journal of the American institute of architects
- Structural service department; building materials section. map Am Inst Arch J 6:486-91 O '18
- Study of the heat transmission of building materials. A. C. Willard and L. C. Lichty. II diagrs III U Eng Exp Sta Bul 102:1-56 '17; Excerpts. Metal Work 90:157-60 Ag 9 '18; Excerpts. Dom Eng 84:18 Jl 6 '18; Abstract. Am Arch 113:735-6 My 29 '18
- Use of magnesite in building construction. II Am Arch 114:323-9, 374-81, 438-43 S 11, 25, O 9 '18
- What zinc is used for in the building trades. J. A. Singmaster. Bldg Age 40:551 D '18; Same. Metal Work 91:58 Ja 10 '19
- See also Adobe; Asbestos; Bricks; Building stone; Cement; Concrete; Concrete, Reinforced; Concrete blocks; Concrete stone; Concrete tile; Fire resisting materials; Fireproof construction; Glass; Gravel; Gunite; Hollow tile; Iron; Lime; Limestone; Mortar; Plaster and plastering; Steel, Structural; Strength of materials; Stucco; Terra cotta; Timber; Wall board; Wood; Zinc

**Prices**

- Building material market prices. Am Arch 115:555-6, 586-7, 622-4 Ap 16-30 '19
- Construction and prices: 1913 and now. Eng N 82:498-9 Mr 6 '19
- English building prices and economy in future work. Bldg Age 40:464-5 S '18
- High prices for engineering materials in France. Eng N 83:275 Ag 7 '19
- Material prices halt Chicago building operations. O. M. Fox. Eng N 82:369-70 F 20 '19
- Prices of building materials as compared with other commodities. R. P. Stoddard. Am Arch 113:19-20 Ja 2 '18
- Prices of building materials, 1914-1919. Eng N 83:799 O 30 '19
- Probable cost of building materials in France after the war. Eng & Contr 49:535-6 My 29 '18
- What has been the average increase in prices of building materials? Eng & Contr 49:397-8 Ap 24 '18

**Building stone**

- Fashion in building stone. Am Arch 114:312-13 S 11 '18
- Preservation of decaying stone, with a view to the conservation of ancient buildings. A. P. Laurie and C. Rankin. Sci Am S 86:302-4 N 9 '18
- See also Granite; Limestone; Quarries and quarrying

**Building trades**

- Annoying practices in the retail trade. C. E. Davidson. Bldg Age 40:170-1, 318-19, 412-13 Mr, Je, Ag '18
- Association of building and allied industries to be organized to render war service. Am Arch 113:64 Ja 16 '18
- Build now! It will pay! Metal Work 91:340-1 Mr 14 '19
- Building construction gives way to war work. Heat & Ven 15:50-3 O '18
- Building now—from the investor's viewpoint. Arch Forum 31:56-9 Ag '19
- Central quality survey method. C. E. Flamboe. Am Arch 114:743-4 D 18 '18
- Contractors should encourage immediate resumption of building. G. C. Nimmons. Elec R 74:279 F 15 '19
- Coordination of the building industry. Arch Forum 31:146 O '19
- Electrical opportunity in immediate building requirements. J. D. Barnhill. Elec R 73:1019-20 D 28 '18
- Evolution of the building material business; the plan-book system. Bldg Age 40:55-8 Ja '18
- Financing the expected boom in building. Am Arch 115:171-3, 205-7, 241-3 Ja 29-F 12 '19

- Future of the building and allied industries and the factors that will affect them. Am Arch 114:613-14 N 20 '18
- Helpful suggestions to property owners will build new business. R. F. Salade. Bldg Age 40:572-3 D '18
- How an experienced dealer handles the commission practice. Bldg Age 40:466-7 S '18
- How builders have increased their business. R. F. Salade. Bldg Age 41:289-90 S '19
- How to successfully meet mail order competition. G. Ernst. Bldg Age 40:368-9 Jl '18
- Increased production will reduce prices. F. T. Miller. Am Arch 116:152-4 Jl 30 '19
- Is the cost of construction high? Am Arch 115:455-6+ Mr 26 '19
- Legal department. See monthly numbers of Building age, February 1918 to date
- Making old customers bring new. P. D. Otter. II Bldg Age 41:339-40 O '19
- More activity now is needed in the trade. Bldg Age 40:168-70 Mr '18
- Past and prospective rise of wages in the building trades. Eng & Contr 51:557-8 My 28 '19
- Plan of organization of the building industries for war. Am Arch 113:84 Ja 23 '18
- Problems of reconstruction in the building industry. W. M. Calder. Am Arch 114:739-40 D 18 '18; Same. Eng & Contr 50:568-70 D 18 '18
- Progress and prospects in architectural engineering. Am Arch 113:27-9 Ja 2 '18
- Promoting big business in small towns. R. F. Salade. Bldg Age 41:4-6 Ja '19
- Remodeling jobs that are yours for the asking. R. F. Salade. Bldg Age 40:482-3 O '18
- Scale of charges of building trades for use of small tools. Eng & Contr 52:110 Jl 23 '19
- Study of the architectural and building fields. Am Arch 112:1-5 Ja 2 '18
- Summary of forthcoming federal report entitled, Economics of the construction industry. Munic Eng 57:28-30 Jl '19
- Tiding over a critical period. H. A. Daniels. Metal Work 91:376-8 Mr 21 '19
- Wage scale for building trades of Manitoba. Eng & Contr 52:461 O 22 '19
- Wage scale of St Louis building trades. Eng & Contr 52:471 O 22 '19
- War and the building industry. Am Inst Arch J 6:373-6 Ag '18
- War conditions in building trades. Am Arch 113:504-5 Ap 24 '18
- What is the matter with the contracting business? F. E. Davidson. diagrs plan Bldg Age 41:140-2 Ap '19
- See also Building loans; Carpenters; Contractors; Fixtures; Plumbing trade

**Advertising**

- Advertise your building materials business in the movie program. E. A. Dench. Bldg Age 40:120-1 F '18
- Increase your business by proper advertising. R. F. Salade. Bldg Age 41:149-51 My '19
- Super-advertising and salesmanship. L. R. Putnam. Am Lumberman 2282:1+ F 8 '19

**Canada**

- Effect of the war on building in Canada. E. Newsome. Dom Eng 81:438-9 D 15 '17

**France**

- Letters from France. H. J. Harms. Concrete 14:95-8 Mr '19

**Great Britain**

- Building costs in England. J. Y. Dunlop. Bldg Age 41:295 S '19
- Building trade conditions in Britain. J. Y. Dunlop. Bldg Age 41:34-5 Ja '19
- Notes from London. II plans Am Arch 116:259-66 Ag 27 '19
- Reconstruction in the building industry of Great Britain. G. D. H. Cole. Am Inst Arch J 7:386-8 S '19
- Towards a national building guild. A. J. Penty. Am Inst Arch J 7:148-52 Ap '19
- War and building in Britain. F. S. Culver. Concrete 11:187-8 D '17

**Building trades—Great Britain—Continued**

War-time conditions in the English building trades. J: Y. Dunlop. Bldg Age 40:520-1 N '18

**Porto Rico**

Building construction in San Juan, Porto Rico. II Bldg Age 40:47 Ja '18

**United States**

Building activity in the United States; monthly statistics. Bldg Age 41:110-11, 176-7, 212-13, 277-8 Mr, My-Je, Ag '19

Building activity throughout the United States. Bldg Age 40:267, 583-4; 41:75-6 My, D '18, F '19

Building construction in the United States; tabulations. Am Arch 115:41-53 Ja 1 '19

Building data in the United States. Heat & Ven 16:44-5 Ap '19

Building operations in 1917. Am Arch 114:267 Ag 28 '18

Building permits for August, 1917 and 1918 compared. Dom Eng 84:406-7 S 14 '18

Building permits show 29 percent loss in 1917. Am Lumberman 2227:33 Ja 19 '18

Building situation in New York. Am Arch 114:320-1 S 11 '18

Building trade wage increase since 1913; diagrams. Eng N 83:788 O 30 '19

Building work shrinks more than half since 1914. Eng N 81:sup132 S 12 '18

Convention of the National federation of building industries of the United States, Atlantic City, N.J., July 15-16. Am Arch 114:101-7 Jl 24 '18; Am Lumberman 2253:38 Jl 20 '18; Arch Rec 44:184 Ag '18; Bldg Age 40:390-1 Ag '18

How the war has affected the building trades in Indiana. Bldg Age 40:263-4 My '18

National organization of building industry. Heat & Ven 15:51-2 Ag '18

National organization of the building industry. Am Inst Arch J 6:219-20 My '18; Excerpt. Am Arch 113:719 My 29 '18

National position of the construction industry. A. F. Greensfelder. Eng & Contr 49:291-3 Mr 20 '18

National prohibition injects new element in building situation. Arch Forum 31:106-8 S '19

1918 building contracts show big increase. Am Ind 18:38 My '18

Relationship of construction industry to American business. W. T. Rossiter. Eng & Contr 51:660 Je 18 '19

Review of business conditions in the building trades, with outlook for improvement in 1918. Dom Eng 81:463-9+, 555+ D 15, 29 '17

Wage scale in building trades in New York city. Eng & Contr 51:560 My 28 '19

**Building trades employers' association**

Association of building and allied industries to be organized to render war service. Am Arch 113:64 Ja 16 '18

**Buildings**

Groundplot in relation to the height and the size of a building. S. R. DeBoer. II diag Arch Rec 45:574-6 Je '19

Importance of building revenue. plans Am Arch 114:356-9 S 18 '18

Preservation of decaying stone, with a view to the conservation of ancient buildings. A. P. Laurie and C. Rankin. Sci Am S 86:302-4 N 9 '18

Railroadmen's savings building. II plans Am Arch 113:876-8 Je 26 '18

Temporary buildings with maximum salvage. H. H. See. diags plan Bldg Age 41:222-3 Jl '19

*See also* Architecture; Bank buildings; Building; Buildings, Standard; Capitol buildings; Car houses; Churches; College architecture; Concrete buildings; Court houses; Department stores; Factories; High buildings; Hotels; Industrial buildings; Machine shops; Market buildings; Mine buildings; Municipal buildings; Office buildings; Post office buildings; Public buildings; Railroads—Buildings; Railroads—Stations; Schoolhouses; Store buildings; Theaters; Warehouses; Young men's Christian association buildings

**Buildings, Industrial.** See Industrial buildings

**Buildings, Municipal.** See Municipal buildings

**Buildings, Office.** See Office buildings

**Buildings, Portable**

Cost of constructing and moving portable camp buildings. diags Eng & Contr 49:614-15 Je 19 '18

Portable houses for overseas forces built in record time by new methods. II diags Eng N 80:40-2 Ja 3 '18

Portable units form buildings for labor camps. II diags plan Eng N 80:126-7 Ja 17 '18

*See also* Schoolhouses, Portable

**Buildings, Public.** See Public buildings

**Buildings, Standard**

Completing buildings on time. II diags Ry Age 65:312-13 Ag 16 '18

Construction of a standard factory building for the New York air brake co., at Watertown, N.Y. II diags Ry R 61:695-9 D 8 '17

Planning the industrial plant. H. M. Whar-ton. II diags Ind Management 58:47-50 Jl '19

Rapid building without steel. diags Textile World 54:2577+ N 23 '18

Standard buildings. diags Eng & Min J 107:952 My 31 '19

Standard buildings. E. P. Rankin, jr. Eng & Min J 108:150 Jl 26 '19

Standard lookout house adopted for forest fire service. II Eng N 83:432 Ag 28 '19

Standardization in factory buildings. II diags Automotive Ind 38:407-9+ F 21 '18

Standardization of buildings. E. M. Haas. Ry Age 64:297-8 F 8 '18

Standardized school house design. diags plans Am Arch 114:559-64, 589-91, 621-9 N 6-20 '18

What is the future of the standardized house? Bldg Age 40:582 D '18

**Bulbs**

Bulb growing in the United States; a California farm that rivals the best in Holland. A. H. Dahl. II Sci Am S 86:36-7 Jl 20 '18

**Bulkheads**

New methods in bulkhead construction. II Sci Am 118:183+ Mr 2 '18

**Bulkheads (naval architecture)**

Analysis of stresses in bulkhead stiffeners (bracketed end connections). diags Int Marine Eng 24:729-34 N '19

Investigation into bulkhead stiffeners. diags Int Marine Eng 24:474-8, 554-7+ Jl-Ag '19

**Bulldozers.** See Forging machinery

**Bulletin boards**

Poster board to impress ship workers. L. R. W. Allison. Am Mach 49:464 S 12 '18

**Bullets**

Explosive, expansive and perforating bullets used by the German and Austrian armies. C. Fernelle. diags Sci Am S 86:332-3 N 23 '18

*See also* Cartridges; Projectiles; Shells (projectiles); Shrapnel shells

**Bumped heads.** See Boiler heads; Heads (tanks, etc.)

**Bungalows**

Bungalows in Porto Rico. Arch & Bldg 50: Dwelling house series 7-10 Ap '18

Community courts for factory workers. C: A. Byers. II Arch Rec 43:180-5 F '18

Concrete and cobblestone bungalow. W. D. Lewis. II plan Concrete 12:32 Ja '18

Cozy bungalow for the small family. II plans Bldg Age 41:262-3 Ag '19

Farm bungalow sets example in modern equipment. G: Haig. II diag plan Dom Eng 88:461-2 S 6 '19

Folding bungalow. R. H. Moulton. II Arch Rec 44:93-6 Jl '18

Home of bungalow type. II diags plans Bldg Age 40:258-61 My '18

Novelties in plan characterize this bungalow. II diags plan Bldg Age 41:128-9 Ap '19

Provision to heat bungalow neglected. II plans Metal Work 90:610-11 N 29 '18

Shingled bungalow built at Cranford, N.J. II diags plans Bldg Age 40:275-7 Je '18

**Bungalows—Continued**

- Shingled bungalow built on a steep hillside. 11 diags plans Bldg Age 41:79-80 Mr '19
- Stucco bungalow in California. C. A. Byers. 11 plan Concrete 13:159 N '18
- Three bungalows built on narrow lots. 11 diags plans Bldg Age 41:196-8 Je '19
- Three-room colonial bungalow. 11 diags plans Bldg Age 40:528-9 N '18
- Bunker Hill & Sullivan smelting and refining works**
- Sintering and charge delivery at the Bunker Hill plant. C. T. Rice. 11 diags plans Eng & Min J 106:649-57 O 12 '18
- Smelting and lead refining at the Bunker Hill plant. C. T. Rice. 11 Eng & Min J 106:743-9 O 26 '18
- Use of pulverized coal. C. T. Rice. 11 Eng & Min J 106:91-4 JI 20 '18
- Buoys**
- Nature's submarines; how we guard our commerce against them. 11 Sci Am S 86:280-1 N 2 '18
- Recent developments in marine lighting. 11 diags Engineer 125:201-2, 225-6 Mr 8-15 '18; Same. Sci Am S 87:388-9 Je 21 '19
- Bureau of commercial economics**
- Free education from the film. Sci Am 121:316 S 27 '19
- Training your employees by motion-pictures. E. A. Dench. Am Gas Eng J 107:575-+ D 22 '17; Same. Inland Ptr 61:317-19 Je '18
- Using moving pictures for education; coal mining. Coal Age 14:177 JI 25 '18
- Bureau of standards. See United States—Standards, Bureau of**
- Burets**
- Improved automatic burette. G. J. Hough. diag J Ind & Eng Chem 11:229 Mr '19
- Simple weighing burette. D. W. MacArdle. diag J Ind & Eng Chem 11:670 JI '19
- Burglar alarms**
- Installing burglar alarms for banks and jewelry stores. Elec R 72:79 Ja 12 '18
- Burlap**
- Deterioration of burlap in waterproofing. Eng N 82:440-1, 682-3 F 27, Ap 3 '19
- Burlap, Substitutes for**
- Saxolin, a softened and asphalted paper for wrapping. Am Soc M E J 40:268 Mr '18
- Burma**
- Operations of the Burma mines, Ltd. A. B. Parsons. 11 Eng & Min J 107:257-62 F 8 '19
- Burners**
- Palmer forced-draft burner. diags Power 48:387-8 S 10 '18; Discussion. R. Snow. 48:463 S 24 '18
- Burners, Gas. See Gas burners**
- Burners, Oil. See Oil burners**
- Burns and scalds**
- Case of severe third degree burns treated with ambrine; with a resumé of literature on the subject by H. R. Hosmer. C. G. McMullen. 11 Gen Elec R 20:717-22 S '17; Same. Sci Am S 85:190-1 Mr 23 '18
- Improved treatment of burns. Chem & Met Eng 20:288 Mr 15 '19
- Treatment of burns with wax. Coal Age 14:989 N 28 '18
- Treatment of gas flame wounds. A. Fitch. Am Gas Eng J 109:545-6 D 14 '18
- Burroughs adding machine company**
- Developing the community interest at the plant. 11 chart Iron Age 101:369-72 F 7 '18
- Burton, William M.**
- Receives Willard Gibbs medal for 1918. por J Ind & Eng Chem 10:483-6 Je '18
- Busbars**
- Arrangement that serves purpose of double bus. diags Elec W 71:984 My 11 '18
- Bus support equipped with adjustable base. diags Elec W 71:855 Ap 20 '18
- Concrete brick for high-tension cells. E. B. Meyer. 11 Elec W 72:977-8 N 23 '18
- Current capacity of copper busbars; abstract. F. M. Billhimer. Elec W 71:627 Mr 23 '18
- Edge effect in copper bars at electric-lighting frequencies. J Fr Inst 185:417-19 Mr '18
- Extra heavy-duty busbar supports. 11 Elec R 72:1098 Je 29 '18
- Flexible distribution for industrial plants. L. F. Leurey. 11 diags Elec W 73:835-8 Ap 26 '19
- Iron bars for busbars. Elec R 72:737 Ap 27 '18
- Modern bus and switch structures. C. D. Gray and M. M. Samuels. 11 diags Elec W 73:788-92, 831-3 Ap 19-26 '19
- Utilization of pipe for outdoor bus work. M. M. Samuels. diags Elec W 70:1236-7 D 29 '17
- Buses, Electric. See Electric buses**
- Buses, Jitney. See Jitney buses**
- Buses, Motor. See Motor buses**
- Bush, Samuel P.**
- Chief, division of guns, etc., War Industries board. por Iron Tr R 63:861 O 10 '18
- Bush terminal company, Brooklyn**
- What the Bush terminal is doing for its employees. D. Bloomfield. Ind Management 55:66-7 Ja '18
- Bush terminal sales building**
- Bush terminal sales building. 11 Arch & Bldg 50:59+, pl 154-60 D '18
- Bushings**
- Burnishing tool for babbitt bushings. C. C. Spreen. diags Mach 24:836 My '18
- Bushing a small motor bearing. 11 diags Am Mach 48:121-2 Ja 17 '18
- Bushing kinks. C. H. Willey. diags Int Marine Eng 23:363-4 Je '18
- Bushings for steam heat regulating valves. diags Ry R 65:176 Ag 2 '19
- Drill bushings for clamping work in jig. J. A. Ahlers. diags Am Mach 49:1096 D 12 '18
- Driving fit allowances for jig bushings. M. H. Chase. Mach 25:548 F '19
- Fixture for milling oil-groove in bushing. D. A. Baker. 11 diag Mach 25:644-5 Mr '19
- Keyed tool-steel bushings for gray iron gears. J. H. Moore. diags Mach 25:1081 JI '19
- Long castings from short patterns. R. R. Clarke. Foundry 47:561-4 Ag 15 '19
- Making splined and keyed bushings. D. T. Hamilton. 11 diags Am Mach 48:834-5 My 16 '18
- Molding locomotive cylinder bushings in dry sand on a jar-ramming machine. J. Goos-tray. diags plan Foundry 46:64 F '18
- Reclaiming bushings for 9/16 in. air pump reversing valves. J. H. Hahn. diags Ry Mech Eng 93:209-10 Ap '19
- Removing broken taps. C. E. Silver. Am Mach 51:795 O 30 '19
- Removing dowel from air pump reversing valve bushings. J. A. Jesson. diags Ry Mech Eng 93:487 Ag '19
- Rotary bushings. E. A. Dixie. diag Am Mach 51:627 S 25 '19
- Simple bushing puller. C. H. Willey. diag Elec R 72:850 My 18 '18
- Slip bushing with retaining device. C. Jouve. diags Mach 24:649 Mr '18
- Slip bushing with retaining device. R. Mawson. diags Mach 24:939-40 Je '18
- Special valve bushing design. L. P. Michael. diags Ry Mech Eng 93:488 Ag '19
- Business**
- Atlantic City meeting of the War service committees. Chem & Met Eng 19:798-803 D 15 '18; Automotive Ind 39:996-9 D 12 '18; Elec R 73:929-33 D 14 '18; Gas Age 42:607-10 D 16 '18; Iron Age 102:1446-52 D 12 '18; Ry Age 65:1041-6 D 13 '18
- Business building principles that win. L. G. Herbert. Horseless Age 42:22 D 15 '17
- Business man and the war. W. Catchings. Am Lumberman 2238:54-5 Ap 6 '18
- Governments must help trade after war. G. E. Roberts. Automobile 37:683-5 O 18 '17
- Henry Ford's secret. H. P. Gillette. Eng & Contr 52:446 O 15 '19
- Increase your profit by cutting costs. G. Ernst. Bldg Age 40:319-21 Je '18
- Manufacturers aiding the nation. R. K. Sheppard. 11 Elec W 71:6-7 Ja 5 '18
- Rallying business to pay the war bill. C. W. Mears. Concrete 12:38-40 F '18

**Business—Continued**

Visualizing the management's part in business for employees. H. Tipper. charts Automotive Ind 41:378-81 Ag 21 '19  
Why should I pay myself a salary? J. H. Collins. Bldg Age 40:173 Mr '18

See also Accounting; Advertising; Applications for positions; Auditing; Billing; Bookkeeping; Business conditions; Business education; Card system in business; Chamber of commerce of the United States; Collecting of accounts; Commerce; Commercial law; Corporations; Cost accounting; Credit; Department stores; Employment management; Executives; Export trade; Files and filing (documents); Government regulation of industry; House organs; Industrial management; Mail order business; Manufactures; Money; Office management; Purchasing; Records; Salesmen and salesmanship; Show windows; Turnover

**Bibliography**

Five hundred business books. E. Cleland, comp. 72p '19 A. L. A.  
List of selected business and management books. Eng & Contr 51:633-5 Je 11 '19

**Business conditions**

Analysis of present market conditions. E. S. Dickey. Gas Age 43:364-8 Ap 1 '19  
Assurance of better business conditions. Metal Work 90:667 D 13 '18

Business activity advocated to insure prosperity. Gas Age 43:240-4 Mr 1 '19  
Business after the war. F. P. Wood. Ind Management 55:61 Ja '18

Business conditions and prospects. Ry R 64:563-4 Ap 12 '19

Business conditions during and after the war. E. H. Gary. Iron Age 101:137-9 Ja 10 '18  
Business outlook for American industry. F. H. Payne. Ind Management 57:465-8 Je '19

Business situation. Am Arch 113:690 My 22 '18  
Face the facts with intelligence and courage. C. H. Sabin. Am Ind 18:18-19 F '18

Important business readjustment problems. A. Hunsicker. Textile World 55:227 Ja 11 '19  
Lumber and paint; two indicators of business conditions. A. W. Douglas. Factory 19:190-1 Ag '17

Manufacturers' report shows business in poor condition. Elec R 74:637-8 Ap 19 '19  
Message to American business men from England. V. Fisher. Dom Eng 84:439-40 S 21 '18

Nine reasons why business should prosper this year. Elec R 74:152 Ja 25 '19

Opportunity is here: let us meet it. L. K. Comstock. Elec W 73:263-4 F 8 '19

Perspective glance at the future of American business. C. G. Du Bois. Elec R 75:191-2 Ag 2 '19

Post-war finance and our export trade. F. H. Sisson. Automotive Ind 40:893-4 Ap 24 '19; Excerpts. Textile World 55:2327-8 Ap 19 '19

Post-war problems. W. B. Dickson. Iron Age 102:1448-51 D 12 '18

Promote the welfare of the community. C. Her- ing. Il Elec W 73:77-9 Ja 11 '19

Railway surplus and business prosperity. E. B. Leigh. diags Ry R 65:413-19 S 20 '19

Railways and industrial readjustment. E. B. Leigh. Am Ind 19:23-7 Mr '19; Same cond. Ry Age 66:879-81 Ap 4 '19; Same cond. Ry R 64:561-3 Ap 12 '19

Reconstruction days. Il Metal Ind 17:207-10 My '19

Trade conditions and probabilities. M. J. Hickey. Am Ind 19:10-11 Ap '19

Views of construction industry on present and future business conditions. Eng & Contr 51:654 Je 18 '19

What is needed to promote national prosperity?: typical opinions from diversified industries. Am Ind 19:18-27 Ap; 16-19 My '19

See also Panics

Business correspondence. See Commercial correspondence

**Business education**

Business training at the universities. Engineer 125:519 Je 14 '18

Business education for engineers. See Engineering education

Business law. See Commercial law

**Business libraries**

Business library. L. B. Krause. Il J Elec 42:307-8, 387-9, 434-6, 473-4, 538-40, 586-7; 43:25-7, 75-6, 115-17, 175-6, 216-17, 268-71 Ap 1- S 15 '19; Excerpt. Eng & Contr 52:55-6 J1 9 '19

Library service in a business organization. T. D. Schaffchenko. Il J Elec 43:320-1 O 1 '19

Training librarians to serve business needs. J Elec 43:362 O 15 '19

Uses of an economic department in a machine-tool plant; collection of information about the market. L. W. Schmidt. Am Mach 48:97-100 Ja 17 '18

Business records. See Bookkeeping; Cost accounting; Records; also subdivision Records under various subjects, e.g. Railroads—Records

**Butane**

Whole natural gas industry today responsive to problem of chemical possibilities of natural gas. J. B. Garner. Am Gas Eng J 108:493-4 My 25 '18; Same. Gas Age 41:556-7 Je 15 '18

Butchers. See Meat markets

**Butte & Superior mining company**

Annual report for the calendar year 1917. Eng & Min J 105:1005-6 Je 1 '18

Report for 4th quarter of 1918. Eng & Min J 107:582-3 Mr 29 '19

Supreme court hears Minerals separation, ltd., vs. Butte & Superior. Chem & Met Eng 20:318 Ap 1 '19

**Butter**

Specific nutritive values. Sci Am S 88:122-3+ Ag 23 '19

**Analysis**

Detection of added color in butter or oleomargarine. H. A. Lubs. J Ind & Eng Chem 10:436-9 Je '18

Detection of foreign fats in butter fat. A. Seidenberg. diag J Ind & Eng Chem 10:617-21 Ag '18

Rapid and accurate method for butter analysis, suitable for factory control work. E. F. Kohman. J Ind & Eng Chem 11:36 Ja '19

**Butter, Substitutes for**

Potato butter. Sci Am S 85:191 Mr 23 '18

**Butterflies**

Influence of colors on butterflies. Sci Am S 87:201 Mr 29 '19

Migratory butterflies. Sci Am S 85:372 Je 15 '18

**Buttons**

Button industry. (Tariff information series, no. 4) 125p bibliog '18 U.S. Tariff commission, Washington, D.C.

Federal government's mussel farm. Il Sci Am 119:316 O 19 '18

Machine for grinding button dies. Il diags Am Mach 51:609-10 S 25 '19

**Buttons, Military**

Army or military bronze finish. C. H. Proctor. Il Metal Ind 15:467-8 N '17

**Butyric acid**

Quantitative estimation of acetic, propionic and butyric acids. R. D. Crowell. Am Chem Soc J 40:453-60 F '18

Relative stability of halogen substituted aliphatic acids in water solution; the propionic acid and butyric acid series. G. S. Simpson. Am Chem Soc J 40:674-83 Ap '18

Buying. See Purchasing

**Byllesby & company**

Byllesby review of utility conditions. Elec W 73:44-5 Ja 4 '19

By-products. See Waste products; also names of industries, e.g. Coke manufacture—By-products

## C

**Cabbages**

By-products of the fermentation of cabbage. V. E. Nelson and A. J. Beck. *Am Chem Soc J* 40:1001-5 Je '18

**Cables**

Automatic cable winding mechanism. D. A. Baker. *diags Mach* 25:44-5 S '18  
Evolution of cable making. J. P. Bedson. *Iron Age* 101:448 F 14 '18; Same. *Sci Am S* 85:281 My 4 '18

Forging wire-cable sockets. J. V. Hunter. *diags Am Mach* 48:754 My 2 '18  
Lead cable covering press. *II diag Metal Ind* 16:376 Ag '18

Method of fastening wire cable ends to forged sockets. *diags Eng & Min J* 106:267 Ag 10 '18  
Pollakoff lead cable covering press. *II Ind Management* 56:250 S '18

See also Cableways; Electric cables; Rope; Wire; Wire rope

**Cables, Electric.** See Electric cables

**Cables, Submarine**

Intrenching telephone cable to protect it against hooks and anchors. *II diags Sci Am* 118:141 F 16 '18

Maintaining ocean telegraph cables. *II Sci Am S* 86:388 D 21 '18

Ocean cables and wireless as weapons of commerce. *Sci Am S* 85:386-7 Je 22 '18

What is the best way to protect a submarine cable so that it will not be damaged by dragging anchors of boats anchored in the channel harbor? *II Elec R* 73:709-10 N 2 '18

**Cableways**

Aerial cableways handle plates at shipyards. *Eng & Contr* 50:382 O 23 '18

Aerial cableways successful in Northwest shipyards. *II plan Eng N* 82:37-40 Ja 2 '19

Aerial tramway at a coal mine. *II Coal Age* 13:674 Ap 13 '18

American cableway installation at Ashio, Japan. *II Eng & Contr* 49:286 Mr 20 '18

Bicable ropeway, half mile long, passes under six bridges and makes four bends. *II Eng & Contr* 50:131 Jl 31 '18

Blaw locking cable-way carriage for operating clamshell buckets on cable-ways. *II Munic Eng* 54:77 F '18

Cableway with equalizing girder transports material for erection of Kettle Rapids bridge. *II diags Eng & Contr* 50:386 O 23 '18

Coal transportation by aerial tramway. F. W. Grice. *II Coal Age* 15:808-9 My 1 '19

Home-made cableway carrier operates with single hauling line. *II diag Eng N* 82:443-4 F 27 '19

Overhead cable track supported from both sides. *II Sci Am* 120:234 Mr 8 '19

Restoring communications with a gun. *Sci Am* 118:429 My 11 '18

Teleferica; the military cableways of the Italian Alps. *II Sci Am* 119:46+ Jl 20 '18

See also Conveying machinery

**Cabooses cars.** See Cars, Caboose

**Cacao**

Science in cacao production. A. W. Knapp. *Sci Am S* 87:165 Mr 15 '19

**Cadmium**

Allotropy of cadmium. E. Cohen. *diags Am Chem Soc J* 40:1149-56 Ag '18

Cadmium as a tin substitute. G. K. Burgess and R. W. Woodward. *Am Inst Min E Bul* 144:1748-50 D '18; Same. *Chem & Met Eng* 19:662 N 1 '18; Abstracts. *Iron Age* 102:964-5 O 17 '18; *Metal Work* 90:497 N 1 '18

Cadmium in brass for cartridge cases. *Iron Age* 102:144 Jl 18 '18; *Metal Ind* 16:369-70 Ag '18

Cadmium in 1918. C. E. Siebenthal. *J Ind & Eng Chem* 11:710 Jl '19

Cadmium in the war. *Eng & Min J* 107:909 My 24 '19; Same abr. *Metal Work* 91:644 My 23 '19

Cadmium supply of the United States; with discussion. C. E. Siebenthal. *Am Inst Min E Bul* 144:1762-9 D '18

Cadmium test of battery. *II diags chart Motor Age* 34:36-7 O 24 '18

Determination of cadmium by the hydrogen sulfide method. E. Schramm. *J Ind & Eng Chem* 11:110-13 F '19

Great increase shown in output of cadmium. *Iron Tr R* 63:613 S 12 '18

Potentials of the zinc and cadmium electrodes. W. G. Horsch. *diag Am Chem Soc J* 41:1787-1800 N '19

Rapid estimation of cadmium in spelter. H. Isaacs. *Eng & Min J* 106:584 S 28 '18

Resonance and ionization potentials for electrons in cadmium vapor. J. T. Tate and P. D. Foote. *diag U S Bur Stand Bul* 14:479-86 Je 24 '18

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

See also Cadmium electrodes

- Calclimine**  
How calclimines can be made at home. Factory 20:862 My '18
- Calcite**  
Replacement of wood by calcite. C. W. Greenland. *Il Econ Geol* 13:116-19 Mr '18
- Calcium**  
Electrolytic and electrothermic processes and products. *Gen Elec R* 21:757 N '18  
Specific heats at low temperatures of sodium, potassium, magnesium and calcium metals, and of lead sulfide. E. D. Eastman and W. H. Rodebush. *Am Chem Soc J* 40:489-500 Mr '18
- Calcium aluminate**  
Properties of the calcium silicates and calcium aluminate occurring in normal Portland cement. P. H. Bates and A. A. Klein. *U S Bur Stand Tech Pa* 78:1-38 '17  
Some mix-crystals of calcium ferrite and aluminate. E. D. Campbell. *Il J Ind & Eng Chem* 11:116-20 F '19; Same. *Concrete* 14:sup41-5 Ap '19
- Calcium aluminum sulfate**  
Calcium aluminum sulphate as a destroyer of concrete. H. Nitzsche. *Concrete* 15:sup 30 Ag '19
- Calcium arsenate**  
Method for preparing a commercial grade of calcium arsenate. J. K. Haywood and C. M. Smith. *U S Agric Bul* 750:1-10 '18
- Calcium bicarbonate**  
Reaction of Hawaiian soils with calcium bicarbonate solutions, its relation to the determination of lime requirements of soils, and a rapid approximate method for the determination of lime requirements of soils. M. O. Johnson. *J Ind & Eng Chem* 10:31-3 Ja '18
- Calcium bisulphite**  
Apparatus in which the counter-current flow of lime water and sulphur dioxide may be reversed at will; patent. *diags Chem & Met Eng* 21:209 Ag 15 '19
- Calcium carbide**  
Carbide conversation calculations. I. E. Knapp. *Chem & Met Eng* 21:139-40 Ag 1 '19  
Electrolytic and electrothermic processes and products. *diags Gen Elec R* 21:760-1 N '18  
Manufacture of calcium carbide; patent. *diag Chem & Met Eng* 20:431 Ap 15 '19
- Calcium chloride**  
Calcium chloride in concrete in cold weather. *Concrete* 11:184-5 D '17  
Calcium chloride in Connecticut; abstracts. W. L. Ulrich. *Munic J* 46:386-7 My 31 '19; *Eng & Contr* 51:589 Je 4 '19  
Concrete hardening accelerated by calcium chloride. *Concrete* 15:125-6 S '19  
Corrosion tests on commercial calcium chloride used in automobile anti-freeze solutions. P. Rudnick. *J Ind & Eng Chem* 11:668-70 JI '19  
Tests of New York state department in use of calcium chloride in hastening setting of concrete. H. E. Breed. *Eng & Contr* 51:601 Je 4 '19; Same. *Eng N* 82:1258 Je 26 '19; Same. *Munic Eng* 56:208 Je '19
- Calcium ferrite**  
Some mix-crystals of calcium ferrite and aluminate. E. D. Campbell. *Il J Ind & Eng Chem* 11:116-20 F '19; Same. *Concrete* 14:sup41-5 Ap '19
- Calcium oxide**  
Determination of available CaO in lime. C. A. Meiklejohn. *Eng & Min J* 107:739-40 Ap 26 '19
- Calcium silicate**  
Properties of the calcium silicates and calcium aluminate occurring in normal Portland cement. P. H. Bates and A. A. Klein. *U S Bur Stand Tech Pa* 78:1-38 '17
- Calculating**  
Equal payments to liquidate a debt with interest. R. B. Shepard, Jr. *Eng N* 80:871-2 My 2 '18; Discussion. 81:143-4, 372-3 JI 18, Ag 22 '18  
Method of squaring mixed numbers and extracting square roots. J. S. Carpenter. *Power* 47:872 Je 18 '18  
Simple tables save mental labor. G. W. Greenwood. *Ind Management* 55:41-2 Ja '18  
*See also* Graphic methods; also subdivision Tables, calculations, etc., under various subjects, e.g. Electric engineering—Tables, calculations, etc.
- Calculating charts.** *See* Charts (calculating)
- Calculating machines**  
Calculating machine in railroad accounting. C. O. Price. *Ry R* 64:973-6 Je 28 '19  
Calculating machines in railroad offices. C. E. Parks. *Ry R* 64:759-61, 807-9 My 24-31 '19  
Labor saving devices in railroad offices. *Il Ry R* 64:215-18, 245-8 F 8-15 '19  
Machine for calculating cupola mixtures. *Il Foundry* 46:336-7 JI '18  
Machining parts of a calculating machine. *Il Am Mach* 48:111-13 Ja 17 '18  
Manufacturing a calculating machine in a western shop. F. A. Stanley. *Il diags Am Mach* 48:621-5, 795-9, 905-9 Ap 11, My 9, 30 '18  
Manufacturing the comptometer. M. E. Hoag. *Il diags Am Mach* 48:956-8, 1061-4; 49:113-16, 212-15, 303-5, 389-92 Je 6, 20, JI 18, Ag 1, 15, 29 '18  
Mechanical mathematician. E. Sheldon. *Il Am Mach* 50:875-8, 1185-8 My 8, Je 19 '19  
Monroe calculating machine. *Eng & Min J* 106:225 Ag 3 '18  
*See also* Slide rule
- Calenders**  
Large motor-driven three-bowl universal calender. *Il diags Engineer* 127:460-1 My 9 '19
- Calgary, Alberta**  
Rapid transit  
Why Calgary makes money on a four-cent fare. *Il Elec Ry J* 52:564-8 S 28 '18
- Calibration**  
Calibration of base-metal thermocouples. C. S. Crouse. *Il Eng & Min J* 107:442-4 Mr 8 '19  
Standard substances for the calibration of viscometers. E. C. Bingham and R. F. Jackson. *diags U S Bur Stand Bul* 14:59-86 Ap 6 '18
- Caliche.** *See* Saltpeter, Chile
- California**  
*See also* Irrigation—California; Roads—California; also Red Rock canyon  
Industries and resources  
Back to the land. H. A. Crafts. *Sci Am* 121:185 Ag 23 '19  
Potash from Searles lake. A. De Ropp, Jr. *Il diags map Chem & Met Eng* 19:425-31 S 26 '18  
*See also* Electric industries—California; Irrigation—California; Mines and mineral resources—California; Roads—California; Water power—California
- California. University**  
Dedication of Gilman hall, University of California. *J Ind & Eng Chem* 10:391-4 My '18  
Gilman hall; the research unit of the chemistry group at the University of California. M. Randall. *Il plans J Ind & Eng Chem* 10:634-40 Ag '18  
Hilcard hall, University of California. R. F. Bach. *Il plans Arch Rec* 46:203-10 S '19
- California-Oregon power company**  
California-Oregon power co. and Northern California power co. W. M. Shepard. *Il Am Inst E E Pro* 37:1327-30 D '18
- California state mining bureau**  
California's state mining bureau. W. T. Lundy. *Eng & Min J* 108:228-9 Ag 9 '19
- Callipers**  
Caliper for large work. M. W. Hughes. *diags Am Mach* 48:198 Ja 31 '18  
Caliper that carries its own scale. *Il Sci Am* 120:322 Mr 29 '19



**Calipers—Continued**

- Calipers and their uses. D. A. Hampson. diags Horseless Age 42:34-6+ D 15 '17  
 Computing caliper. J. A. Lucas. diags Am Mach 48:507 Mr 21 '18  
 Horstmann indicating caliper. II Am Mach 50:917 My 8 '19  
 Indicating calipers. II Am Mach 50:463 Mr 6 '19; Metal Ind 17:139 Mr '19  
 Insuring standard end play for armatures. diags Elec Ry J 53:1231-2 Je 21 '19  
 Making a height gage out of a vernier caliper. H. F. Pusep. diags Am Mach 49:732 O 17 '18  
 Setting calipers and dividers on the steel rule. C. C. Hermann. Mach 25:574 F '19

See also Micrometers

**Calorimeters and calorimetry**

- Adiabatic bomb calorimeter. E. B. Holland. J. C. Reed and J. P. Buckley. diags Chem & Met Eng 21:190-1 Ag 15 '19  
 American Junkers calorimeters. II Gas Age 41:231-2 Mr 1 '18  
 Aneroid calorimeter for specific and latent heats. N. S. Osborne. II diags U S Bur Stand Bul 14:133-57 Ap 6 '18  
 Calorimetric lag. W. P. White. Am Chem Soc J 40:1858-72 D '18  
 Calorimetric methods and devices. W. P. White. diags Am Chem Soc J 40:1887-98 D '18  
 Conditions of calorimetric precision. W. P. White. Am Chem Soc J 40:1873-86 D '18  
 Convenient multiple-unit calorimeter installation. J. D. Davis and E. L. Wallace. II diags plan U S Bur Mines Tech Pa 91:1-47 '18  
 Explanation of formula for use with throttling calorimeter. Power 47:233 F 12 '18  
 Improved form of throttling calorimeter. W. R. Woolrich. chart diags Power 49:495-6 Ap 1 '19  
 New timing device for simplifying the thermometric reading of calorimetric determinations. C. A. Myers, jr. II diag J Ind & Eng Chem 10:1015-16 D '18  
 Points regarding calorimeter efficiency. W. P. White. J Fr Inst 186:279-87 S '18  
 Simplified signal device for thermometric readings—coal calorimeters. H. S. Vassar. II diag J Ind & Eng Chem 11:467-8 My '19  
 Some points regarding calorimeter efficiency. W. P. White. Chem & Met Eng 21:187-90 Ag 15 '19  
 Standard unit in the thermochemistry of organic compounds. W. Swientoslawski. Am Chem Soc J 39:2595-600 D '17  
 Summary of report to Massachusetts commission on calorific standard. Am Gas Eng J 108:93-4 Ja 26 '18  
 Thermal leakage and calorimeter design. W. P. White. Am Chem Soc J 40:379-93 F '18  
 See also Cooling; Specific heat

**Calorizing**

- Industrial processes and appliances using gas. E. F. Davis. II Gas Age 41:117-18 F 1 '18

**Calumet & Hecla mining company**

- Report, 1917. Eng & Min J 106:1093-4 Je 15 '18

**Cambridge, Massachusetts**

- Cambridge, Mass., system of real estate assessment. S. Bell. Boston Soc C E J 5:321-32; Discussion. 332-47 S '18

**Camden, New Jersey**

- First war emergency government towns for shipyard workers; Yorkship village. R. S. Childs. II diags plan Am Inst Arch J 6:237-44, 249-51 My '18

**Rapid transit**

- Camden's view of the New Jersey zone plan. E. G. C. Bleakly. Elec Ry J 54:supl26-7 O 11 '19

**Camden forge company, Camden, N.J.**

- Keeps pace with war requirements. II Iron Tr R 64:1616-17 Je 19 '19

**Camelidae**

- Camelidae of the new world. E. Albes. II Sci Am S 87:120-3 F 22 '19

**Cameras**

- Building a moving-picture camera. E. H. Williamson, Jr. II diags Sci Am S 84:396-8 D 22 '17  
 Camera for filming rapidly-moving objects. Sci Am 120:315 Mr 29 '19  
 Lens for a studio. Sci Am S 87:222-3 Ap 5 '19  
 Methods used in aero-photographic mapping. F. H. Moffit. II diags Eng N 82:1000-4 My 22 '19  
 Taking photographs from airplanes and balloons. J. A. Lefranc. II diags Sci Am S 87:60-2 Ja 25 '19  
 See also Gun cameras; Photography

**Cameroon. See Kamerun****Camograph**

- Davis-Bournonville no. 2 camograph. II Mach 26:181-2 O '19

**Camouflage**

- Address before Ohio state association of architects. H. B. Briggs. Am Arch 113:311-12 Mr 13 '18  
 Admiralty and camouflage. Engineer 125:55 Ja 18 '18  
 Aspect of light, shade, and color in modern warfare. M. Lucklesch. Illum Eng Soc 13:216-17 no 3 '18; Same. Sci Am S 86:231 O 12 '18  
 Camouflage. S. R. Hall. Am Arch 114:486 O 23 '18  
 Camouflage. H. Van Buskirk. II Illum Eng Soc 14:225-33 no 5 '19  
 Camouflaged roads of the war. II Sci Am 119:121 Ag 17 '18  
 German camouflaging. C. E. Peterson. II Int Marine Eng 24:103-4 F '19  
 Gun camouflage. C. H. Claudy. II Sci Am 119:460+ D 7 '18  
 Increasing visibility through a knowledge of camouflage. R. G. Skerrett. II Sci Am 120:457+ My 3 '19  
 Low visibility phase of protective coloration. L. A. Jones. II diags J Fr Inst 188:363-87, 507-33 S-O '19  
 Military camouflage. A. Klein and J. C. Mottram. Sci Am S 88:126 Ag 23 '19  
 Powder magazines made to look like cedar trees. G. C. Muñoz. II Eng N 83:280 Ag 7 '19  
 Principles of camouflage. M. Lucklesch. Illum Eng Soc 14:234-55 no 5 '19; Same. Sci Am 120:76+, 116, 168+ Ja 25, F 8, 22 '19  
 Principles underlying ship camouflage. A. Bement. II diags Int Marine Eng 24:90-3 F '19  
 Remarkable example of camouflage. II Sci Am 120:491 My 10 '19  
 Science of marine camouflage design. E. L. Warner. II Illum Eng Soc 14:215-19 no 5 '19  
 Seeing but not seen. II Sci Am 118:451+ My 18 '18  
 Strategic camouflage. Am Arch 114:261 Ag 28 '18  
 Striped suits and papier maché carcasses as camouflage. II Sci Am 118:91 Ja 26 '18  
 Camp, James Leonidas, 1858-  
 Prominent exponent of the lumber industry. por Am Lumberman 2260:1+ S 7 '18  
 Camp Bird, Ltd.  
 Annual report. Eng & Min J 106:1063 D 21 '18  
 Camp building. See Construction camps  
 Camp mess halls  
 Cafeteria plan cuts time of serving meals in camp mess. plan Eng N 82:686 Ap 3 '19  
 Camp sanitation  
 Army disposal of toilet and shower waste. II diags Metal Work 91:401 Mr 28 '19  
 Camp Merritt as a construction problem. Munic J 43:577 D 15 '17  
 Camp sanitary closet with septic tank. diag plan Eng N 83:97 Jl 10 '19  
 Camp sanitation. W. P. Mason. J Fr Inst 185:731-44 Je '18; Excerpts. Eng & Contr 50:274-5 S 18 '18  
 Camp sanitation—water supply. G. B. Hart-free. Eng & Contr 50:134 Jl 31 '18  
 Cantonment construction. M. Knowles. II Eng Soc W Pa 34:222-5 Mr '18  
 Cantonment sewage tanks. diags plan Munic J 47:46-50 Jl 26 '19

**Camp sanitation—Continued**

- Cantonment sewage treatment. Munic J 45: 149-50 Ag 24 '18
- Conserving the health of our troops in the cantonments. P. R. Davison. II Dom Eng 81:432-3 D 15 '17
- Construction features of water supply system and sewerage works for the Camp Custer cantonment. II Eng & Contr 48:479-82 D 12 '17
- Cost of camp utility operation by the Construction division of our army. G: W. Fuller. diags plan Eng N 82:600-3 Mr 27 '19
- Design and construction of water and sewer systems at Camp Custer, Battle Creek, Mich. D. W. Bingham. Munic Eng 53:241 D '17
- Design and operation of Fort Myer sewage-treatment plant. L. S. Doten. II diags plan Eng N 82:244-6 Ja 30 '19
- Details of the design and construction of the water supply of Camp Meade, Md. M. Knowles. II Munic Eng 54:49-50 F '18
- Operation and maintenance of utilities at army camps and cantonments. G: A. Johnson. Boston Soc C E J 6:181-224; Discussion. 224-33 My '19
- Operation of the utilities at Camp Devens, Mass. E: W. Briggs. chart Boston Soc C E J 6:25-60 F '19
- Preventing malaria around Camp Bowie, Texas. W. A. Hardenbergh. Munic J 45:54-5 JI 20 '18; Excerpts. Eng & Contr 50:260-1 S 11 '18
- Problems of the State department of public health during the war. H. P. Matte. Am Water Works Assn J 6:285-9 Je '19
- Sanitary aspect of the water supplies at the army cantonments. J. T. B. Bowles. Am Water Works Assn J 5:232-9 S '18; Same. Eng & Contr 50:460 N 13 '18
- Sanitary engineers get direct results in East Indian mining camp. H. N. Jenks. II Eng N 82:172-5 Ja 23 '19; Excerpts. Eng & Min J 107:389-91 Mr 1 '19
- Sanitary service rids construction camp of influenza. M. D. Kauffman. II diags plans Eng N 82:620-2 Mr 27 '19
- Sanitation in war fields "over there." diags Metal Work 90:93-5 JI 26 '18
- Sewage treatment at English military camps. G. B. Kenshaw. Eng & Contr 52:300 S 10 '19
- Sewerage, sanitation and reclamation at U.S. army camps. L. J. Doten. II diags plans W Soc E J 24:263-75; Discussion. 275-81 My '19
- Sewering an army cantonment. II Munic J 45:141-2 Ag 24 '18
- Solving the water supply and sewerage problems at the Camp Pike cantonment. E. B. Black. II Munic Eng 53:177-8 N '17
- Ventilation of army barracks. W. J. Mauer. II diags plans Am Soc Heat & V E 23:431-45; Discussion. 446-51 '17
- Water supply and sanitation at government camps and shipyards. S: A. Greeley. Am Water Works Assn J 5:229-31 S '18
- Water supply and sewage disposal at the military aviation fields, posts, depots, etc., in the United States. R. H. Craig. Am Water Works Assn J 6:664-78 N '19
- Water supply and sewerage of recreation camps at Lake Geneva, Wisconsin. W. S. Shields. II plan Munic Eng 54:192-3 My '18
- Waterless toilet facilities. II Ry R 62:407-8 Mr 16 '18

See also Military hygiene

**Camphor**

- Molecular rearrangements in the camphor series; the decomposition products of the methyl ester of isoaminocamphonic acid; a new reaction involving the formation of the methyl ether of a hydroxy acid. W: A. Noyes and G. S. Skinner. Am Chem Soc J 39:2692-718 D '17
- Studies in synthetic drug analysis; estimation of monobromated camphor in migraine tablets. W. O. Emery. J Ind & Eng Chem 11:756-7 Ag '19

**Camping**

- Mecca for the motorist, Cook county, Ill. A. G. Vestal. II map Motor Age 33:5-7+ Je 13 '18
- See also Camp sanitation

**Camping outfits**

- Kitchen that packs up in the soldier's or camper's kit. II Sci Am 119:156 Ag 24 '18

**Camps**

- Water supply and sewerage of recreation camps at Lake Geneva, Wisconsin. W. S. Shields. II plan Munic Eng 54:192-3 My '18

See also Lumber camps; Mining camps

- Camps, Construction. See Construction camps
- Camps, Labor. See Labor camps

**Camps, Military**

- Administrative work at Camp Merritt. II Munic J 43:602-4 D 22 '17
- Architecture and democracy; Red cross community club house, Camp Sherman. C. Bragdon. II plan Arch Rec 44:125-31 Ag '18
- Army cantonment construction at Camp Meade, Maryland. N. B. Garver. II maps charts W Soc E J 22:666-81 D '17; Excerpt. Eng & Contr 49:635 Je 26 '18
- Army construction costs more than a billion. Eng N 81:512 S 12 '18
- Army's utilization of camp wastes. F. C. Bamman. II Munic J 46:304-8, 322-5 Ap 26-My '19
- Barracks group and hospital for the U. S. army school of military aeronautics of Ohio state university, Columbus, Ohio. H. D. Smith. II diags plans Arch Rec 44:387-405 N '18
- Camp Dix military cantonment near Wrightstown, New Jersey. II Power 47:44-5 Ja 8 '18
- Camp Lewis, American Lake, Wash. C. F. Pilat. II plans Arch Rec 43:52-64 Ja '18
- Camp Merritt as a construction problem. II Munic J 43:575-8 D 15 '17
- Camp warehouses are largely of plank construction. diags Eng N 79:1159-60 D 20 '17
- Cantonment construction. M. Knowles. II diags map Eng Soc W Pa 34:191-225 Mr '18
- Cantonment road building at Camp Lewis. U. S. Marshall. II maps Good Roads n s 18: 116-19+, 127-30 S 3-10 '19
- Cantonment sewage treatment. Munic J 45: 149-50 Ag 24 '18
- Conserving the health of our troops in the cantonments. P. R. Davison. II Dom Eng 81:432-3 D 15 '17
- Construction features of water supply system and sewerage works for the Camp Custer cantonment. II Eng & Contr 48:479-82 D 12 '17
- Construction of cantonment at Camp Grant. C. B. Burdick. II diags plans W Soc E J 22:651-63; Discussion. 663-5 D '17
- Construction plant and methods employed in building reinforced concrete roads at Camp Custer, Battle Creek, Mich. G: A. Burley. II Munic Eng 54:180-2 My '18
- Cost of camp utility operation by the Construction division of our army. G: W. Fuller. diags plan Eng N 82:600-3 Mr 27 '19
- Cost of housing soldiers at cantonments averages \$214.92. Eng N 80:569 Mr 21 '18
- Design and construction of the water supply system of Camp McClellan, Alabama. M. R. Scharff. Munic Eng 57:44-7 JI '19
- Design and construction of water and sewer systems at Camp Custer, Battle Creek, Mich. D. W. Bingham. Munic Eng 53:241 D '17
- Electricity facilitates coal handling at Camp Devens, Ayer, Mass. II Elec W 71:567 Mr 16 '18
- Estimated and actual cost of the army camps. G: W. Fuller. Eng & Contr 49:629-30 Je 26 '18
- Extra-cantonment zone sanitation. W. A. Hardenbergh. II map Munic J 45:421-5, 450-2 N 30-D 7 '18
- Field artillery officers' training school at Camp Zachary Taylor. Am Mach 49:227-8 Ag 1 '18

**Camps, Military—Continued**

- Heating army camps and cantonments. B. Natkin. *Dom Eng* 83:5-6+ Ap 6 '18; Same cond. *Power* 47:464-5 Mr 26 '18; Same cond. *Eng N* 80:770 Ap 18 '18; Abstract. *Heat & Ven* 15:46-7 My '18
- Heating, cooking and laundry equipment of the national army cantonments. A. C. Willard. *diags plans W Soc E J* 22:682-701 D '17; Same. *Metal Work* 89:571-4, 633-6 My 3, 17 '18; Discussion. *W Soc E J* 22:701-3 D '17
- Heating equipment for a great military camp; with details of the installation at Camp Upton, Yaphank, L.I. *plans diags Heat & Ven* 14:18-28 D '17
- How an electric railway serves a cantonment; Washington, Baltimore & Annapolis electric railroad and Camp Meade. *il maps Elec Ry J* 51:1097-8 Je 8 '18
- How Uncle Sam has created an army of athletes. *il Sci Am* 120:114-15 F 8 '19
- Methods of constructing roads at northeastern cantonments of national army. F. P. Sharples. *il Eng & Contr* 49:240-2 Mr 6 '18; Same. *Good Roads n s* 15:133-4+ Mr 9 '18
- Modern industrial plants; the great army supply bases and quartermasters' terminals of the U. S. government constructed along the eastern coast for war purposes. G. C. Nimmons. *il diags Arch Rec* 45:262-82 Mr '19
- Operation and maintenance of utilities at army camps and cantonments. G. A. Johnson. *Boston Soc C E J* 6:181-224; Discussion. 224-33 My '19
- Operation of cantonment water-works. G. A. Johnson. *diags Am Water Works Assn J* 6:169-82 Je '19
- Operation of the utilities at Camp Devens, Mass. E. W. Briggs. *chart Boston Soc C E J* 6:25-60 F '19
- Porto Rico army camp designed for tropical conditions. *il Eng N* 81:85-7 Jl 11 '18
- Problems of the State department of public health during the war. H. P. Matte. *Am Water Works Assn J* 6:285-9 Je '19
- Road building at army camps. D. B. Goodsell. *il diags Good Roads n s* 17:157-9 Ap 12 '19
- Semi-military buildings in the national army cantonments. R. H. Moulton. *il plan Arch Rec* 44:21-30 Jl '18
- Sewerage, sanitation and reclamation at U. S. army camps. L. J. Doten. *il diags plans W Soc E J* 24:263-76; Discussion. 275-81 My '19
- Sewering an army cantonment. *il Munic J* 45:141-2 Ag 24 '18
- Sheet metal work for army cantonments. *il diags Metal Work* 89:199-201 F 8 '18
- Solution of the cantonment construction problem. L. Metcalf. *Am Soc M E J* 40:35-9 Ja '18; Same abr. *Eng & Contr* 48:502-4 D 19 '17
- Solving the water supply and sewerage problems at the Camp Pike cantonment. E. B. Black. *il Munic Eng* 53:177-8 N '17
- Some phases of training camp life. *Am Lumberman* 2261:40 S 14 '18
- Utility staffs at national army cantonments organized on military basis. J. M. Goodell. *chart Eng N* 80:35-8 Ja 3 '18
- Water supply and sanitation at government camps and shipyards. S. A. Greeley. *Am Water Works Assn J* 5:229-31 S '18
- Water supply for the cantonments. D. H. Maury. *diag Munic J* 47:227-8, 241-3 O 11-18 '19
- Water-supply specifications for national army cantonments reviewed. D. H. Maury. *Eng N* 80:33-5 Ja 3 '18
- Water works at Camp Grant. C. B. Burdick. *Am Water Works Assn J* 5:100-9 Je '18
- See also* Camp sanitation
- Accounting**
- Accounting systems in army camps. E. J. Holmes. *J Account* 36:429-35 D '18
- Camps, Mining. *See* Mining camps
- Cams**
- Angle between cams of a four-cylinder engine. *diags Mach* 24:650-1 Mr '18
- Cam cutting attachment for milling machine. D. M. Perrill. *il diags Mach* 24:541 F '18
- Cam design and construction. F. De R. Furman. *diags Am Mach* 50:581-6, 685-9, 779-84, 927-31, 1123-6; 51:569-74, 695-8 Mr 27, Ap 10, 24, My 15, Je 12, S 18, O 9 '19
- Cams made from tubing. D. A. Baker. *diags Am Mach* 48:381-3 F 28 '18
- Cutting an irregular recess on the milling machine. E. Sheldon. *il Am Mach* 49:755-6 O 24 '18
- Eccentric with floating liner. J. A. Pullar. *diags Ry Mech Eng* 93:516 S '19
- Generating cams and irregular-shaped work. D. P. Hamilton. *il diags Am Mach* 49:737-40 O 24 '18; Abstract. *Am Soc M E J* 40:1051 D '18
- Jig to mill cam slots. C. F. Meyer. *diags Am Mach* 49:820-1 O 31 '18
- Making cams for automatic screw machines. A. Jenner. *diags Am Mach* 48:189-90 Ja 31 '18
- Multiple cam-grinding attachment. J. Lenhardt. *diags Mach* 25:214 N '18
- Pair of cams of unusual form. E. Sheldon. *diags Am Mach* 51:67-9 Jl 10 '19
- Practical cam design. L. G. Johns. *diags Am Mach* 48:823-4 My 16 '18
- Canada**
- Commerce**
- Trade outlook in Canada is bright. *Iron Tr R* 64:275-6 Ja 23 '19
- See also* Aeronautics, Commercial—Canada; Canals—Canada
- Description and travel**
- Ramblings of a Texan in the Canadian Northwest. *il Am Lumberman* 2259:66-7 Ag 31 '18
- Health, Department of**
- New department of health for Canada. *Eng N* 83:36-7 Jl 3 '19
- Industries and resources**
- Canada will build ships. *Iron Tr R* 62:165 Ja 10 '18
- Canada's war supplies. *Iron Age* 101:682 Mr 14 '18
- Electric process of iron and steel making expands markedly in Canada. *Iron Tr R* 62:673 Mr 14 '18
- Growth of Canadian textile trade. W. L. Edmonds. *Textile World* 53:3753+ F 9 '18
- Industrial progress of Canada. *Am Mach* 49:1086-8 D 12 '18
- Railway's part in developing western Canada. *il Ry Age* 64:105-9 Ja 11 '18
- Ship program for Canada. *Iron Age* 101:177 Ja 10 '18
- See also* Automobile industry and trade—Canada; Mines and mineral resources—Canada
- Railroads**
- See* Railroads—Canada
- Canada copper corporation, Ltd. Report. *Eng & Min J* 107:270 F 8 '19
- Canadian association of stationary engineers 29th annual convention, London, Ont., June 25-27. *Power* 48:70-1 Jl 9 '18
- 30th annual convention, Brantford, Ont., June 23-26. *Power* 50:82-3 Jl 8 '19
- Canadian electrical association 28th annual meeting, Ottawa, June 21. *Elec W* 71:1386-7 Je 29 '18
- 29th annual convention, Alexandria Bay, N.Y., June 27-28. *Elec W* 74:24-5 Jl 5 '19
- Canadian gas association 11th annual meeting, Montreal, Aug 22-23. *Am Gas Eng J* 109:209-11 Ag 31 '18
- 12th annual convention, Niagara Falls, Aug. 21-22. *Am Gas Eng J* 111:193, 197-8 Ag 30 '19
- Canadian good roads congress Highway design and construction papers read before Canadian road congress. *Eng N* 82:1100-4 Je 5 '19
- Highways in wartime discussed. *Eng N* 80:973 My 16 '18

**Canadian Institute of chemistry**

Canadian Institute of chemistry. *J Ind & Eng Chem* 11:693-4 J1 '19

**Canadian lumbermen's association**

10th annual meeting, Montreal, Que., Feb. 5. *Am Lumberman* 2230:49-50 F 9 '18

**Canadian mining institute**

General meeting of western branch, Nanaimo, B. C., June 4-5. *Coal Age* 16:68 J1 10 '19  
Mining convention at Nelson, B. C. *Eng & Min J* 108:102-4 J1 19 '19  
20th annual convention, Montreal, March 6-8. *Eng & Min J* 105:513-14 Mr 16 '18; *Met & Chem Eng* 18:337-8 Ap 1 '18  
21st annual meeting, Montreal, March 5-7. *Chem & Met Eng* 20:262-4 Mr 15 '19; *Eng & Min J* 107:491-3 Mr 15 '19

**Canadian Pacific railway**

Canadian Pacific railway's military record. E. W. Beatty. *Il Ry Age* 64:401-4 Mr 15 '19  
Lord Shaughnessy retires from presidency in favor of E. W. Beatty. *Ry Age* 65:697-8 O 18 '18  
Railway's part in developing western Canada. *Il Ry Age* 64:105-9 Ja 11 '18  
37th annual report for the year ended December 31st, 1917. map *Ry Age* 64:777-8, 817-19 Mr 29 '18  
38th annual report. map *Ry Age* 66:874-7, 920-2 Ap 4 '19

**Canal boats**

Boats needed for the New York barge canal. *Int Marine Eng* 23:284 My '18  
Sea-going canal boat; from the Lakes to Atlantic ports by the New York state barge canal. *Il diags plans Sci Am* 118:568-9 Je 22 '18

*See also* Barges; Towboats

**Canal lifts**

Mechanical lifts—past and present. J. F. Robbins. *Il diags plan Mech Eng* 41:507-13 Je '19

**Canal locks. See Locks (canals and rivers)****Canal Zone. See Panama Canal Zone****Canals**

Departures in canal design and location effect saving. E. N. Bryan. *Eng N* 82:48-50 Ja 2 '19

0.2 and 0.8 method of current meter measurement in power canals. A. T. Safford. *Boston Soc C E J* 5:400-6 D '18

Transforming canal losses in terms of depth to quantity. P. A. Cupper. *Eng N* 81:220 Ag 1 '18

*See also* Irrigation canals; Waterways; also names of canals, e.g. New York state barge canal, Panama canal, Welland canal

**Canada**

Canada rushing huge Niagara development as war conservation measure. *Il diags plan map Eng N* 81:801-5 O 31 '18

Excavation methods and equipment on construction of 8½ mile Niagara power canal. *Il Eng & Contr* 50:572-4 D 18 '18

Georgian Bay canal. J. J. Bell. map *Engineer* 126:527-8 D 20 '18

*See also* Welland canal

**England**

British canal system. *Sci Am S* 86:103 Ag 17 '18

Future of British canals. *Eng & Contr* 51:467 Ap 30 '19

**Germany**

Germans save railroads by using canals. *Ry R* 62:612-13 Ap 27 '18

**Scotland**

Mid-Scotland ship canal; commercial and strategical advantages. *Engineer* 125:192 Mr 1 '18

Mid-Scotland ship canal schemes. maps *Engineer* 124:465-7 N 30 '17

Mid-Scotland ship canals. diags (supp) maps *Engineer* 124:538-40, 558-60; 125:111-13 D 21-28 '17, F 8 '18; Abstract. *Sci Am S* 85:165 Mr 9 '18; Abstract. *Eng N* 80:760 Ap 18 '18

**Sweden**

Canal of Trollhattan at Goteborg. *Eng & Contr* 49:536-8 My 29 '18

**United States**

American canal between Lakes Erie and Ontario. J. A. L. Waddell. *Il map Sci Am* 118:256-7+ Mr 23 '18

Canal over divide raises storage service factor; water supply for the East Park reservoir of the Orland irrigation project. *Il diags plan Eng N* 80:1186-9 Je 20 '18

Complete Chicago-St Louis waterway. *Eng N* 81:319 Ag 15 '18

Leclaire canal on the Mississippi river. *Engineer* 126:65 J1 19 '18

New Orleans builds inner harbor and navigation canal. *Il diags map Eng N* 81:304-7 Ag 15 '18

Proposed New Orleans industrial canal and lock. H. Egleston. map *Munic Eng* 54:168-9 Ap '18

Proposed plans for the all-American canal. *Il J Elec* 43:363-4 O 15 '19

Restoration and extension of water transportation in the Illinois valley. W. L. Sackett. *Munic Eng* 55:191-2 N '18

Will the proposed Lake Erie and Ohio River canal if built be an economic success? W. G. Wilkins. maps *Eng Soc W Pa* 34:133-71; Discussion. 172-90 Mr '18

*See also* New York state barge canal

**Canals, Irrigation. See Irrigation canals****Canary Islands**

Trade with the Canary Islands. *Sci Am* 118:90 Ja 26 '18

**Candlepower. See Photometry****Candles**

In unknown soapdom. L. Lodian. *Il Sci Am* 118:584-5 Je 29 '18

**Candy**

Candy manufacturers' accounts. W. A. Shenton. *J Account* 28:197-203 S '19

*See also* Confectionery

**Canned food**

Aërobic spore-forming bacillus in canned salmon. A. C. Hunter and C. Thom. *J Ind & Eng Chem* 11:655-7 J1 '19

Temperature-time relations in canned foods during sterilization. G. E. Thompson. diags *J Ind & Eng Chem* 11:657-64 J1 '19

*See also* Canneries; Canning and preserving; Cans; Packing industry; Tomato products

**Cannel coal. See Coal****Canneries**

Fish cannery calls upon gas for assistance in lowering costs. F. H. Mugg. *Il Am Gas Eng J* 108:485-7 My 25 '18

Investigation of the uses of steam in the canning factory. J. C. Smallwood. diags *Am Soc M E J* 40:373-9 My '18

*See also* Canning and preserving

**Canning and preserving**

Boys' and girls' canning clubs; the Food administration, the board of education and the gas company worked hand in hand in Missouri. L. Resnick. *Il Am Gas Eng J* 109:248-50 S 14 '18

Canning industry—some accomplishments and opportunities along technical lines. H. A. Baker. *J Ind & Eng Chem* 10:69-71 Ja '18

Community cannery establishes its claim as national defense kitchen. *Am Lumberman* 2261:43 S 14 '18

Economies in manufacturing in the canning industry. J. H. Shrader. *Am Soc M E J* 40:686-9 Ag '18

Electricity is tried in canning and drying. *Il Elec W* 74:710 S 27 '19

Influence of cold shock in the sterilization of canned foods. L. D. Bushnell. *J Ind & Eng Chem* 10:432-6 Je '18

Preserving without sugar. *Sci Am* 121:420+ O 25 '19

Research in the canning industry. F. E. Gorrrell. *Iron Age* 102:143 J1 18 '18

**Canning and preserving—Continued**

Scientific research in the canning industry. W. D. Bigelow. *J Fr Inst* 186:1-14 *Jl* '18

Studies on canning; an apparatus for measuring the rate of heat penetration. W. T. Bovie and J. Bronfenbrenner. *diags J Ind & Eng Chem* 11:568-70 *Je* '19

Utility of blanching in food canning effect of cold shock upon bacterial death rates. E. M. Bruett. *J Ind & Eng Chem* 11:37-9 *Ja* '19

See also Canned food; Canneries; Food preservatives; Jelly; Rubber rings; Salmon

**Cannon.** See Guns (ordnance)

**Canoes and canoeing**

Coasting in the wake of a ferry boat. *Il diags Sci Am* 121:158-9 *Ag* 16 '19

**Cans**

Canned spuds from Aroostook county, Maine, to France; thousands of cans produced in record time. *Il Metal Work* 89:856-6 *Je* 28 '18

Modern can-making plant in a baking powder factory. J. V. Hunter. *Il diags Am Mach* 49:1173-6 *D* 26 '18

New uses for industrial fuel gas. C. H. Kallstedt. *Am Gas Eng J* 108:259-60 *Mr* 16 '18; Same. *Gas Age* 41:316-17 *Ap* 1 '18

Soldering iron for cans. *Il Iron Age* 103:236 *Ja* 23 '19

See also Garbage cans

**Cantilever bridges.** See Bridges, Cantilever

**Cantonments.** See Camps, Military

**Canvas**

Manufacture of waterproofed canvas. E. R. Clark. *Textile World* 53:5585-+ *My* 18 '18

Shrinking canvas. *Textile World* 54:1737 *O* 12 '18

**Canvas tubes.** See Tubes, Canvas

**Canyon de Chelly**

Canyon de Chelly of Arizona; a monument of pre-historic America. *Il Sci Am S* 87:100-1 *F* 15 '19

**Caoutchouc.** See Rubber

**Capillarity**

Fallacy of determining electrical charge of colloids by capillarity. A. W. Thomas and I. D. Garard. *Am Chem Soc J* 40:101-6 *Ja* '18

Why water over-fills a tumbler and floats glass plates and flaky minerals. W. H. Coghill and C. O. Anderson. *Il diags Sci Am S* 86:52-3 *Jl* 27 '18

See also Surface tension

**Capital**

Rational basis for determining working capital. G. S. Jacobs. *Eng N* 80:1041-5 *My* 30 '18

Revenue measure examined; significance to lumber industry of two methods of determining invested capital. *Am Lumberman* 2270:43 *N* 16 '18

See also Banks and banking; Interest; Investments

**Capital stock**

Capital stock of no par value. F. H. Hurdman. *J Account* 28:246-57 *O* '19

Some phases of capital stock. W. A. Paton. *J Account* 27:321-35; 28:158-60 *My*, *Ag* '19; Discussion. 302-14 *O* '19

**Capitalization**

Faults in a Chicago university press manual of style. F. H. Teall. *Inland Ptr* 60:791-2 *Mr* '18

From copyholder to proofreader. H. B. Cooper. *Inland Ptr* 61:356-7 *Je* '18

Rules about capitals; van and von. F. H. Teall. *Inland Ptr* 61:55 *Ap* '18

Van and von in names. *Inland Ptr* 61:222-3 *My* '18

**Capitol buildings**

Nebraska to build a new capitol. *Am Inst Arch J* 7:283-5 *S* '19

Some recollections of the building of the Tennessee capitol. A. C. Bruce. *Am Inst Arch J* 7:459-60 *O* '19

State capitol building at Oklahoma City, Oklahoma; views. *Arch & Bldg* 49:111, pl 165-9 *D* '17

State capitol, city of Jefferson, Mo.; views. *Arch & Bldg* 50:pl 47-50 *Mr* '18

See also United States—Capitol

**Capsaicin**

Constitution of capsaicin, the pungent principle of capsicum. E. K. Nelson. *Am Chem Soc J* 41:1115-21 *Jl* '19

**Car.** See Cars

**Car axles**

British experiences and opinions regarding car axles. *Elec Ry J* 52:971-2 *N* 30 '18

Car axles—their design, manufacture and service. N. Litchfield. *diags Elec Ry J* 51:235-6, 283-4, 325-30 *F* 2-16 '17; Discussion. 51:380, 423 *F* 23-*Mr* 2 '18

Derailment through broken carriage axle in England. *Engineer* 125:213 *Mr* 8 '18

Experiences with interurban car axles. A. B. Metcalfe. *Elec Ry J* 51:94 *Ja* 12 '18

Reclaiming car axles. *Il Ry Mech Eng* 92:461-2 *Ag* '18

Reclaiming car axles by welding. R. H. Parsons. *Il Elec Ry J* 51:1136 *Je* 15 '18

Standard specifications for carbon steel car and tender axles; English and Spanish. U S Bur For & Dom Com Ind Stand 14:1-15 '19

Straightening a car axle in ten minutes. H. C. Ebeling. *Il Elec Ry J* 52:702 *O* 19 '18

**Car building.** See Cars

**Car cleaning**

Cleaning twelve cars a day with three men. *Il Elec Ry J* 53:878 *My* 3 '19

Cutting the cost of exterior car cleaning. *Il diags Ry Mech Eng* 92:460-1 *Ag* '18

Passenger car cleaning. E. Eley. *Ry Mech Eng* 92:668-9 *D* '18

Vacuum cleaners save labor and clean inaccessible places. *Il Elec Ry J* 52:120-1 *Jl* 20 '18

**Car couplings**

American automatic connector. *Il Ry R* 62:845-6 *Je* 8 '18

Couplers. *Ry R* 64:981-2 *Je* 28 '19

Couplers; report of M. C. B. standing committee. *Il diags Ry Age* 64:1499-1505 *Je* 21 '18

Emergency air and signal hose coupling. *diags Ry Mech Eng* 91:688 *D* '17

Operation of the standard D coupler. *diags Ry Mech Eng* 93:473-4 *Ag* '19

Pointers on molding car couplers. *Il plan Foundry* 47:499-504 *Ag* 1 '19

Swing of radial coupler on curves. L. F. Seelar. *diag Elec Ry J* 54:488 *S* 6 '19

Train line connectors on the Copper Range R. R. *Il Ry R* 64:941-3 *Je* 21 '19

Train service for war-time rush-hour traffic in Dayton, Ohio. *Il Elec Ry J* 52:339-40 *Ag* 24 '18

**Car doors**

Air-operated door and steps installed at New Brighton. *Il diag Elec Ry J* 51:1060-1 *Je* 1 '18

Maintenance of door operators. G. E. Oakley. *Elec Ry J* 53:588-9 *Mr* 22 '19

**Car dumping machines.** See Dumping appliances

**Car fenders**

Light-weight air fender for one-man car. F. P. Maize. *Il Elec Ry J* 53:596-7 *Mr* 22 '19

**Car ferries.** See Train ferries

**Car floats, Concrete.** See Barges, Concrete

**Car heating**

Adapting Baker heaters to burn soft coal. A. Kressin. *Il diags Ry Mech Eng* 92:661-2 *D* '18

All-metal steam heat connection. *Il Ry Age* 64:722 *Mr* 22 '18

Gold inside connected vapor valve. *Il diags Ry Age* 65:974 *N* 29 '18

Heating does not account for all the winter increase. W. S. Hammond. *Elec Ry J* 51:577 *Mr* 23 '18

Heating of passenger trains drawn by electric locomotives. *Elec Ry J* 53:1268 *Je* 28 '19

Improved heater for street cars. *Il Heat & Ven* 16:63-4 *O* '19

New hot-blast forced-ventilation heater. *Il Elec Ry J* 54:290 *Ag* 9 '19

**Car heating—Continued**

- Railway passenger car heating. E. W. Rietz. II diag Am Soc Heat & V E 23:65-80 '17  
 Steam hose for car heating. H. J. Force. Ry Mech Eng 93:527-8 S '19  
 Tests of Moore heater car. Ry Mech Eng 91:710 D '17  
 Thermostatic heat regulator for cars. II Elec Ry J 52:518 S 21 '18  
 Why not use wasted energy to help heat cars? diag Elec Ry J 52:291-2 Ag 17 '18

**Car houses**

- Columbus inspection shop rebuilt as unit, and track layout improved. II diag plans Elec Ry J 51:972-4 My 18 '18  
 Eliminating unnecessary lighting and heating in the carhouse. T. F. Mullaney. Elec Ry J 51:668-9 Ap 6 '18  
 Some lessons from a disastrous carhouse fire. II Elec Ry J 52:239-40 Ag 10 '18

See also Car inspection

**Car inspection**

- Equipment inspection on a kw.-hr. basis. W. C. Bolt. II Elec Ry J 53:575-7 Mr 22 '19  
 Freight equipment in interchange. T. J. O'Donnell. Ry R 64:460-1 Mr 22 '19; Same. Ry Mech Eng 93:203-4 Ap '19  
 Instruction of carhouse inspectors. F. L. Hinman. diag Elec Ry J 51:379 F 23 '18  
 Unification of car inspection and maintenance. J. J. Tatum. Ry Age 66:773-4 Mr 21 '19; Same. Ry Mech Eng 93:201-3 Ap '19; Same cond. Ry R 64:473-4 Mr 29 '19; Discussion. Ry Age 66:774-5 Mr 21 '19

Car interchange. See Freight cars, Interchange of

Car jacks. See Jacks

**Car lighting**

- Acetylene lighting for railway cars. II diag Ry R 64:849-50 Je 7 '19  
 Electric car lighting specifications. Ry Age 65:827-8 N 8 '18; Same. Ry R 63:672-3 N 9 '18  
 G. E. motor-generator set for interurban car lighting. diag Elec Ry J 51:331-2 F 18 '18  
 Improved system for lighting interurban trolley cars. W. J. Walker. II diag Gen Elec R 21:124-9 F '18  
 Maintenance of car lamps. O. Gottschalk. Elec Ry J 53:282 F 8 '19  
 Night lights for Pullman cars. II Ry Mech Eng 92:119-20 F '18; Same. Ry Age 64:224 Ja 25 '18  
 Proposed standard basis for rating of car lighting axle generators. Ry R 64:985 Je 28 '18  
 Railway train lighting. E. Wanamaker. Ry R 65:566-8 O 18 '19; Same cond. Ry Age 67:567-9 S 19 '19; Same cond. Ry Mech Eng 93:587-9 O '19  
 Reducing car lighting costs from 36 cents to 8 cents per 1000 car-miles. A. R. Johnson. II Elec Ry J 51:612 Mr 30 '18  
 Reducing lighting maintenance costs. W. C. Wefel. Elec Ry J 51:978-9 My 18 '18  
 Report of the M. C. B. committee on train lighting and equipment. Ry Age 64:1510-11 Je 21 '18  
 Train lighting equipment and practices; committee report. Ry R 63:631-2 N 2 '18  
 Train lighting storage batteries. E. Wanamaker. Ry R 65:791-4 N 29 '19  
 Urban rapid transit car lighting. C. W. Wilder and A. E. Allen. II charts diag Illum Eng Soc 14:24-35; Discussion. 36-44 no 1 '19

Car load. See Freight car service—Car load

**Car painting**

- Advantage of using pure paints and more time in painting steel equipment. W. Bailey. Ry Age 67:552-3 S 19 '19; Same. Ry Mech Eng 93:598 O '19  
 Enamel painting of street cars. Eng & Contr 50:188 Ag 21 '18  
 Modern method of car painting. W. W. Bunnell. Elec Ry J 52:875 N 16 '18  
 Omaha uses portable gas torch with single hose line. II Elec Ry J 52:1104 D 21 '18  
 Painters must protect equipment. Ry Mech Eng 92:38-40 Ja '18

Selection and purchase of paint. S. E. Breese. Ry Age 67:549-50 S 19 '19; Same. Ry R 65:444-6 S 27 '19

Standardized painting of railway equipment. W. A. Buchanan. Ry R 65:491-3 O 4 '19; Same. Ry Mech Eng 93:606-8 O '19

Standardizing painting and stenciling. J. H. Pitard. Ry Mech Eng 92:620 N '18

What standardization of painting railway equipment is necessary. W. O. Quest. Ry Age 67:551-2 S 19 '19; Same. Ry Mech Eng 93:606-8 O '19

**Car pullers**

Sasgen truck and car puller. II Eng & Contr 49:126 Ja 30 '18

Car resistance. See Train resistance

**Car roofs**

- Preservation of passenger car roofs. J. J. McNamara. Ry Mech Eng 93:597-8 O '19  
 Treated canvas roofing for steel passenger cars. II Ry Age 64:1088 Ap 26 '18; Same. Ry Mech Eng 92:289 My '18

Car service (freight). See Freight car service

Car shops. See Electric railroads—Shops; Railroads—Shops

Car shortage. See Freight car service

**Car steps**

- Air-operated door and steps installed at New Brighton. II diag Elec Ry J 51:1060-1 Je 1 '18  
 Electrical interlock for use with folding car steps. II Elec Ry J 51:46-7 Ja 5 '18

**Car stop**

- Safety car stop. M. Cranston. diag Coal Age 12:434 N 17 '17; Same. Eng & Min J 104:1006 D 8 '17  
 Safety car stop. O. W. Mauldin. II Coal Age 12:961 D 8 '17

**Car trucks**

Applying engineering principles in the design of trucks. N. Litchfield. diag Elec Ry J 52:109-11 Ji 20 '18

Car trucks. L. Brown. II Ry R 64:410-13 Mr 15 '19

Design of cast steel truck bolsters. L. E. Endsley. diag Ry R 63:152-4 Ag 3 '18; Same. Ry Mech Eng 92:507-8 S '18

Forces acting directly or indirectly upon the truck side frame. N. Litchfield. diag Elec Ry J 52:286-8 Ag 17 '18

Freight car and tender truck bolsters; general principles involved in design, loading and testing. G. S. Chiles and R. G. Kelley. diag Ry Mech Eng 92:211-16, 270-4 Ap-May '18

Gas and electric welding as applied to truck parts. diag Elec Ry J 53:1213-14 Je 21 '19

High capacity narrow-gauge rolling stock for Burma. II diag Engineer 124:478-80 N 30 '17

Important points in the design of truck bolsters. L. E. Endsley. II diag plans Ry R 62:735-41 My 18 '18

Lifting device for truck center pins. diag Ry R 61:803 D 29 '17

Reduced-height truck for low level cars. II Elec Ry J 51:51 Ja 5 '18

Report of the committee of the American railroad association on car trucks. Ry R 64:983-4 Je 28 '19

Restoration of truck frames by electric welding. J. M. Calder. diag Elec Ry J 53:588-7 Mr 22 '19

Welding truck side frames, bolsters and arch bars; M. C. B. committee report. II Ry Age 64:1493-6 Je 21 '18

See also Car wheels; Draft gears

**Car wheels**

Car trucks. L. Brown. II Ry R 64:410-13 Mr 15 '19

Car wheel coning and rail canting. Eng & Contr 51:380 Ap 16 '19

Car wheel difficulties. Foundry 46:209 My '18

Carwheels that fit all gages. diag Sci Am 121:189 Ag 23 '19

Damage to rail by flat spots on freight car wheels. Eng & Contr 51:546 My 21 '19

Efficient wheel grinder made from scrap material. C. H. Copley. II diag Elec Ry J 51:976 My 18 '18

**Car wheels—Continued**

- Fastening wheels to the axle. C. J. Creveling. *diag* *Coal Age* 12:1086 D 29 '17
- Grinding of car wheels. *Ry Mech Eng* 92:242 My '18
- Limit of wear for steel wheels. *11 diag* *Ry Mech Eng* 93:437-8 J1 '19
- Limiting features in the life and performance of chilled iron wheels. G. W. Lyndon and F. K. Vail. *11 diag* *Elec Ry J* 54:755-6 O 18 '19
- Making pressed steel car wheels. G. E. Thackray. *11 diag* *Iron Tr R* 63:1005-9, 1066-9 O 31-N 7 '18
- Operating a pit grinder without rheostatic losses. *11 Elec Ry J* 53:277 Ag 17 '18
- Quick method of grinding wheels. J. F. Merrick. *11 Elec Ry J* 51:240 F 2 '18
- Report of the committee of American railroad association on car wheels. *diag* *Ry R* 64:979 Je 23 '19
- Report of the M. C. B. committee on car wheels. *diag* *Ry Age* 64:1513-13 Je 21 '18
- Residual strains in cast-iron car wheels. *Eng N* 82:523 Mr 13 '19
- Skidding test on cast-steel wheels. H. W. Quinn. *diag* *Elec Ry J* 51:1102 Je 8 '18
- Slick wheel mill; commercial products formed directly from large rolled bars by rolling-forging process at Cambria steel works. *11 diag* *plan Iron Age* 102:491-8 Ag 29 '18
- Standard specifications for cast-iron car wheels; English and Spanish. *U S Bur For & Dom Com Ind Stand* 47:1-21 '19
- Standard specifications for wrought solid carbon-steel wheels for electric railway service; English and Spanish. *diag* *U S Bur For & Dom Com Ind Stand* 41:1-21 '19
- Standard specifications for wrought solid carbon-steel wheels for steam railway service; English and Spanish. *diag* *U S Bur For & Dom Com* 15:1-21 '19
- Steel-tired wheels and axles. H. Vernon. *11 diag* *Elec Ry J* 53:961-3 My 17 '19
- Tester for loose car wheels. E. E. Jones. *diag* *Coal Age* 16:45 J1 10 '19
- Wear of tramway car tires. A. Norton. *11 diag* *Engineer* 126:393-3 O 4 '18; *Abstract. Elec Ry J* 52:1143 D 28 '18
- Wheel situation. H. L. Brown. *Elec Ry J* 54:568-9 S 20 '19

*See also* Car axles

**Car wiring. See Electric railroads—Wiring****Carbazol**

- Solubilities, separation, and purification of anthracene, carbazol and phenanthrene. J. M. Clark. *J Ind & Eng Chem* 11:204-9 Mr '19

**Carbide lamps. See Acetylene lamps****Carbides**

- Carbide formation and stability. O. Ruff. *Sci Am S* 87:103 F 15 '19
- Metal carbides, borides and silicides and their use in metallurgy. *Sci Am S* 88:119 Ag 23 '19

*See also* Carborundum

**Carbocoal**

- Carbocoal—a new fuel. *Ry Age* 64:324 F 8 '18; *Ry Mech Eng* 92:175-6 Mr '18
- Carbocoal: smokeless fuel from high-volatile coals. C. T. Malcolmson. *Am Inst Min E Bul* 137:971-7 My '18; *Same abr. Coal Age* 12:912-15 My 18 '18; *Same cond. Iron Tr R* 63:496-7 Ag 29 '18; *Discussion. Am Inst Min E Bul* 142:1533-42; 143:1686-92 O-N '18
- Carbonization of coal. W. Savage. *11 chart Chem & Met Eng* 19:579-82 O 1 '18; *Excerpt. Gas Age* 42:375-7 N 1 '18
- Government carbocoal plant. *Gas Age* 42:219-20 S 2 '18

**Carbohydrates**

- Carbohydrates of fresh and dehydrated vegetables. K. G. Falk. *J Ind & Eng Chem* 11:1133 D '19

**Carbolic acid**

- Estimation of phenol in the presence of the three cresols. G. W. Knight and others. *diag* *J Ind & Eng Chem* 10:9-18 Ja '18; *Correction. 10:339 Mr '18*

- Phenol. A. G. Peterkin. *J Ind & Eng Chem* 11:475 My '19
- Production of phenol; patents. *diag* *Met & Chem Eng* 18:40 Ja 1 '18
- Synthetic phenol. A. G. Peterkin. flow sheet *11 chart Chem & Met Eng* 19:255-60 S 1 '18; *Same. J Ind & Eng Chem* 10:738-44 S '18; *Discussion. E. E. Hotson. Chem & Met Eng* 19:540-1 O 1 '18

*See also* Phenols

**Carbon**

- Atomic heats of tungsten and of carbon at incandescent temperatures. A. G. Worthing. *J Fr Inst* 185:707-8 My '18
- Carburize and carbonize; meaning of words. *Mach* 24:998 J1 '18
- Combustion train for carbon determination. J. B. Stetser and R. H. Norton. *diag* *Iron Age* 102:443-5 Ag 22 '18
- Decolorizing carbon. *Sci Am S* 85:91 F 9 '18
- Determination of free carbon in rubber goods. A. H. Smith and S. W. Epstein. *U S Bur Stand Tech Pa* 136:1-8 '19; *Same. J Ind & Eng Chem* 11:33-6 Ja '19; *Abstract. J Fr Inst* 188:560-1 O '19
- Effect of hydrogen on the electrical resistivity of carbon. T. Peczalaki. *J Fr Inst* 185:710 My '18
- Improved method for determination of carbon by wet combustion, using barium hydroxide as absorbent. P. L. Hibbard. *diag* *J Ind & Eng Chem* 11:941-3 O '19
- Iron, carbon and phosphorus. J. E. Stead. *Chem & Met Eng* 19:592 O 1 '18
- Loss due to carbon in furnace refuse. C. H. Berry. *chart* *diag* *Power* 50:500-2 S 23 '19
- Notes on free carbon of tar. J. M. Weiss and C. R. Downs. *J Ind & Eng Chem* 10:400-1 My '18
- Rapid carbon determination. W. L. Jackson. *Met & Chem Eng* 18:564-5 Je 1 '18
- Rapid determination of carbon in steel by the barium carbonate titration method. J. R. Cain and L. C. Maxwell. *J Ind & Eng Chem* 10:520-2 J1 '18
- Reducing carbon loss in ash pit. *diag* *Elec R* 72:831-2 My 25 '18
- Simplified wet combustion method for the determination of carbon in soils. D. D. Waynick. *diag* *J Ind & Eng Chem* 11:634-7 J1 '19

*See also* Charcoal; Chemistry, Organic; Coal; Coke; Graphite

**Carbon brushes. See Brushes (electric machinery)****Carbon dioxide**

- Design of CO<sub>2</sub> machines. J. E. Starr. *Mech Eng* 41:774 S '19
- Detection of carbon dioxide in the analysis of carbonates or oxalates. O. F. Stafford. *diag* *Am Chem Soc J* 40:622 Ap '18
- Equilibrium between carbon monoxide, carbon dioxide, sulfur dioxide and free sulfur. J. B. Ferguson. *diag* *Am Chem Soc J* 40:1626-44 N '18
- Equilibrium in the system: ferrous carbonate, carbon dioxide and water. H. J. Smith. *Am Chem Soc J* 40:879-83 Je '18
- Equilibrium in the system: zinc carbonate, carbon dioxide and water. H. J. Smith. *Am Chem Soc J* 40:883-5 Je '18
- Phenomenon of breathing and the gas industry. E. Karrer. *Am Gas Eng J* 109:148-9 Ag 17 '18
- Placing CO<sub>2</sub> on financial basis. *chart* *Elec R* 72:773 My 4 '18
- Rapid carbon dioxide determination. A. Graig. *diag* *Eng & Min J* 107:709-10 Ap 19 '19
- Rapid pressure method for the determination of carbon dioxide in carbonates. W. H. Chapin. *diag* *J Ind & Eng Chem* 10:527-9 J1 '18
- Reduction of free carbonic acid in settled water increases length of filter runs at Panama. G. C. Bunker. *Eng & Contr* 49:260-2 Mr 13 '18
- Smother the fire before it appears. G. J. Young. *diag* *Coal Age* 13:782-3 Ap 27 '18

*See also* Boilers—Testing; Combustion

**Carbon dioxide indicators**

Bacharach pocket CO<sub>2</sub> indicator. *II Ind Management* 55:157 F '18; *Heat & Ven* 15:58-9 Mr '18

CO<sub>2</sub> recorders in the boiler-house. J: B. C. Kershaw. *II diag Engineer* 126:45-7, 67-9 JI 19-26 '18

Dwight CO<sub>2</sub> indicator. *Elec W* 71:542 Mr 9 '18  
Mercury column indicates CO<sub>2</sub>. *II Power* 47:254 F 19 '18

**Carbon dioxide recorders**

CO<sub>2</sub> recorders in the boiler-house. J: B. C. Kershaw. *II diag Engineer* 126:45-7, 67-9 JI 19-26 '18

Flue-gas analysis and CO<sub>2</sub> recorders. B. M. Baxter. *Power* 50:146-7 JI 22 '19

Flue-gas analysis and CO<sub>2</sub> recorders. A. H. Bullard. *diags Power* 60:395 S 2 '19

Foxboro-Heath recorder. *II Gas Age* 42:552-3 D 16 '18; *Power* 48:946 D 31 '18; *Am Gas Eng J* 110:sup16 My 31 '19

Fuel economy in the boiler house. J: B. C. Kershaw. *diags Chem & Met Eng* 20:176-8, 241-5, 291-5 F 15-Mr 15 '19

Orsat apparatus for testing flue gases. *diag Munic J* 45:344-5 N 2 '18

**Carbon disulfide**

Course of reaction in explosions of dilute CS<sub>2</sub>-air mixtures. G. R. Stewart and J. S. Burd. *J Ind & Eng Chem* 11:130-3 F '19

**Carbon hexachloride**

Carbon tetrachloride, chloroform and carbon hexachloride from natural gas. G. W. Jones and V. C. Allison. *diags J Ind & Eng Chem* 11:639-43 JI '19

**Carbon monoxide**

Action of sodium hydroxide on carbon monoxide, sodium formate and sodium oxalate. M. C. Boswell and J. V. Dickson. *Am Chem Soc J* 40:1779-86 D '18

Carbon monoxide poisoning in the steel industry. J. A. Watkins. *diag U S Bur Mines Tech Pa* 156:1-16 '17; Same cond. *Iron Age* 99:1492-3 Je 21 '17; *Excerpt. Automobile* 37:728-9 O 25 '17

Detection of carbon monoxide in mines. *II Coal Age* 12:1113 D 29 '17

Equilibrium between carbon monoxide, carbon dioxide, sulfur dioxide and free sulfur. J. B. Ferguson. *diags Am Chem Soc J* 40:1626-44 N '18

Influence of carbon monoxide on the velocity of catalytic hydrogenation of oils; note. *Sci Am S* 88:294 N 9 '18

Vitiation of garage air by automobile exhaust gases. G. A. Burrell and A. W. Gauger. *U S Bur Mines Tech Pa* 216:1-10 '19

**Carbon tetrachloride**

Benzoinform in high-tension oil-break switches. M. Vogelsang. *Sci Am S* 88:194-5 S 27 '19

Carbon tetrachloride as a cleaning and solvent agent. *J Fr Inst* 185:28 Ja '18

Carbon tetrachloride, chloroform and carbon hexachloride from natural gas. G. W. Jones and V. C. Allison. *diags J Ind & Eng Chem* 11:639-43 JI '19

**Carbonation**

Carbonation of distilled water. H. E. Patten and G. H. Mains. *diag J Ind & Eng Chem* 10:279-88 Ap '18

**Carbonic acid. See Carbon dioxide****Carbonization of steel. See Case hardening****Carbonizing of wool. See Wool carbonizing****Carbonyl chloride**

Refrigeration requirements of chemical warfare. A. M. Heritage. *II Mech Eng* 41:806-10 O '19

United States chemical warfare service; manufacture of phosgene. *II Sci Am* 120:372-3 Ap 12 '19

**Bibliography**

Bibliography on carbonyl chloride (phosgene) and its derivatives. D. D. Berolzheimer. *J Ind & Eng Chem* 11:263-6 Mr '19

**Carbonyl-diurethane**

Action of ammonia and amines on the substituted ureas and urethanes; carbonyl-

diurethane. F. B. Dains, H. W. Greider and C. H. Kidwell. *Am Chem Soc J* 41:1004-13 Je '19

**Carborundum**

Atomic structure of carborundum determined by X-rays. C. L. Burdick and E. A. Owen. *diags Am Chem Soc J* 40:1749-59 D '18

Carborundum refractories. S. C. Linbarger. *Chem & Met Eng* 19:489-91 S 27 '18; Same. *J Ind & Eng Chem* 10:847-9 O '18

Electrolytic and electrothermic processes and products. *diags Gen Elec R* 21:761 N '18

Silicon carbide useful as a resistor. W. S. Scott. *Iron Tr R* 63:209 JI 25 '18

**Carbureters**

Adjusting U. & J. carbureter. *diag Motor Age* 34:37 D 19 '18

Adjustment of Stromberg carbureters. *II Motor Age* 35:44 F 20 '19

Calo air heater for motor car carbureters. *II Engineer* 124:480 N 30 '17

Carburetor on concrete mixer. *II Munic J* 44:157 F 16 '18

Carbureter troubles and their cure. *II Motor Age* 33:39 Je 20 '18

Carbureter with electric heating. *diag Automotive Ind* 41:406 Ag 28 '19

Carbureters for kerosene and fuel oil. *II Motor Age* 34:40 JI 25 '18

Carburetion. *II Motor Age* 35:36-7 Ja 2 '19

Cox atmos carburetor; abstract. *diags Mech Eng* 41:475 My '19

Cross-section of new Schebler carbureter. *diag Motor Age* 35:47 F 6 '19

Ensign heavy fuel apparatus. E. H. Ensign. *II diags Automotive Ind* 40:1354-5 Je 12 '19

Few new accessories at Chicago show. *II Motor Age* 35:22-3 Ja 30 '19

Flowmeters and the calibration of carbureter nozzles. G. S. Clarke. *diags Automotive Ind* 40:1110-13 My 22 '19; *Abstract. Engineer* 127:521 My 23 '19

Four new carburetion devices. *II diags Motor Age* 34:40-2 Ag 8 '18

Gilson-Firestone carbureter. *II Automotive Ind* 38:919 My 9 '18

Heavy fuel spraying method. *Automotive Ind* 38:692 Ap 4 '18

Holley heavy fuel devices. *II diags Automotive Ind* 38:405-6 F 21 '18

How brass carburetors are molded and cast. *II Foundry* 46:464-9 O '18

Installing primer on Hudson. *II diag Motor Age* 34:37-8 D 26 '18

J. T. kerosene carbureter developed. *diags Motor Age* 34:42 O 24 '18

Liberty carbureter air intake. *diags Automotive Ind* 40:655 Mr 20 '19

Liberty carbureter gasoline strainer. *diags Automotive Ind* 40:813 Ap 10 '19

Monel metal as carbureter needle valve material. J. E. Schipper. *II diag Automotive Ind* 38:736-7 Ap 11 '18

New type kerosene carbureter. *Automotive Ind* 39:598 O 3 '18

Organization of a carburetor plant. F. H. Korff. *Mach* 25:847-50, 916-18 My-Je '19

Same power on kerosene or gas. *Motor Age* 34:27 O 3 '18

Schebler has plain tube carbureter. *diags Automotive Ind* 37:912 N 22 '17

Simplicity marks Von Hambach carbureter. *diag Motor Age* 33:41 Je 13 '18

Suggested modification for Liberty carbureter air intake. C. V. Elliott. *diags Automotive Ind* 40:1353 Je 12 '19

Sunderman carbureter uses floating venturi. *II diags Automotive Ind* 40:377 F 13 '19

Trader carbureter for heavy fuels. *Automotive Ind* 38:448 F 28 '18

Van Briggie carbureter has three adjustments. *diag Automotive Ind* 38:555 Mr 14 '18

Water injection may increase power. J. E. Schipper. *Automotive Ind* 37:868-9 N 15 '17

See also Automobile engines; Automobiles

—Feeding systems; Vaporizers



**Carbureters—Continued****Testing**

Bureau of standards carbureter test plant. P. M. Heldt. *il* *diags* Automotive Ind 40:640-4 Mr 20 '19

Standards of carbureter performance. O. C. Berry. *il* Mech Eng 41:874-8; Discussion. 681 Ag '19; Abstract. Automotive Ind 40:1381-2 Je 19 '19

**Carburetion**

Carburetion of low grade fuels. O. H. Ensign. *diags* Automotive Ind 40:1259-1 Je 12 '19

Carburetion temperature of oil mixtures. C. A. Norman. Automotive Ind 40:490-1 F 27 '19

Motor car carburetion in cold weather. B. M. Ikert. *il* *diags* Motor Age 34:22-4 N 14 '18

*See also* Carbureters

**Carburization.** *See* Case hardening

**Card system in business**

Card index production system. L. Johnson. Mach 24:522-3 F '18

Card record tracing system. Am Lumberman 2236:31 Mr 23 '18

Card system that gives record of all motors. H. S. Rich. Elec W 72:892 N 9 '18

Gathering cost figures electrically. *il* Factory 20:637 Ap '18

Getting the most out of index cards. F. J. Schlink. *il* Ind Management 55:135-8 F '18

Labor-saving methods for employment offices. R. W. Kelly. *il* Ind Management 55:146-7 F '18

Lay-out and piece-rate card system; forms that assist in efficient shop management. J. J. Borkenhagen. Mach 25:327-9 D '18

Making payrolls check with costs. E. C. Fremont. Factory 20:639-40 Ap '18

Saving time in factory office routine. R. W. E. Sizer. Factory 20:641 Ap '18

*See also* Accounting; Files and filing (documents); Records

**Carding, Cotton.** *See* Cotton carding

**Carding, Wool.** *See* Wool carding

**Carding machinery**

Automatic air stripper; a new centralized system of card cleaning. *il* Textile World 53:5481 My 11 '18

Flexible card equipment. *diag* Textile World 54:641 Ag 10 '18

Flexible card equipment. *il* Textile World 55:557 Ja 11 '19

Grinding cards in the mill. Textile World 56:1517-1 S 13 '19

Saco-Lowell stripper. *il* *diag* Textile World 55:2549 Ap 26 '19

**Cargo vessels.** *See* Freight ships

**Carhouses.** *See* Car houses

**Carillons**

Carillons—the art of bellringing. *il* Sci Am S 86:301 N 9 '18

**Carnauba palm**

Wax palm and its uses. C. D. Mell. Sci Am S 86:395 D 21 '18

**Carnegie, Andrew, 1837-1919**

America's best-known ironmaster and philanthropist. *por* Am Inst Min Bul 153:sup4-16 S '19

Andrew Carnegie succeeded by knowing men. *por* Iron Age 104:431-5 Ag 14 '19

Carnegie—executive and engineer. Sci Am 121:205 Ag 30 '19

Sketch. *por* Eng & Min J 108:280-1 Ag 16 '19; Iron Tr R 65:451-8 Ag 14 '18; Mech Eng 41:788-9 S '19

**Carnegie institute of technology**

Steel research laboratory planned. T. S. Barker. *plan* Mech Eng 41:465-8 My '19

Vocational selection at the Carnegie institute of technology. W. D. Scott. U S Bur Labor Statistics Bul 227:114-19 '17

**Carnegie institution of Washington**

Year of the Carnegie institution. Sci Am 120:480 My 10 '19

**Carnotite**

Chemical experiments bearing on the origin of certain uranium-vanadium ores. F. B. Notestein. *bibliog* Econ Geol 13:50-64 Ja '18

Mining and concentration of carnotite ores. K. L. Kithil and J. A. Davis. *flow sheets* *il* *diags* *plans* maps U S Bur Mines Bul 103:1-83 '17; Excerpt. Eng & Min J 106:205 Ag 3 '18

Rapid method for determining uranium in carnotite. C. E. Scholl. J Ind & Eng Chem 11:842 S '19

*See also* Radium

**Carnot's principle**

Nature of heat as directly deducible from the postulate of Carnot. Sci Am S 85:341 Je 1 '18

**Carotin**

Occurrence of carotin in oils and vegetables. A. H. Gill. J Ind & Eng Chem 10:612-14 Ag '18

**Carpenter, Rolla C., 1852-1919**

Sketch. *por* Am Soc M E J 41:204 F '19

**Carpenters**

What carpenters earn with one contractor. O. R. Rietschlin. Eng N 82:737-8 Ap 10 '19

**Carpentry**

Kinks and wrinkles. E. H. Crussell. *diags* Bldg Age 40:15-17 Ja '18

Kinks from the diary of a carpenter. *diag* Bldg Age 40:27-8 Ja '18

Suggestions for carpenters in trimming. O. B. Maginnis. Bldg Age 40:524 N '18

*See also* Building; Cars; Doors; Floors; Framing; Nail handling; Railings; Roofs; Scaffolding; Shingling; Slide rule; Square (instrument); Stair building; Stairways; Turning; Wall board; Wood carving; Woodwork; Woodworking machinery; Workbenches

**Carpets**

Carpet market at a standstill. Textile World 55:1107 F 8 '19

Slender year in carpet wools. Textile World 55:429-1 Ja 11 '19

*See also* Rugs

**Carrel-Dakin solution.** *See* Dakin's solution

**Carrier pigeons.** *See* Pigeons

**Carriers**

Status of carriers liability of live stock shipments. J. W. Farrar. Ry R 64:602 Ap 19 '19

*See also* Commerce; Demurrage; Electric railroads; Express companies; Freight; Interstate commerce law; Merchant marine; Motor trucks in freight service; Postal service; Railroads; Shipping; Transportation

**Cars**

All-metal passenger cars for British railways. F. E. Gobey. Ry Mech Eng 93:537-8 S '19

Car and locomotive orders in 1918. Ry Mech Eng 93:34-7 Ja '19

Car and locomotive specialties ordered. Ry R 62:885-6 Ja 15 '18

Car construction and maintenance; an argument for the composite car. Z. B. Wilson. Ry R 62:444-6 Mr 23 '18

Car development in 1917. Ry Age 64:13-14 Ja 4 '18

Carrying troops by rail; the Great Indian Peninsula railway of India uses military cars, holding 66 soldiers each. F. C. Coleman. *il* Ry Age 65:509-11 S 13 '18

Changes in new Boston cars. Elec Ry J 51:1136 Je 15 '18

Cresote treatment of car timbers. *il* Ry Mech Eng 93:255-7 My '19

Electric traction on the Central Argentine railway. *il* *diags* Engineer 126:343-6 O 26 '18

Equipment built and retired for past nine years. Ry R 64:89 Ja 18 '19

First universal car. *diags* (supp) Elec Ry J 52:728-30 O 26 '18

Gutters on cars reduce labor of cleaning and protect passengers. R. R. Potter. *il* *diag* Elec Ry J 51:978 My 18 '18

High capacity cars on a narrow gage railway in India. F. C. Coleman. *il* Ry Age 65:265-6 Ag 9 '18

**Cars—Continued**

How the underframe contributes to the durability of the car body. N. Litchfield. *diags Elec Ry J 51:1142-4 Je 15 '18*

Interurban car built for hospital service at Chicago. *il diags Elec Ry J 51:1153-4 Je 15 '18*

Light interurban car for Montreal & Southern Counties railway. J. A. Wilson. *il Elec Ry J 51:331, 377 F 16-23 '18*

Lumber for car construction. H. von Schrenk. *il Ry Mech Eng 93:85-7 F '19; Abstract. Ry R 63:880 D 21 '18; Discussion. Ry Mech Eng 93:87-8 F '19*

Making a suburban out of a city car. *il diags Elec Ry J 52:973 N 30 '18*

New Consolidation locomotives and excursion cars on the Victorian railways. *il diags Engineer 126:15-16 JI 5 '18*

New instruction car for the Southern Pacific. *il Ry Age 67:365-6 Ag 22 '19*

New railway inspection car. *il diags Engineer 127:434-5 My 2 '19*

New scale test car. A. Christopher. *il Ry Age 64:371-2 F 15 '18*

New York Central's latest motor cars for suburban service on its electrified zone. *il Elec Ry J 53:1134-8 Je 14 '19*

1,025 locomotives and 95,000 cars ordered by government. *Ry Age 64:1145-6 My 3 '18*

Passenger car orders in 1917; tabulation. *Ry Age 64:66-7 Ja 4 '18; Ry R 62:43-4 Ja 5 '18*

Passenger cars rearranged for freight hauling. *il diags Elec Ry J 51:924 My 11 '18*

Railway wagons for war traffic. *diags Engineer 127:404, 410-11 Ap 25 '19*

Rock Island has office cars on Chicago track elevation. *plans Eng N 80:818 Ap 25 '18*

Special train for the director-general of transportation, England. *il (supp) Engineer 125:16 Ja 4 '18*

Specialties for standard cars and locomotives. *Ry Age 66:92 Ja 3 '19*

Track curvature in car design. A. H. Lake, Jr. *diags Ry Mech Eng 93:257-8 My '19*

United States government passenger car equipment. *diag plans Ry R 64:90-1 Ja 18 '19*

Use of treated timber in car construction. *Ry Age 66:295-8 Ja 31 '19*

*See also Air brakes; Automobiles; Baggage and express cars; Brake beams; Car axles; Car cleaning; Car couplings; Car fenders; Car heating; Car houses; Car inspection; Car lighting; Car painting; Car roofs; Car trucks; Car wheels; Dining cars; Draft gears; Dump cars; Electric railroads—Rolling stock; Electric vehicles; Freight car service; Freight cars; Hospital cars; Hospital trains; Mine cars; Motor cars (railroad); Private car lines; Refrigerator cars; Street cars; Tank cars*

**Bearings**

Boring machine for journal brasses made from old axle. *il diags Elec Ry J 53:745-6 Ap 12 '19*

Difficulties with car journal bearings. *Foundry 46:167 Ap '18*

Effect of anti-friction bearings on the haulage of a coal mine. P. B. Liebermann. *Am Inst Min E Bul 127:1051-62 JI '17; Discussion. 133:14-15 Ja '18*

Frictionless side bearings and coal conservation. *diag Ry Age 64:1234 My 17 '18*

Hot boxes. H. L. Shipman. *Ry Mech Eng 91:683-4 D '17*

Hot boxes on freight cars. F. W. Schultz. *Ry Mech Eng 92:152 Mr '18*

Improvement in roller bearing journal boxes. *il Coal Age 13:1159 Je 22 '18*

Joliet journal box. *diags Ry Age 64:1347 My 31 '18*

Loosening the journals. H. M. Payne. *Coal Age 13:573 Mr 30 '18*

Lubrication and care of journal boxes. M. J. O'Connor. *Ry R 64:620-1 Ap 26 '19; Same. Ry Mech Eng 93:253-5 My '19*

Machines for boring babbitt linings of car-journal brasses. J. V. Hunter. *il diag Am Mach 50:403-4 F 27 '19*

Pearce journal truing machine. *il Ry R 61:803-4 D 29 '17*

Remodeling center bearing at a saving of \$27 per car. *il diags Elec Ry J 52:930 N 23 '18*

*See also Bearings*

**Cleaning**

*See Car cleaning*

**Heating**

*See Car heating*

**Lighting**

*See Car lighting*

**Painting**

*See Car painting*

**Repair**

Hydraulic car lift gives increased output to shops. H. MacNutt. *il diags Elec Ry J 52:927-8 N 23 '18*

Improve the condition of cars. *Ry Mech Eng 92:148 Mr '18*

Instructions relating to car repairs. *Ry Mech Eng 92:459-60 Ag '18*

Shopping record for passenger cars. *il Ry Mech Eng 93:145-7 Mr '19*

Should the master car builder's repair card be abolished during the period of the war. E. A. Sweeley. *Ry Mech Eng 92:266 My '18*

Supply truck for emergency repairs. A. J. Kipp. *il Ry Mech Eng 93:252 My '19*

Twentieth century trolley hospital; Cleveland's big electric railroad repair shop. *il Sci Am 118:106+ F 2 '18*

*See also Freight cars—Repair; Railroads—Maintenance and repair; Railroads—Shops*

**Standards**

Standard car. *Ry Mech Eng 92:129 Mr '18*

Standard passenger car equipment. *diag plan Ry Age 66:255-6 Ja 24 '19; Same. Ry Mech Eng 93:81-2 F '19*

Standard specifications for structural steel for cars; English and Spanish. *diag U S Bur For & Dom Com Ind Stand 35:1-19 '19*

Standardization of railway equipment. F. McManamy. *Ry R 65:7-9 JI 5 '19*

**Trucks**

*See Car trucks*

**Wheels**

*See Car wheels*

**Cars, Caboose**

United States standard caboose cars. *diags Ry R 65:379-80 S 13 '19*

**Cars (derrick)**

American railway derrick car. *il Engineer 128:190 Ag 22 '19*

Utility derrick car. *il Ry R 62:524-5 Ap 6 '18*

**Cars, Dining. See Dining cars**

Cars, Electric. *See Electric railroads; Motor cars (railroad)—Storage battery*

Cars, Freight. *See Freight cars*

Cars, Hospital. *See Hospital cars*

Cars (line). *See Towers, Portable*

Cars, Mine. *See Mine cars*

Cars, Motor. *See Motor cars (railroad)*

Cars, Refrigerator. *See Refrigerator cars*

Cars, Safety. *See Street cars—Safety cars*

**Cars (section)**

Gasoline motor section cars decrease labor and cost of track maintenance. C. A. Elliott. *il Elec Ry J 52:423 S 7 '18*

**Cars (spreader)**

Spreader car that carries a ditcher. *il Ry R 64:738 My 17 '19*

**Cars, Steel**

All-steel coaches for the Egyptian state railways. F. C. Coleman. *il Ry Mech Eng 93:88-9 F '19*

Decade of progress in building steel passenger cars. *Ry Mech Eng 92:334 Je '18*

Special cars for transporting heavy naval guns. *il diags plan Ry Age 65:212-14 Ag 2 '18; Same. Ry Mech Eng 92:457-9 Ag '18*

**Cars, steel—Continued**

Steel car body is well adapted to resist unusual stresses. N. Litchfield. Elec Ry J 51: 965-7 My 18 '18

Steel car sill straightener. diags plan Ry Mech Eng 92:452 Ag '18

Steel passenger cars for Indian state railways. F. C. Coleman. Il Ry R 64:252-3 F 15 '19

**Manufacture**

Building cars to serve industries. W. S. Dowsy. Il plan Iron Tr R 61:1324-7 D 20 '17

**Cars, Street.** See Street cars

**Cars, Subway**

New rolling stock for district railway, London. diags Elec Ry J 54:345 Ag 16 '19

**Transportation**

Shipping subway cars a thousand miles on their own wheels. Sci Am 120:242 Mr 8 '19

**Cars, Tank.** See Tank cars

**Carrels.** See Trusts, Industrial

**Cartridge brass.** See Brass

**Cartridge cases**

Cadmium in brass for cartridge cases. Iron Age 102:144 JI 18 '18; Metal Ind 16:369-70 Ag '18

Machining 3-inch cartridge cases on the engine lathe. J. Limbrunner. diags Am Mach 49:401-2 Ag 29 '18

Munitions of war. P. W. Blair. Il Metal Ind 15:303-4 JI '17

Tinning the inside of brass cartridge cases and other articles. C. H. Proctor. diag Metal Ind 16:74 F '18

**Inspection**

Cartridge case and shell inspection systems. F. H. Korff. Am Mach 48:67-8 Ja 10 '18

**Cartridge cloth**

Silk used for cartridge cloth. Il Textile World 53:2993 Ja 12 '18

**Cartridges**

Altering the Enfield to take the U. S. army cartridge. E. C. Crossman. Sci Am 118:105 F 2 '18

Bullet versus armor. E. C. Crossman. Il Sci Am 118:498-9 Je 1 '18; Excerpt. J Fr Inst 186:210 Ag '18

Management applied in Winchester shops. W. E. Freeland. Il chart Iron Age 101:498-502, 616-21 F 21, Mr 7 '18

Methods of making primers with electric blasting caps. Il Eng & Contr 51:546 My 21 '19

Special cartridges for airplane use. E. C. Porter. Am Mach 48:547 Mr 23 '18

Spelter for high grade brass; report of zinc producers to the committee on raw materials of the War Industries board. Metal Ind 16: 175-6 Ap '18

Tool for burring inside of dummy cartridge shells. D. A. Hampson. diags Am Mach 49: 1048-9 D 5 '18

Using rimless cartridges in new service revolvers. E. A. Dixie. diags Am Mach 50: 654-5 Ap 3 '19

Using rimless cartridges in new service revolvers. P. A. Mackenzie. Il Am Mach 49: 859-60 N 7 '18

See also Bullets; Cartridge cases

**Carty, John Joseph, 1861-**

Receives Edison medal. por Elec R 72:874-6 My 25 '18; Power 47:782 My 23 '18; Am Inst E E R 37:supl86-7 Je '18

**Carvacrol**

Study of the conditions essential for the commercial manufacture of carvacrol. A. W. Hixson and R. H. McKee. J Ind & Eng Chem 10:982-92 D '18

**Carving (art industries)**

See Steel carving; Wood carving

**Caryophyllin**

Isomeric lactones, caryophyllin and ursen. F. D. Dodge. Am Chem Soc J 40:1917-39 D '18

**Case hardening**

Application of heat in case-hardening; abstract. T. G. Selleck. Mech Eng 41:542-3 Je '19

Blue water gas used for metal melting in Great Britain. A. Forshaw. Am Gas Eng J 107:588-93 D 29 '17

Carburize and carbonize; meaning of words. Mach 24:998 JI '18

Case-hardening bronze for dies. Metal Ind n s 15:3 Ja '17

Case-hardening practice. R. H. Sherry. Automobile 37:639 O 11 '17

Chilling and case hardening. Sci Am S 56:247 O 19 '18

Consumption of gas in case hardening. Iron Tr R 65:694 S 11 '19

Gear steels. J. H. Parker. Mach 25:861-3 My '19; Same. Iron Age 103:1092-3 Ap 24 '19; Same. Am Mach 50:1007-9 My 22 '19; Excerpt. Automotive Ind 40:1220-1 Je 5 '19

Improved case-hardening process. D. Hanson and J. E. Hurst. Il Iron Age 104:163-5 JI 17 '19

Management of a carburizing plant. C. B. Langstroth. Mach 25:43 S '18

Penetration of carbon. H. Ensaw. Il chart Am Mach 48:755-7 My 2 '18

Process of casehardening. E. Standiford. Am Mach 48:542-4 Mr 23 '18

Shimer case-hardening process. J. W. Richards. Am Inst Min E Bul 146:431-3 F '19; Same. Iron Age 103:480 F 20 '19; Same. Iron Tr R 64:437-8 F 13 '19; Same cond. Sci Am S 88:112 Ag 16 '19; Discussion. Am Inst Min Bul 149:808-9; 151:1029 My, JI '19

Steels used in airplane work. W. H. Hatfield. Automobile 37:507-9 S 20 '17

Testing relative merits of casehardening materials. A. P. Freeman. Am Mach 50:536 Mr 20 '19

Testing the relative merits of casehardening materials. C. N. Underwood. diags Am Mach 49:569-71 S 26 '18; Abstract. Am Soc M E J 40:968-9 N '18

See also Steel, Hardening of

**Bibliography**

References to books, periodical articles and patents. Pittsburgh Carnegie Library Bul 23:128-36 Mr '18

**Case school of applied science**

Training women. Iron Age 102:199 JI 25 '18

**Casein**

Action of pancreatic enzymes upon casein. H. C. Sherman and D. E. Neun. Am Chem Soc J 40:1138-45 JI '18

Cause of and remedy for certain inaccuracies in Hausmann's nitrogen distribution method. S. L. Jodidi and S. C. Moulton. Am Chem Soc J 41:1527-30 O '19

Compressibility of aqueous solutions of casein and peptone. S. Palitzsch. Am Chem Soc J 41:346-51 Mr '19

Improvement in casein making. J. L. Sammis. J Ind & Eng Chem 11:764-7 Ag '19

Manufacture of casein from buttermilk or skim milk. A. O. Dahlberg. Il U S Agric Bul 661:1-32 '18

**Analysis**

Proximate analysis of commercial casein. F. L. Browne. J Ind & Eng Chem 11:1019-24 N '19

**Cash.** See Credit

**Cash registers**

American cash registers for Norway. Sci Am 121:400 O 18 '19

Making profits by recording every sale. Il Horseless Age 44:22-4 My 15 '18

**Caskets**

Casket hardware electro-plating and finishing. H. Mills. Metal Ind 16:19 Ja '18

**Cassia**

Constituents of oil of cassia. F. D. Dodge. J Ind & Eng Chem 10:1005-6 D '18

**Cast iron**

Addition of steel to cast iron. J. E. Hurst. Engineer 126:93 Ag 2 '18; Same. Sci Am S 86:235 O 12 '18

**Cast Iron—Continued**

- British and American malleable cast iron. T. Turner. *Il Iron Age* 102:970-3 O 17 '18
- Carbon in cast iron. F. H. Kingdon. *diag Iron Age* 102:1439 D 12 '18
- Carbon in iron and steel. *Am Mach* 50:400 F 27 '19
- Cast iron at high temperatures. *Power* 48:120-1 J1 23 '18
- Cast iron pipe breaks price record. *Iron Tr R* 62:31 Ja 3 '18
- Cast iron pipe made by centrifugal process. *Il Metal Work* 89:485-6 Ap 12 '18
- Cast iron pipe manufactured in United States in 1914. *Am Gas Eng J* 107:568 D 22 '17
- Cast-iron pipe prices in Boston from 1868 to 1917. *Eng N* 80:923 My 9 '18
- Cast iron pipe prices rise during year. *Iron Tr R* 64:107 Ja 2 '19
- Chart giving the analysis of the proportions of cast iron mixture and the resulting metal. *Foundry* 47:131 Mr '19
- Copper diffuses through cast iron. H. E. Diller. *Il Foundry* 47:779-80 N 1 '19
- Corrodibility of cast iron. *Sci Am S* 85:333 My 25 '18
- Difficulties experienced in machining malleable. H. E. Diller. *Foundry* 47:807 N 15 '19
- Effects of phosphorus on malleable cast iron. J. H. Teng. *Il Foundry* 47:151-6 Ap 1 '19; Discussion. P. H. Davis. *47:258-9 My 1 '19*
- Electric arc welding applied to cast iron. B. W. Bowers. *diag plan Foundry* 46:158-9 Ap '18
- Elimination of strains in castings. C. J. Wiltshire. *Foundry* 47:684 O 1 '19
- Fluidity of molten cast iron. M. Riddell. *Foundry* 46:408-11 S '18; Abstract. *Am Soc M E J* 40:860 O '18
- Graphitization of white cast iron upon annealing. P. D. Merica and L. J. Gurevich. *Il Am Inst Min Bul* 151:1063-72 J1 '19; Abstract. *Mech Eng* 41:766-7 S '19; Summary. *Foundry* 47:466 J1 15 '19; Discussion. *Am Inst Min Bul* 154:2938-42 O '19
- Growth of gray cast iron by repeated heating. J. E. Hurst. *Il Foundry* 46:227-9 My '18; Abstracts. *Mach* 24:435 Ja '18; *Iron Age* 101:587 F 28 '18; *Int Marine Eng* 23:116 Mr '18
- Lahey gray iron foundry designed to save manpower. *Il diags plan Foundry* 46:259-65 Je '18
- Malleable cast iron. E. Adamson. *Met & Chem Eng* 18:422 Ap 15 '18
- Malleable casting manufacturers of the United States held meeting in New York, Aug. 27. *Iron Tr R* 63:544-5 S 5 '18
- Malleable iron and its uses. H. F. Pope. *Foundry* 45:505 N '17; Same. *Iron Age* 100:1105-6 N 1 '17; Same. *Iron Tr R* 61:943 N 1 '17; Same cond. *Mach* 24:449 Ja '18; Discussion. *Iron Age* 100:1120-1+ N 8 '17; Discussion. *Foundry* 46:133 Mr '18
- Malleable iron castings. P. A. Paulson. *Iron Age* 102:1266 N 21 '18
- Malleable iron session of American foundrymen's association. *Iron Age* 102:959-60 O 17 '18
- Malleable reports for examination. H. A. Schwartz. *Il diags Iron Tr R* 63:899-904 O 17 '18; Same. *Foundry* 47:19-24 Ja '19
- Manufacturing heavy malleable iron castings. A. W. Lorenz. *Il Foundry* 46:350-1 Ag '18
- Metallurgy of cast iron airplane cylinders. F. W. Adams. *Foundry* 46:128+ Mr '18
- Metallurgy of malleable iron. *Foundry* 46:509-10 N '18
- Overcoming troubles in malleable. H. E. Diller. *Foundry* 47:415 J1 1 '19
- Oxidized case prevents growth in gray iron. J. E. Hurst. *Il Foundry* 47:101-2 Mr '19; Abstracts. *Sci Am S* 87:37, 128 Ja 18, F 22 '19
- Oxygen in cast iron and its application. W. L. Stork. *Am Inst Min Bul* 150:951-6 Je '19; Same. *Iron Age* 103:1636-7 Je 19 '19; Discussion. *Am Inst Min Bul* 154:2981-4; 155:3025; 156:3143-4 O-D '19
- Polishing of cast iron by rumbling. R. P. MacPherson. *Il Metal Ind* 17:7-9 Ja '19
- Prevention of growth in gray cast iron. J. E. Hurst. *Il Iron Age* 102:1144-5 N 7 '18
- Prices and depreciation of cast iron pipe. B. B. Hodgman. *Am Water Works Assn J* 5:145-54; Discussion. 155-62 Je '18
- Proper use of cast iron boilers. *Locomotive* 32:106-10 O '18
- Reducing the malleable iron annealing period. A. E. White and R. S. Archer. *Il Foundry* 47:61-5 F '19
- Research work on malleable iron. E. Touceda. *Il Mech Eng* 41:593-600 J1 '19; Excerpts. *Foundry* 47:436-7 J1 1 '19
- Rupture of cast iron in contact with mixed acid; abstract. A. C. Cummings. *Chem & Met Eng* 20:433-4 Ap 15 '19
- Rustproofing cast-iron parts. *Il Mach* 25:919-21 Je '19
- Snagging malleable iron castings. W. T. Montague. *Mach* 24:589 Mr '18
- Strength of cast iron. W. J. Keep. *Foundry* 46:563 D '18
- Strive for strength in malleable. H. E. Diller. *Il Foundry* 47:803-7 N 15 '19
- Welding cast iron with the electric arc. *Il diags Ry Age* 64:1247-9 My 17 '18
- What is modern malleable iron? H. A. Schwartz. *Ry Mech Eng* 93:479-81 Ag '19
- See also Car wheels; Chilled iron; Foundry practice; Iron; Iron founding; Iron metallurgy; Pig iron; Semi-steel
- Specifications**
- Aircraft specifications for cast iron. *Foundry* 46:243+ Je '18; Same cond. *Mach* 25:58 S '18
- Malleable iron specifications revised. *Iron Tr R* 63:38-9 J1 4 '18
- Specifications for malleable iron castings. *Foundry* 47:461 J1 15 '19
- Standard specifications for gray-iron castings; English and Spanish. *diags U S Bur For & Dom Com Ind Stand* 49:1-15 '19
- Standard specifications for malleable-iron castings; English and Spanish. *diag U S Bur For & Dom Com Ind Stand* 48:1-13 '19
- Testing**
- Experiments in annealing malleable iron. H. E. Diller. *Il Foundry* 46:564-6 D '18; Same. *Iron Tr R* 63:1414-16 D 19 '18
- Machining qualities of malleable. E. K. Smith and W. Barr. *diags Foundry* 47:682-4 O 1 '19
- Money saved by testing laboratory. H. R. Simonds. *Il plan Foundry* 47:556-9 Ag 15 '19
- Physical constants for malleable. H. A. Schwartz. *diags Foundry* 47:462-6 J1 15 '19; Abstract. *Eng N* 83:132-4 J1 17 '19
- Tensile tests of cast iron and semi-steel. H. L. Campbell. *diag Mach* 25:605 Mr '19
- Casters**
- Efficient truck casters. M. E. Duggan. *diags Foundry* 47:839 N 15 '19
- Safety caster for stockroom ladders. O. Fisher. *diags Am Mach* 51:184 J1 24 '19
- Casting. See Brass founding; Foundry practice; Iron founding**
- Casting machines**
- Casting rings in centrifugal machine by De Lavaud process. E. F. Cone. *Il diag Iron Age* 102:801-7 O 3 '18; Abstract. *Am Soc M E J* 40:960 N '18
- Continuous casting corporation. *Il Metal Ind* 17:236 My '19
- Die castings and their application to the war program. C. Pack. *diags Am Inst Min E Bul* 146:239-48 F '19; Same. *Metal Ind* 17:75-8 F '19; Same. *Iron Age* 103:679-81 Mr 13 '19
- Practical white metal melting and casting machine. A. F. Walter. *diags Metal Ind* 17:168-9 Ap '19
- Castings, Steel. See Steel castings**
- Castleton bridge**
- State law limits Castleton bridge to single span. *diags maps Eng N* 80:1033-5 My 30 '18
- Supreme court decides New York must not interfere with Hudson River bridge projects. *Eng N* 81:159 J1 25 '18

- Castor oil**  
 Castor bean and its many uses. Sci Am 120: 528+ My 17 '19  
 Detection of foreign oils in castor oil used for lubricating aeroplane motors. C. Frabot. Sci Am S 85:213 Ap 6 '18  
 Oil for airplane engines. Motor Age 34:25 Ag 1 '18
- Castor oil plant**  
 Castor bean and its many uses. Sci Am 120: 528+ My 17 '19  
 Castor beans in Central America. Automotive Ind 40:424 F 20 '19  
 Castor oil beans. J. A. Bishop. Sci Am 118:479 My 25 '18  
 Castor-oil plant. Sci Am S 86:47 Jl 20 '18
- Casual employment.** See Workmen's compensation
- Cat-tails.** See Typha
- Cataloging**  
 Classification and cataloging in business libraries. L. B. Krause. J Elec 43:75-6 Jl 15 '19  
 Recataloging the United engineering society library. H. W. Craver. Mech Eng 41:782-3+ S '19  
 See also Classification; Files and filing (documents); Indexing
- Catalogs**  
 Agree on catalog sizes at conference called by the catalog committee of the National association of purchasing agents. Iron Age 101:1417 My 30 '18  
 Building export trade catalogs. W. F. Leggett. Automotive Ind 41:627-8 S 25 '19  
 Catalog is an aid to money making. Metal Work 89:861 Je 28 '18  
 Conference on standardization of catalogue sizes. Inland Ptr 61:380 Je '18; Iron Age 101:1533 Je 13 '18; Gas Age 41:578 Je 15 '18  
 Mechanical data in catalogues; value in designing fixtures. A. A. Dowd. Mach 24:991 Jl '18  
 Messenger for the message—a talk on standardization. G. A. Heintzemann. Inland Ptr 64:217-18 N '19  
 National standard catalog size proposed. Elec Ry J 52:819 N 2 '18  
 Purchasing agents to standardize catalog size. Iron Age 101:935 Ap 11 '18  
 Recent catalogue standardization conference. N. J. Werner. Inland Ptr 61:762-3 S '18  
 Standard catalog size. Am Mach 49:46a Jl 4 '18  
 Standard sizes for catalog pages. C. F. Beezley, Jr. Iron Tr R 63:208-9 Jl 25 '18  
 Standardization of catalogs. W. L. Chandler. Eng & Contr 50:338 O 9 '18  
 Standardizing catalogue sizes. A. H. Smith. Inland Ptr 60:666 F '18  
 Uniform catalog size. Eng N 80:830, 966, 1194-5 Ap 26, My 16, Je 20 '18
- Catalysis**  
 Action of aluminum chloride on cymene. A. W. Schorger. Am Chem Soc J 39:2671-9 D '17  
 Catalysts in vulcanization. D. Spence. J Ind & Eng Chem 10:115-17 F '18  
 Catalytic preparation of the amidophenols and the phenylenediamines. O. W. Brown and L. L. Carrick. Am Chem Soc J 41:436-40 Mr '19  
 Data on platinum gauze used as a catalyzer for the oxidation of ammonia; table of weights and active surface of platinum, air space, etc., shown for a unit of one square inch of gauze of a given mesh and diameter of wire. A. A. Campbell. J Ind & Eng Chem 11:468-9 My '19  
 Ferments and catalyzers. P. Sabatier. Sci Am S 88:274-5, 278+ N 8 '19  
 How the nitrogen problem has been solved. H. J. M. Creighton. Il diag J Fr Inst 187: 705-16 Je '19  
 Hydrogen reactions and catalysts. Sci Am S 85:384 Je 15 '18  
 Influence of catalysts on the chlorination of hydrocarbons. V. R. Kokatnur. Am Chem Soc J 41:120-4 Ja '19  
 Notes on neutral salt catalysis. H. S. Harned. diags Am Chem Soc J 40:1461-81 O '18
- Role of the catalyst. Sci Am S 87:164 Mr 15 '19  
 Starting and stability phenomena of ammonia-oxidation and similar reactions. F. G. Liljenroth. Chem & Met Eng 19:287-93 S 16 '18; Same. Gen Elec R 21:807-15 N '18  
 See also Colloids
- Catch basins.** See Sewerage—Catch basins
- Catenary construction.** See Electric railroads—Construction
- Caterpillar mounts.** See Gun carriages
- Caterpillar tractors.** See Tractors
- Catgut**  
 Where substitutes save the day. Sci Am 118: 146 F 16 '18
- Cathedrals**  
 Crooked architecture and photography; Prof. Goodyear's enlarged photographs of cathedrals in the war zone. B. J. Lubasch. Am Inst Arch J 6:577-8 D '18  
 Early churches in Spain. G. G. King. Il Am Inst Arch J 6:395-402, 435-42, 559-66 Ag-S, D '18  
 Spanish cloisters. G. G. King. Il Am Inst Arch J 7:481-8 N '19  
 See also Church architecture; also Reims cathedral
- Bibliography**  
 War books of the cathedrals. B. Ferree. Arch Rec 43:90-2, 186-8, 385-7, 576-9; 44:474-6; 45:180-2; 46:90-3, 186-9 Ja-F, Ap, Je, N '18, F, Jl-Ag '19
- United States**  
 Cathedral of Saint Louis, Mo. Il diags plans Am Arch 114:148-55 Jl 31 '18  
 Latrobe's designs for the cathedral of Baltimore. F. Kimball. Il plans Arch Rec 42:540-50; 43:37-45 D '17-Ja '18
- Cathodes**  
 Using gold instead of platinum for laboratory cathodes. F. F. Hunt. Eng & Min J 105:162 Ja 19 '18
- Catskill aqueduct**  
 Catskill water supply system. J. W. Smith. Am Water Works Assn J 5:91-9 Je '18  
 Design and construction methods for copper lining for city tunnel of New York Catskill aqueduct. Eng & Contr 48:488-91 D 12 '17  
 Models of structures in the Catskill aqueduct system. Il Am Water Works Assn J 6:9-14 Mr '19  
 Repairs to risers in the shafts of the city tunnel of the Catskill aqueduct; with discussion. J. W. Smith. Am Water Works Assn J 6:46-53 Mr '19  
 Schoharie development of the Catskill water supply system for New York city. J. W. Smith. Il diags map plans Am Water Works Assn J 6:639-53 N '19; Same cond. Eng & Contr 52:406-10 O 8 '19; Abstract. Eng N 83:824-5 O 30 '19  
 Water supply of New York. diags map Engineer 126:109-11, 131-3 Ag 9-16 '18
- Cattle dipping.** See Dipping vats
- Cattle guards**  
 Guards and gates keep cattle off roads. diags plan Eng N 80:863 My 2 '18
- Cattle ticks**  
 Fight against the cattle-tick. Sci Am S 87: 266-7 Ap 26 '19
- Cauliflower pouring head.** R. R. Clarke. Foundry 47:121-3 Mr '19
- Causeways**  
 Construction of new arch section of Galveston causeway. Il diags plan Eng N 82:1190-2 Je 19 '19
- Caustic soda.** See Sodium hydroxide
- Cave dwellers**  
 Cave dwellers of the Missouri valley. Il diag Sci Am S 85:100-1 F 16 '18
- Caves**  
 Mammoth and Great Onyx caves; unpublished features of Kentucky's great natural curiosity. L. Jeffers. Il Sci Am 119:156+ Ag 24 '18

- Cedar**  
 Cedars of Lebanon. A. Henry. *Sci Am S* 87: 295 My 10 '19  
 1st annual Red cedar shingle congress, Seattle, Wash., Jan. 16-17. *Am Lumberman* 2228: 43-6 Ja 26 '18  
 Incense cedar. J. A. Mitchell. *Il diags map U S Agric Bul* 604:1-40 '18
- Cedar, Spanish**  
 Measurement of Spanish cedar logs. C. D. Mell. *Am Lumberman* 2274:56 D 14 '18  
 Spanish cedar for vessels. C. D. Mell. *Am Lumberman* 2245:64 My 25 '18  
 Weight of Spanish cedar. C. D. Mell. *Sci Am S* 85:325 My 25 '18
- Cedar Rapids, Iowa**  
 Cedar Rapids gets decision which enables city to avert probable future flood calamity. L. R. Howson. *Munic Eng* 55:26-7 Jl '18
- Ceilings**  
 English architectural decoration. A. E. Bullock. *Il Arch Rec* 43:535-46 Je '18  
*See also* Mural painting and decoration; Plaster and plastering
- Cellars**  
 Building dry cellars. W. N. Hathaway. *Concrete* 12:59-60 F '18; Same. *Bldg Age* 40:255 My '18  
 Making a concrete cellar wall dry. H. C. Campbell. *diags Bldg Age* 40:347-9 Jl '18  
 Making the cellar waterproof. J. Y. Dunlop. *diags Bldg Age* 41:26-7 Ja '19  
*See also* Basements
- Cells**  
 Collocation of plasmas within the cell. L. Legrand. *diags Sci Am S* 85:60-4, 76-7 Ja 26-F 2 '18  
*See also* Osmosis; Plant cells and tissues
- Cells, Electric.** *See* Electric batteries
- Cells, Electrolytic.** *See* Electrolytic cells
- Celluloid**  
 Effects of heat on celluloid and similar materials. H. N. Stokes and H. C. P. Weber. *bibliog diags U S Bur Stand Tech Pa* 98:1-40 '17; Abstract. *J Fr Inst* 184:437-8 S '17; Excerpt. *Sci Am S* 85:414+ Je 29 '18  
 Electricity in celluloid manufacture. E. W. Manter. *Il Elec J* 16:94-5 Mr '19  
 Satolite, non-inflammable celluloid from beans. *Sci Am* 118:191 Mr 2 '18
- Cellulose**  
 New German textile substitute; abstract. *Am Soc M E J* 40:pt 1, 581 Jl '18
- Cellulose**  
 Fluorescence of cellulose and its derivatives. *Sci Am S* 87:144 Mr 1 '19  
 Wooden garment. *Textile World* 54:836 Ag 24 '18
- Cellulose acetate**  
 British dope investigation; possibility of manufacturing cellulose acetate in England. *Automotive Ind* 39:409 S 5 '18  
 Future of cellulose acetate. H. S. Mork. *J Ind & Eng Chem* 11:474-5 My '19
- Cellulose xanthate.** *See* Viscose silk
- Cement**  
 Advantages of bulk cement. E. V. Aldridge. *Eng & Contr* 51:420 Ap 23 '19  
 Alkalies in cement clinker—their relation to the setting time. B. F. Erdahl. *Concrete* 15:sup17-20 Ag '19  
 A. E. F. goes to Spain for cement. W. W. Hay. *Concrete* 15:sup7-8 Jl '19  
 Brown process for cement and potash. *Chem & Met Eng* 19:447 S 26 '18  
 Cause of unsoundness in cement. B. F. Erdahl. *diag Concrete* 14:sup27-9 Mr '19; Discussion. 15:sup33-6, sup51-5, sup70-3 S-N '19  
 Cement—a review. R. W. Lesley. *Concrete* 13: sup57-60 D '18  
 Cement as a waterproofing compound. E. H. Mosher. *Concrete* 15:39 Jl '19  
 Cement drain tile. *Sci Am* 120:30+ Ja 11 '19  
 Cementation in the Illinois oil field. M. L. Nebel. *diag Eng & Min J* 105:1080-2 Je 15 '18  
 Cementing jamb joints. *Il diags Chem & Met Eng* 21:153-4 Ag 1 '19
- Cements producing quick hardening concrete.** P. H. Bates. *Concrete* 15:sup9-12 '19; Same cond. *Eng & Contr* 52:100-2 Jl 23 '19; Excerpts. *Ry Age* 87:17 Jl 4 '19; Abstract. *J Fr Inst* 183:122 Jl '19
- Chemical notes relating to cement.** *Concrete* 12:sup112 Je '18
- Decorating and coloring walls with cement.** *Eng & Contr* 51:449 Ap 30 '19
- Definitions of cement.** *Mech Eng* 41:390 Ap '19
- Economies of using Portland cement in bulk.** W. R. Harris. *Eng & Contr* 51:672 Je 25 '19
- Influence of gypsum on the blast furnace slags in the manufacture of cement.** E. Bereslavsky. *Chem & Met Eng* 20:25-8 Ja 1 '19; Abstract. *Concrete* 15:sup29 Ag '19
- Magnesite in oxychloride cement.** *Concrete* 15: sup63 O '19
- Mechanical problems for 200 mesh cement solved.** C. H. Breerwood; J. W. Fuller. *Concrete* 14:sup25-6 F '19
- Nature of the recombined potash in cement mill dust.** A. R. Mers and W. H. Ross. *J Ind & Eng Chem* 11:39-45 Ja '19
- New researches on cement.** K. Endell. *Concrete* 14:sup71-2 Je '19
- Physical properties of magnesia cement and magnesia cement compounds.** R. J. Roark. *bibliog Il Wis U Bul Eng S* 8:249-331 no 5 '17; Abstract. *Am Arch* 114:374-81 S 25 '18
- Portland cement construction for chemical works.** M. Toch. *Chem & Met Eng* 19:487-8 S 27 '18
- Potash in cement manufacture.** *Concrete* 15: sup62-3 O '19
- Potash production in the manufacture of Portland cement.** *Concrete* 15:sup29 Ag '19
- Properties of the calcium silicates and calcium aluminate occurring in normal Portland cement.** P. H. Bates and A. A. Klein. *U S Bur Stand Tech Pa* 78:1-38 '17; Abstract. *Sci Am S* 85:413 Je 29 '18
- Recent developments in the cement industry.** R. K. Meade. *Il Chem & Met Eng* 19:471-4 S 27 '18
- Recommendations for gauging cement—in 1861.** *Concrete* 15:sup25-6 Ag '19
- Rock quarrying for cement manufacture.** O. Bowles. *Il diags plans U S Bur Mines Bul* 160:1-150 '18
- Selection of materials for sea-water concrete.** R. J. Wig and L. R. Ferguson. *Il Eng N* 79:737-41 O 18 '17; Discussion. 79:1212-13 D 27 '17
- Separating marl from cement rock.** *Concrete* 12:sup48 My '18
- White cement coatings.** *Concrete* 12:312-13 Je '18  
*See also* Cement gun; Cements; Concrete; Grouting; Gunite; Hytempite; Mortar; Silica cement; Stucco
- Bibliography**  
 Concrete & cement; a list of books in the Brooklyn Public Library. 12p Mr '18 Brooklyn Public Library, Brooklyn, N.Y.  
 Structural service department; cement and concrete, and treatment of concrete surfaces. *Am Inst Arch J* 6:92-7 F '18
- Prices**  
 Cement price controversy ties up highway contracts. *Concrete* 15:sup24 Ag '19  
 Cement prices. *Concrete* 15:sup78-9 N '19  
 Cement prices; report of committee on material cost investigation, state of Illinois. *Concrete* 14:214-15 Je '19  
 Government price for cement. *Concrete* 13: sup31 S '18  
 How about cement prices? *Concrete* 14:175-6 My '19  
 Portland cement prices. *Good Roads n s* 16: 92 S 7 '18
- Setting**  
 Mechanism of the setting process in plaster and cement. C. H. Desch. *Sci Am S* 86:234-5 O 12 '18; Same abr. *Eng & Contr* 50:407-8 O 30 '18  
 Quality of water affects setting. *Concrete* 14:sup65-6 Je '19

**Cement—Setting—Continued**

Setting of cements. Engineer 125:78 Ja 25 '18  
Setting of cements and plasters. Concrete 12:  
sup45-7 My '18; Same. Eng & Contr  
50:80-2 Ji 24 '18

**Specifications**

Japanese standard cement specification. Am  
Arch 113:577 My 8 '18  
Standard specifications and tests for Portland  
cement; Spanish-English text as adopted by  
the American society for testing materials  
and by the United States government, re-  
vised, 1917. Il diags U S Bur For & Dom  
Com Ind Stand 1:1-47 '18

**Testing**

Cement and concrete testing for subway and  
elevated lines in New York city. Eng &  
Contr 51:582 My 28 '19  
Effect of colors on tensile strength of cement.  
O. R. Smith. Concrete 14:149 Ap '19  
Effect of fineness of cement on quality of  
concrete. D. A. Abrams. Il diag Concrete  
15:189-96 N '19  
Elasticity of pure cement. L. Jouan. Con-  
crete 15:sup31 Ag '19  
Improved air analyzer for fineness testing. Il  
Concrete 15:sup73 N '19  
Investigation of blended Portland cement.  
E. S. McCandless and H. H. Armaby. Mo U  
Sch Mines & Met Bul tech ser 4:1-108 My  
'18  
Laboratory practice—sand and cement. Con-  
crete 13:128 O '18  
Properties of Portland cement having a high  
magnesia content. P. H. Bates. Il U S Bur  
Stand Tech Pa 102:1-42 '18; Summary. Sci  
Am S 85:347 Je 1 '18  
Standard specifications and tests for Port-  
land cement; Spanish-English text as  
adopted by the American society for testing  
materials and by the United States govern-  
ment, revised, 1917. Il diags U S Bur For  
& Dom Com Ind Stand 1:1-47 '18  
Tensile strength test for neat briquets ques-  
tioned by Japanese. T. Hattori. Concrete 12:  
sup39 Ap '18

**Transportation**

Package problem. Concrete 11:sup53 D '17

**Cement dust**

Does cement dust impair the workers'  
health. Concrete 14:sup71 Je '19  
Dust problem in cement mills. C. H. Sonntag.  
Concrete 12:sup40-1 Ap '18

See also Cement plants—By-products

**Cement grouting. See Grouting****Cement gun**

Cement gun for repairing stacks. Elec R 74:  
192-3 F 1 '19  
Cement gun in mining work. G. S. Rice. Il  
diags plan Coal Age 13:495-8, 540-3 Mr 16-23  
'18; Same. Eng & Min J 105:584-7, 623-6 Mr  
30-Ap 6 '18; Excerpts. Eng & Contr 49:488-9  
My 15 '18  
Cement gun used to put concrete walls on  
wood-frame mine mill. Il Eng N 81:375-6 Ag  
22 '18  
Concrete in waterworks structures, with spe-  
cial reference to its resistance to weathering  
and methods of repairing it. R. J. Wig. Am  
Water Works Assn J 4:454-5; Discussion.  
456-64 D '17  
Facilitating the construction of water and  
sewerage works by means of the cement-  
gun. Il Munic Eng 54:235-7 Je '18  
Fire proof building construction by cement  
gun process. Il Eng & Contr 48:535-6 D 26  
'17  
Lining a reservoir with concrete by the  
cement gun. E. C. Eaton. Il Eng N 83:  
167-8 Ji 24 '19  
Refined mine shaft of the Oliver iron mining  
co. with cement gun. diag plan Coal Age  
14:400-1 Ag 29 '18; Same. Eng N 81:333-4 Ag  
15 '18  
Repairing disintegrated concrete on dam  
with cement gun. Il Eng & Contr 49:187 F  
20 '18

Results obtained from the use of the cement  
gun at the Cadogan mine. F. Norman. Il  
Coal Age 16:269-70 Ag 14 '19  
Rusting steel chimneys coated with concrete  
by cement gun. Il diags Eng N 81:596-7 S  
26 '18

Two new designs of houses of concrete  
throughout; Alcho and Schaeffer systems. Il  
diags plans Eng N 80:947-8 My 16 '18

Use of the cement gun in a bituminous coal  
mine. M. S. Sloman. Il Coal Age 14:1158-9 D  
26 '18; Same. Eng & Contr 51:84-5 Ja 15 '19

Use of the cement gun in the Coeur d'Alene  
mining district. Il Eng & Min J 105:787-9  
Ap 27 '18

Wall construction at Norfolk army supply  
base by cement gun process. Il Eng &  
Contr 51:574-5 My 28 '19; Eng N 82:1199-  
1200 Je 19 '19

Walls of concrete elevator made without  
forms. Il diags Eng N 80:819-20 Ap 25 '18

**Cement handling**

Bulk cement for railway work. A. M. Wolf. Il  
Ry R 62:583 Ap 20 '18

Bulk cement shipped in open cars is unloaded  
by grab bucket. Il Eng N 80:832-3 Ap 25 '18

Cement in bulk for products plants. Il diag  
plans Concrete 13:197-8 D '18

Device eliminates careless handling and saves  
empty cement bags. E. E. Glass. Eng N 81:  
596 S 26 '18

Handling and storing bulk cement. W. R.  
Harris. Il diags W Soc E J 24:21-6 Ja  
'19; Abstract. Eng & Contr 51:694-5 Je  
25 '19; Discussion. W Soc E J 24:26-30  
Ja '19

Handling bulk cement with a clamshell. Il Ry  
Age 64:1582 Je 28 '18

Special belt conveyor saves time in unload-  
ing cement barges. Il diag Eng N 82:396-7  
F 20 '19

Use of a canvas chute prevents cement  
dusting. diag Enr N 83:440 Ag 28 '19

Wagon with hopper gate handles bulk cement  
on paving job. Il Eng N 81:467 S 5 '18

**Cement industry and trade**

American markets for cement. Il Sci Am  
118:570 Je 22 '18

Cement—a review. R. W. Lesley. Concrete  
11:sup43-6 D '17

Cement in 1918—a review. R. W. Lesley.  
Concrete 15:sup65-9 N '19

Cement manufacture in England. H. E.  
Brooks. Concrete 12:sup21-2 F '18

Cement production in China. Concrete 14:  
sup68-9 Je '19

Cement production in France. Concrete 14:  
sup68 Je '19

Cement trade in the East. G. E. Anderson.  
Concrete 12:sup110 Je '18

Conditions in the cement industry. Concrete  
13:106 Ag '18

Developing foreign cement markets in the  
transition period. L. W. Alwyn-Schmidt.  
Concrete 14:sup61-2 Je '19

International trade in cement; 1908, 1913 and  
latest available year. E. Whitney. U S Bur  
For & Dom Com misc ser 79:1-76 '19

New influence on cement exports. L. W.  
Alwyn-Schmidt. Concrete 14:sup10-11 Ja '19

1917, biggest year in cement production. Con-  
crete 13:sup30 S '18

1917 has record cement production. Concrete  
12:sup22 F '18

Portland cement in 1918. Concrete 14:sup  
67 Je '19

Portland cement in 1918. Eng & Min J 107:  
316 F 15 '19

Portland cement industry of the La Salle dis-  
trict. Il Eng & Min J 108:468 S 13 '19

21 per cent decreased cement production due  
to war. E. F. Burchard. Concrete 14:sup23-  
4 F '19

Uruguayan imports and production of cement.  
W. Dawson. Concrete 13:106 Ag '18

See also Cement—Prices

**Cement joints. See Pipe joints****Cement kilns**

Combustion in rotary kilns. W. H. Klein. diags  
Concrete 15:sup49-51 O '19

**Cement kilns—Continued**

- Kiln efficiency in cement manufacture. H. J. Robertson. Concrete 11:sup33-6; sup47-50; 12:sup3-5 N '17-Ja '18
- Make cement cheaper; save two million tons coal: theory and practice of power production by the use of exhaust gases from cement kilns. F. G. McKelvy. II Concrete 14:sup1-4 Ja '1
- Methods of fuel conservation in cement mill operation. E. Ashton. Concrete 13:sup45-9 N '18
- Observations on kiln practice. N. S. Potter, Jr. Concrete 12:sup1-2 Ja '18
- Pyrometry in rotary Portland cement kilns. L. I. Dana and C. O. Fairchild. Am Inst Min Bul 153:1661-73 S '19

Cement pipe joints. See Pipe joints

Cement pipes. See Pipes, Cement

**Cement plants**

- American-owned cement plant in Argentina. Concrete 15:sup23 Ag '19
- Cement plant of the Clinchfield Portland cement corporation. II diag Concrete 15:sup21-3 Ag '19
- Dominion Portland cement co. plant, Auckland, New Zealand. II diag Concrete 12:sup43-4 My '18
- Electric drive in California cement mill. II Elec R 75:223-5 Ag 9 '19
- Electric motors in the cement industry. R. B. Williamson. diags Am Inst E E Pro 37:1237-73 N '18; Same cond. Elec R 73:770-1, 813-14 N 16-23 '18; Abstract. Elec W 72:1168 D 21 '18
- Electrical equipment of western Portland cement plant. II Elec R 75:809-10 N 15 '19
- Location of hammer mill. Concrete 12:sup11 Ja '18
- New wet process plant of Nebraska cement company. D. C. Findlay. II diags map Concrete 15:sup1-7 JI '19
- Operating details of an electrically operated cement mill. II Elec R 74:210-12 F 8 '19
- Practical side of cement mill mechanics—Victorville plant. L. D. Gilbert. II Concrete 13:sup21-6 S; sup36-40 O '18
- See also Cement dust

**Accidents**

- Hazards of the cement stock house. R. Frame. Concrete 15:sup57-9 O '19
- Safety hazards of cement industry. O. C. Soderquist. Concrete 14:sup11-12 Ja '19

**By-products**

- Concentration of potash from raw materials containing only a trace of this element by means of the electric precipitation of flue dust and fume cement kilns. B. F. Erdahl. J Ind & Eng Chem 10:356-9 My '18; Abstract. Concrete 12:sup56-6 Je '18
- Cottrell process for potash recovery. L. Bradley. Chem & Met Eng 19:460 S 26 '18; Same. J Ind & Eng Chem 10:836 O '18
- Direct heat treatment of cement mill dust to increase its water-soluble potash content. A. R. Merz. J Ind & Eng Chem 10:106-9 F '18; Excerpts. Concrete 12:sup36 Ap '18
- Effect of coal ash on the liberation and nature of cement mill potash. N. S. Potter, Jr., and R. D. Cheesman. diag J Ind & Eng Chem 10:109-11 F '18
- Further experience in potash recovery. J. Treanor. Concrete 14:sup30-1 Mr '19
- Mechanical precipitation and waste heat recovery potash. W. C. Hanna. II Concrete 12:sup33-5 Ap '18
- Potash from cement dust; patent. Met & Chem Eng 13:99 Ja 15 '18
- Potash from iron ores and fluxes. J. J. Porter. Chem & Met Eng 19:462 S 26 '18
- Potassium sulphate from cement dust. Met & Chem Eng 18:391 Ap 15 '18
- Recent developments in the cement industry. R. K. Meade. II Chem & Met Eng 19:471-4 S 27 '18
- Two letters on effect of coal ash on the nature of cement mill potash. J Ind & Eng Chem 10:1030-3 D '18

Wet process for extracting potash from cement dust. J. G. Dean. flow sheets diags plans Chem & Met Eng 19:439-47 S 26 '18

**Safety devices and measures**

- Accident prevention in cement mills. H. G. Jacobsen. II Concrete 13:sup49-51 N '18
- Safety committees at cement plants. R. A. Dittmar. Concrete 13:sup64-6 D '18
- Safety features in Canada cement plant. E. R. Abbott. Concrete 15:sup59-60 O '19
- Cement plants, Municipal
- Has the Los Angeles municipal cement plant been an economic success? Eng & Contr 51:325-6 Ap 2 '19

**Cement storage**

- Piling and handling cement in warehouses. E. D. Boyer; S. H. Wightman. Concrete 11:185 D '17
- Warehouse for concrete and lime storage—plan and construction details. II diags plan Concrete 15:154-6 O '19

Cement testing. See Cement—Testing

**Cement workers**

- Insurance granted to all cement plant employees. Concrete 15:sup28 Ag '19
- Mortality from respiratory diseases in dusty trades. F. L. Hoffman. U S Bur Labor Statistics Bul 231:227-41 '18

See also Cement dust

Cementation. See Steel, Hardening of

**Cementing**

- Cement plugging for exclusion of bottom water in the Augusta field, Kansas. H. R. Shidel. Am Inst Min E Bul 142:1613-20 O '18; Discussion. 148:711-16 Ap '19
- Methods of shutting off water in oil and gas wells. F. B. Tough. II diags U S Bur Mines Bul 163:24-62 '18

See also Grouting

**Cements**

- Cements for various purposes. J. B. Barnitt. Power 48:265-6 Ag 20 '18
- Difficult repairs made with hytempite. II diag Gas Age 41:426-7 My 1 '18
- Fyrite, a new high temperature cement. Metal Ind 16:378 Ag '18
- Hot patch furnace cement. II Power 50:539 S 30 '19

**Cemeteries**

- Entrance to the Tod homestead cemetery, Youngstown, Ohio. diag plan Am Arch 115:848-9, pl 195-200 Je 18 '19

**Central America****Industries and resources**

See also Mines and mineral resources—Central America

**Central Argentine railway**

- Electric traction on the Central Argentine railway. II diags plan (supp) maps Engineer 126:324-8, 330, 343-6, 367-71 O 18-N 1 '18

**Central electric railway accountants' association**

- 33d meeting. Fort Wayne, Ind., Feb. 15. Elec Ry J 53:372-3 F 22 '19

**Central electric railway association**

- Annual meeting, Cleveland, Ohio, Feb. 27-28. Elec Ry J 53:421-2, 463-4 Mr 1-8 '19

- C. E. R. A. committees appointed. Elec Ry J 53:736-7 Ap 12 '19

- C.E.R.A. cruises on Great Lakes. Elec Ry J 54:63-5 JI 12 '19

- Fall meeting. Elec Ry J 52:924, 952-4 N 23-30 '18

- Summer meeting, Cedar Point, Ohio, July 17-18. Elec Ry J 52:122, 157-61 JI 20-27 '18

**Central electric railway traffic association**

- Annual meeting, Jan. 15; abstract of annual report. Elec Ry J 51:176-7 Ja 26 '18

- Central traffic association. A. L. Neereamer. Elec Ry J 53:138 Ja 18 '19

**Central forge company, Detroit, Michigan**

- Efficiency in industrial planning illustrated in a new forge shop. II diags plan Am Arch 116:283-7 Ag 27 '19; Same. Iron Age 104:219-23 JI 24 '19



- Central power stations.** See Electric plants (central stations)
- Central station companies.** See Electric utilities.
- Central station heating.** See Heating from central stations
- Central station management.** See Electric plants (central stations)—Management
- Central station rates.** See Electric rates
- Central stations.** See Electric plants (central stations)
- Central supply association**  
Meeting, Chicago, June 20; report of Trade extension committee. *Metal Work* 89:866-7+ Je 28 '18  
24th annual meeting, Chicago, Nov. 20. *Dom Eng* 85:293-4 N 23 '18; *Metal Work* 90:615-16 N 25 '18  
79th regular meeting, Chicago, Feb. 19. *Dom Eng* 86:399-400 Mr 1 '19
- Centrifugal fans.** See Fans, Mechanical
- Centrifugal force**  
Are there no such forces as inertia and centrifugal force? *Eng & Contr* 49:631-2 Je 28 '18; Discussion. *R. Fletcher*. 50:208-9 Ag 28 '18  
Biological effects of centrifugal action; a study of the causes of disturbances of equilibrium. *H. Clément*. *Sci Am S* 85:258-9 Ap 27 '18  
See also Gravitation
- Centrifugal machines**  
Casting pipe centrifugally. *Il diag Sci Am* 118:99+ F 2 '18  
Casting rings in centrifugal machine by De Lavaud process. *E. F. Cone*. *Il diag Iron Age* 102:801-7 O 3 '18; Abstract. *Am Soc M E J* 40:980 N '18  
Centrifugal machines and their adaptability to electric motor drive. *H. W. Rogers*. *Il Gen Elec R* 22:413-20 My '19  
Centrifugal machines with direct-connected motors. *Il Elec W* 73:58 Ja 4 '19  
Continuous and intermittent centrifugal machines. *Il Sci Am* 121:213 Ag 30 '19
- Centrifugal pumps.** See Pumps, Centrifugal
- Ceramics.** See Pottery
- Cercle de la chimie**  
Chemists' club for France. *J Ind & Eng Chem* 10:2-3 Ja '18
- Ceria**  
Physical study of the Welsbach mantle. *H. E. Ives*, *E. F. Kingsbury* and *E. Karrer*. *diags J Fr Inst* 186:585-94 N '18
- Ceric iodate**  
Determination of cerium in the presence of other rare earths by precipitation as ceric iodate. *P. H. M.-P. Brinton* and *C. James*. *Am Chem Soc J* 41:1080-5 JI '19
- Cerium**  
Determination of cerium in the presence of other rare earths by precipitation as ceric iodate. *P. H. M.-P. Brinton* and *C. James*. *Am Chem Soc J* 41:1080-5 JI '19  
See also Pyrophoric alloy
- Certified public accountants.** See Accountants, Public
- Chain gear**  
Chain drive fire pump; new application of centrifugal to water power drives. *C. H. Bunting*. *Il diag Textile World* 55:2727 My 3 '19  
Chain transmission in Nevada mill. *Il Elec R* 75:158 JI 26 '19  
Making Diamond sprocket chain. *E. K. Hammond*. *Il Mach* 25:1165-70; 26:25-8 Ag-S '19  
Manufacture of Diamond transmission chain. *J. V. Hunter*. *Il diags Am Mach* 49:643-7, 845-8, 1027-31, 1077-80 O 10, N 7, D 5-12 '18; Abstract. *Am Soc M E J* 40:1060-1 D '18  
Roller chain standardization. *diags Mach* 24:604 Mr '18; *Automotive Ind* 38:1133 Je 13 '18  
Sprocket design theory and practice. *W. M. Free*. *Il diags Mach* 25:147-50 O '18  
Standards for steel roller chains; *A. S. M. E.* report. *Mach* 24:1146 Ag '18
- Chain grates.** See Grates; Stokers, Mechanical
- Chains**  
Automatic stacking of chain links. *M. E. Duggan*. *diag Am Mach* 50:704 Ap 10 '19  
Business of making small chain. *E. R. Miner*. *Il Iron Age* 103:935-7, 1009-12 Ap 10-17 '19  
Cast-steel anchor chain. *A. E. Crockett*. *Il diags Eng Soc W Pa* 35:1-25; Discussion. 26-30 F '19  
Cast-steel anchor chain developed to meet war need; excerpts. *H. J. Cox*. *Eng N* 81:129-30 JI 18 '18; *Iron Age* 102:25-6 JI 4 '18  
Chain-link bending fixture. *C. F. Meyer*. *diags Am Mach* 48:31-3 Ja 3 '18  
Chain making and repairing in the mine blacksmith shop. *J. T. Springer*. *diags Coal Age* 15:220-4 Ja 30 '19  
Design of shackles and long chain links. *A. Raymond*. *diags Int Marine Eng* 24:705 O '19  
Electric furnace in malleable foundry; National malleable castings co. *F. L. Prentiss*. *Il plan Iron Age* 103:637-43 F 27 '19  
Electrically welded chain. *diags Iron Tr R* 63:560 S 5 '18  
Experiments with cast steel chain; abstracts. *C. K. Brooks*. *diags Iron Age* 102:26-8 JI 4 '18; *Eng N* 81:130 JI 18 '18; *Iron Tr R* 63:28-32 JI 4 '18; *Foundry* 46:374-5 Ag '18  
How a chain factory was built and then occupied. *C. Lundberg*. *Il Iron Age* 101:1585-90 Je 20 '18  
Huge chain cable is now cast successfully. *Il Foundry* 46:310-13 JI '18  
Making chains for the Panama locks. *Iron Tr R* 65:1109 O 23 '19  
Malleable plant proves versatility adapted to the successful manufacture of cast-steel anchor chain. *Il plan Iron Tr R* 64:623-9 Mr 6 '19  
Manufacture and testing of cast steel chain cables; memorandum issued by Lloyd's register of shipping. *Engineer* 126:134-5 Ag 16 '18  
Manufacture and testing of large chains for the fenders in the Panama canal locks. *H. Goldmark*. *Il diags W Soc E J* 24:88-101 F '19  
Molding and casting heavy steel anchor chain. *Il Foundry* 47:141-7 Ap 1 '19  
New rivetless conveyor chain. *Il diags Coal Age* 16:448-9 S 11 '19  
Rapid development of the electric cast steel anchor chain industry. *W. L. Merrill*. *Il diags Int Marine Eng* 23:630-4 N '18; Same abr. *Gen Elec R* 21:388-92 Je '18; Abstract. *Mach* 25:294 D '18  
Safe chain loads. *A. Black*. *diag Mach* 25:37-9 S '18  
Standard specifications for iron and steel chain; English and Spanish. *U S Bur For & Dom Com Ind Stand* 45:1-19 '19  
Tests prove merit of cast-steel chain. *W. L. Merrill*. *Iron Tr R* 63:1464-5 D 26 '18  
See also Chain gear
- Chalcopyrite**  
Crystal structure of chalcopyrite determined by X-rays. *C. L. Burdick* and *J. H. Ellis*. *diags Am Chem Soc J* 39:2518-25 D '17  
Flotation of chalcopyrite in chalcopyrite-pyrrhotite ores of southern Oregon. *W. H. Coghill*. *flow sheet U S Bur Mines Tech Pa* 182:1-10 '18; Same. *Eng & Min J* 105:422-4 Mr 2 '18
- Chalk**  
Chalk flints and the age of the earth. *Sci Am* 85:41 Ja 19 '18
- Chamber of commerce of the United States**  
Atlantic City meeting of the War service committees. *Chem & Met Eng* 19:798-803 D 15 '18; *Am Arch* 114:736-8 D 18 '18; *Am Lumberman* 2274:35-8 D 14 '18; *Automotive Ind* 39:996-9 D 12 '18; *Elec R* 73:929-33 D 14 '18; *Gas Age* 42:507-10 D 16 '18; *Iron Age* 102:1448-52 D 12 '18; *Ry Age* 65:1041-6 D 13 '18; *Sci Am* 119:492 D 21 '18; *Textile World* 54:2969-70 D 14 '18; *Gen Elec R* 22:3-8 Ja '19; *Heat & Ven* 16:41-3 Ja '19  
Chamber of commerce shows appreciation of electric railway situation. *Elec Ry J* 53:870-2 My 3 '19

**Chamber of commerce of the United States***—Continued*

- Committee on public utilities organizes. Elec Ry J 53:792 Ap 19 '19
- Convention at St Louis. A. Sinsheimer. Automotive Ind 40:990-2, 1022-3 My 8 '19
- Convention of the National federation of building industries of the United States, Atlantic City, N.J., July 15-18. Am Arch 114:101-7 Jl 24 '18; Am Lumberman 2253:38 Jl 20 '18; Arch Rec 44:184 Ag '18; Bldg Age 40:390-1 Ag '18
- Definite work for war-service committees. H. A. Wheeler. Am Mach 50:177-9 Ja 23 '19
- Delegates urge better roads. Automotive Ind 38:790 Ap 18 '18
- Industrial mobilization for the purpose of war. Elec W 70:1160 D 15 '17
- Referendum vote on water-power policy inaugurated by U.S. Chamber of commerce. Elec R 72:277-8 F 16 '18; Same cond. Eng N 80:330-4 F 14 '18
- Report of board of directors. Am Gas Eng J 110:455-6 My 24 '19
- Resolutions adopted at annual convention; excerpts from text. Ry R 62:567-9 Ap 20 '18
- Resolutions agreed upon; summary. Automotive Ind 38:789 Ap 18 '18
- 6th annual meeting, Chicago, April 9-12. Am Lumberman 2239:34-5; 2240:52 Ap 13-20 '18; Elec Ry J 51:711-12, 763-5 Ap 13-20 '18; Elec W 71:788-9 Ap 13 '18; Iron Age 101:1010-11 Ap 18 '18; Iron Tr R 62:993-7 Ap 18 '18; Ry Age 64:1011-19 Ap 19 '18; Eng N 80:789-90 Ap 18 '18; Am Mach 48:780-2 My 9 '18
- War industries committee is organized. Iron Tr R 61:1341 D 20 '17
- War service committees. Iron Age 102:709 S 19 '18

**Chamfering tool**

- Chamfering tool. C. C. Spreen. diags Mach 24:833 My '18
- Internal chamfering tool. R. A. Monte. diags Mach 26:239 N '19

**Chamoisette**

- Dyeing chamoisette. Textile World 53:2619 D 22 '17

**Champaign, Illinois****Railroads**

- New freight house for the Illinois Central R. R. il diags plans Ry R 62:220-4 F 16 '18

**Chañarcillo, Chile**

- Veins of Chañarcillo. W. L. Whitehead. bibliography il diags Econ Geol 14:1-45 Ja '19

**Change houses. See Mine buildings****Channels**

- Hydraulic efficiency of a drainage ditch for five different channel conditions. C. E. Ramser. il Eng N 82:522-3 Mr 13 '19
- See also* Canals; Rivers; Stream measurement; Waterways

**Channing, J. Parke**

- Elected first chairman of the Engineering council. por Eng N 80:478 Mr 7 '18

**Chapels**

- New chapel and baptismal font, St Thomas church, New York city. Arch & Bldg 50: front, pl 125 Jl '18
- St Joseph's convent chapel, Milwaukee, Wisconsin; views and plans. Am Arch 113:pl 160-9 My 1 '18

*See also* Church architecture**Chaplets**

- Obtaining best results from use of chaplets. E. Schwartz. diags Foundry 47:14-15 Ja '19

**Charcoal**

- Application of pyrometry to the manufacture of gas-mask carbon. K. Marsh. il Am Inst Min Bul 153:1611-26 S '19
- Charcoal evidence of corners as set by U.S. surveyors. A. S. Doty. Eng & Contr 50:566 D 18 '18
- Charcoal in Sweden. J. W. Beckman. J Ind & Eng Chem 11:1063-4 N '19
- Charcoal precipitation of aurocyanide. A. W. Allen. diags Met & Chem Eng 18:642-4 Je 15 '18; Excerpt. Eng & Min J 106:256-7 Ag 10 '18

**Development of activated charcoal. F. M. Dorsey. il J Ind & Eng Chem 11:282-7 Ap '19**

- Gas mask absorbents. A. B. Lamb, R. E. Wilson and N. K. Chaney. il J Ind & Eng Chem 11:422-32 My '19

**Gas works carbonise charcoal for gas masks. W. E. Brophy. il diags flow sheet Gas Age 44:189-92 S 1 '19**

- Manufacture of charcoal as an economic measure. H. Sylven. il Sci Am S 87:124-6 F 22 '19

**Mid-Continent iron company, Kansas City, builds charcoal furnace in Mid-West. il Iron Tr R 65:99-102 Jl 10 '19**

- Precipitation of gold with charcoal from cyanide solutions. H. G. Walton. Eng & Min J 105:506 Mr 16 '18

**Spontaneous explosion of the charcoal in liquid-oxygen containers. Sci Am S 87:52 Ja 25 '19**

- Theory of the precipitation of gold by charcoal. A. W. Allen. Eng & Min J 107:516-19 Mr 22 '19

**Wood charcoal as a catalyzer and its use as an adsorbent in gas masks. R. F. Bacon. J Ind & Eng Chem 11:891-2 S '19****Charging of batteries. See Storage batteries—Charging****Charleston, South Carolina**

- Wood construction feature of port terminal. H. Abbott. il diags plans Eng N 82:702-6 Ap 10 '19

**Charpy impact machine**

- Experimental data obtained on Charpy impact machine. F. C. Langenberg. il diags Am Inst Min Bul 162:1471-99 Ag '19; Discussion. 155:3051-5, 3164-5 N-D '19

**Charts (calculating)**

- Alignment chart for Dempster Smith's formulas for cutting speed. A. L. Jenkins. diags Am Mach 48:614-15 Ap 11 '18

- Alignment chart for feeds, speeds and power of lathe tools. A. L. Jenkins. Am Mach 48: 456-7 Mr 14 '18

- Alignment chart for Herbert's cubic law. A. L. Jenkins. Am Mach 48:540-1 Mr 28 '18

- Alignment charts. G. L. Hedges. Mach 24: 615-18 Mr '18

- Alignment charts for finding the dimensions and volumes of bumped heads. C. H. Berry. diags Power 49:926-7 Je 17 '19

- Alignment chart for the evaluation of coal. A. F. Blake. J Ind & Eng Chem 10:627-9 Ag '18

- Ampere efficiency in copper refining. M. H. Merriss. chart Eng & Min J 107:742-3 Ap 26 '19

- Approximate method of calculating economy of feed-water heater. W. F. Schaphorst. Elec R 72:432 Mr 9 '18

- Boiler efficiency and stack temperatures. W. F. Schaphorst. Elec R 73:336-7 Ag 31 '18

- Calculation of boiler stresses. G. E. Parks. Ry Mech Eng 92:139-43 Mr '18

- Calculation of plant efficiencies and fuel costs. J. T. Foster. charts Power 49:316-18 Mr 4 '19

- Capacity of cylindrical tanks. Motor Age 35:51 Je 12 '19

- Chart for comparing costs of materials used in and about the engine room. W. F. Schaphorst. chart Int Marine Eng 23:482 Ag '18

- Chart for determining pipe areas. W. F. Schaphorst. Eng & Min J 106:866 N 16 '18

- Chart for determining planning time. A. L. Jenkins. Am Mach 49:742-4 O 24 '18

- Chart for estimating change in declination of sun; explanation of chart used with meridiograph. Coal Age 13:943 My 18 '18

- Chart for estimating motor truck and trailer haulage costs. W. Bigelow. Eng N 82:1278 Je 26 '19

- Chart for finding coal loss in percentage of coal fired. D. G. Beaman. chart Power 50:69 Ji 8 '19

- Chart for finding factor of evaporation. F. Szabo. Power 48:702-3 N 12 '18

- Chart for finding factor of evaporation, equivalent evaporation, evaporation per pound of coal and boiler efficiency, based on the Marks and Davis steam tables. Power 49:supp Je 24 '19

**Charts (calculating)—Continued**

- Chart for finding the factor of evaporation. G. H. Sheasley. Power 49:406 Mr 18 '19
- Chart for spacing shaft hangers. W. F. Schaphorst. Eng & Min J 105:473 Mr 9 '18
- Chart for the determination of pipe diameters, flow and loss of head. chart Eng & Min J 105:684 Ap 13 '18
- Chart of angles. H. Hodgkinson. Am Mach 50:125 Ja 16 '19
- Chart of Helix angles. A. B. Babbitt. Am Mach 49:720 O 17 '18
- Chart to determine money lost up the chimney. Am Gas Eng J 108:396 Ap 27 '18; Same cond. Coal Age 14:268-9 Ag 8 '18; Same cond. Heat & Ven 15:60 N '18; Same. Met & Chem Eng 18:551-2 My 15 '18
- Charts for the design of helical springs. M. M. Brayton. charts Am Mach 48:1007-11 Je 18 '18
- Charts for the proper cutting speed of steel. H. M. Brayton. Am Mach 51:691-2 O 9 '19
- Charts give contents of cylindrical tanks. E. E. Glass. Eng N 81:642 O 8 '18
- Charts giving time required to hob spur gears. V. P. Rumely. charts Mach 24:1085-6 Ag '18
- Checking percentages by chart. W. Wyer. chart Ry Age 66:1826-8 Je 27 '19; Same cond. Eng & Contr 52:80-1 Jl 16 '19
- Coal cost of avoidable belt slip. chart Gas Age 41:281 Mr 15 '18; Same. Am Ind 18:35 Ap '18; Excerpt. Am Inst Min E Bul 136:sup2+ Ap '18
- Cost of coal for generating steam. Elec R 73:901 D 7 '18
- Cost of heat losses from bare pipes. W. F. Schaphorst. Elec R 73:846-7 My 18 '18; Same. Gas Age 42:68 Jl 15 '18
- Determining of piecework rates from charts. O. M. Burkhardt. Am Mach 49:383-7 Ag 29 '18
- Diagram for computing band spacing for woodstave pipe. W. T. Batcheller. diags Eng N 83:472 S 4 '19; Discussion. E. A. Moritz. 84:710 O 9 '19
- Efficiency ratio-chart, consisting of a portion of a total-heat-entropy chart with curves superimposed thereon showing the steam consumption per kilowatt-hour. Power 50:141 Jl 22 '19
- Elastic indentation of steel balls under pressure. C. A. Briggs, W. C. Chapin and H. G. Hell. charts Am Soc M E J 40:386-8 My '18; Same. Am Mach 48:1105-9 Je 27 '18
- Figuring radiation furnace pipe sizes. charts Metal Work 89:488-90 Ap 12 '18
- Finding the contents of a horizontal cylindrical tank. F. Szabo. chart Power 48:266-7 Ag 20 '18
- Fuel cost of heat and power. F. H. Rosenkrantz. Power 48:712 N 12 '18
- Gas economy chart. W. F. Schaphorst. Gas Age 41:69 Ja 15 '18
- Gear-tooth chart. J. H. Moore. Am Mach 50:903 My 8 '19
- Graphic method of determining size of safety valve. H. F. Gauss. Power 48:414-17 S 17 '18; Abstract. Am Soc M E J 40:966-7 N '18
- Graphic method of determining the amount of radiation required. Power 47:225 F 12 '18
- Graphic method of determining tooth pressures of gears. G. W. Cronk. chart Am Mach 51:712 O 9 '19
- Graphical determination of line constants. T. A. Wilkinson. charts (supp) diag Elec W 71:557-8 Mr 16 '18
- Graphical study of screw threads. H. M. Brayton. charts Am Mach 50:149-50 Ja 23 '19
- Graphs for finding safe current-carrying capacity of insulated copper wire. M. C. Mason. Elec R 73:1020 D 28 '18
- Horse-power and displacement chart for natural gas compressors. E. O. Hickstein. 11 Am Gas Eng J 110:375-7 My 8 '19
- Horsepower pull of belts. W. F. Schaphorst. Iron Age 102:687 S 19 '18
- Mechanical device for reading curves and tables. chart Eng N 83:644 O 2 '19
- Nomographic chart in cofferdam design. W. A. Lyon. charts Eng N 82:1029-30 My 22 '19
- Nomography; with special reference to its use in engine design. F. L. Martineau and A. M. Arter. diags Automotive Ind 38:955-7, 992-3, 1045-7 My 16-30 '18
- Pipe-line flow capacities for natural gas. E. O. Hickstein. chart Am Gas Eng J 110:483-4 Je 7 '19
- Placing CO<sub>2</sub> on financial basis. chart Elec R 73:773 My 4 '18
- Quick design of T-beams. W. O. Sell. Concrete 12:135-6 Ap '18
- Resistances to parallel determined graphically. A. S. L. Barnes. Elec W 71:1323-4 Je 22 '18
- Simplifying air duct design. L. Kraft. diags Metal Work 91:225-7, 307-9+, 403-5+ F 21, Mr 7, 28 '19
- Simplifying transmission-line calculations. T. A. Wilkinson. Elec W 71:244-8 F 2 '18
- Synthetic air chart; with discussion. E. V. Hill. Am Soc Heat & V E 23:225-30 '17
- Tensile strength and hardness of steel. H. M. Brayton. charts Iron Age 102:627-9 S 12 '18
- Universal weir chart. E. E. Glass. diags Eng N 82:926 My 8 '19
- Weight of metal removed from machine members by drilling. W. Thompson. chart Mach 26:35 S '19
- See also* Graphic methods
- Chase, Henry S., 1855-1918
- Sketch. por Metal Ind 16:126-7 Mr '18
- Chassis. *See* Automobiles—Chassis
- Chatter marks
- Elimination of chatter marks. F. W. Bach; W. S. Rowell. diags Am Mach 50:307-8, 803 F 13, Ap 24 '19
- Checks
- Can refusal to pay certified checks be sustained? Am Ind 19:27-8 Jl '19
- Delays in cashing or depositing checks should be avoided. R. H. Butz. Am Ind 20:30 N '19
- Getting quick payment of customers checks. E. J. Buckley. Metal Work 90:281 S 6 '18
- Person, signing check in blank, is not liable even to an innocent purchaser for value, if check is stolen and negotiated. Dom Eng 84:481-2 S 21 '18
- Rights of depositor against bank which pays check which has been raised. Dom Eng 88:156-7 Jl 26 '19
- Trying to end bad check passing. R. H. Butz. Am Ind 19:20 N '18
- When a check is a receipt. R. H. Butz. Dom Eng 86:186 Ja 18 '19
- Cheese
- Use of gas in the manufacture of cheese. G. C. Shadwell. Am Gas Eng J 111:78 Jl 26 '19
- Bacteriology**
- Bacterial flora of Roquefort cheese. Sci Am S 87:75 F 1 '19
- Chemical affinity
- Chemical affinity and atomic valence. G. Ciamician and M. Padoa. Sci Am S 83:154-5 S 6 '19
- Molecular association and chemical combination. F. Michaud. Sci Am S 87:247+ Ap 19 '19
- Problems bearing on residual affinity. S. U. Pickering. Sci Am S 85:315 My 18 '18
- See also* Chemical reaction
- Chemical alliance
- Chemical alliance succeeds chemical committee of Council of national defense. Met & Chem Eng 18:95 Ja 15 '18
- 1st annual meeting, New York, Feb. 6. Met & Chem Eng 18:120, 171 F 1-15 '18; J Ind & Eng Chem 10:231 Mr '18
- Resuscitation of the Chemical alliance. J Ind & Eng Chem 10:3 Ja '18
- Chemical analysis. *See* Chemistry, Analytic
- Chemical apparatus
- Apparatus for fractional distillation under diminished pressure. W. A. Noyes and G. S. Skinner. diag Am Chem Soc J 39:2718-20 D '17

**Chemical apparatus—Continued.**

- Apparatus for rapid gastric analysis together with a method for the preservation of starch solution. R. J. Miller. *diags J Ind & Eng Chem* 11:963-4 O '19
- Application of rotating reducers in the determination of iron. W. Scott. *J Ind & Eng Chem* 11:1135-7 D '19
- Aspirator. J. M. Jöhlén. *diag J Ind & Eng Chem* 10:632 Ag '18
- Automatic chemist. *diags Sci Am* 120:548 My 24 '19
- Comparative tests of chemical glassware. P. H. Walker and F. W. Smither. *U S Bur Stand Tech Pa* 107:1-23 '18
- Comparative tests of palau and rhotanium ware as substitutes for platinum laboratory utensils. L. J. Gurevich and E. Wichers. *J Ind & Eng Chem* 11:570-3 Je '19
- Concrete as a chemical engineering material. M. Toch. *Sci Am S* 87:339 My 31 '19
- Convenient and efficient digestion apparatus for the determination of crude fiber. H. D. Spears. *il diag J Ind & Eng Chem* 11:140-1 F '19
- Decanting; time shortened if tube is held in inclined position. H. Tillisch. *diag J Ind & Eng Chem* 10:631 Ag '18
- Device for introducing a vapor into a gas. E. H. Zeilfuchs. *diag Am Chem Soc J* 40:1899 D '18
- Device to insure tight connections between glass and rubber tubing. C. C. Kiplinger. *diag J Ind & Eng Chem* 10:631 Ag '18
- Effects of heat on chemical glassware. R. G. Sherwood. *diag Am Chem Soc J* 40:1645-53 N '18
- Efficient laboratory funnel for filtering neutral liquids, especially the volatile organic solvents. T. B. Aldrich. *il diags J Ind & Eng Chem* 11:139-40 F '19
- Fat extraction apparatus. J. M. Pickel. *il diags J Ind & Eng Chem* 11:1053-5 N '19
- Fusion apparatus. F. Pope. *diags Met & Chem Eng* 17:704-9 D 15 '17
- Gas dilatometer for ascertaining decomposition points. W. C. Moore and J. B. Davies. *diags Met & Chem Eng* 18:301-2 Mr 15 '18
- Hydrogen sulfide generator. L. Sattler. *il J Ind & Eng Chem* 10:226 Mr '18
- Improved electro-analysis apparatus; rapid determination of the constituents in copper alloys. J. L. Jones. *il diags Metal Ind* 15:483-5 N '17
- New and rapid apparatus for electrochemical analyses. J. T. King. *il diags Chem & Met Eng* 21:25-9 Ji 1 '19
- New form of ultra-filter; some of its uses in biological and synthetic organic chemistry. P. A. Kober. *diags Am Chem Soc J* 40:1226-30 Ag '18
- Portable hydrogen sulfide generator. W. F. Munn. *diags J Ind & Eng Chem* 10:130-1 F '18
- Quantitative determination of suspended tarry matter in gas. F. W. Steere. *il Chem & Met Eng* 19:686-9 N 1 '18
- Rack for Kjeldahl digestion flasks. F. E. Rice. *diags plan J Ind & Eng Chem* 10:631-2 Ag '18
- Scrubber for ammonia distillations. B. S. Davison. *diags J Ind & Eng Chem* 11:465-6 My '19
- Simple and efficient filtering tube. W. M. Thornton, jr. *diag J Ind & Eng Chem* 10:132 F '18
- Speeding up the steel works laboratory. H. C. Kimber. *diags Chem & Met Eng* 19:512-14 S 23 '18
- Use of wood in chemical apparatus. A. W. Schorger. *Met & Chem Eng* 18:528-31 My 16 '18
- See also* Burets; Condensers (gases and vapors); Filters and filtration (chemistry); Metallurgical apparatus; Pipets; Stopcocks; Viscosimeters; Volumetric apparatus

**Manufacture**

- Grinding glass tips for drop-weight apparatus. E. C. H. Davies. *Am Chem Soc J* 40:784-5 My '18

- Permanent marking of glass vessels. J. C. Bock. *Am Chem Soc J* 41:359-61 Mr '19
- Seeing chemical plant apparatus made. *il Chem & Met Eng* 20:395-9 Ap 15 '19
- Use of standard dies in making ground glass joints. S. F. Acree. *diags J Ind & Eng Chem* 11:338-9 Ap '19

**Chemical elements**

- Classification of the chemical elements. I. W. D. Hackh. *Sci Am S* 87:146-9 Mr 8 '19
- Complexity of the chemical elements. F. Soddy. *Sci Am S* 85:78-80, 94-6 F 2-9 '18
- Melting points of chemical elements. *J Elec* 43:272 S 15 '19
- Periodic system of elements. C. P. Steinmetz. *il diags Am Chem Soc J* 40:733-9 My '18
- What is a chemical element? F. Soddy. *il diag Sci Am S* 88:69+ Ag 2 '19
- See also* Atomic weights; Periodic law; Valence; also names of elements, e.g. Arsenic, Carbon, Helium, Nitrogen, Oxygen

**Chemical engineering**

- Chemical engineering as a distinct branch of the chemical industry. *Engineer* 126:115-16 Ag 9 '18
- Status of chemical engineering in our universities and colleges immediately prior to the declaration of war. H. F. Zoller. *J Ind & Eng Chem* 10:644-6 Ag '18
- See also* Chemistry, Technical; Drying; Metallurgy; Waste products

**Study and teaching**

- Modern training of the chemical engineer. R. H. McKee. *Chem & Met Eng* 20:503-4 My 15 '19
- The soldier, the sailor, and the chemist. L. T. Sutherland. *J Ind & Eng Chem* 11:485-6 My '19

**Chemical engineers**

- Manufacturer's experience with graduate chemical engineers. S. R. Church. *J Ind & Eng Chem* 10:1019-20 D '18

- Chemical engineers, American institute of. *See* American institute of chemical engineers

**Chemical equilibrium**

- Equilibria in solutions containing mixtures of salts; the system water and the sulfates and chlorides of sodium and potassium. W. C. Blasdale. *diags J Ind & Eng Chem* 10:344-7 My '18
- Equilibria involving cyanogen iodide; the free energy of formation of cyanogen. G. N. Lewis and D. B. Keyes. *diag Am Chem Soc J* 40:472-8 Mr '18
- Equilibrium between carbon monoxide, carbon dioxide, sulfur dioxide and free sulfur. J. B. Ferguson. *diags Am Chem Soc J* 40:1626-44 N '18
- Equilibrium data on the polybromides and polyiodides of potassium. G. A. Linhart. *Am Chem Soc J* 40:158-63 Ja '18
- Equilibrium in the reaction between water and sulfur at high temperatures; the dissociation of hydrogen sulfide. M. Randall and F. R. v. Bichowsky. *diags Am Chem Soc J* 40:368-75 F '18
- Equilibrium in the reaction between water and sulfur at the boiling point of sulfur. G. N. Lewis and M. R. Randall. *diag Am Chem Soc J* 40:362-7 F '18
- Equilibrium in the system: ferrous carbonate, carbon dioxide and water. H. J. Smith. *Am Chem Soc J* 40:879-83 Je '18
- Equilibrium in the system  $\text{Na}_2\text{SO}_4\text{-CuSO}_4\text{-H}_2\text{SO}_4\text{-H}_2\text{O}$ . H. W. Foote. *diags J Ind & Eng Chem* 11:629-31 Ji '19
- Equilibrium in the system: zinc carbonate, carbon dioxide and water. H. J. Smith. *Am Chem Soc J* 40:883-5 Je '18
- Heterogeneous equilibria between aqueous and metallic solutions: the interaction of mixed salt solutions and liquid amalgams. G. M. Smith and E. A. Rees. *Am Chem Soc J* 40:1802-47 D '18
- Laws of chemical equilibrium. E. D. Williamson and G. W. Morey. *Am Chem Soc J* 40:49-59 Ja '18

**Chemical equilibrium—Continued**

Pressure-temperature curves in univariant systems. G. W. Morey and E. D. Williamson. *Am Chem Soc J* 40:59-84 Ja '18

**Chemical extraction**

Compounds of phenol and the cresols with pyridine. F. W. Skirrow and T. V. Binmore. *Am Chem Soc J* 40:1431-42 S '18

**Chemical foundation**

Chemical foundation, Inc. *Sci Am* 120:315 Mr 29 '19; *J Ind & Eng Chem* 11:279 Ap '19

German methods and our present situation. J. H. Choate, Jr. *J Ind & Eng Chem* 11:403-5 My '19; Same. *Color Tr J* 4:103-5 My '19; Abstract. *Textile World* 55:2205 Ap 12 '19

Semi-official corporation. *Sci Am* 120:315 Mr 29 '19; *J Ind & Eng Chem* 11:279 Ap '19

**Chemical industries**

Colloids and chemical industry. W. C. M. Lewis. *Sci Am S* 85:379 Je 15 '18

Cotton seed products and the chemical industries. E. W. Thompson. *Sci Am S* 86:153 S 7 '18

Gas in the chemical and associated industries. G. C. Shadwell. *Il Am Gas Eng J* 109:267-71 S 21 '18

Importance of chemistry in industry. G. W. Thompson. *Chem & Met Eng* 19:355-7 S 24 '18; Same. *Textile World* 54:1449 S 28 '18; Same. *J Ind & Eng Chem* 10:829-30 O '18

Interconnection of economic botany and chemical industry. E. Wheeler. *Sci Am S* 87:63-4 Ja 25 '19

Labyrinth of chemistry. *Sci Am* 120:205+ Mr 1 '19

Need for organization in new chemical companies. F. Hemingway. *Met & Chem Eng* 18:180-1 F 15 '18

Physical chemistry in the industries. J. C. Philip. *Sci Am S* 88:90-1 Ag 9 '19

Relation of by-products to chemical industries. W. H. Blauvelt. *Il Gas Age* 43:19-21 Ja 1 '19

Stream pollution and its relation to the chemical industries. E. B. Phelps. *J Ind & Eng Chem* 11:928-9 O '19

World-wide problems of the chemical industries. H. Grossmann. *Chem & Met Eng* 21:470 O 8 '19

See also Chemical research; Chemicals; Chemistry, Technical; Coal-tar products; Dye industry; Electrochemical industries; Fertilizers and manures; Metallurgy; Potash; Saltpeter, Chile; Tanning

**Bibliography**

Publications of Bureau of foreign and domestic commerce and their bearing on the chemical industry. O. P. Hopkins. *J Ind & Eng Chem* 10:933-6 N '18

**Exhibitions**

Description of dye and chemical exhibits. *Textile World* 54:1453+ S 28 '18

4th annual exposition, New York, Sept. 23-28. *Chem & Met Eng* 19:353-8 S 24 '18; *Elec R* 73:503 S 28 '18; *Textile World* 54:1431-2+ S 28 '18; *J Ind & Eng Chem* 10:826-61 O '18; *Eng & Min J* 106:631 O 5 '18; *Metal Ind* 16:479-80 O '18

5th national chemical exposition at Chicago: list of exhibitors. *Chem & Met Eng* 21:300-7 S 15 '19; *J Ind & Eng Chem* 11:791-3 Ag '19; *Textile World* 56:1776+ S 27 '19

5th national exposition, Chicago; addresses at the opening night. *Chem & Met Eng* 21:449-55 O 8 '19

5th national exposition, Chicago, Sept. 22-27; program. *Eng & Min J* 108:367-8 Ag 30 '19

5th national exposition of chemical industries; papers. *Il J Ind & Eng Chem* 11:973-82 O '19

From A to Z with the exhibitors. *Il Chem & Met Eng* 19:391-4, 422-4, 493-6, 534-6 S 25-28 '18

Observations made at the 5th national exhibition. *Chem & Met Eng* 21:456-7 O 8 '19

Some impressions of the national exposition of chemical industries. J. M. Matthews. *Color Tr J* 5:119-21 N '19

**Statistics**

Abstract of the census of chemical manufacturers. *Chem & Met Eng* 19:371-86 S 24 '18

Efficiency and productivity of wage and salary earners in the chemical industries an attempt to obtain an answer. O. P. Hopkins. *J Ind & Eng Chem* 11:727-38 Ag '19

Method of preparation of the census of chemical imports. E. R. Pickrell. *J Ind & Eng Chem* 10:936-7 N '18

**France**

Conditions of the French chemical industries during 1916. F. J. LeMaistre. *J Ind & Eng Chem* 10:421-3 Je '18

Efforts of the French chemical industries during the war. *Met & Chem Eng* 17:715 D 15 '17

French chemical industry and the war. *Chem & Met Eng* 19:286 S 15 '18

Future of the chemical industry in France. A. Kling. *Gas Age* 41:568-70 Je 15 '18

Industrial efforts in France during the war. G. Maoussa. *Chem & Met Eng* 20:56-8 Ja 15 '19

Manufacture of chemicals in France. *Eng & Min J* 105:324 F 16 '18

**Germany**

Condition of chemical plants in Germany. F. Pope. *J Ind & Eng Chem* 11:512 Je '19

Development of German chemical companies. *Color Tr J* 4:91 Ap '19

German chemical industry. *Met & Chem Eng* 18:38 Ja 1 '18

German chemical industry in 1917. *Sci Am* 119:359 N 2 '18

Industrial Germany—her methods and their defeat. F. P. Garvan. *J Ind & Eng Chem* 11:574-8 Je '19

Report of the alien property custodian on the chemical industry. *J Ind & Eng Chem* 11:352-65 Ap '19

See also Dye industry—Germany

**Great Britain**

Future of pure and applied chemistry. W. J. Pope. *Chem & Met Eng* 19:716-20 N 15 '18

Present status of labor in the English chemical industry. A. E. Marshall. *Chem & Met Eng* 21:16 Jl 1 '19

Women in the chemical industries of England. *J Ind & Eng Chem* 10:1028-9 D '18

**Illinois**

Chemical industries of Illinois and the Chicago district. P. Thomson. *Il Chem & Met Eng* 21:315-18 S 15 '19

**Indiana**

Chemical industries of Indiana. F. O. Anderegg. *Il Chem & Met Eng* 21:324-5 S 15 '19

**Japan**

Chemistry in Japan. A. Hirsch. *Il Met & Chem Eng* 18:414-16 Ap 15 '18

Progress in Japanese chemical industries. *Chem & Met Eng* 21:208-9 Ag 15 '19

**Michigan**

Chemical industries of Michigan. W. L. Badger. *Chem & Met Eng* 21:330-4 S 15 '19

**Netherlands**

Chemical industry in the Netherlands. *J Ind & Eng Chem* 10:947 N '18

**South Africa**

Chemical markets in the Union of South Africa. O. P. Hopkins. *J Ind & Eng Chem* 10:887-91 N '18

**South America**

Chemical markets of Argentina, Brazil and Uruguay. O. P. Hopkins. *J Ind & Eng Chem* 10:701-7 S '18

**Chemical Industries—South America—Continued**  
 Chemical markets of Colombia, Ecuador, the Guianas, Venezuela, and Paraguay. O. P. Hopkins. *J Ind & Eng Chem* 10:977-81 D '18  
 Chemical trade of Chile, Peru, and Bolivia. O. P. Hopkins. *J Ind & Eng Chem* 10:805-9 O '18

#### United States

Advances in industrial organic chemistry since the beginning of the war. S. P. Sadtler. *J Ind & Eng Chem* 10:854-8 O '18; Same cond. *Chem & Met Eng* 19:556-60 O 1 '18  
 American chemical industries and the tariff commission. W. S. Culbertson. *J Ind & Eng Chem* 11:400-3 My '19  
 Chemical industry in export trade. G. A. O'Reilly. *Chem & Met Eng* 19:358-9 S 24 '18  
 Chemical market in the United States in 1917. *Met & Chem Eng* 18:46-60 Ja 1 '18  
 Chemical progress of America in tabloid form. *Sci Am* 118:28 Ja 5 '18  
 Chemicals and allied products used in the United States. E. R. Pickrell. *U S Bur For & Dom Com misc ser* 82:1-194 '19  
 Chemistry in khaki for past four years. C. F. Woods. *Textile World* 55:351+ Ja 11 '19  
 Chemists answer nation's call. *Sci Am* 118:704+ Ja 19 '18  
 Economic importance of our chemical industry. F. A. Clawson. *Chem & Met Eng* 19:362-6 S 24 '18  
 Economic status of American chemical industry. F. E. Breithut. *Chem & Met Eng* 21:129-31 Ag 1 '19  
 Effect of the war on American chemical trade. O. P. Hopkins. *J Ind & Eng Chem* 10:692-700 S '18  
 Electricity releases chemistry's power. J. M. Matthews. *Il Gen Elec R* 21:727-50 N '18  
 5th national exposition of chemical industries; addresses at the opening night. *Chem & Met Eng* 21:449-55 O 8 '19  
 5th national exposition of chemical industries; papers. *Il J Ind & Eng Chem* 11:973-82 O '19  
 Imports and exports; the Bureau of foreign and domestic commerce of the Department of commerce reports for March, 1919. *Chem & Met Eng* 20:593 Je 1 '19  
 Industry to order in a hurry. *Sci Am* 119:180 Ag 17 '18  
 Organic synthesis and the du Pont company. C. L. Reese and C. M. Stine. *Chem & Met Eng* 19:569-71 O 1 '18  
 Our chemical industries made permanent. G. W. Thompson. *Chem & Met Eng* 20:118-23 F 1 '19  
 Our preparation for after the war. B. C. Hesse. *J Ind & Eng Chem* 10:881-7 N '18  
 Our resources. G. W. Thompson. *Met & Chem Eng* 18:21-5 Ja 1 '18  
 Outstripping Germany in the chemical industry. H. E. Howe. *Sci Am* 119:293+ O 12 '18  
 Permanent chemical independence. C. H. Herty. *J Ind & Eng Chem* 10:826-8 O '18; Same cond. *Chem & Met Eng* 19:353-5 S 24 '18; Same cond. *Textile World* 54:1431-2+ S 28 '18  
 Possibilities for the development of chemical industries in the southern states. R. K. Meade. *Met & Chem Eng* 18:466-9 My 1 '18  
 Prospects of a chemical industry in southern California. J. Kosbig. *Chem & Met Eng* 19:27-30 Jl 1 '18  
 Report of the alien property custodian on the chemical industry. *J Ind & Eng Chem* 11:352-65 Ap '19; Excerpts. *Chem & Met Eng* 20:264-6 Mr 15 '19  
 Two hundred and fiftieth anniversary of chemical industry in America. C. A. Browne. *J Ind & Eng Chem* 11:16-19 Ja '19  
 University of Nebraska; dedication of the new chemistry hall; dedicatory address. W. L. Sibert. *Il plans J Ind & Eng Chem* 11:671-4 Jl '19  
 War credits. *Sci Am* 120:406+ Ap 19 '19  
 War disturbances and peace readjustments in the chemical industries. G. Jones. *Chem & Met Eng* 19:368-70 S 24 '18; Same. *J Ind & Eng Chem* 10:783-5 O '18

Work of the chemical section of the War industries board. C. H. MacDowell. *J Ind & Eng Chem* 10:780-3 O '18

See also Chemical foundation; Dye industry—United States

#### West Indies

Chemical markets of the West Indies. O. P. Hopkins. *J Ind & Eng Chem* 11:19-26 Ja '19

#### Wisconsin

Chemical industries of Wisconsin. O. L. Kowalke. *Chem & Met Eng* 21:338-9 S 15 '19

Chemical industry, Society of. See Society of chemical industry

#### Chemical laboratories

Chemical laboratory as a publicity factor. R. P. Fischelis. *J Ind & Eng Chem* 11:929-30 O '19

Internal publicity as an aid to the laboratory. S. M. Masse. *J Ind & Eng Chem* 11:585-6 Je '19

Laboratory and office of A. D. Little, inc., the Riverway, Cambridge, Mass. *Il plans Am Arch* 114:577-8, pl 146-6 N 13 '18

Modern laboratory for industrial research; Arthur D. Little, inc., Cambridge, Mass. *Il Chem & Met Eng* 19:100-1 Jl 15 '18

Relation of the chemist to the brass industry; Scovill manufacturing company. W. B. Price. *Il J Ind & Eng Chem* 11:770-7 Ag '19

See also United States—Mines, Bureau of—Pittsburgh station

#### Chemical literature

Report by the committee on publication of compendia of chemical literature, etc. *J Ind & Eng Chem* 11:415-17 My '19

See also Chemistry—Bibliography; Chemistry—Periodicals

#### Chemical patents

List of applications made to the Federal trade commission for licenses under enemy-controlled patents pursuant to the trading-with-the-enemy act. *J Ind & Eng Chem* 11:382-4, 602-4 Ap, Je '19

Review of the American patent literature on arspenamine (salvarsan) and other arsenicals. H. F. Lewis. *J Ind & Eng Chem* 11:141-5 F '19

#### Chemical plants

Barrett company, Frankford, Philadelphia. *Il Chem & Met Eng* 21:493-6 O 15 '19

Erection of huge sulphuric, nitric, mixed acid and denitrating plant under war pressure. H. E. Hollister and C. E. Hollister. *Il plan Chem & Met Eng* 20:406-12 Ap 15 '19

Fire protection in chemical plants. W. D. Milne; B. Richards. *J Ind & Eng Chem* 11:489-90 My '19

How long does it take to develop a laboratory process into a dividend. H. H. Dow. *Chem & Met Eng* 21:452-5 O 8 '19

Kingsport, Tennessee, and its chemical industries. *Il diag Chem & Met Eng* 20:565-70, 639-44 Je 1-15 '19

Manufacture of war gases in Germany. J. F. Norris. *diags J Ind & Eng Chem* 11:817-29 S '19

U.S. chemical plant for manufacturing sodium cyanide, Saltville, Virginia. C. O. Brown. *Il J Ind & Eng Chem* 11:1010-13 N '19

United States government chlorine-caustic soda plant at Edgewood arsenal, Edgewood, Maryland. S. M. Green. *Il diags plan Chem & Met Eng* 21:17-24 Jl 1 '19

See also Metallurgical plants; Nitrate plants (federal)

#### Chemical reaction

Action of phosphorus trichloride on unsaturated ketones. J. B. Conant. *Am Chem Soc J* 39:2679-84 D '17

Chemical action produced by radium emanation; the chemical effect of recoil atoms. S. C. Lind. *Am Chem Soc J* 41:551-9 Ap '19

**Chemical reaction—Continued**

- Chemical reactions at low pressures; the clean-up of nitrogen by a heated molybdenum filament. I. Langmuir. *Am Chem Soc J* 41:167-94 F '19
- Chemical reactions in the corona; ozone formation. F. O. Anderegg. *diag Am Chem Soc J* 39:2581-95 D '17
- Equilibrium in the reaction between water and sulfur at high temperatures; the dissociation of hydrogen sulfide. M. Randall and F. R. v. Bichowsky. *diag Am Chem Soc J* 40:368-75 F '18
- Equilibrium in the reaction between water and sulfur at the boiling point of sulfur. G. N. Lewis and M. Randall. *diag Am Chem Soc J* 40:362-7 F '18
- Free energy of dilution of sulfuric acid. M. Randall and O. E. Cushman. *Am Chem Soc J* 40:393-7 F '18
- Fusion of sodium hydroxide with some inorganic salts. M. C. Boswell and J. V. Dickson. *Am Chem Soc J* 40:1773-9 D '18
- Heat of reaction of ammonia oxidation. G. B. Taylor. *J Ind & Eng Chem* 11:1121-3 D '19
- Investigation of the reaction between antimony and solutions of sodium in liquid ammonia. E. B. Peck. *diag Am Chem Soc J* 40:335-47 F '18
- Molecular rearrangements in the camphor series; the decomposition products of the methyl ester of isosaminocamphonic acid; a new reaction involving the formation of the methyl ether of a hydroxy acid. W. A. Noyes and G. S. Skinner. *Am Chem Soc J* 39:2692-718 D '17
- Neglected chemical reaction and an available source of potash. *Sci Am S* 85:390 Je 22 '18
- Preliminary study of reversible reactions of sulfur compounds. G. N. Lewis, M. Randall and F. R. v. Bichowsky. *Am Chem Soc J* 40:356-62 F '18
- Reaction between acid halides and aldehydes. R. Adams and E. H. Vollweiler. *Am Chem Soc J* 40:1732-46 N '18
- Reactions between solid substances. *Sci Am S* 86:96 Ag 10 '18
- Reactions in non-aqueous solvents; the action of chromyl chloride upon phosphorus halides. H. S. Fry and J. L. Donnelly. *Am Chem Soc J* 40:478-82 Mr '18
- Reactions of the formamides; the constitution of some pyrazole derivatives. F. B. Dains and R. N. Harger. *Am Chem Soc J* 40:562-9 Mr '18
- Relations between the chemical structures of carbonyl derivatives and their reactivities toward salts of semicarbazide. A. Michael. *Am Chem Soc J* 41:393-424 Mr '19
- Some reactions of acetylene. W. R. Hodgkinson. *Sci Am S* 85:355 Je 8 '18
- Starting and stability phenomena of ammonia-oxidation and similar reactions. F. G. Liljenroth. *Chem & Met Eng* 19:287-93 S 15 '18; Same. *Gen Elec R* 21:807-15 N '18
- Study of the glucosazone reaction. I. D. Gardard and H. C. Sherman. *Am Chem Soc J* 40:955-69 Je '18
- See also Catalysis; Chemical affinity; Chemical reagents
- Chemical reaction, Velocity of**
- Chemical action produced by radium emanation; the combination of hydrogen and oxygen. S. C. Lind. *diag Am Chem Soc J* 41:531-51 Ap '19
- Chemical reagents**
- Action of hydrogen peroxide upon uric acid; second paper on hydrogen peroxide as a reagent in the purin group. C. S. Venable. *diag Am Chem Soc J* 40:1099-1120 J1 '18
- Action of thionyl and sulfuryl chlorides on sulfur and phosphorus. H. B. North and J. C. Thomson. *Am Chem Soc J* 40:774-7 My '18
- Allantoxanic acid as an oxidation product of uric acid; third paper on hydrogen peroxide as a reagent in the purin group. F. J. Moore and R. M. Thomas. *Am Chem Soc J* 40:1120-32 J1 '18

- Organic chemical reagents; amylene, tertiary amyl alcohol.** R. Adams, O. Kamm and C. S. Marvel. *Am Chem Soc J* 40:1950-5 D '18
- Organic chemical reagents;  $\beta$ -phenyl-hydroxylamine and cupferron.** C. S. Marvel and O. Kamm. *Am Chem Soc J* 41:276-52 F '19
- Organic chemical reagents; dimethylglyoxime.** R. Adams and O. Kamm. *Am Chem Soc J* 40:1281-9 Ag '18
- Organic chemical reagents; the preparation of alkyl iodides.** R. Adams and V. Voorhees. *diag Am Chem Soc J* 41:789-98 My '19
- Oxalyl chloride as a reagent in organic chemistry; preparation of aromatic acid anhydrides; reaction with alcohols.** R. Adams, W. V. Wirth and H. E. French. *Am Chem Soc J* 40:424-31 F '18

See also Grignard reagent

**Chemical research**

- Art of searching chemical literature. H. Hibbert. *Chem & Met Eng* 20:578-81 Je 1 '19
- Chemical research in the various countries before the war and in 1917. E. J. Crane. *J Ind & Eng Chem* 10:236-7 Mr '18
- Chemical research in the various countries of the world. E. J. Crane. *J Ind & Eng Chem* 11:378 Ap '19
- Fifth decimal place. *Sci Am* 121:162 Ag 16 '19
- Future of pure and applied chemistry. W. J. Pope. *Chem & Met Eng* 19:716-20 N 15 '18
- Institute for cooperative research as an aid to the American drug industry. F. B. Power. *J Ind & Eng Chem* 11:377-8 Ap '19
- Institute for cooperative research as an aid to the American drug industry; symposium. *J Ind & Eng Chem* 10:969-76; 11:59-69, 157-61 D '18-F '19
- Movement to develop research in colloid chemistry. H. N. Holmes. *biblog J Ind & Eng Chem* 11:794-5 Ag '19
- Research and application. W. H. Nichols. *J Ind & Eng Chem* 11:917-21 O '19; *Excerpta. Chem & Met Eng* 21:281-5 S 15 '19
- Symposium on library service in industrial laboratories. *J Ind & Eng Chem* 11:578-89 Je '19
- Value of a chemical organization. C. L. Reese. *Textile World* 53:5183+ My 4 '18
- See also Chemical laboratories; Chemistry, Technical
- Chemical societies**
- See also American chemical society; Chemical alliance; Intercollegiate chemical society; International union of pure and applied chemistry; Société de chimie industrielle

**Chemical society, American.** See American chemical society

**Chemical specifications.** See Chemicals

**Chemical stoneware.** See Pottery

**Chemical technology.** See Chemistry, Technical

**Chemical terms.** See Chemistry—Nomenclature

**Chemical warfare.** See Gases in warfare

**Chemical warfare, interallied congress for.** See Interallied congress for chemical warfare

**Chemical warfare service.** See United States—Chemical warfare service

**Chemicals**

- Census of chemical imports. *Chem & Met Eng* 20:562-3 Je 1 '19
- Chemical compounds for the detection of overheated machinery. H. T. Pincock. *Eng & Min J* 108:615 O 11 '19
- Chemical specifications. W. P. Cohoe. *Chem & Met Eng* 20:539-40 My 15 '19
- Chemicals for research work. C. E. K. Mees. *J Ind & Eng Chem* 10:1027 D '18
- Chemicals received by the Bureau of chemistry during the war. H. E. Buc. *J Ind & Eng Chem* 11:1140-1 D '19
- Classification of commodities for use in foreign trade statistics. *J Ind & Eng Chem* 11:257-63 Mr '19

**Chemicals—Continued**

- France needs agricultural chemicals. A. D. Beeler. *Met & Chem Eng* 18:639 Je 15 '18
- Getting chemicals for treatment of water in Ohio. W. H. Dittoe. *Eng N* 80:819 Ap 25 '18
- Organic chemicals available at the University of Illinois. R. Adams. *Am Chem Soc J* 40:869-71 My '18
- Preparation of pure organic chemicals. H. T. Clarke. *J Ind & Eng Chem* 11:475-6 My '19
- Report on the production of synthetic organic chemicals in the research laboratory of the Eastman kodak company for the year 1918-1919. C. E. K. Mees. *J Ind & Eng Chem* 11:1141-2 D '19
- Safety for the household. U S Bur Stand Circ 75:109-17 '18
- Traces—bad and good. *Sci Am* 118:146 F 16 '18

See also Chemical Industries; Insecticides

**Prices**

- General chemicals. See weekly numbers of the Chemical and metallurgical engineering
- Prices of chemicals during the war. F. E. Breithut. charts *Chem & Met Eng* 21:174-6 Ag 15 '19

**Chemistry**

- American spirit in chemistry. E. F. Smith. *J Ind & Eng Chem* 11:405-6 My '19
- Annual meeting, American chemical society; president's address; a retrospect and an application. W. H. Nichols. *J Ind & Eng Chem* 10:768-72 O '18
- Chemistry and the navy. R. Earle. *J Ind & Eng Chem* 11:924-7 O '19
- Chemistry and the war. D. D. Jackson. *Met & Chem Eng* 18:168-9 F 15 '18
- Debt of preventive medicine to chemistry. G. W. Goler. *J Ind & Eng Chem* 10:303-5 Ap '18
- Government recognizes the importance of chemistry in the war. C. L. Parsons. *J Ind & Eng Chem* 10:234-6 Mr '18
- Relationships in chemistry. J. W. Beckman. *J Ind & Eng Chem* 11:145-6 F '19
- Slow growth of public appreciation. B. C. Heise. *Chem & Met Eng* 19:360 S 24 '18
- Treatment of chemical subjects by the daily press. *Sci Am S* 85:372 Je 15 '18

See also Acids; Agricultural chemistry; Air; Alkalies; Assaying; Atomic weights; Atoms; Biological chemistry; Botanical chemistry; Catalysis; Chemical reaction; Chemicals; Chemists; Chlorination; Colloids; Color; Combustion; Condensation, Chemical; Crystallization; Crystallography; Dissociation; Earths, Rare; Electrochemistry; Electrolysis; Evaporation; Explosives; Fermentation; Gases; Indicators and test papers; Ions; Liquefaction of gases; Metallurgy; Mineralogy; Molecules; Periodic law; Photographic chemistry; Physiological chemistry; Poisons; Radioactive substances; Radioactivity; Salts; Solution (chemistry); Spectrum analysis; Stereochemistry; Sugars; Thermochemistry; also headings beginning Chemical and names of chemical elements and substances

**Apparatus**

See Chemical apparatus

**Bibliography**

- Art of searching chemical literature. H. Hibbert. *Chem & Met Eng* 20:578-81 Je 1 '19
- Publications of the Bureau of standards. U S Bur Stand Circ 24:1-149 '19
- See also Chemistry, Technical—Bibliography

**Nomenclature**

- Chemical nomenclature. E. J. Crane. *J Ind & Eng Chem* 11:72-3 Ja '19

See also Chemistry, Organic—Terminology

**Periodicals**

- Chemical literature. H. F. Mack. II *J Ind & Eng Chem* 11:881-3 S '19

**Study and teaching**

- Army without reserves. *J Ind & Eng Chem* 10:508-10 JI '18; Discussion. 10:685-92 S '18
- College courses for industrial chemists. C. W. Hill. *J Ind & Eng Chem* 10:646-8 Ag '18
- Place of the university in chemical war work. E. W. Washburn. *J Ind & Eng Chem* 10:786-8 O '18; Abstract. *Chem & Met Eng* 19:545 O 1 '18
- Training of the chemist. E. Ellery. *J Ind & Eng Chem* 11:166-7, 375-7 F, Ap '19
- Chemistry, Agricultural. See Agricultural chemistry
- Chemistry, Analytic**
- Determination of bromide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *diag J Ind & Eng Chem* 11:954-9 O '19
- Determination of iodide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *J Ind & Eng Chem* 11:563-8 Je '19
- Electrometric method for the determination of ferrocyanides depending on a change in oxidation potential. G. L. Kelley and R. T. Bohn. *Am Chem Soc J* 41:1776-83 N '19
- Examination of organic developing agents. H. T. Clarke. *J Ind & Eng Chem* 10:891-5 N '18; Same. *Sci Am S* 86:398-400 D 21 '18
- Further study of the DeRoode method for determining potash. T. E. Keltt and H. E. Shiver. *J Ind & Eng Chem* 11:1049-52 N '19
- Identification and determination of potassium gualacol sulfonate. S. Palkin. *J Ind & Eng Chem* 10:610-12 Ag '18
- Improved methods for the estimation of sodium and potassium. S. N. Rhue. *J Ind & Eng Chem* 10:429-31 Je '18
- Liquid ammonia-sodium method for halogens in organic compounds, the formation of cyanide, and method of removing from the solution. C. W. Clifford. *Am Chem Soc J* 41:1051-60 JI '19
- Method of tissue analysis: applied to the posterior and anterior lobes of cattle pituitaries. C. G. MacArthur. *Am Chem Soc J* 41:1225-40 Ag '19
- Methods of analysis for Nebraska potash salts and brines. A. H. McDowell. *J Ind & Eng Chem* 10:128-9 F '18
- Methods of analysis used in the coal-tar industry; benzols and light oil. J. M. Weiss. *diags J Ind & Eng Chem* 10:1006-12 D '18
- Methods of analysis used in the coal-tar industry; crude tars. J. M. Weiss. *diags plan J Ind & Eng Chem* 10:732-8 S '18
- Methods of analysis used in the coal-tar industry; distilled tars and pitches. J. M. Weiss. *diags plans J Ind & Eng Chem* 10:817-23 O '18
- Modified Benedict method for the estimation of sulfur in feeds, feces and foods. J. O. Halverson. *Am Chem Soc J* 41:1494-1503 O '19
- New method of chemical analysis. A. W. Hull. II *diag Am Chem Soc J* 41:1168-75 Ag '19; Same cond. *J Fr Inst* 188:131-3 JI '19
- Proximate analysis of wood. W. H. Dore. *J Ind & Eng Chem* 11:556-63 Je '19
- Single deflection method of weighing. P. H. M.-P. Brinton. *Am Chem Soc J* 41:1151-5 Ag '19
- Study of the DeRoode method for the determination of potash in fertilizer materials. T. E. Keltt and H. E. Shiver. *J Ind & Eng Chem* 10:219-22 Mr '18
- Study of the glucosazone reaction. I. D. Gardard and H. C. Sherman. *Am Chem Soc J* 40:955-69 Je '18
- Suggestions on some common precipitations. G. H. Brother. *J Ind & Eng Chem* 10:129-30 F '18; Same cond. *Eng & Min J* 105:837 My 4 '18
- Use of hydrofluoric acid in analysis. N. H. Furman. *Am Chem Soc J* 40:895-906 Je '18
- See also Assaying; Colorimetric analysis; Dye analysis; Electrochemical analysis; Gas analysis; Metallurgical analysis; Oil analysis; Phenols; Sampling; Soil analysis; Spectrum analysis; Volumetric analysis; also



**Chemistry, Analytic—Continued**

subdivision Analysis under special subjects, e.g. Coal—Analysis, Fertilizers and manures—Analysis, Iron—Analysis, Soap—Analysis, Steel—Analysis, Water—Analysis

**Qualitative**

- Chemical microscopy. E. M. Chamot. II J Ind & Eng Chem 10:60-6 Ja '18
- Detection and determination of coumarin in factitious vanilla extracts. H. J. Wichmann. J Ind & Eng Chem 10:535-7 JI '18
- Detection of carbon dioxide in the analysis of carbonates or oxalates. O. F. Stafford. diags Am Chem Soc J 40:622 Ap '18
- Detection of iodides in the presence of cyanides. L. J. Curtman and C. Kaufman. Am Chem Soc J 40:914-17 Je '18
- New method for the separation of the copper group from the arsenic group, with especial reference to the identification of arsenic. M. C. Sneed. Am Chem Soc J 40:187-91 Ja '18
- Qualitative separation and detection of gallium. P. E. Browning and L. E. Porter. Sci Am S 85:11 Ja 5 '18
- Study of the test for tartrates depending upon the formation of the copper-tartrate complex. J. L. Curtman, A. Lewis and B. R. Harris. Am Chem Soc J 39:2623-30 D '17
- Use of textile fibers in microscopic qualitative chemical analysis. E. M. Chamot and H. I. Cole. J Ind & Eng Chem 9:969-71; 10:48-50 O '17, Ja '18

See also Spectrum analysis

**Quantitative**

- Bisulfate method of determining radium. H. H. Barker. II diag J Ind & Eng Chem 10:525-7 JI '18
- Chemical analysis by a magnetic process. diags Sci Am S 86:381 D 14 '18
- Critical elaboration of quantitative precipitation methods, exemplified by a method for the determination of phosphoric acid. H. Heidenhain. J Ind & Eng Chem 10:426-9 Je '18
- Gravimetric and volumetric determination of mercury precipitated as mercury zinc thiocyanate. G. S. Jamieson. J Ind & Eng Chem 11:296-7 Ap '19
- Gravimetric and volumetric determination of zinc precipitated as zinc mercury thiocyanate. G. S. Jamieson. Am Chem Soc J 40:1036-9 JI '18
- Improved method for determination of carbon by wet combustion, using barium hydroxide as absorbent. P. L. Hibbard. diag J Ind & Eng Chem 11:941-3 O '19
- Improved method for the quantitative determination of caffeine in vegetable material. F. B. Power and V. K. Chesnut. Am Chem Soc J 41:1298-1306 Ag '19
- Limits of accuracy of Holleman's method of determining the composition of a mixture of two or three isomers. J. B. Nichols. Am Chem Soc J 40:400-3 F '18
- Proximate quantitative method for the determination of rubidium and caesium in plant ash. W. O. Robinson. J Ind & Eng Chem 10:50-1 Ja '18
- Quantitative determination of gold, especially in animal tissue. S. M. Cadwell and G. Leavell. Am Chem Soc J 41:1-12 Ja '19
- Quantitative estimation of acetic, propionic and butyric acids. R. D. Crowell. Am Chem Soc J 40:453-60 F '18
- Rapid pressure method for the determination of carbon dioxide in carbonates. W. H. Chapin. diag J Ind & Eng Chem 10:527-9 JI '18
- Studies in synthetic drug analysis; estimation of theobromine. W. O. Emery and G. C. Spencer. J Ind & Eng Chem 10:605-6 Ag '18
- Studies in synthetic drug analysis—evaluation of hexamethylenetetramine tablets. W. O. Emery and C. D. Wright. J Ind & Eng Chem 10:606-8 Ag '18

See also Colorimetric analysis; Electrochemical analysis; Volumetric analysis

**Chemistry, Biological.** See Biological chemistry

**Chemistry, Botanical.** See Botanical chemistry

**Chemistry, Industrial.** See Chemistry, Technical

**Chemistry, Medical and pharmaceutical**

Institute for cooperative research as an aid to the American drug industry; symposium. J Ind & Eng Chem 10:969-76; 11:59-69, 157-61 D '18-F '19

Pharmaceutical chemist and the scope of his work. F. O. Taylor. J Ind & Eng Chem 11:239-42 Mr '19

See also Arsenicals; Disinfection and disinfectants; Drugs

**Chemistry, Organic**

Advances in industrial organic chemistry since the beginning of the war. S. P. Sadtler. J Ind & Eng Chem 10:854-8 O '18; Same cond. Chem & Met Eng 19:566-60 O 1 '18

Chemistry of flavoring matters. F. Barral and A. Ranc. Sci Am S 87:114-15, 134-5 F 22-Mr 1 '19

Configurations of organic compounds and their relation to chemical and physical properties. A. Michael. Am Chem Soc J 40:704-23, 1674-1707 Ap, N '18

Future of industrial organic chemistry. H. Hibbert. Chem & Met Eng 20:335-41 Ap 1 '19

Hydrocarbon bases and a study of organic derivatives of mercury and of lead. L. W. Jones and L. Werner. Am Chem Soc J 40:1257-75 Ag '18

Institute for research in synthetic organic chemistry. A. S. Loevenhart. J Ind & Eng Chem 10:971-3 D '18

Organic synthesis and the duPont company. C. L. Reese and C. M. Stine. Chem & Met Eng 19:569-71 O 1 '18

See also Acids, Fatty; Alcohols; Aldehydes; Alkaloids; Amines; Carbon; Essential oils; Esters; Ethers; Gas; Hydrocarbons; Ketones; Nitriles; Sugars

**Bibliography**

Bibliography of the literature of organic mercurials. F. C. Whitmore. J Ind & Eng Chem 11:1083-91 N '19

**Nomenclature**

Resolution concerning organic nomenclature. W. J. Hale. J Ind & Eng Chem 10:944 N '18

**Chemistry, Photographic.** See Photographic chemistry

**Chemistry, Physical and theoretical**

Applications of physical chemistry in the coal-tar industry. W. J. Huff. J Ind & Eng Chem 10:1016-19 D '18

Color of inorganic compounds. F. R. v. Bichowsky. Am Chem Soc J 40:500-8 Mr '18

Physical chemistry in the industries. J. C. Phillip. Sci Am S 88:90-1 Ag 9 '19

Place of physical chemistry in dyestuff research. E. K. Strachan. J Ind & Eng Chem 11:1080-3 N '19

See also Allotropy; Atomic weights; Atoms; Boiling points; Catalysis; Chemical affinity; Chemical equilibrium; Chemical reaction; Colloids; Complexes (chemistry); Crystallization; Crystallography; Dissociation; Electrochemistry; Electrolysis; Electrolytes; Electrons; Emulsions; Fluorescence; Free energy; Freezing points; Fusion; Ions; Isomerism; Melting points; Molecules; Optical rotation; Periodic law; Radioactivity; Solubility; Solution (chemistry); Stereochemistry; Thermochemistry; Thermodynamics; Valence; Vapor density

**Chemistry, Technical**

Chemistry and chemical control in the lamp industry. A. Brann and A. M. Hageman. II Elec J 16:198-201 My '19

Chemistry and industrial management. E. Hendrick. Ind Management 55:183-4 Mr '18

Chemistry of war. Sci Am 118:120 F 2 '18

College courses for industrial chemists. C. W. Hill. J Ind & Eng Chem 10:646-8 Ag '18

Colloids at work. Sci Am 120:252 Mr 15 '19

Future of industrial organic chemistry. H. Hibbert. Chem & Met Eng 20:335-41 Ap 1 '19

Lines of attack chemist may follow to conserve fuel. E. O'Neill. Am Gas Eng J 109:437-9 N 9 '18

**Chemistry, Technical—Continued**

Some present-day problems of chemical industry. R. F. Bacon and W. A. Hamor. *J Ind & Eng Chem* 11:470-4 My '19

Use of micro-organisms in chemical industry. E. G. Genoud. *Chem & Met Eng* 19:616-17 O 15 '18

See also Acetylene; Acid-resisting materials; Alcohol, Denatured; Alkalies; Alloys; Ammonia; Blast furnace gas; Bleaching; Boiler scale; Canning and preserving; Celluloid; Cement; Chemical engineering; Chemical industries; Chemicals; Clay; Coal distillation; Coal tar; Coal-tar products; Coke-oven gas; Corrosion and anti-corrosives; Cyanide process; Distillation; Dyes and dyeing; Electrochemistry; Emulsification; Essential oils; Explosives; Food—Analysis; Food preservatives; Fuel; Gas; Gas manufacture and works; Glass manufacture; Glucose; Glue; Gums and resins; Hydrometallurgy; Ink; Leather; Metallurgy; Oils and fats; Ore treatment; Paint; Paper; Paper making and trade; Perfumery; Petroleum; Potash; Precious stones, Artificial; Refractory materials; Rubber; Rubber, Artificial; Sampling; Soap; Sugar; Sulfuric acid; Tanning; Tar; Textile industry; Varnish and varnishing; Waste products; Wood distillation

**Bibliography**

List of dictionaries of commercial commodities and other books descriptive of material used in the arts, manufactures, and commerce; comp. under direction of H. H. B. Meyer. *Special Libraries* 9:46-50 F '18

**Chemists**

American chemist in warfare. C. L. Parsons. *J Ind & Eng Chem* 10:776-80 O '18

Annual report of the Bureau of employment of the Chemists' club for the year ending April 30, 1919. H. R. Moody. *J Ind & Eng Chem* 11:595-6 Je '19

British association of chemists. *Engineer* 125:115 F 8 '18

Chemical warfare service, National army, with list of heads of divisions and sections. *Chem & Met Eng* 19:229-36 S 1 '18

Chemist and reconstruction. W. H. Nichols. *J Ind & Eng Chem* 11:399-400 My '19

Chemist in the textile mill. *Textile World* 53:2153-4, 2697-8 N 24, D 29 '17

Chemistry in warfare. N. D. Baker. *J Ind & Eng Chem* 11:921-3 O '19

Chemistry, textiles, and the war. C. F. Goldthwait. *Textile World* 53:3043 Ja 12 '18

Examination of the college trained chemist for government service. W. J. Cotton. *J Ind & Eng Chem* 11:1142-4 D '19

Importance of chemistry in industry. G. W. Thompson. *Chem & Met Eng* 19:355-7 S 24 '18; Same. *Textile World* 54:1449 S 28 '18;

Same. *J Ind & Eng Chem* 10:829-30 O '18

Report of the committee on war service for chemists. *J Ind & Eng Chem* 11:413-15 My '19

Value of the chemist in the large and small gas plants. E. J. Murphy. *Am Gas Eng J* 111:422-4 N 1 '19; Excerpts. *Gas Age* 44:397 N 1 '19

**Chemists' club**

Annual meeting of the Chemists' club, May 7. *J Ind & Eng Chem* 11:593-4 Je '19

**Cheney brothers**

Selection problem of Cheney bros. H. L. Gardner. *U S Bur Labor Statistics Bul* 227:120-5 '17

**Chesapeake & Ohio railway**

41st annual report for the fiscal year ended December 31, 1918. *map Ry Age* 67:445-6, 486-9 S 5 '19

Report for the fiscal year ended December 31, 1917. *Ry Age* 64:1160-1, 1209-12 My 10 '18

**Chester, Pennsylvania**

Chester as a steel foundry center. E. F. Cone. *Iron Age* 104:839-41 S 25 '19

**Chestnut**

Use the dead and dying chestnut. J. S. Illick. *Il Sci Am S* 88:252-3 O 25 '19

**Chevrons**

Embroidery by wholesale. *Il Sci Am S* 87:116 F 22 '19

**Chewing gum**

Air cooling in a chewing gum plant. *Il Heat & Ven* 14:41-5 D '17

Gathering chicle gum for American gum chewers. *Il Sci Am S* 88:172 S 13 '19

**Chicago, Illinois**

Chemical industries of Illinois and the Chicago district. P. Thomson. *Il Chem & Met Eng* 21:315-18 S 15 '19

Chicago plan commission proposes great improvement scheme. *plan Eng N* 82:194-5 Ja 23 '19

Chicago situation explained; Sanitary district and the Edison company. *Power* 48:422-3 S 17 '18

Iron and steel plants near Chicago. E. E. Thum. *Chem & Met Eng* 21:319 S 15 '19

Non-ferrous metallurgy in the Chicago district. H. B. Pulsifer. *Il map Chem & Met Eng* 21:310-14 S 15 '19

Private industrial district in Chicago growing. *Eng N* 81:120-1 JI 18 '18

Regional surveys—their aim and importance in war and in peace. C. G. La Farge. *Am Inst Arch J* 6:402-4 Ag '18

Unification of local governments and the city manager plan for Chicago. G. C. Sikes. *W Soc E J* 23:192-6; Discussion. 196-204 Mr '18

War committee, technical societies of Chicago. *Am Mach* 49:66 JI 11 '18

**Bathing beaches**

Bathing pavilion at Jackson park. *Il map plan Am Arch* 116:461-5, 483-90 O 1-8 '19

**Bridges**

Cofferdam experience at a bridge in Chicago river. H. E. Young and W. A. Mulcahy. *Il diags Eng N* 83:268-9 Ag 7 '19

Co-operating with municipal governments. *Il Am Arch* 115:24-5 Ja 1 '19

Substructure of Michigan avenue bascule bridge. H. E. Young and W. A. Mulcahy. *Il diags plans Eng N* 83:210-13 JI 31 '19

**Hotels**

Hotel expansion in Chicago. *Am Arch* 114:317 S 11 '18

**Lighting**

Development of the Chicago street-lighting system. W. G. Keith. *Elec R* 75:559-61 O 4 '19

Features of Chicago's new parkway lighting system. *diags Elec W* 71:516 Mr 9 '18

**Railroads**

Chicago suburban lines demonstrate efficiency. *Il map Ry Age* 67:272-4 Ag 8 '19

Chicago terminal situation. E. J. Noonan. *map plans W Soc E J* 24:282-99 My '19;

Same abr. *Ry R* 64:716-18, 774-6 My 17-24 '19; Discussion. *W Soc E J* 24:299-306 My '19

Chicago Union station to spend \$5,300,000 in 1919. *Il plan Eng N* 82:528-9 Mr 13 '19

Chicago's \$140,000,000 lake-front improvement plans. *map Eng N* 83:216 JI 31 '19;

Correction. 83:360 Ag 21 '19

Freight station and warehouse has 23 acres of floor. *Il diags plans Eng N* 80:405-8 F 28 '18

Illinois Central rebuilds early track elevation. C. C. Westfall. *Il diag maps Ry Age* 65:159-63 JI 26 '18

Illinois Central will build new Chicago terminal. *Il plans Ry Age* 67:51-4 JI 11 sec 1 '19

New freight house of the Pennsylvania lines. *Il diags plans Ry R* 62:365-71 Mr 16 '18; *Ry Age* 65:215-19 Ag 2 '18

Proposed new passenger terminal in Chicago. *Il map Ry R* 65:57-60 JI 12 '19

Pulling the Chicago terminals out of the snow. *Il Ry Age* 64:369-71 F 15 '18

**Rapid transit**

Chicago financial program. *Elec Ry J* 52:474 S 14 '18

Chicago politicians loath to abandon traction issue. *Elec Ry J* 52:602 O 5 '18

**Chicago, Illinois—Rapid transit—Continued**

Chicago rehabilitation track standards prove successful. *Il diags Elec Ry J 53:344-9 My 3 '19*  
 Chicago suburban fares increased. *Ry Age 66:303-4 Ja 31 '19*  
 New Chicago proposal advanced. *Elec Ry J 51:872 My 4 '18*  
 Public trustees for Chicago railways. *Munic J 45:155-6 Ag 24 '18*  
 Service-at-cost for Chicago; features of new plan now awaiting public approval. *Elec Ry J 52:344 Ag 24 '18*  
 Six cents on Chicago Elevated. *Elec Ry J 52:940 N 23 '18*  
 Surface and elevated lines tied up. *Elec Ry J 54:249-50 Ag 2 '19*  
 Tentative Chicago franchise settlement terms. *Elec Ry J 51:982 My 18 '18*  
 Track construction methods employed in great street widening plan. *Il diags Elec Ry J 51:608-12 Mr 30 '18*

**Sanitary affairs**

Garbage collection in Chicago. *H: A. Allen. Munic J 44:222 Mr 16 '18*  
 Waste disposal in Chicago. *Munic J 45:167-8 Ag 31 '18*

*See also Chicago—Sewerage; Chicago—Streets; Chicago—Water supply*

**Sewerage**

Activated-sludge sewage-treating plant to require much power. *L. Pearse. Elec R 75:529-30 S 27 '19*  
 Difficult sewer construction by sanitary district of Chicago. *Eng & Contr 49:276-7 Mr 13 '18*  
 New record on Chicago sewer construction. *J. E. Love. Il Eng & Contr 48:492 D 12 '17*  
 Organization of forces and plant and methods employed in construction of sewers. *H. E. Hudson. Il diags Munic Eng 54:228-34 Je '18*  
 Sewage disposal problem in Chicago. *C. D. Hill. Munic Eng 56:180-1 My '19*

**Street traffic**

Analysis of the traffic count in downtown Chicago. *G: C. D. Lenth. Il plans W Soc E J 23:79-98 F '18; Abstract. Eng N 80:254-6 F 7 '18; Excerpts. Eng & Contr 49:564-6 Je 5 '18; Discussion. W Soc E J 23:99-109 F '18*  
 Chicago motor vehicles increase but horse vehicles decrease. *Eng N 80:311 F 14 '18*

**Streets**

Attack on Chicago creosote oil specification fails. *J. A. Meyer. Munic Eng 54:209 My '18*  
 Chicago paving report once more in the limelight. *Eng N 79:1176 D 20 '17*  
 North Michigan avenue, Chicago development. *Il plan Am Arch 114:691-4 D 11 '18*  
 Oil for creosoting wood paving blocks; the Chicago specifications and the injunction suit to prevent their use. *Munic J 44:260-1 Mr 30 '18*  
 Recent developments in design and construction of pavements. *H. J. Fixmer. diag plan Munic Eng 56:92-4 Mr '19*  
 Report on Chicago pavements. *I. O. Baker. Eng & Contr 51:23 Ja 1 '19*  
 Street cleaning and refuse disposal. *F. S. Mitchell. Munic J 44:32 Ja 12 '18*

**Theaters**

State-Lake theater and office building. *Il diags plan Am Arch 116:123-9 Jl 23 '19*

**Water supply**

Centrifugal pumps at the Chicago water-works plants. *Eng N 82:1114 Je 5 '19*  
 Chicago can save \$200,000,000 in 33 years by metering its water. *Eng & Contr 49:159-60 F 12 '18*  
 Chicago completes 8-mile tunnel under lake and land. *Eng N 80:684 Ap 4 '18; Munic J 44:303 Ap 13 '18*  
 Chicago water-works intake crib tilted level with screw jacks. *Il diags Eng N 82:348-50 Ja 30 '19*

Earnings and expenses of the Chicago water-works, 1915 and 1916. *Eng & Contr 49:161 F 13 '18*

Engineering supervision improves water-distribution system. *Eng N 81:534 S 19 '18*  
 Improvements in water distribution system under efficient organization. *R. S. Spalding. Il diags Eng N 80:921-3 My 9 '18*  
 100,000 tons of coal wasted by Chicago. *Il charts Munic J 44:105-9 F 9 '18*  
 Sanitary precautions taken prior to opening Wilson avenue crib and tunnel of Chicago water works. *J: D. Robertson and H. N. Bundeson. Munic Eng 55:108-9 S '18*  
 Survey methods used on the Wilson avenue tunnel. *H. W. Clausen. Il diags plans map W Soc E J 22:491-503 S '17; Excerpt (Methods of underground survey). Eng & Contr 48:513-14 D 19 '17*  
 Water-waste report of Chicago Bureau of public efficiency written to educate lay public. *Eng N 80:268-70 F 7 '18*  
 What becomes of the water pumped in Chicago? *Eng & Contr 49:274-6 Mr 13 '18*  
 Why Chicago should meter its water. *Eng & Contr 49:173-6 F 13 '18*

**Chicago & Northwestern railway**

Annual report, 1917. *map Ry Age 64:1409-10 Je 14 '18*  
 Northwestern opens social service bureau for soldiers at Chicago. *Il Ry Age 63:1183-4 D 28 '17*  
 Terminal grain elevator. *W. H. Finley. Il diags map plan W Soc E J 24:307-19; Discussion. \$18-23 My '19*

**Chicago commission on ventilation**

Organization. *Heat & Ven 14:29 D '17*

Chicago electrical code. *See Electric engineering—Laws and regulations*

**Chicago, Milwaukee & St Paul railway**

Car department of the Milwaukee. *chart Ry Mech Eng 92:615-20 N '18*  
 Electrification in Washington. *W. A. Scott. Il Elec R 74:16-18 Ja 4 '19*  
 High-speed circuit breakers for Chicago, Milwaukee & St Paul electrification. *C. H. Hill. Il diag Gen Elec R 21:623-6 S '18*  
 Operating results under electrification. *Ry R 61:796-7 D 29 '17*  
 Reclamation on Chicago Milwaukee & St Paul. *Ry R 63:908-5 D 28 '18*  
 Statistics, 1916-1917. *map Ry Age 65:421-2 S 6 '18*

**Chicago motor bus company**

Credit system of wage payments in Chicago. *Elec Ry J 51:89-90 Ja 12 '18*

**Chicago, Rock island & Pacific railway**

Financial condition, 1917. *map Ry Age 65:470-2 S 13 '18*

**Chicago, St Paul, Minneapolis & Omaha railway**

Annual report, 1917. *Ry Age 64:1457 Je 21 '18*

**Chicago telephone company**

Analytical report of service and revenues. *Elec R 72:920 Je 1 '18*

**Chief interchange car inspectors & car foremen's association**

19th annual meeting, St Louis, Sept. 23-25. *Ry R 65:451-2 S 27 '19; Ry Mech Eng 93:593-5 O '19*

**Child labor**

Child labor in mines. *Coal Age 16:457, 585-6, 661-2 S 11, O 2, 16 '19*  
 Child labor law unconstitutional. *Textile World 53:6009 Je 8 '18*  
 Child labor ruling; new clause in government contracts to be enforced by Secretary of labor. *Textile World 54:625 Ag 10 '18*  
 Child labor tax details. *Textile World 55:2494+ Ap 26 '19*  
 Effect of workmen's compensation laws in diminishing the necessity of industrial employment of women and children. *M. K. Conyngton. U S Bur Labor Statistics Bul 217:1-170 '18*

Illegal employment of minors. *C. C. Sherlock. Inland Ptr 61:710-11 S '18*

Policy of war board toward employment outlined. *Textile World 54:1593 O 5 '18*

**Children's homes.** See Orphans and orphan asylums

#### Chile

Development of port Chafaral. Engineer 126: 199-200 S 6 '18

See also Copper mines and mining—Chile

#### Commerce

Advertising methods in Chile, Peru, and Bolivia. J. W. Sanger. *Il U S Bur For & Dom Com* 185:1-56 '19

Chilean market for paper, paper products, and printing machinery. R. S. Barrett. *Il U S Bur For & Dom Com* 153:1-72 '17

Construction materials and machinery in Chile, Peru, and Ecuador. W. W. Ewing. *Il U S Bur For & Dom Com* 175:1-111 '19

Electrical goods in Bolivia and Chile. P. S. Smith. *Il U S Bur For & Dom Com* 167: 1-94 '18

High tide of Chilean trade. *Il Sci Am* 119:456 D 7 '18

Markets for boots and shoes in Chile and Bolivia. H. G. Brock. *Il U S Bur For & Dom Com* 174:1-192 '18

Textile market of Chile. W. A. Tucker. *U S Bur For & Dom Com* 164:1-52 '18

Wearing apparel in Chile. W. A. Tucker. *U S Bur For & Dom Com* 168:1-75 '18

#### Industries and resources

Chemical trade of Chile, Peru, and Bolivia. O. F. Hopkins. *J Ind & Eng Chem* 10:805-7 O '18

Chileans building up home industries. *Am Ind* 18:32-3 My '18

Extraction of potassium of salts from the Pintados salar. R. C. Wells. *Eng & Min J* 105:678-9 Ap 13 '18

Potash in the Pintados salar, Tarapaca, Chile. H. S. Gale. *diag maps Eng & Min J* 105:674-7 Ap 13 '18

See also Copper mines and mining—Chile

#### Railroads

See Railroads—Chile

**Chile salt-peter.** See Saltpeter, Chile

**Chilean nitrate.** See Saltpeter, Chile

#### Chilled iron

Chilled cast-iron dies for forging and nosing shells. A. F. White. *diags Am Mach* 49:747-8 O 24 '18

Chilling and case hardening. *Sci Am S* 86:247 O 19 '18

Foundry cupola and chilled iron. R. Jenkins. *Engineer* 125:311-12 Ap 12 '18

Limiting features in the life and performance of chilled iron wheels. G. W. Lyndon and F. K. Vail. *Il diags Elec Ry J* 54:755-6 O 18 '19

#### Chimærae

Habits of chimærae. *Sci Am S* 84:403 D 29 '17

#### Chimney cleaning

Blasting the soot out of a smokestack. *Elec R* 71:1069-70 D 22 '17; *Elec Ry J* 52:423 S 7 '18; *Eng & Contr* 50:274 S 18 '18; *Eng & Min J* 106:712 O 19 '18; *Power* 48:694 N 12 '18

Removal of soot from windows. D. M. Riff. *diags Power* 50:582 N 22 '19

Simple device for cleaning smoke stack. *diag Am Lumberman* 2259:59 Ag 31 '18

**Chimney-pieces.** See Fireplaces

#### Chimneys

Are separate flues essential? C. C. W. Pack. *Bldg Age* 40:543-4 N '18

Boiler house as stack foundation. L. C. Huff. *Il diags plan Power* 48:150-2 Jl 30 '18

Brick chimney carried on platform at roof of building. J. G. Mingle. *Il Eng N* 82:1069 My 29 '19

Brick chimney, 585 feet high. *Engineer* 127: 152 F 14 '19

Brick chimney of record height built to carry off smelter gases. C. E. Fowler. *Il diags plan Eng N* 80:644-6 Ap 4 '18

Care of heating and ventilating equipment. H. L. Alt. *diags plans Power* 48:801-3 D 3 '18

**Chimney requirements.** A. G. King. *diags*

*Dom Eng* 82:44-6 Ja 12 '18

Chimney size and air for fuel combustion. *Il diags Metal Work* 89:74-5 Ja 11 '18

Chimney troubles and their correction. A. G. King. *diags Dom Eng* 82:183-5 Ja 26 '18

Chimneys and chimney draft. W. T. Harma. *diags Heat & Ven* 16:38-9 S '19

Chimneys for heating boilers. F. Grant. *diags Dom Eng* 87:516-18+ Je 21 '19

Choosing height of stack. *Power* 48:247 Ag 13 '18

Costs. Heat & Ven 14:66 D '17

Draft loss in brick stacks; chart. Heat & Ven 14:63 D '17

Draft reading. Heat & Ven 14:64-5 D '17

Effect of soot in chimneys. T. S. Clark. *diags plan Power* 50:64-5 Jl 8 '19

Experiments on stack performance. J. C. Smallwood. *diag Power* 50:464-7 S 16 '19

Falling chimney wrecks part of New England factory. *Il diags Power* 47:368-9 Mr 12 '18

Faulty chimney reduces efficiency of steam boiler. *diag Dom Eng* 83:85 Ap 20 '18

525-foot brick chimney at the Washoe reduction works of the Anaconda mining co. *Il diag plan Power* 48:808-9 D 3 '18

Fourteen different kinds of chimney trouble and some remedies. *Il diags Metal Work* 88: 748-9 D 21 '17

Graphic method of chimney design. H. M. Brayton. *chart diag Power* 48:349-50 S 3 '18

Highest chimney built for smelter at Anaconda, Montana. *Il diags Eng N* 83:764-5 O 23 '19

How house chimneys should be constructed. E. Drah. *Il diags Bldg Age* 40:95-7, 148-50 F-Mr '18

Is lime good for chimney construction? *Bldg Age* 41:251 Ag '19

Locating chimney troubles. *Factory* 20:782 Ap '18

Lumber and chimneys. R. S. Whiting. *diag plan Am Lumberman* 2272:60 N 30 '18

Method of felling a 130 ft. factory chimney. *diag Eng & Contr* 50:428-9 O 30 '18

Notes on chimney flues—causes of poor draft. H. N. Dix. *diags Am Arch* 115: 530-4 Ap 9 '19

Plain talk on chimneys. E. C. Lillie. Heat & Ven 15:27-9 S '18

Reducing fire hazard by proper chimney construction. *Bldg Age* 41:205-6 Je '19

Saving the waste in the chimney. R. Sibley and C. H. Delany. *J Elec* 42:79-80, 176, 259, 318-20, 513-15 Ja 15, F 15, Mr 15, Ap 1, D 1 '19

Tall chimneys in metallurgical plants. *Il Eng & Min J* 106:168-75 Jl 27 '18

Tallest chimney in the world. G. Martin. *Il Power* 47: 340 Mr 5 '18

Tallest chimneys in the world. H. Miyana. *Power* 49:374-5 Mr 11 '19

What makes chimneys leak? A. R. Fair. *Bldg Age* 41:139 Ap '19

What the heating contractor should know about chimneys. C. L. Hubbard. *diags Dom Eng* 89:213-16, 263-4 N 1-8 '19

Why chimneys have poor draft. H. Fielding. *diags Bldg Age* 40:494-5 O '18

Wind pressure on cylindrical structures in practice. R. Fleming. *Eng N* 83:499-502 S 11 '19; *Correction*. 83:659 O 2 '19

Wind pressures on 550 ft. chimney. F. Omori. *Eng & Contr* 51:452-3 Ap 30 '19; *Abstract*. *Am Soc M E J* 41:56-8 Ja '19

See also Chimney cleaning; Fireplaces; Flues; Heating; Smoke

#### Chimneys, Concrete

Vibration of concrete chimney. *Power* 48:706 N 12 '18

#### Chimneys, Iron and steel

Building steel chimneys. *Factory* 20:782+ Ap '18

Cement gun for repairing stacks. *Elec R* 74: 192-3 F 1 '19

How a steel stack was removed from old power plant and reinstalled in a new one. C. A. Elliott. *Il Elec Ry J* 53:580 Mr 22 '19; *Same*. *Power* 49:573 Ap 15 '19

**Chimneys, iron and steel—Continued**

Reinforcing steel stacks with gunite concrete. M. C. Sherman. *Il Power* 49:808-9 My '27 '19

Rusting steel chimneys coated with concrete by cement gun. *Il diags Eng N* 81:596-7 S 26 '18

Solving a stack-raising problem. M. Fishback. *Il diag Eng & Min J* 108:95-6 JI '19

Steel stack problem. H. L. Alt. *diag Heat & Ven* 14:53-4 D '17

**China**

Age-long engineering works of China. M. Smith. *Engineer* 127:72 Ja 24 '19

American engineers kidnapped by Chinese bandits. *Eng N* 82:665-7 Ap 3 '19

China's finances. *Am Ind* 19:32 S '18

China's second childhood. *Il Sci Am* 119:339 O 26 '18

Chinese students and American training. M. A. Oudin. *Gen Elec R* 22:782-4 O '19

Japan's economic influence in China; list of Japanese loans for three and one-half years. *Am Ind* 19:34 Ag '18

Travels of a trader. *Il Sci Am* 120:514 My 17 '19

*See also Roads—China; Shantung province*

**Army**

Tapping China's reservoir of man power; fighters from the Celestial republic enrolled in the battle for democracy. *Il Sci Am* 118:144 F 16 '18

**Commerce**

China a market for the American machine tool. L. W. Schmidt. *Am Mach* 49:893-6 N 14 '18

Chinese market for American machinery. *Am Mach* 49:1084-5 D 12 '18

Conduct of business with China. U S Bur For & Dom Com misc ser 70:1-47 '19

Electrical goods in China, Japan, and Vladivostok. R. A. Lundquist. *Il U S Bur For & Dom Com* 172:9-110 '18

Electrical progress. *Il Sci Am* 120:321 Mr 29 '19

Far Eastern markets for railway materials, equipment, and supplies. F. Rhea. *Il map U S Bur For & Dom Com* 180:1-139 '19; Excerpt. *Ry R* 65:371-6 S 13 '19

Field in China for American zinc. *Eng & Min J* 105:234 F 2 '18

*See also Merchant marine—China*

**Economic conditions**

Awakening of a new nation. *Il J Elec* 42:69-71 Ja 15 '19

China's greatest need today is transportation. *Il map Ry Age* 64:797-802 Mr 29 '18

China's industrial and commercial outlook. J. Arnold. *Il J Elec* 43:157-8 Ag 15 '19

Chinese poverty largely due to lack of roads and railways. *Eng & Contr* 50:50-1 JI 17 '18

**Industries and resources**

China's effort to combat shortage of silver. *Eng & Min J* 106:435 S 7 '18

China's industrial advancement. *Am Ind* 19:32 Ag '18

Chinese industry has prosperous year. *Iron Tr R* 65:705 S 11 '19

Chinese iron foundries. F. A. Foster. *Il Am Mach* 51:345-52 Ag 21 '19

Chinese metal manufactures. H. K. Richardson. *Il diag Metal Ind* 15:191-4, 477-8, 523-5 My, N-D '17

Machine shops of China. F. A. Foster. *Il Am Mach* 51:99-103 JI 17 '19

Potteries at Shek Waan, near Canton. C. N. Laird. *Il J Ind & Eng Chem* 10:568-71 JI '18

Power-plant problem in South China. H. B. Wilson. *Power* 48:747-8 N 19 '18

Practice of antimony smelting in China. C. Y. Wang. *Il diags plans Am Inst Min E Bul* 136:927-45 Ap '18

Textile industry in China in 1917. S. Yang. *Il Textile World* 53:3696 F 9 '18

*See also Electric industries—China*

**Railroads**

*See Railroads—China*

**Chino copper company**

Annual report, 1917. *Eng & Min J* 105:884-5 My 11 '18

Plant investment as of Dec. 31, 1917. L. H. Goodwin. *Eng & Min J* 106:905 N 23 '18

**Chisels**

Cold chisel. J. A. Lucas. *diags Coal Age* 14:730-4 O 17 '18; Same cond. *Power* 48:838-41 D 10 '18

Making cold chisels. G. J. Brunelle. *Il diags Ry Mech Eng* 92:171-2 Mr '18

Seminole alloy chisel steel. *Il Mach* 25:894-5 My '19; *Ry Mech Eng* 93:274 My '19; *Iron Age* 103:1174 My 1 '19; *Sci Am* 121:113 Ag 2 '19

**Chloralnitraniline**

Action of basic reagents of Schiff's bases; the chloralnitraniline group. A. S. Wheeler and S. C. Smith. *Am Chem Soc J* 41:1862-5 N '19

**Chloramine**

Chloramine. W. F. Montfort and O. A. Barnes. *Eng & Contr* 51:366 Ap 9 '19

Chlorination and chloramine. J. Race. *Am Water Works Assn J* 5:63-82 Mr '18

Further data on chloramine from Denver. *Eng N* 80:1141 Je 13 '18

Results of application of chloramine process to Catskill (Esopus) water of New York city. F. E. Hale. *Eng & Contr* 51:262-4 Mr 12 '19

*See also Water purification—Chloramine process*

**Chlorides**

Manufacture of alkali and organic chlorides; patent. *diag Chem & Met Eng* 19:152 Ag 1 '18

**Chlorination**

Halogenation of juglone: a new type of naphthalene dyes. A. S. Wheeler and J. W. Scott. *Am Chem Soc J* 41:833-41 My '19

Influence of catalysts on the chlorination of hydrocarbons. V. R. Kokatnur. *Am Chem Soc J* 41:120-4 Ja '19

*See also Water purification—Chlorination, Chlorination process (metallurgy)*

**Chlorine**

Action of chlorine upon hydrazine, hydroxylamine and urea. C. T. Dowell. *Am Chem Soc J* 41:124-5 Ja '19

Adaptation of the Mohr volumetric method to general determinations of chlorine. L. Yoder. *J Ind & Eng Chem* 11:755 Ag '19

Chlorination and chloramine. J. Race. *Am Water Works Assn J* 5:63-82 Mr '18

Chlorine absorption and the chlorination of water. A. Wolman and L. H. Enslow. *charts J Ind & Eng Chem* 11:209-13 Mr '19

Commercial uses of chlorine. V. R. Kokatnur. *Chem & Met Eng* 19:667-71 N 1 '18

Consumption of chlorine bleach curtailed. *Chem & Met Eng* 19:673 N 1 '18

Electrolytic caustic soda-chlorine cells. K. Horine. *chart Chem & Met Eng* 21:69-72 JI 15 '19

Emergency use of portable chlorine sterilization plants. E. S. Chase. *Eng & Contr* 49:372-3 Ap 10 '18

Nelson electrolytic chlorine cell. C. F. Carrier jr. *Il Chem & Met Eng* 21:133-6 Ag 1 '19

Observations regarding chlorine cells. F. G. Wheeler. *Chem & Met Eng* 21:436-8 O 1 '19

Sterilisation of London water. A. C. Houston. *charts Engineer* 125:552-4 Je 28 '18; Abstract. *Eng & Contr* 50:414-15 O 30 '18

United States government chlorine-caustic soda plant at Edgewood arsenal, Edgewood, Maryland. S. M. Green. *Il diags plan Chem & Met Eng* 21:17-24 JI 1 '19

*See also Halogens*

**Chlorine, Liquid**

Chlorination at San Diego, Cal. W. H. Judy. *diags plan Munic J* 44:237-8 Mr 23 '18

**Chlorine, Liquid—Continued**

- Chlorination of Chicago's water supply. J. Ericson. *diags* Munic Eng 56:6-8 Ja '19; Same abr. Eng N 81:1126-7 D 19 '18
- Cost of chlorine treatment of water supplies. C. M. Baker. Eng & Contr 49:373 Ap 10 '18
- Disinfection in Philadelphia. Munic J 44:222-3 Mr 16 '18
- Reducing fire hazards of handling chemicals. Munic J 43:636 D 29 '17
- Results of the chlorination of public water supplies in Michigan. E. D. Rich and E. L. Waterman. Munic Eng 54:114-16 Mr '18
- Results secured by chlorine compounds in water purification and sewage treatment. C. A. Jennings. Munic Eng 54:249-51 Je '18; Excerpt. Eng & Contr 49:598-9 Je 12 '18
- Use of liquid chlorine in war service. W. D. Marshall. Eng & Contr 49:40-1 Ja 9 '18
- Water supply of many cities in danger from chlorine shortage. Eng N 80:688 Ap 4 '18

**Chlormethane. See Methyl chloride****Chloroacetyl derivatives**

- Certain aromatic amines and chloroacetyl derivatives. W. A. Jacobs, M. Heidelberger and I. P. Rolf. *Am Chem Soc J* 41:458-74 Mr '19

**Chlorobenzene**

- Preparation of hexanitro-diphenylamine from chlorobenzene. E. J. Hoffman and P. A. Dame. *Am Chem Soc J* 41:1013-20 Je '19

**Chloroform**

- Carbon tetrachloride, chloroform and carbon hexachloride from natural gas. G. W. Jones and V. C. Allison. *diags J Ind & Eng Chem* 11:639-43 Jl '19
- Chloroform application by tube. *Sci Am* 120: 171 F 22 '19
- Chloroform from carbon tetrachloride; patent. *Chem & Met Eng* 21:403 S 15 '19

**Chloromethane. See Methyl chloride****Chloropicrin**

- Killing vegetable parasites with poisoned gases. *Sci Am* 121:31 Jl 12 '19
- Vomiting gas. O. R. Sweeney. *Sci Am S* 86: 259 O 26 '18

**Chocolate**

- Chocolate and cocoa. *Il Sci Am S* 86:232 O 12 '18

**Choir stalls. See Church furniture****Cholera**

- American engineer at Burma camp fights epidemics. H. N. Jenks. *map Eng N* 82:339-40 F 13 '19
- Recent researches on cholera. L. Rogers. *Sci Am S* 88:30, 58 Jl 12, 26 '19

**Christmas decorations**

- Christmas made in America. *Il Sci Am* 121: 393+ O 18 '19

**Christmas printing**

- Greeting-cards received. J. L. Frazier. *Inland Ptr* 60:641-3 F '18
- Holiday greetings; specimens. *Inland Ptr* 62: 538-40 F '19

**Chrobaltic alloy**

- New alloy for milling cutters. *Il Iron Age* 103:1715 Je 26 '19

**Chromanes**

- Syntheses of chromanes and coumaranes. R. E. Rindfusz. *Am Chem Soc J* 41:665-70 Ap '19

**Chromite**

- Alaskan chromite deposits. Eng & Min J 105:777 Ap 27 '18
- Chrome mining in Canada. R. Harvie. Eng & Min J 107:144 Ja 18 '19
- Chrome near Contact, Montana. Eng & Min J 106:1083 D 21 '18
- Chrome-ore deposits in Cuba. E. F. Burchard. *Il maps Am Inst Min Bul* 153:sup2523-46 S '19
- Chrome ore in California. *Iron Age* 102:211 Jl 25 '18
- Chrome ore in Cuba. Eng & Min J 106:617 O 5 '18
- Chrome ore in 1918. F. F. Sharpless. Eng & Min J 107:81-2 Ja 11 '19
- Chrome ore in South Africa. W. W. Master-son. Eng & Min J 107:1081 Je 21 '19

**Chrome ore output in 1917 and 1918. Iron Age 101:1657 Je 27 '18****Chrome-ore specifications and producers of chromite in California. Eng & Min J 106: 420-1 Mr 2 '18****Chrome ores in southern Pennsylvania. Iron Tr R 62:718-19 Mr 21 '18****Chrome production and distribution. S: H. Dolbear. Eng & Min J 105:634-5 Ap 6 '18; Discussion. W: A. Stewart. 105:967 My 25 '18****Chrome sands on the Pacific coast. J. F. Grugan. Chem & Met Eng 20:79-81 Ja 15 '19****Chromite in the United States. Eng & Min J 107:718 Ap 19 '19****Concentration of chrome ores. flow sheet Eng & Min J 105:462-3 Mr 9 '18****Cuba's chrome and manganese ores. Iron Tr R 63:1238-9 N 28 '18; Excerpts. Iron Age 102:693-4 S 19 '18; Excerpts. Eng & Min J 106:617 O 5 '18****Disadvantages of chrome brick in copper reverberatory furnaces. Eng & Min J 105:1063 Je 15 '18****Domestic chrome ores again in demand. Auto-motive Ind 38:729 Ap 11 '18****Domestic production of chrome ore grows. Iron Tr R 64:1149-50 My 1 '19****Domestic sources of chromite. Automobile 37: 482 S 13 '17****Half year's production of chromite. Eng & Min J 106:542 S 21 '18****Maryland sand chrome ore. J. T. Singewald, jr. diags plan map. Econ Geol 14:189-97 My '19; Discussion. J. V. Lewis. 14:491-4 S '19****More use of domestic manganese and chrome. Iron Age 101:810-11 Mr 28 '18****Recent studies of domestic chromite deposits. J. S. Diller. *Il diags maps plan Am Inst Min Bul* 153:1995-2040 S '19****Speeding up chromite production. Eng & Min J 106:53 Jl 13 '18****U.S. chromite production inadequate to meet war need. Eng & Min J 105:385 F 16 '18****Chromium****Chromium in steel. G. L. Kelley and W. C. Wright. Iron Age 103:1507 Je 5 '19****Chromium, its occurrence and mining. H: Ries. Eng & Min J 104:988-90 D 8 '17****Determination of manganese and chromium. Eng & Min J 105:248-9 F 2 '18****Manganese and chromium in California. Iron Tr R 62:324 Ja 31 '18****Situation in regard to manganese, sulphur, pyrite, and some other war minerals; with discussion. J. E. Johnson, jr. Eng Soc W Pa 33:655-6 Ja '18****Chromium compounds****Chromium compounds of azo dyes. Color Tr J 5:47-8 Ag '19****Chromium salts****Tanning by means of chromium salts. Auto-motive Ind 39:331 Ag 22 '18****Chromium steel****Chromium steel for magnets; abstract. Elec W 71:264 F 2 '18****Hardening and tempering of steel. C. A. Edwards. Engineer 125:161-2 F 22 '18****Physical qualities of high chrome steel. L. R. Seldell and G. J. Horvitz. *Il Iron Age* 103: 291-4 Ja 30 '19****Chromyl chloride****Reactions in non-aqueous solvents; the action of chromyl chloride upon phosphorus halides. H. S. Fry and J. L. Donnelly. Am Chem Soc J 40:478-82 Mr '18****Chronograph****Aberdeen chronograph; an improved device for timing the flight of a projectile. H. T. Wade. *Il Sci Am* 121:131+ Ag 9 '19****Simple chronograph. C. W. Marshall. *diag Elec R* 74:70 Ja 11 '19****Chronophotography. See Moving picture photography; Photography, Aerial****Chucking machines****Daniels automatic multiple-spindle chucking machine. *Il Am Mach* 49:824-5 O 31 '18; Iron Age 102:1033 O 24 '18; Mach 25:271-2 N '18****Chucks****Adjustable-center air chuck. K. H. Conley. *diags Mach* 25:647-8 Mr '19**

**Chucks—Continued**

- Air-operated chuck for 6-in. high-explosive shells. G. Garrett. diags Am Mach 49:217-18 Ag 1 '18
- American air-operated chuck. diags Mach 24: 657-8 Mr '18; Am Mach 48:470 Mr 14 '18
- American collet-type chuck for shell or other similar work. II diags Am Mach 49:1007 N 28 '18; Mach 25:363 D '18
- American parallel-grip master-hinge collet chuck. II Am Mach 50:867 My 1 '19
- American pneumatic chucks. II Am Mach 50:1168-9 Je 12 '19; Iron Age 103:1527 Je 5 '19
- Bemis lathe chuck. diags Am Mach 50:36 Ja 2 '19
- Campbell shell chucks. diags Ind Management 55:420 My '18; Iron Age 101:1205 My 9 '18
- Chuck for three-inch shrapnel shells. D. A. Baker. diags Mach 25:111 O '18
- Chucks for holding pot castings used in making piston rings. J: Drew. II diag Am Mach 51:833-4 N 6 '19
- Collet chuck unit for engine lathes. II diag Iron Tr R 64:149 Ja 9 '19
- Compensating air-operated shell chucks. diags Iron Age 102:744 S 26 '18
- Cresco drill chuck. II Mach 24:858 My '18
- Drill chuck for holding straight-shank tools. II Iron Tr R 64:327 Ja 30 '19
- Eastern tube & tool co.'s drill chuck. II Mach 25:79-80 S '18
- Etico hand-operated drill chuck. II Am Mach 49:406 Ag 29 '18
- Expanding air chuck. E. Shaft. II Am Mach 47:1078 D 20 '17
- Garrison drilling heads and gear holding chuck. II Am Mach 48:514-15 Mr 21 '18
- Lavoie air chuck. II Am Mach 51:484 S 4 '19
- Logan air-operated chucks. II Mach 25:764-5 Ap '19; Am Mach 50:617 Mr 27 '19; Iron Age 103:830 Mr 27 '19
- Manufacturing a drill chuck. F. R. Daniels. II diags Mach 25:948-52 Je '19
- Manufacturing the Etico drill chuck. II diags Am Mach 51:209-12 J1 31 '19
- Marvin & Casler twin screw drill chuck. II Ry Mech Eng 93:217 Ap '19
- Multiple-roll chuck and formulas for grinding hole in gears. diags Am Mach 47:821-2; 48: 947-8 N 8 '17, Je 6 '18
- New lathe chucks for spur and bevel gears. II Automotive Ind 39:1103 D 26 '18
- Paco shell chuck. diag Am Mach 49:685 O 10 '18; Mach 25:171 O '18
- Progressive drill chuck. II diag Mach 24:461 Ja '18; Am Mach 48:303 F 14 '18
- Roller chuck for holding shells. J: Homewood. diag Am Mach 49:403 Ag 29 '18
- Self-centering chuck facilitates the boring of motor bearings. II Elec Ry J 54:347-8 Ag 16 '19
- Self-tightening chuck. A. Smith. diags Am Mach 48:505 Mr 21 '18
- Simplex improved chuck. II Am Mach 48:723 Ap 25 '18
- Special chuck for holding shells to be re-centered. A. F. White. diag Am Mach 49: 820 O 31 '18
- Special chuck for large pipe fittings. H. J. Ventner. II Am Mach 50:550 Mr 20 '19
- Special expanding ring chuck. H. Mather. diags Am Mach 50:78 Ja 9 '19
- Universal bearing chuck that saves time and labor. J. W. Strawbridge. diags Elec Ry J 52:625 O 5 '18
- Wedge chuck for 4.5-inch high-explosive shells. J: Homewood. diag Mach 25:346 D '18
- Chucks, Magnetic**
- Devices for use on magnetic chucks. II Iron Tr R 64:769 Mr 20 '19
- Head magnetic chuck. II Am Mach 47:1105 D 20 '17; Iron Age 100:1475 D 20 '17; Mach 24: 461-2 Ja '18
- Persons-Arter magnetic chuck. II Mach 24: 467-8 Ja '18; Am Mach 48:171 Ja 24 '18
- Relative characteristics of magnetic chucks. O. A. Kenyon. II diags Elec W 74:11-14 J1 5 '19

**Church and art**

What a church is doing for art; exhibition of paintings at Church of the Ascension, N.Y. Am Arch 116:82 J1 16 '19

**Church architecture**

- Architectural rambles in Brittany. A. K. Porter. II Am Arch 112:161-8, 313-22; 113:463-61, 491-9 S 5, O 31 '17, Ap 17-24 '18
- Basilica of Saint Remy at Rheims. C. Heaton. II Arch Rec 45:561-6 Je '19
- Church of St Vincent Ferrer, New York city. B. G. Goodhue. II Arch & Bldg 51: 54-7, pl 104-6 J1 '19
- Construction of a lantern and fleche, Hennepin Avenue church, Minneapolis, Minn. II diags plans Am Arch 114:469-75 O 16 '18
- Early churches in Spain. G. G. King. II Am Inst Arch J 6:395-402, 435-42, 559-66; 7:103-11 Ag-S. D '18, Mr '19
- Encasing steel roof trusses in a church building. N. Serracino. II diags plan Am Arch 116:367-60 S 10 '19
- Hennepin Avenue church, Minneapolis, Minn.; views. Am Arch 114:pl 23-4 J1 17 '18
- Holy Rosary church, Dayton, Ohio. L. V. Solon. II plan Arch Rec 45:2-11 Ja '19
- Note on Bryn Athyn church. R. A. Cram. Am Arch 113:709-12 My 29 '18
- St Gregory's Roman Catholic church, Sterling place and Brooklyn avenue, Brooklyn, N.Y.; views. Arch & Bldg 49:pl 154-7 N '17
- St Mark's church, Minneapolis, Minn.; views. Am Arch 114:pl 20-2 J1 17 '18
- Some principles of design and construction in church building. C. H. Moore. Arch Rec 46:115-22 Ag '19
- Steel construction characterizes Chicago church. II diags plans Eng N 81:860-3 N 7 '18
- Westminster Presbyterian church, Portland, Ore.; views. Am Arch 114:pl 17-19 J1 17 '18
- See also* Cathedrals; Chapels; Parish houses

**Designs and plans**

- Central Baptist church, 92d street and Amsterdam avenue, New York city; views and plan. Arch & Bldg 49:front, pl 151-4 N '17
- Church of the Holy Rosary, Dayton, Ohio. Am Arch 115:pl 87-91 Mr 19 '19
- First Congregational church, Sioux City, Iowa; views and plans. Am Arch 116:pl 61-4 Ag 13 '19
- First Presbyterian church, Santa Barbara, Cal.; views and plans. Am Arch 115:pl 147-55 My 7 '19
- Fourth church of Christ Scientist, Fort Washington ave., New York; views and plans. Am Arch 114:pl 74-80 S 4 '18; Views. Arch & Bldg 50:pl 121-2 J1 '18
- Hollow tile church for the suburbs. II diags plans Bldg Age 40:1-9 Ja '18
- Saint Gregory's church, Brooklyn, N.Y. II plan Am Arch 112:409-10, 414, pl 262-70 D 5 '17
- St Mary's Episcopal church, Good Ground, L.I.; view and plan. Am Arch 114:pl 201 D 25 '18
- Church furniture**
- Mediaeval choir stalls; design and decoration of misericord seats. II Sci Am S 85:216-17, 228-9 Ap 6-13 '18
- Stalls, Brazenose college chapel, Oxford. (English details no. 10). Am Arch 112:pl 260-1 D 5 '17
- Church lighting**
- Church light a help towards filling in a valley in the load curve. J. E. Bullard. Am Gas Eng J 110:481-2 Je 7 '19
- Church lighting for architectural effect. F. L. Godinez. II Am Arch 113:70-4 Ja 16 '18
- Electric lighting of ecclesiastical buildings. W: Wilson. diag Inst E E J 56:193-8 Mr '18
- Gas displaces electricity in church lighting. II Gas Age 41:201-2 Mr 1 '18
- Lighting installation for a church auditorium. H. O. Stewart. II diag Elec R 75:1-3 J1 5 '19
- Reasons why gas is best light for churches and other places where large groups of people congregate. II Am Gas Eng J 110: 193-4, 197-8 Mr 1 '19

**Churches**

See also Cathedrals; Church architecture; Church furniture; Church lighting; Stained glass; also subdivision Churches and names of individual churches under names of cities, e.g. New York (city)—Churches, Constantinople—Mosque of Sta Sophia

**Heating and ventilation**

Downward heating and ventilation for church. *Il* diags Metal Work 91:684-5 My 30 '19  
Electric heating offers many advantages for use in churches. A. Scheible. *Il* Elec R 73: 824-5 N 23 '18  
Fan-furnace system in Indiana church. *Il* diags plans Metal Work 90:523-6 N 8 '18  
Information about heating system to be installed in church in Canada. diags Dom Eng 85:288-9 N 23 '18  
Steam boiler does not work right on heating plant in a church. diags plan Dom Eng 82: 409-10 Mr 16 '18

**Chutes**

Bidding for and making a twist elbow. *Il* diags plans Metal Work 90:469-71+ O 25 '18  
Counterbalanced gate and chute spout for underground ore pockets. diags Eng & Min J 104:1129 D 29 '17

See also Flumes

**Cibola**

Cibola revealed; relics of Coronado's seven cities in a New York museum. J. W. Harrington. *Il* Sci Am 120:24-5 Ja 11 '19

**Cicadas**

Return of the 17-year locust. W. H. Ballou. *Il* Sci Am 120:316 Mr 29 '19

**Cigars**

Temperature of a burning cigar. T. S. Sligh, jr., and H. R. Kraybill. *Il* diags Am Inst Min Bul 153:sup2241-6 S '19; Discussion. 156:3181 D '19

**Cinchona alkaloids**

Identification of the cinchona alkaloids by optical-crystallographic measurements. E. T. Wherry and E. Yanovsky. diags Am Chem Soc J 40:1063-74 Jl '18  
Syntheses in the cinchona series; the simpler cinchona alkaloids and their dihydro derivatives. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 41:817-33 My '19

**Cincinnati, Ohio**

Plants and places in Cincinnati. *Il* Power 48: 351-4 S 3 '18

**Fire service**

High pressure fire system of Cincinnati. J. A. Hiller. diags maps Munic J 43:597-9, 628-30 D 22-29 '17

**Rapid transit**

Some elements of the Cincinnati franchise. W. A. Draper. Elec Ry J 54:sup18-21 O 11 '19

**Streets**

Street and sewer work. Munic J 45:150 Ag 24 '18

**Cincinnati, University**

Modern power plant education. C. A. Joerger. *Il* Power 48:162-3 Jl 30 '18

**Cinders**

Cinders for ballast should receive more consideration. L. A. Mitchell. Elec Ry J 53:106 Ja 11 '19  
Effect of cinder fill on locomotive water supply. W. M. Barr. *Il* diags Ry Age 66: 1215-16 My 16 '19  
New type of cinder conveyor at the yards of the Chicago & North Western, Milwaukee. *Il* Ry Age 66:1017 Ap 18 '19  
Power plant burns locomotive cinders. Power 47:13 Ja 1 '18; Discussion. E. C. Boynton. 47:338 Mr 5 '18

**Cinematograph. See Moving pictures****Cinnabar. See Mercury****Circles**

Areas of segments of circles. W. B. Marquard. Eng & Min J 104:253 Ag 11 '17; Same. Eng N 79:470-1 S 6 '17; Discussion.

Eng & Min J 104:391 S 1 '17; Eng N 79: 657-8, 894-5, 981-2, 1072 O 4, N 8, 22, D 6 '17  
Circumferences and areas of circles with their table. Motor Age 34:29 S 26 '18  
Lengths of chords for spacing circles. W. L. Tryon. Foundry 47:484a, 522a Jl 15-Ag 1 '19

Optical method for accurately dividing a circle into degrees. R. S. Clay. diags Sci Am S 86:188-9 S 21 '18

Circuit breakers, Electric. See Electric circuit breakers

Circular letters. See Sales letters

**Circus**

First aid to the circus. *Il* Sci Am 118:136 F 9 '18

**Cisterns**

How to figure size of cistern and material necessary to build it. D. C. Carsen. Bldg Age 40:326 Jl '18  
Novel observation upon mosquitoes: their flight through horizontal water pipes. W. W. King. Sci Am S 87:186 Mr 22 '19

**Cities**

Heritage of the cities movement in America. L. Mumford. Am Inst Arch J 7:349-54 Ag '19

See also City planning; Garden cities; Housing problem; Markets, Municipal; Municipal government, and other headings beginning Municipal; Parks; Sewage disposal; Street cleaning; Street railroads; Streets; Water purification; Water supply

**Citral**

Improved method for determining citral; modification of the Hiltner method. C. E. Parker and R. S. Hiltner. J Ind & Eng Chem 10:608-10 Ag '18

**Citric acid**

Electronic constitutions of acetoacetic and citric acids and some of their derivatives. M. T. Hanke and K. K. Koessler. Am Chem Soc J 40:1726-32 N '18  
Solvent action of dilute citric and nitric acids on rock phosphate. J. A. Stenius. J Ind & Eng Chem 11:224-7 Mr '19

**Citroen, André**

Citroen: French industrial genius with American ideas. F. Miltoun. pens Iron Tr R 63: 1010-11 O 31 '18

City government. See Municipal government

City lighting. See Street lighting

City manager plan. See Municipal government—City manager plan

**City managers**

City management as a profession. H. M. Waite. Eng & Contr 48:492 D 12 '17; Same. Munic J 43:626 D 29 '17  
City manager government. Munic J 44:112 F 9 '18  
City-manager government. Munic J 47:68-9 Ag 2 '19  
City managers and their salaries. Munic J 44: 257-9 Mr 30 '18  
Recent developments in city manager field. H. G. Otis. Eng & Contr 50:353-4 O 9 '18  
Salaries of city managers and the growth of the city manager plan. Eng & Contr 49:448-9 My 8 '18  
Things engineers serving as city managers may be expected to meet. T. H. Reed. Eng N 81:177-9 Jl 25 '18

See also Municipal government—City manager plan

**City planning**

Baltimore civic improvement. *Il* diags plans Am Arch 113:57-62, pl 28-32 Ja 16 '18  
Cities should continue planning improvements during the war. A. Potter. Munic Eng 53: 229-30 D '17  
City of the sun. P. Roveda. Am Arch 113:415 Ap 3 '18  
City plan commissions; their organization and effectiveness. J. W. Routh and F. P. Cartwright. Munic J 45:447-8 D 7 '18  
City plan movement and improvement for Springfield, Illinois. G. W. Maher. Am Arch 114:543-4 N 6 '18



**City planning—Continued**

- City planning and the small house. J. Molitor. Am Arch 113:478 Ap 17 '18
- City planning as an engineering problem. N. P. Lewis. Munic Eng 54:257-9 Je '18
- City planning for Davenport, Ia. R. E. Sawistowsky. Il diags Munic J 44:523-6 Je 29 '18
- City planning for Portland, Ore. Il diags maps Munic J 47:116-18, 133-4 Ag 23-30 '19
- City planning for small cities with special reference to an industrial survey. A. P. Hoover. Arch & Bldg 50:9-11 F '18; Excerpts. Eng & Contr 50:242-3 S 4 '18
- City planning is closely related to public safety. T. Adams and H. Bartholomew. Eng N 81:572-4 S 26 '18
- Constructive and progressive aspects of new branch of engineering. Eng N 82:1133-4 Je 5 '19
- Engineer and the city plan. R. E. Sawistowsky. Eng N 80:666-7 Ap 4 '18
- Essentials to beginning a city plan. Eng N 80:593-4 Mr 28 '18
- Factors governing selection of industrial site. H. Bartholomew. diag Eng N 82:872-3 My 1 '19
- Garden apartments for industrial workers. H. A. Smith. Il plans Am Arch 113:686-9 My 22 '18
- Government's housing at Bridgeport, Connecticut. S. Baxter. Il diags plans Arch Rec 45:123-41 F '19
- Heritage of the cities movement in America. L. Mumford. Am Inst Arch J 7:349-54 Ag '19
- Industrial city planning—a vital need for present and future commercial development. A. P. Hoover. Arch & Bldg 50:21-4 Mr '18
- Land platting in Michigan. H. L. Brightman. Eng & Contr 52:276-7 S 3 '19
- Lindenlea garden suburb and housing plan. Ottawa. plan Eng N 83:412 Ag 28 '19
- Model housing plan for reclaiming a St Louis district. Il Am Arch 116:8-13 Ji 2 '19
- Nation planning; an analysis of M. Louis van der Swaelmen's Preliminaires d'art civique. N. Hammarstrand. Am Inst Arch J 5:405-7; 6:81-4 Ag '17. F '18
- National conference on city planning. Munic J 47:60+ Ji 26 '19
- Need of town-planning legislation and procedure for control of land as a factor in house-building development. T. Adams. Am Inst Arch J 6:68-70, 135-7 F-Mr '18
- North Michigan avenue. Chicago development. Il plan Am Arch 114:691-4 D 11 '18
- Notes on design of the streets for suburban communities. F. A. Robinson. Eng & Contr 49:441-2 My 1 '18
- Notes on rebuilding in France and Belgium. T. Kimball. Am Inst Arch J 6:164-8 Ap '18
- Observations on government housing, and on town planning and housing in general. W. E. Shannon. Eng & Contr 52:350 S 24 '19
- Planning in Australia. N. Hammarstrand. Am Inst Arch J 7:35-7 Ja '19
- Planning of residential suburbs with special reference to engineering features. F. L. Olmsted. Munic Eng 57:161-4 O '19
- Planning sunlight cities. H. S. Swan and G. W. Tuttle. diags Am Arch 115:427-41 Mr 19 '19
- Portsmouth and the war; notes on the development at Atlantic Heights. N. H. W. R. Greeley. Il diags plans Am Arch 114:447-56 O 16 '18
- Relation of sunlight to town planning. H. L. Seymour. Eng & Contr 51:483-4 My 7 '19; Excerpt. Am Arch 116:14 Ji 2 '19
- Report of City planning committee of American water works association. Il Am Water Works Assn J 5:1-9 Mr '18
- Results of a departure from correct ideas of town planning in England. Am Arch 113:691 My 22 '18
- Solution of the housing problem in the United States. M. Hastings. plan Am Inst Arch J 7:259-66 Je '19

- Some engineering problems of city planning; abstracts of papers before the National conference on city planning. Eng N 82:1097-9 Je 5 '19
- Some engineering problems of regional planning. M. Knowles. Eng N 82:1173-5 Je 12 '19
- Suburban development. Laurelhurst, Portland, Oregon; views and plan. Am Arch 113:762-4 Je 5 '18
- Suburban landscape planning in Cleveland. I. T. Frary. Il plans Arch Rec 43:370-84 Ap '18
- 10th annual City planners' conference, St Louis, May 27-29. Am Arch 113:832-3 Je 19 '18
- Tiny town; experiment of Springfield, Mo., evolves method of promoting ideals of citizenship. W. H. Johnson. Il Am Arch 116:439-43 O 1 '19
- Town-planning. R. C. Sturgis. Am Inst Arch J 6:405-6 Ag '18
- Town-planning in New Zealand. A. G. Waller. Am Inst Arch J 6:567-77 D '18
- Westinghouse village at South Philadelphia, Pa. Il plans Am Arch 115:222-30 F 12 '19
- World's building problem. C. H. Whitaker. Am Inst Arch J 7:370-1 Ag '19
- See also* Building laws and regulations; Garden cities; Housing problem; Industrial districts; Model towns; Streets

**Zone system**

- Amendments to St Louis zoning ordinance passed. H. Bartholomew. Eng N 83:403 Ag 28 '19
- Building zones for cities. Munic J 45:73 Ji 27 '18
- Effect of city zoning on sewerage system design and cost. W. W. Horner. Eng N 80:368-9 F 21 '18
- Industrial zoning. H. S. Swan. Arch & Bldg 50:39-42 Je '18; Same. Munic J 45:206-8 S 14 '18; Same. Am Arch 115:500-3 Ap 2 '19
- Non-conforming building in zoning. H. S. Swan. Am Arch 114:592-4 N 13 '18
- St Louis' new zone ordinance. diags maps Munic J 45:65-8, 87-8 Ji 27-Ag 3 '18
- Zone fares and city planning. R. H. Whitten. Elec Ry J 54:831 N 1 '19
- Zoning. R. F. Bach. Arch Rec 43:94 Ja '18
- Zoning and reconstruction. H. S. Swan. Am Arch 114:781-2 D 25 '18
- City representatives of electric railways, American association of.** *See* American association of city representatives of electric railways
- Civil engineering**
- Relation between civil and military engineers. W. M. Black. Eng & Contr 51:58-9 Ja 15 '19
- See also* Aqueducts; Arches; Architecture; Blasting; Breakwaters; Bridges; Building; Canals; Cofferdams; Curves; Dams; Docks; Drainage; Dredging; Drilling and boring (earth and rocks); Earthwork; Embankments; Engineering; Excavation; Flood control; Foundations; Grading; Harbors; Highway engineering; Hydraulic engineering; Irrigation; Landslides; Lighthouses; Mensuration; Mining engineering; Municipal engineering; Piles and pile driving; Public works; Railroad engineering; Railroads—Construction; Reclamation of land; Rivers—Regulation; Roads; Sanitary engineering; Steel construction; Strains and stresses; Streets; Strength of materials; Subways; Surveying; Tunnels and tunneling; Walls; Water supply; Water supply engineering
- Civil engineers**
- Presidential address at convention of civil engineers. F. S. Curtis. Eng N 82:1208-10 Je 19 '19
- Civil engineers, American society of.** *See* American society of civil engineers
- Civil relief act, Soldiers' and sailors'.** *See* Soldiers' and sailors' civil relief act
- Civil service**
- Grade and standardize personal service in New Jersey. Eng N 80:810 Ap 26 '18
- Milwaukee grades civil service positions. Eng N 80:924 My 9 '18

**Civilization**

Heredity, environment, and civilization; factors controlling human behavior as illustrated by the natives of the southwestern United States. A. L. Kroeber. *Sci Am* S 86: 210-12 O 5 '18

*See also* Anthropology; Archeology; Art; Education; Ethnology; Inventions

Claim agents' association, Pacific. *See* Pacific claim agents' association

**Clamer, Guillian H.**

President-elect of the American society for testing materials. *por* Foundry 46:802-3 JI '18

President of the American society for testing materials. *por* Iron Tr R 62:1621 Je 27 '18

**Clamps**

Clamp for the work bench. C: H. Willey. *diag* Coal Age 16:89 JI 17 '19

Hand friction clamp. J: Dernoga. *diag* Mach 25:547 F '19

Long jaw toggle clamp. C: H. Willey. *diag* Int Marine Eng 23:484 Ag '18

Simple clamping fixture for milling operation. H. M. Fay. *diag* Am Mach 51:628 S 25 '19

Straightening and flanging clamp. J. V. Henry. *diag* Ry Mech Eng 93:216 Ap '19

Tangent clamp. W. Griffin. *diag* Mach 24:937-8 Je '18

Tire clamp for boring mills. H. L. Lingo. *diag* Ry Mech Eng 93:547 S '19

Toolmaker's clamp. H: B. Graves, jr. *il* *diag* Mach 26:71-2 S '19

*See also* Machine tools—Fixtures

**Clarke, Edmund Arthur Stanley, 1862-**

Clarke to head export corporation. *por* Iron Tr R 63:1454-5 D 26 '18; Iron Age 103:63 Ja 2 '19

**Clarksburg, West Virginia****Water supply**

Water board's new charter. S. G. Highland. *Am Water Works Assn J* 4:517-20 D '17

Class-room ventilation. *See* Schoolhouses—Heating and ventilation

**Classical education**

Engineering, Latin, and Greek. *Eng & Min J* 107:887-8 My 17 '19

Latin and Greek as preparation for engineering. M. E. Cooley. *Eng N* 82:930 My 8 '19

Training in Latin and Greek not best for engineers. R. Hering. *Eng N* 82:1272-4 Je 26 '19

**Classification**

Classification and cataloging in business libraries. L. B. Krause. *J Elec* 43:75-6 JI 15 '19

Classification of commodities for use in foreign trade statistics. *J Ind & Eng Chem* 11:257-63 Mr '19

Factory nicknames that save time. H: H. Farquhar. *Factory* 23:280-3 Ag '19

Proposed architect's classified index for correspondence, drawings, catalogues and specifications. *Am Inst Arch J* 7:87 F '19

System of classification for aeronautical information. F. L. Faurote. *il* *Automotive Ind* 38:1223-7 Je 20 '18

Why propose another classification of engineering literature? K. C. Walker; C: W. Hunt. *Eng N* 80:780 Ap 18 '18

*See also* Files and filing (documents)

**Classification, Decimal**

Filing system for central station use. C. C. Hogan. *J Elec* 42:221-4 Mr 1 '19

**Classifiers**

Making an inexpensive classifier. F: W. Foote and R. S. Ransom, jr. *diag* *Eng & Min J* 104:1131 D 29 '17

**Clay**

American clay for graphite crucibles. *Met & Chem Eng* 18:265 Mr 1 '18

American needs for English clay. *Metal Work* 91:550 My 2 '19

Concrete aggregate of burnt clay. *Am Arch* 113:165-6 F 6 '18

Experiments with clay in its relation to piles. A. S. E. Ackermann. *Eng & Contr* 62:144-5 JI 30 '19

Materials for the household. *U S Bur Stand Circ* 70:14-19 '17

Notes on the crucible situation. A. V. Bleining. *Metal Ind* 16:15-16, 79-81 Ja-F '18;

Excerpts. *Foundry* 46:274-5 Je '18

Pertinent facts about clay for foundry use. H. F. Stahle. *Foundry* 47:310-11 My 15 '19

Separating mari from cement rock. *Concrete* 12:sup48 My '18

*See also* Bricks; Fire clay; Fuller's earth;

Porcelain; Pottery; Sand clay

**Clay industries**

Central-station service for clay-working plants. *Elec R* 72:428-30 Mr 9 '18

Clay and concrete products industries on reduced fuel schedule. H. A. Garfield. *Concrete* 12:181-2 My '18

Clay-working industries and building operations in the larger cities in 1917. J. Middleton. *J Ind & Eng Chem* 11:719-13 JI '19

Making of clay products restricted. *Am Arch* 113:568-9 My 8 '18

Recent developments in ceramics. A. V. Bleining. *J Ind & Eng Chem* 10:844-7 O '18

*See also* Bricks; Clay products; Hollow tile; Porcelain; Pottery

**Clay products**

History and properties of light-weight aggregates; burnt clay or shale. *il* *Eng N* 82: 802-5 Ap 24 '19

Pyrometry in the manufacture of clay wares. F. K. Pence. *Am Inst Min Bul* 153:2107-9 S '19

*See also* Bricks; Clay industries; Fire brick; Porcelain; Pottery; Tile

**Clayton law**

Objections to proposed rules for competitive bids under Clayton law. *Ry Age* 66: 1209-11 My 16 '19

Rules for competitive bidding under the Clayton law. *Ry Age* 66:1009-10 Ap 18 '19

**Cleaning**

Cleaning mill spots from silks. *J Fr Inst* 185: 851 Je '18

Cleaning practice in textile mills. *il* *diag* *Textile World* 54:2983-4 D 14 '18

Cleans twenty cement sacks in three minutes. B. G. Best. *diag* *Eng N* 81:193 JI 25 '18

Dry cleaning and refinishing. L. H. Buck. *Textile World* 54:943 Ag 31 '18

Materials for the household. *U S Bur Stand Circ* 70:192-201 '17

Newer methods of cleaning. F: Coryell. *il* *Factory* 22:249-51 F '19

Power floor scrubbing. *il* *Textile World* 56: 1371 S 6 '19

Removal of blood and ink stains. *Color Tr J* 4:62-3 Mr '19

*See also* Automobiles—Cleaning; Bleaching; Boiler cleaning; Car cleaning; Dyes and dyeing; Gas cleaning; Glassware; Laundry; Metal cleaning; Sewer cleaning; Street cleaning; Vacuum cleaning; Water pipes—Cleaning

**Cleanliness**

With the works engineer; good-housekeeping contest. *Factory* 22:282-4 F '19

*See also* Baths; Disinfection and disinfectants; Hygiene; Sanitation

**Clearances. See Electric lines—Clearance****Clearing of land**

Blasting stumps from frozen soil. *Eng & Contr* 50:492-3 N 20 '18

Clearing land. E. D. Straff. *il* *diag* *U S Agric Farmers' Bul* 974:1-29 '18

Cost of stump removal in land clearing. M. J. Thompson. *Eng & Contr* 49:613 Je 19 '18

Equipment for pulling stumps. *il* *Sci Am* 118: 276 Mr 30 '18

Handy tool for use in pulling lateral roots and small stumps. *il* *Eng & Contr* 50:567 D 18 '18

Land clearing with donkey and traction engines. C. H. Shattuck. *Eng & Contr* 49:191 F 20 '18

**Clearing of land—Continued**

- Method and cost of clearing cut over land with powder. *Il Eng & Contr* 48:505-7 D 19 '17
- Method of burning stumps in place in land clearing. *I. D. Chariton. Eng & Contr* 48:512-13 D 19 '17
- Method of clearing cut over land with fire. *C. H. Shattuck. diags Eng & Contr* 49:68-9 Ja 16 '18
- Methods and costs of stump removal in land clearing. *F. M. White and E. R. Jones. Il Eng & Contr* 51:535-7 My 21 '19
- New device may revolutionize land clearing. *Am Lumberman* 2232:40 F 23 '18
- Notes on blasting stumps in sandy ground. *Eng & Contr* 49:204 F 20 '18

*See also* Blasting; Lumbering

**Cleisotamy. See Fertilization of plants****Cleveland, Ohio**

- New river-straightening movement. plan *Eng N* 82:763-4 Ap 17 '19

**Bridges**

- Electric railway construction on the Detroit-Superior bridge. *Il diags map Elec Ry J* 52:144-6 Jl 27 '18

**Public works**

- Mayor Davis of Cleveland, drafts \$20,000,000 public works construction program in preparing for peace. *Munic Eng* 55:168-9 N '18

**Railroads**

- Cleveland considers broad reorganization of its railroad and interurban transportation facilities. *Eng & Contr* 50:373 O 16 '18; *Same. Munic Eng* 55:221 D '18
- Comparison of railroad terminal projects at Cleveland. maps *Eng N* 82:240-3 Ja 30 '19
- New freight station of the New York Central lines in Cleveland. *Il diags plans Ry R* 62:703-9 My 18 '18; *Ry Age* 65:117-22 Jl 19 '18
- New plan for a Union station. *Il diag maps plan Ry Age* 66:755-8 Mr 21 '19; *Ry R* 64:469-72 Mr 29 '19
- New York Central builds \$4,000,000 high-level freight terminal. *W. E. Phelps. Il diags plans Eng N* 80:495-502 Mr 14 '18

**Rapid transit**

- Cleveland rapid transit report. charts plans *Elec Ry J* 54:71-4 Jl 12 '19
- Operation in Cleveland. *Elec Ry J* 52:379-80 Ag 31 '18
- Report on Cleveland rapid transit recommends street-car loop subways. maps *Eng N* 83:170-3 Jl 24 '19

**Sewerage**

- Cleveland sewage screen plans withdrawn from State department of health. *Eng N* 79:1128-9 D 13 '17
- Cleveland's sewerage system. *R. Hoffmann. diags Munic J* 44:429-31 My 25 '18
- Sewage sedimentation advised for Cleveland. *H. P. Eddy. Eng N* 81:806-8 O 31 '18

**Streets**

- Passing of a famous avenue. *I. T. Frary. Il Arch Rec* 43:391-2 Ap '18

**Suburbs**

- Suburban landscape planning in Cleveland. *I. T. Frary. Il plans Arch Rec* 43:370-84 Ap '18

**University school**

- Government machinery in school shops. *R. W. Derby. Il Am Mach* 50:785-6 Ap 24 '19

**Water supply**

- New filtration plant in operation. *Munic J* 44:266-7 Mr 30 '18

**Cleveland, Cincinnati, Chicago & St Louis railway**

- Double-track improvement on Big Four railroad. *diag Eng N* 82:524-5 Mr 13 '19
- Report. map *Ry Age* 66:1343-4 Je 6 '19
- Report for the year ended December 31, 1917. *Ry Age* 64:1157-9, 1208-9 My 10 '18
- 30th annual report. *Ry Age* 66:1570-2 Je 20 '19

**Cleveland electric illuminating company**

- Unit costs. *Power* 47:513 Ap 9 '18

**Cliff dwellers and cliff dwellings**

- Lost city; the forgotten dwellings of a forgotten people in New Mexico. *C. d'Emery. Il Sci Am S* 87:216-17 Ap 5 '19

**Climate**

- How a season differs from year to year. *F. Stupart. Sci Am S* 88:163 S 13 '19
- Interpretation of death rate by climographs. *E. Huntington. charts Metal Work* 92:193-5, 251-3+, 306-8+ Ag 15, 29, S 12 '19

**Clinker grinders**

- Clinker grinder in modern boiler practice. *C. H. Bromley. Il diags Power* 49:592-3 Ap 22 '19

**Clinkers**

- Causes of clinker and their palliatives. *L. Linnell. Elec R* 72:246 F 9 '18
- Clinkering: its causes and prevention. *M. A. Saller. Power* 48:335-6 S 3 '18; *Discussion. W. M. Alexander. Power* 48:501 O 1 '18
- Drake nonclinking furnace blocks. *diags plan Power* 49:171 F 4 '19
- Honeycomb or flue sheet clinker. *J. T. Anthony. Ry Mech Eng* 92:146 Mr '18
- Keeping clinkers off the boiler furnace walls. *Elec Ry J* 52:750 O 26 '18
- Pre-heating furnace air. *L. Linnell. Elec R* 71:1026 D 15 '17
- Side-wall clinker prevention. *diags Power* 48:598 O 22 '18

*See also* Clinker grinders

**Clock jacks**

- Ancient clock jacks; curious figures that formerly decorated clock towers in England. *Il Sci Am S* 85:148-9 Mr 9 '18

**Clocks**

- Accurate self-winding electric clock. *Il Elec W* 72:330 Ag 17 '18
- Comparing and setting clocks. *C. C. Wylie. Sci Am S* 85:175-6 Mr 16 '18
- Constructing a hall clock. *W. A. Giesen. diags Bldg Age* 40:325-8 Jl '18
- Long case (grandfather) clock. *Am Arch* 115:307-8 F 26 '19
- Possible explanation of erratic jumps in clock rates. *W. A. Conrad. Sci Am S* 85:11 Ja 5 '18
- Utilizing the time characteristics of alternating current. *H. E. Warren. Il Am Inst E E Pro* 38:639-43 My '19

*See also* Time clocks; Watches

**Escapements**

- Tower clock escapements; a review of the development of the escapement in extremely accurate clocks. *A. T. Hare. diags Sci Am S* 88:10-11 Jl 5 '19

**Closets**

- Closet space attracts women buyers. *H. V. Walsh. diags plans Bldg Age* 41:115-16 Ap '19

**Cloth. See Textile fabrics**

- Cloth calculations. *See* Textile industry—Tables, calculations, etc.

**Clothcraft shops**

- Work of the employment and service department of the Clothcraft shops. *M. B. Glison. U S Bur Labor Statistics Bul* 227:139-52 '17

**Clothes dryer. See Drying apparatus—Laundry****Clothing**

- Clothes and color. *F. Gifford. Color Tr J* 5:100-2 O '19
- Converting women workers to overalls. *E. McCann. Il Am Ind* 18:18-19 Mr '18
- Fortunate English civilian. *Sci Am* 119:128 Ag 17 '18
- Skirts or overalls for women. *Am Mach* 49:487 S 12 '18
- Standard uniform for women workers. *Il Am Mach* 49:8 Jl 4 '18
- Sufficient cloth and clothing. *H. E. Peabody. Textile World* 54:734 Ag 17 '18
- Women's war service costumes. *J. V. Hunter. Il Am Mach* 49:158 Jl 25 '18

*See also* Gloves; Hosiery; Sweaters; Textile fabrics; Underwear

## Clothing—Continued

## Bibliography

- Economics of textiles and clothing. Washington State College Home Econ Ser 3:1-44 '18
- Clothing trade**  
Wearing apparel in Argentina. L. B. Clark. II U S Bur For & Dom Com misc ser 68:1-158 '18  
Wearing apparel in Bolivia. W: A. Montavon. U S Bur For & Dom Com misc ser 69:1-84 '18  
Wearing apparel in Brazil. W: C. Downs. U S Bur For & Dom Com misc ser 71:1-64 '18  
Wearing apparel in Chile. W: A. Tucker. U S Bur For & Dom Com 168:1-75 '18  
Wearing apparel in Peru. W: F. Montavon. U S Bur For & Dom Com misc ser 74:1-64 '18
- Clouds**  
Clouds induced by forest fires. F. A. Carpenter. Sci Am S 88:118 Ag 23 '19  
Heights of cumulus clouds forming over fires. S. P. Fergusson and C. F. Brooks. Sci Am S 88:118-19 Ag 23 '19  
Physics of the air. W. J. Humphreys. II J Fr Inst 185:611-47 My '18
- Club rooms**  
Café and grille, Buyers' club, Bush terminal sales building, New York city; views. Arch & Bldg 50:pl 156-60 D '18
- Clubhouses**  
American club at Kohler, Wis. II plans Am Arch 114:401-2 O 2 '18  
Bob O'Link golf club, Highland Park, Ill.; views and plan. Arch Rec 43:74-7 Ja '18  
Building for University club, St Louis, Mo.; view and plans. Am Arch 113:pl 182-4 My 29 '18  
Cosmopolitan club, New York. L. V. Solon. II plan Arch Rec 46:18-28 JI '19  
Dayton engineers' club to dedicate newly built home. II plan Automotive Ind 38:223+ Ja 24 '18  
Engineers' club of Dayton; new club house. H. D. Smith. II plans Arch Rec 45:490-505 Je '19  
Essington club, South Philadelphia, Pa. II Am Lumberman 2286:47 Mr 8 '19  
Merrill, Wis., builds first Liberty club house. Am Lumberman 2280:39 Ja 25 '19  
Musical arts club, Walnut street, Philadelphia, Pa.; views. Am Arch 115:pl 123-7 Ap 16 '19  
Ravistoe country club, Homewood, Illinois. P. B. Wight. II plan Arch Rec 43:404-12 My '18  
Reo's clubhouse for workers. C. J. Shower. II Automotive Ind 38:1136-8 Je 13 '18  
University club, St Louis, Mo.; views. Am Arch 114:pl 153-60 N 20 '18
- Clutches**  
Automatic friction clutch of Accurate machine co. diags Iron Tr R 62:160 Ja 10 '18  
Clutch design for closely spaced sheaves. diags Mach 25:1085-6 JI '19  
Davies-Soames electro-magnetic differential clutch. II diags Engineer 127:352-3 Ap 11 '19  
Differential electro-magnetic clutch. diags Engineer 125:78-80 Ja 25 '18  
Hagman safety clutch. II diags Mach 25:472 Ja '19  
Manufacturing the Johnson friction clutch. II diags Am Mach 49:263-6 Ag 8 '18  
See also Automobiles—Clutches; Motor trucks—Clutches; Tractors—Clutches
- Coal**  
Anthracite coal for melting iron in a cupola. W. J. Keep. Foundry 46:325 JI '18  
Bituminous coal and the possible saving. Power 48:432 S 17 '18  
Burning anthracite coal on Lehigh Valley locomotives. Ry R 62:45-6 Ja 5 '18  
Burning bituminous coal in house-heating boilers. W. A. Pittsford. diags Heat & Ven 15:23-7 S '18  
Burning coals of the southwest. W. M. Park. diags Power 49:574-5 Ap 15 '19

- Burning fine anthracite and bituminous coal. Power 49:116-17 Ja 28 '19; Same. Sci Am S 87:391 Je 21 '19  
Burning Rhode Island anthracite. Power 47:618 Ap 30 '18; Iron Age 101:1198 My 9 '18  
Burning slack containing excessive moisture. J. F. McCall. diags Power 47:472-3 Ap 2 '18; Discussion. F. A. Combe. 47:744 My 21 '18  
Burning soft coal in heaters designed for hard coal. W: H. Reid. Heat & Ven 15:21-3 S '18  
Burning steam sizes of anthracite with or without an admixture of soft coal. U S Fuel Administration Eng Bul 5:1-8 '19; Same abr. Coal Age 16:4-5 JI 3 '19  
Cannel coal in the United States; its origin, composition, mode of occurrence and uses. G. H. Ashley. Sci Am S 85:398-400 Je 22 '18  
Character of South Wales coals. Coal Age 14:751 O 17 '18  
Characteristics of American coals in by-product coking practice. F. W. Sperr, jr. II J Fr Inst 186:133-63 Ag '18; Same. Coal Age 14:1068-71, 1114-17, 1158-3 D 12-26 '18  
Characteristics of Illinois coal and how to burn it. T. A. Marsh. diags Power 50:93-5 JI 15 '19  
Chemical composition of coal. diags Gas Age 41:468-70 My 15 '18  
Chemistry and constitution of coal. A. C. Fieldner. II chart Coal Age 15:1150-8 Je 26 '19; Excerpt. Gas Age 44:46-9 JI 15 '19  
Coal and its scientific uses, by W: A. Bone. Review. Engineer 126:512-13 D 13 '18  
Coal as a by-product of coal mines. Sci Am 118:265+ Mr 23 '18  
Coal fields of the United States. M. R. Campbell. diags map Gen Elec R 21:602-19 S '18  
Coal has leading place in session of American institute of mining and metallurgical engineers. R. D. Hall. Coal Age 16:606-10 O 9 '19  
Coal—its origin and composition. H. B. Miller. Coal Age 13:332-4 F 16 '18  
Coal of the Raton Mesa region. Am Gas Eng J 109:8 JI 6 '18  
Coal, oil and water-power statistics. charts Power 49:279 F 25 '19  
Coal problem. E. G. Bailey. Coal Age 13:737-8 Ap 20 '18; Same. Sibley J 32:111-12 Ap '18  
Coal resources of western Canada. J. White. maps Coal Age 15:744-8, 858-62 Ap 24, My 8 '19  
Combustion characteristics of coals. J. G. Worker. Elec R 73:849-51 N 30 '18; Same. Ry R 63:824-6 D 7 '18  
Comparison of oil and coal as fuel. Power 49:126 Ja 28 '19  
Conformity in the coal measures. diags Coal Age 13:433 Mr 2 '18  
Consuming bituminous and anthracite coal. Elec W 73:843-4 Ap 26 '19  
Culm and bituminous coal as fuel. W: P. Frey. Power 47:347 Mr 5 '18  
Difficulties encountered in utilizing screenings. G. Rutherford. Elec W 70:1253 D 29 '17  
Dry and wet coal as fired in a low-pressure steam-heating boiler. J. J. Light. Power 48:251 Ag 13 '18  
Economical use of coal in railway locomotives. II diags Ill U Eng Exp Sta Circ 8:1-71 '18  
Electrical energy from brown coal; abstract. Elec W 71:105 Ja 12 '18  
Engineering economics of heating. M. W: Ehrlich. Heat & Ven 16:17-23 F '19  
Experiences in using bituminous coal as a substitute for anthracite. A. Bement. diags Heat & Ven 16:27-30 S '19  
Experiments with bituminous coal in the manufacture of water gas. R. G. Krumrey. Am Gas Eng J 110:291-2, 299-302 Ap 5 '19  
Foreign coals and stoker installations. T. A. Marsh. Mech Eng 41:756-7 S '19  
Fuel conservation by the economical combustion of soft coal. G. L. Larson. diags Wis U Bul Eng S 8:429-88 no 7 '17  
Fuel mixing plant at Hazleton, Penn. diags Coal Age 13:791-2 Ap 27 '18  
Fuels and combustion. A. G. King. Dom Eng 82:249-50+ F 16 '18

**Coal—Continued**

Full utilization of power sources advocated by the division of mineral technology of the U. S. national museum. Gas Age 43:643-5 Je 16 '19

Gas coal situation. F. A. Bourget. Gas Age 44:275-8 O 1 '19

Geology and economics of coal. J. R. Finlay. Eng & Min J 107:945-50 My 31 '19

Getting better combustion of Indiana coals. T. A. Marsh. diags Elec W 73:72-4 Ja 11 '19; Same. Power 49:17-19 Ja 7 '19; Abstract. Am Soc M E J 41:169-70 F '19

Getting better economy in the power house. G. H. Kelsay. diags Elec Ry J 53:455-60 Mr 8 '19

Getting more energy out of coal in the power plant. H. L. Smith. Elec Ry J 51:953-5 My 18 '18

How much do you pay for the water on coal? W. F. Schaphorst. Am Ind 18:22 Ag '17; Same. Heat & Ven 15:19 Ja '18

How to obtain efficiency in use of coal. W. E. Snyder. Iron Tr R 64:695 Mr 13 '19

Illinois and Missouri coal fields. G. H. Cady. Coal Age 13:72 Ja 12 '18

Indiana coal must have plenty of draft. C. J. Fletcher. Iron Tr R 63:505 Ag 29 '18

J. R. S. low-grade fuel burner, diags plan Power 47:184-5 F 5 '18

Loss of heat value from moisture in coal. Power 47:779 My 28 '18

Magnetic gas circulator used in studying oxidation of coal. S. H. Katz. diags Am Chem Soc J 39:2638-9 D '17

Management of the power plant. R. June. II Textile World 54:714, 847+ J1 6, Ag 24 '18; Same (pt. 2). Concrete 13:sup16-19 Ag '18; Same. Elec R 74:94-7 Ja 18 '19

Names of coal beds are of little value. Coal Age 13:639 Ap 6 '18

National fuel research. Sci Am S 85:26-7 Ja 12 '18

New views of the combustion of the volatile matter in coal. S. H. Katz. diags U S Bur Mines Tech Pa 183:1-13 '18; Same. Gas Age 41:404-7 My 1 '18

Occlusion of explosive gases in coal. J. Ashworth. Coal Age 14:990-1 N 28 '18

Oil and coal as rivals. J. T. Smith. II Sci Am S 88:116, 119 Ag 23 '19

Oil fuel v. coal. Engineer 127:183-4 F 21 '19

Our real knowledge of coal very limited. J. T. Dunn. Am Gas Eng J 108:488 My 25 '18

Power of coals and gas. W. D. Owens. Coal Age 14:312 Ag 15 '18

Practical measures for securing greatest economy in utility power plant operation. C. Brossmann. Munic Eng 54:140-2 Ap '18

Preventable waste of coal in the United States. D. M. Myers. Power 47:64-5 Ja 8 '18; Same cond. Ry R 62:210-12 F 9 '18; Abstracts. Am Soc M E J 39:901-2 N '17; Dom Eng 81:553-4 D 29 '17; Coal Age 13:16-17 Ja 5 '18; Ry Age 64:273-4 F 1 '18; Excerpts. Elec Ry J 50:1119 D 22 '17; Discussion. Power 47:65-7 Ja 8 '18; Am Soc M E J 40:128-35 F '18

Problems in the utilization of fuels. R. F. Bacon and W. A. Hamor. Sci Am S 88:222-3, 254-6 O 11, 25 '19

Reclaiming coal from the Susquehanna river by suction dredges. II Eng & Contr 49:611 Je 19 '18

Reducing difficulties in burning Iowa coal. T. A. Marsh. diags Elec W 72:1166-8 D 21 '18; Same. Power 48:940-1 D 31 '18

Relation of oil to carbon ratios of Pennsylvanian coals in north Texas. M. L. Fuller. map Econ Geol 14:536-42 N '19

Report of Geological survey on production and shipment of coal and coke. Am Gas Eng J 109:496-8 N 23 '18

Résumé of theories of the origin of coal. C. W. Hippard. Coal Age 16:104-7 J1 17 '19; Discussion. R. Bowen. 16:460-1 S 11 '19

River coal operations. G. D. Evans. II Coal Age 12:1093-5 D 29 '17

Routine determination of specific gravity of coal. A. G. Blakeley. Coal Age 14:1078-9 D 12 '18; Discussion. 15:68-9; 16:70 Ja 9, J1 10 '19

Smokeless soft coal burning. Metal Work 89:76-7 Ja 11 '18

Story of coal. W. B. Richards. II diag map Coal Age 15:441-5 Mr 6 '19

Tars distilled from bituminous coal in hand-fired furnaces. S. H. Katz. II diags U S Bur Mines Tech Pa 195:1-17 '18; Excerpt. Gas Age 42:380 N 1 '18

Unpreventable losses in coal combustion under boilers. H. O'Neill. Power 47:502-4 Ap 9 '18

Use of coal by American navy. S. McGowan. Coal Age 15:60-1 Ja 9 '19

Use of large proportion of local coals no longer experimental in Illinois. H. H. Clark. Am Gas Eng J 108:440 My 11 '18

Utilizing the heat in a pound of coal. H. L. Alt. Heat & Ven 15:15-19 Ja '18

Waste due to excessive ash in coal. W. A. Shoudy. Coal Age 14:692-4 O 10 '18; Same. Stevens Ind 36:11-17 Ja '19; Same cond. Gas Age 42:381 N 1 '18; Excerpts. Power 48:682-3 N 5 '18; Excerpts. Elec R 73:507-8 S 28 '18; Abstract. Elec Ry J 52:504 S 21 '18

Watering coal. Elec R 72:126 Ja 19 '18

Why not refine coal? Coal Age 13:638-9 Ap 6 '18

*See also* Briquetting; Carbocoal; Clinkers; Coal ash; Coal handling; Coal lands; Coal mines and mining; Coal preparation; Coal sampling; Coal storage; Coal supply; Coal-tar products; Coal testing; Coal trade; Coal-tar stations; Coke; Colliers; Culm; Fuel; Fuel economy; Gas; Lignite; Locomotives—Fuel

**Analysis**

Analyses of mine and car samples of coal collected in the fiscal years, 1913 to 1916. bibliography U S Bur Mines Bul 123:1-453 '18

Analyses of no. 2 buckwheat coal. W. W. Pettibone. Power 47:884 Je 18 '18

Coal analyses made at the power plant. E. D. Hummel. diags Power 50:332-5 Ag 26 '19

Coal—how analyzed. F. L. Serviss. Coal Age 14:1154-5 D 26 '18

Coals of the United States. Power 47:728-9 My 21 '18

Composition and classification of domestic coals. A. C. Fieldner. II Gas Age 44:104-6 Ag 1 '19

Determination of sulphur in coal. E. M. Chance. Coal Age 13:920-1 My 18 '18

Empirical method for determining the ultimate from the proximate analysis of coal; abstract. J. P. Calderwood. Elec W 71:628 Mr 23 '18

Forms in which sulfur occurs in coal. A. R. Powell and S. W. Parr. diags Am Inst Min Bul 153:2041-9 S '19

Fusion bomb for sulfur determination in coal. S. W. Parr. diags J Ind & Eng Chem 11:230-1 Mr '19

Japan has good metallurgic coals. Coal Age 13:832 My 4 '18

Method of least squares applied to estimating errors in coal analysis. J. D. Davis and J. G. Fairchild. II U S Bur Mines Tech Pa 171:1-34 '18

Methods of analysis used in the coal-tar industry; benzols and light oil. J. M. Weiss. diags J Ind & Eng Chem 10:1006-12 D '18

Microscopic examination of coal. Am Ind 18:43-4 My '18

Occurrence and origin of finely disseminated sulfur compounds in coal. R. Thiessen. II Am Inst Min Bul 153:sup2431-44 S '19; Same. Coal Age 16:668-73 O 23 '19

Preparing coal samples for analysis. diags Power 49:928-30 Je 17 '19

Quack analyses. N. H. Seaburg. Coal Age 16:192 J1 31 '19

Quick determination of incombustible matter in coal and rock-dust mixtures in mines. A. C. Fieldner, W. A. Selvig and F. D. Osgood. II diags U S Bur Mines Tech Pa 144:1-33 '18

Some factors that affect the washability of a coal. T. Fraser and H. F. Yancey. II Am Inst Min Bul 153:1817-27 S '19; Same. Coal Age 16:702-6 O 30 '19; Discussion. Am Inst Min Bul 155:3084-5; 156:3131-2 N-D '19

Use of classification of coal. G. H. Ashley. Am Inst Min Bul 152:1129-41 Ag '19

**Coal—Analysis—Continued**

Use of the hydrogen-volatile-matter ratio in obtaining the net heating value of American coals. A. C. Fieldner and W. A. Selvig. U S Bur Mines Tech Pa 197:1-11 '18

See also Coal sampling

**Ash content**

See Coal ash

**Classification**

Classifications of coal. Dom Eng 85:484 D 28 '18

Use of classification of coal. G. H. Ashley. Am Inst Min Bul 152:1129-41 Ag '19

**Clinkers**

See Clinkers

**Combustion**

See Combustion

**Cost**

Allnement chart for the evaluation of coal. A. F. Blake. J Ind & Eng Chem 10:627-9 Ag '18

Cost of coal. G. O. Smith and C. E. Leasher. Met & Chem Eng 15:631-5 D 1 '16; Same. Econ Geol 12:42-55 Ja '17; Same cond. Am Gas Light J 105:401-3 D 11 '16; Same cond. Elec R & W Elec'n 69:1083-4 D 23 '16; Same cond. Am Ind 17:15-17 Ja '17; Same cond. Sci Am S 85:2-3 Ja 5 '18; Same abr. Gas Age 38:656-7 D 15 '16

Cost of reaching the market. J. F. K. Brown. Coal Age 13:1003-5 Je 1 '18

**Impurities**

See Coal ash; Coal preparation; Coal supply—Clean coal

**Prices**

Advances in German steel and coal prices. Iron Age 102:697 S 19 '18

British retail coal prices order. Power 46:850 D 18 '17

Cleveland coal situation in 1918. E. C. Boehringer. Coal Age 15:179-80 Ja 23 '19

Coal rise bomb in British mart. Iron Tr R 65:239 Jl 24 '19

Cost o. coal. Power 47:552-3 Ap 16 '18

Cost of railway coal, 1917-1918. Ry R 64:560 Ap 12 '19

German pre-war and present coal prices. Coal Age 14:642 O 3 '18

Graphic determination of prices. J. D. Skinner. Coal Age 13:960-2 My 25 '18

Individual price differential. Coal Age 13:17 Ja 5 '18

Method of fixing prices of bituminous coal adopted by the United States Fuel administration. C. Garnsey, Jr., R. V. Norris, and J. H. Allport. charts map Am Inst Min E Bul 141:1411-33 S '18; Same. Coal Age 14:685-9, 736-9 O 10-17 '18; Discussion. Am Inst Min E Bul 144:1766-8 D '18

Mining institute discusses anthracite prices. Coal Age 15:448-9 Mr 6 '19

Modifications of coal prices. Power 47:674 My 7 '18

New classification for Ohio. Coal Age 14:67 Jl 13 '18

New coal prices effective Mar. 23. Coal Age 13:591 Mr 30 '18

New prices, effective April 5. Coal Age 13:698 Ap 13 '18

New prices, effective April 20. Coal Age 13:794 Ap 27 '18

New schedule of anthracite costs. Coal Age 14:905-6 N 14 '18

President authorizes rise in anthracite. Coal Age 12:976 D 8 '17

Price of bituminous coal reduced. Power 47:818 Je 4 '18

Prices of coal for railroads. Ry Age 64:1059 Ap 26 '18

Six years' spot prices for bituminous coal. Elec W 74:668 S 20 '19

Statistics of bituminous coal prices since 1913. C. E. Leshner. Gas Age 44:291-3 O 1 '19

War-time studies of the prices of coal and coke. Coal Age 16:572-3 O 2 '19

**Sulfur content**

Commercial recovery of pyrite from coal. S. H. Davis. Am Inst Min Bul 152:1469-70 Ag '19; Same. Eng & Min J 108:462 S 13 '19; Same. Coal Age 16:776 N 13 '19; Discussion. Am Inst Min Bul 154:2948-51 O '19

Effect of sulfur in coal used in ceramic industries. C. W. Parmelee. Am Inst Min Bul 153:1846-50 S '19

Geographic distribution of sulfur in West Virginia coal beds. I. C. White. maps Am Inst Min Bul 153:2197-2206 S '19

Low-sulfur coal in Illinois. G. H. Cady. map Am Inst Min Bul 151:1113-15 Jl '19

Low-sulfur coal in Pennsylvania. H. M. Chance and T. M. Chance. Am Inst Min Bul 152:1459-68 Ag '19

Low-sulfur coals of Kentucky. W. R. Jillson. map Am Inst Min Bul 153:1675-9 S '19

Occurrence and origin of finely disseminated sulfur compounds in coal. R. Thiessen. Il Am Inst Min Bul 153:sup2431-44 S '19; Same. Coal Age 16:668-73 O 23 '19

Pyrite deposits in Ohio coal. W. M. Tucker. maps Econ Geol 14:198-219 My '19

Sulfur in coal, geological aspects. G. H. Ashley. Am Inst Min Bul 153:2073-9 S '19

Valuable pyrite in Illinois coal beds. G. H. Cady. Il Coal Age 16:136-40 Jl 24 '19

See also Coal—Analysis

**Testing**

See Coal testing

**Thawing**

Coal car thawing plant built of precast concrete units. S. W. Linn. Il diag plans Eng N 80:213-16 Ja 31 '18; Same cond. Coal Age 13:368-9 F 23 '18

Modern plant for thawing coal in cars. S. W. Linn. Il diag Ry Age 64:805-6 Mr 29 '18

**Transportation**

Bad order coal car situation. Ry Mech Eng 93:595-7 O '19

Breakdown of the railroads. J. Keely. Coal Age 13:45-6 Ja 12 '18

Can coal be pumped? C. E. Fowler. Sci Am 118:211+ Mr 9 '18

Canal as a carrier of coal. W. W. Wotherpoon. map Coal Age 13:402-6 Mr 2 '18; Discussion. 13:938-9, 1075-6, 1172; 14:835-6 My 18, Je 8, 22, O 31 '18

Coal association says transportation is insufficient. Ry Age 67:409-10 Ag 29 '19

Coal-car situation serious. Power 47:642 Ap 30 '18

Coal, like war, waits on transportation. Coal Age 13:1024-5 Je 1 '18

Coal problem; statement before the Senate committee investigating prices and car shortage. W. D. Hines. Ry R 65:380-1, 395-8 S 13 '19; Same. Ry Age 67:501-5 S 12 '19

Coastwise shipping conditions in 1917. Coal Age 13:194 Ja 26 '18

Coastwise shipping conditions in 1918. G. G. Wolkins. Coal Age 15:226-6 Ja 30 '19

Essential considerations in the coal industry. J. F. Springer. Am Ind 18:11-12 Mr '18

Facilitating the transportation of coal. J. A. Mathes. Sci Am 118:71 Ja 19 '18

Fuel administration plan for distribution of coal through district managers. Ry R 62:151-2 F 2 '18

Fuel problem in the United States. F. C. Honnold. Am Soc Heat & V E 23:577-81; Discussion. 582-4 '17

High capacity hopper cars for the Norfolk & Western. Ry Mech Eng 92:75 F '18

High coal prices and alleged car shortage. Ry R 65:269-73 Ag 23 '19

How Lake trade will be handled. Iron Tr R 62:934-5 Ap 11 '18

New uniform rules for coal car distribution. Ry Age 65:621-2 O 4 '18

Pipe-line transportation of coal. Power 47:835-6 Je 11 '18

Pocahontas region—study of operating conditions. map Ry Age 66:836-7 Mr 28 '19

Railway administration reports coal car conditions. Coal Age 16:326-6 Ag 21 '19

Scenes at the coal mines and some transportation problems. Il Sci Am S 85:72 F 2 '18

**Coal—Transportation—Continued**

- Seasonal freight rates. Coal Age 13:209, 386, 561 Ja 26, F 23, Mr 23 '18  
 Trade conditions in New England in 1918. G. G. Wolkins. *Il* Coal Age 15:116-20 Ja 16 '19  
 Transporting railway coal under government control. F. S. Peabody. Ry Age 64:990-1 Ap 12 '18  
 War's influence on the coal situation. C. H. Bromley. Power 46:829-32 D 18 '17  
 Water transportation for relieving railroad congestion. map Coal Age 13:831-2 My 4 '18  
 What the coal operator can do. H. N. Taylor. Ry Age 64:1342-3 My 31 '18  
 Zone system for the distribution of coal. Ry Age 64:251-2 F 1 '18  
 Zoning system of coal shipments. Coal Age 14:1132; 15:197 D 19 '18, Ja 23 '19  
*See also* Coal famine, 1917-18; Coal handling; Coal supply—War measures; Colliers  
 Coal, Clean. *See* Coal supply—Clean coal  
 Coal, Pulverized  
 Advantages and increasing use of pulverized coal. *Il* Sci Am 118:521 Je 8 '18  
 Advantages claimed for pulverized fuel. M. Meredith. Coal Age 16:531 S 25 '19  
 Boiler test with powdered fuel. J Elec 43:18 J1 1 '19  
 Burning powdered coal successfully. *Il* Elec Ry J 52:974-6 N 30 '18; Same. Power 49:90-1 Ja 21 '19  
 Discussion of papers on pulverized coal at the A.S.M.E. spring meeting. *diags* Mech Eng 41:652-61, 752-6 Ag-S '19  
 Diversified application of powdered coal. C. Longnecker. *Il* *diag* Iron Age 102:619-23 S 12 '18  
 Even flow of pulverized material. Concrete 12:sup49 My '18  
 Excellent results with pulverized coal at Milwaukee. *diags* Power 48:556-9 O 15 '18  
 Experience with powdered coal. A. E. Macinnis. *Il* Elec W 71:1032-4 My 18 '18  
 Experience with pulverized coal. Elec W 72:744-5 O 19 '18  
 Extent of the use of pulverized fuel in the industries and its possibilities in the war. F. P. Coffin. *Il* Gen Elec R 21:373-80 My '18  
 Feeds powdered coal into furnace. *Il* *diag* Iron Tr R 65:31-2 J1 3 '19  
 Firing system for air furnace. M. W. Arrowood. *Il* *diag* Foundry 47:677-9 O 1 '19  
 Fuel for the merchant marine. F. P. Coffin. Gen Elec R 22:200-12 Mr '19  
 General utilization of pulverized coal. H. G. Barnhurst. *Il* *diag* plan Gen Elec R 20:924-31 D '17; Same abr. Elec R 71:1100-2 D 29 '17; Same cond. Sci Am S 85:34-5 Ja 19 '18; Excerpts. Elec R 71:736-8 O 27 '17; Abstract. Iron Age 101:626-7 Mr 7 '18; Abstract. Mach 24:901 Je '18  
 Grindie system for burning powdered coal. *diag* Iron Age 104:444 Ag 14 '19  
 Hints to the pulverized coal user. A. V. Adamson. Coal Age 15:349 F 20 '19  
 How can soft coal be burned without smoke in marine boilers; symposium. Am Soc M E J 40:pt 2, 619-22 J1 '18; Abstract. Int Marine Eng 23:466-7 Ag '18  
 Installs powdered-coal equipment. *Il* Iron Tr R 64:1680-1 Je 26 '19  
 Instructions for safe use of pulverized fuel. Engineer 127:398-9 Ap 25 '19  
 Locomotive pulverized fuel equipment. *Il* *diag* Ry Mech Eng 93:498-500 Ag '19  
 Lopulco mixer and feeder for powdered coal. *diag* Ry R 63:29 J1 6 '18  
 Method of burning powdered coal. *Il* *diag* Iron Age 101:545-9 F 28 '18; Excerpts. Am Soc M E J 40:345-6 Ap '18  
 Mill refuse and powdered coal for power generation. Elec W 71:777 Ap 13 '18  
 New and important developments in methods of burning coal. W. W. Jourdin. Am Soc M E J 40:pt 2, 657 J1 '18  
 Nodulizing flotation concentrates in a rotary kiln with powdered coal. R. M. Draper. Chem & Met Eng 20:621 Je 15 '19  
 Possibilities of powdered coal as shown by its combustion characteristics. W. G. Wilcox. Chem & Met Eng 19:35-40 J1 1 '18; Same.

- Sci Am S 86:62-4 J1 27 '18; Excerpts. Iron Tr R 63:144-5 J1 18 '18; Abstracts. Iron Age 103:387 Ag 15 '18; Eng & Min J 106:450 S 7 '18  
 Powdered coal as fuel for boiler. A. L. Field. *Il* Textile World 53:3595-+ F 2 '18  
 Powdered coal for igniting D. and L. roasters. *Il* *diag* Chem & Met Eng 19:797 D 15 '18  
 Powdered coal for malleable iron melting. J. Harrington. Iron Age 100:1498 D 20 '17  
 Powdered coal for power plants. F. Seymour. *diags* Elec R 72:590-3 Ap 6 '18  
 Powdered coal for the small foundry. A. J. Grindie. Foundry 47:679-80 O 1 '19  
 Powdered coal substituted for fuel oil at Seattle. *Il* Elec R 73:529-31 O 5 '18  
 Powdered fuel burning apparatus for an Australian railway. *Il* *diags* Ry R 64:457-9 Mr 22 '19  
 Progress in utilizing pulverized fuel; committee report. Coal Age 15:992-5 My 29 '19; Excerpts. Ry Age 66:1249-51 My 23 '19; Excerpt. Ry R 64:756-7 My 24 '19; Abstract. Power 49:997 Je 24 '19; Abstract. Ry Mech Eng 93:523-4 S '19  
 Pulverized coal and its future. H. G. Barnhurst. Gen Elec R 21:116-19 F '18  
 Pulverized coal as a fuel. N. C. Harrison. Mech Eng 41:645-9 Ag '19; Same cond. Power 50:287-90 Ag 19 '19; Excerpts. Elec R 75:117 J1 19 '19; Ry R 65:170-2 Ag 2 '19; Concrete 15:sup38-40 S '19; Iron Age 104:709-10 S 11 '19; J Elec 43:318-19 O 1 '19; Discussion. A. A. Cary. Power 50:290-1 Ag 19 '19  
 Pulverized coal as a fuel for boilers. E. R. Welles and W. H. Jacobi. *diags* Mech Eng 41:744-9+ S '19; Excerpts. Power 50:520-1 S 23 '19; Excerpt. Elec W 74:742 O 4 '19; Excerpt. Concrete 15:sup77 N '19  
 Pulverized coal at the Tennessee copper co. N. H. Emmons. Eng & Min J 108:583 O 4 '19  
 Pulverized coal burners versus stokers. J. T. Foster. Elec W 73:474-5 Mr 8 '19  
 Pulverized coal, coal storage, and the Schultz system of burning fine coal; with discussion. Power 50:296 Ag 19 '19  
 Pulverized coal demonstrates high economy during 24-hour test. Elec R 72:192-3 F 2 '18  
 Pulverized coal for blast furnaces. E. P. Mathewson and W. L. Wotherspoon. *diags* Eng & Min J 108:274-8 Ag 16 '19  
 Pulverized coal for industrial purposes. J. Cunliffe. *Il* Coal Age 13:963-7 My 25 '18  
 Pulverized coal for metallurgical furnaces. C. E. Longenecker. *Il* Iron Age 103:351-2 F 6 '19  
 Pulverized coal for stationary boilers. F. A. Scheffler and H. G. Barnhurst. Mech Eng 41:650-2 Ag '19; Same. Elec R 75:817-21 N 15 '19; Discussion. T. A. Marsh. Mech Eng 41:652-3 Ag '19; Abstract. Power 50:291-6 Ag 19 '19; Abstract. Iron Age 104:710 S 11 '19  
 Pulverized coal—its utilization. H. G. Barnhurst. Concrete 14:sup20-3 F '19  
 Pulverized coal on American locomotives. *Il* *diags* Engineer 126:156-7, 174-6 Ag 23-30 '18  
 Pulverized coal plant of Puget Sound traction, light and power co. Eng & Contr 52:307-10 S 10 '19  
 Pulverized coal—some national considerations. L. C. Harvey. Engineer 128:173-4 Ag 22 '19  
 Pulverized-coal tests conducted at Milwaukee. J. Anderson. *diag* Elec R 73:615, 658-9 O 19-26 '18; Same. Ry R 63:606-7 O 26 '18; Same. Ry Age 65:667-9 O 11 '18  
 Pulverized fuel burner; patent. *diag* Chem & Met Eng 19:44 J1 1 '18  
 Pulverized fuel equipment for locomotives. *Il* *diag* Ry Age 67:519-20 S 12 '19  
 Pulverized fuel for the railways. W. D. Wood. Power 50:516-17 S 23 '19  
 Pulverized fuel in a power plant on the Missouri, Kansas & Texas railway. H. R. Collins and J. Harrington. *Il* *diag* Gen Elec R 20:768-77 O '17; Excerpts. Ry Mech Eng 92:503-4 S '18; Abstract. Am Soc M E J 39:857 N '17; Abstract. Elec W 70:869-70 N 3 '17

**Coal, Pulverized—Continued**

- Pulverized fuel in locomotive and marine service. J. E. Muhlfeld. *diags Mech Eng* 41: 752-4 S '19; Same *abr. Ry R* 65:513-14 O 4 '19
- Pulverised fuel locomotive. *il diags (supp) plan Engineer* 127:400-2 Ap 25 '19
- Pulverizing coal in Canadian steel plant. C. F. Herington. *il Iron Age* 103:1065-9 Ap 24 '19
- Report of committee of Naval consulting board on pulverized fuel. *Am Soc M E J* 40:395-6 My '18
- Solution of the fuel problem. *diag Mach* 24:680 Ap '18
- Use of coal in pulverized form. H. R. Collins. *Am Inst Min E Bul* 136:955-61 Ap '18; Same. *Eng & Min J* 106:305-7 Ag 17 '18; Same *cond. Iron Tr R* 62:1243-5 My 16 '18; *Excerpts. Eng & Contr* 49:467-8 My 8 '18; *Abstract. Iron Age* 101:1274 My 16 '18; *Discussion. Am Inst Min E Bul* 143:1678-84; 144:1771-5 N-D '18
- Use of pulverized California coal. C. H. Delany. *J Elec* 42:357-9 Ap 15 '19
- Use of pulverized coal. C. Dantin. *Eng & Contr* 49:544-5 My 29 '18
- Use of pulverized coal. L. C. Harvey. *Engineer* 128:15-16, 26-7, 50-3 Jl 4-18 '19; Same (pt. 1-2). *Sci Am S* 88:110, 165 Ag 16, S 13 '19; *Excerpt. Elec W* 74:83-4 Jl 12 '19; *Discussion. Engineer* 127:474-5 My 16 '19
- Use of pulverized coal at the Bunker Hill and Sullivan smelting and refining plant. C. T. Rice. *il Eng & Min J* 106:91-4 Jl 20 '18
- Use of pulverized fuel for locomotive operation. V. Z. Caracristi. *il diags Gen Elec R* 20:853-9 N '17; Same. *Ry R* 61:735-7 D 29 '17; *Abstract. Iron Age* 100:727 S 27 '17
- Use of pulverized fuel on locomotives. J. E. Muhlfeld. *Am Soc M E J* 39:760-1 S '17; Same. *Locomotive* 31:240-2 O '17; Same *cond. Mach* 24:138 O '17
- Using pulverized coal for annealing. C. Longenecker. *il diags Foundry* 47:680-1 O 1 '19; Same. *Iron Tr R* 65:972-3 O 9 '19
- See also* Coal dust as fuel
- Coal accounting**
- Chart with which to make various records for coal. W. N. Polakov. *Elec W* 70:911-12 N 10 '17; Same. *Am Soc M E J* 40:105 Ja '18
- Coal accounting in the boiler room. B. K. Hough. *Power* 49:586 Ap 15 '19
- Coal ash**
- Ash influence on fuel value of small anthracite coal. F. G. Philo. *Coal Age* 13:415-16 Mr 2 '18
- Dirt in coal. L. J. Joffray. *Coal Age* 14: 953-4 My 22 '19; Same *cond. Ry Age* 66: 1255-6 My 23 '19; Same *cond. Power* 50: 354 Ag 26 '19; *Excerpt. Ry R* 64:792 My 31 '19; *Excerpts. Ry Mech Eng* 93:582-3 O '19
- Effect of ash on boiler efficiency. *Elec W* 73: 322 F 15 '19
- Effect of coal ash on the liberation and nature of cement mill potash. N. S. Potter, Jr., and R. D. Cheesman. *diag J Ind & Eng Chem* 10:109-11 F '18
- Fusibility of ash from Pennsylvania coals. W. A. Selvig and A. C. Fieldner. *Coal Age* 15:1086-9 Je 12 '19; Same *cond. Chem & Met Eng* 20:629 Je 15 '19; Same *cond. Power* 49: 897 Je 10 '19; *Discussions. A. G. Blakeley. Chem & Met Eng* 21:60 Jl 15 '19; *Coal Age* 16:244 Ag 7 '19
- Fusibility of coal ash. W. A. Selvig, W. C. Ratliff and A. C. Fieldner. *Chem & Met Eng* 20:274-6 Mr 15 '19; Same *cond., with tables. Coal Age* 15:698-703 Ap 17 '19; *Excerpts. Power* 49:479-80 Ap 1 '19; *Abstract. Elec W* 73:640-1 Mr 29 '19
- Fusibility of coal ash and the determination of the softening temperature. A. C. Fieldner, A. E. Hall and A. L. Feild. *bibliog il diags U S Bur Mines Bul* 129:1-146 '18
- Fusibility of West Virginia coal ash. W. A. Selvig. *il Coal Age* 15:12-16 Ja 2 '19; Same *cond. Power* 48:566-7 O 15 '18; Same *cond. Chem & Met Eng* 19:826-8 D 15 '18

- Fusing temperature of ash. W. J. Risley, Jr. *Power* 50:543 S 30 '19
- Influence of ash content of coal. *Coal Age* 13: 516 Mr 16 '18
- Influence of high ash on boiler capacity. *Elec W* 73:793-4 Ap 19 '19
- Problems involved in fuel changes; ash, and not coal, is the trouble maker. A. Bement. *Power* 48:380-2 S 10 '18
- Two letters on effect of coal ash on the nature of cement mill potash. *J Ind & Eng Chem* 10:1030-3 D '18
- Washing furnace and domestic ash for fuel recovery. M. Meredith. *Coal Age* 13:783 Ap 27 '18
- Waste due to excessive ash in coal. W. A. Shoudy. *Coal Age* 14:692-4 O 10 '18; Same. *Stevens Ind* 36:11-17 Ja '19; Same *cond. Gas Age* 42:381 N 1 '18; *Excerpts. Power* 48:682-3 N 5 '18; *Excerpts. Elec R* 73:507-8 S 28 '18; *Abstract. Elec Ry J* 52:504 S 21 '18
- Weight of ashes in conical pile. W. F. Schaphorst. *diag Power* 47:812 Je 4 '18
- See also* Ash handling; Clinkers

**Bibliography**

- Fusibility of coal ash and the determination of the softening temperature. A. C. Fieldner, A. E. Hall and A. L. Feild. *U S Bur Mines Bul* 129:119-38 '18
- Coal association, National. *See* National coal association
- Coal bins**
- Circular concrete coal pockets and grain bins. *il diags plan Concrete* 12:149-50 Ap '18
- Concrete coal bunker built at Youngstown (O.) coke ovens holds 1800 tons, finished in 60 days. *il diags Eng N* 79:1161-3 D 20 '17
- Storage of coal; use of CO<sub>2</sub> to exclude air. *diag Eng & Min J* 105:601-2 Mr 30 '18
- Coal breakers**
- Bradford coal breaker and preliminary mechanical cleaner. *diags Coal Age* 15:352-5 F 20 '19
- Drifton breaker. E. P. Humphrey. *diags Am Inst Min E Bul* 134:199-210 F '18; Same. *Coal Age* 13:580-5 Mr 30 '18
- Gravity track system at anthracite coal breakers. F. N. Rupprecht. *plans Eng N* 80: 1003-5 My 23 '18; Same. *Coal Age* 13:1063-5 Je 8 '18
- Mineral Spring (Pa.) breaker. D. C. Ashmead. *flow sheet il diags Coal Age* 13:483-94 Mr 16 '18
- Modern anthracite preparation plant. D. C. Ashmead. *flow sheet il Coal Age* 12:1046-9 D 22 '17
- Preparation of no. 4 buckwheat in the cone separator. *diags plan Coal Age* 15:184-6 Ja 23 '19
- Rebuilding the Lorce breaker. W. S. Hutchinson. *il Coal Age* 16:352-4 Ag 28 '19
- Steel breakers and washeries. *Coal Age* 13: 700-1 Ap 13 '18
- Successful steel breakers of the Lehigh Valley coal company. G. W. Harris. *flow sheet il diags Coal Age* 13:660-8 Ap 18 '18
- Coal consumption**
- Coal consumption in central stations. *Munic J* 46:177-9 Mr 1 '19; *Abstract. Power* 49:146 Ja 28 '19
- Coal consumption rates in various central stations and industrial plants. *Elec R* 73: 846-8 N 30 '18
- Consumption of army coal in 1918. B. Crowell. *Coal Age* 15:959 My 22 '19
- Fuel conservation. L. P. Breckenridge. *Am Soc Heat & V E* 24:51-8 '18; *Abstract. Am Soc M E J* 40:28 Ja '18; *Discussion. Am Soc Heat & V E* 24:59-60 '18
- Coal cutters**
- Care and management of coal cutters. *Coal Age* 13:1108-9 Je 15 '18; *Discussion. 14:75-6 Jl 13 '18*
- Cost reduced in machine mining. *Coal Age* 15:501, 877-8; 16:116-17 Mr 13, My 8, Jl 17 '19
- Increasing coal mine efficiency. C. E. Stuart. *Coal Age* 14:773-5 O 24 '18
- Mechanical mining without explosives. N. D. Levin. *il Coal Age* 13:684-7 Ap 13 '18



**Coal cutters—Continued**

New mining machine of Brantley coal mining machine co., of Sand Springs, Okla. *Il* Coal Age 14:596 S 26 '18

**Coal dealers association, New England.** See New England coal dealers association**Coal distillation**

Anthracite coal from lignite. C: P. Norton. Power 47:398 Mr 19 '18

Carbocoal; smokeless fuel from high-volatile coals. C: T. Malcolmson. *Am Inst Min E Bul* 137:971-7 My '18; Same abr. Coal Age 13: 912-15 My 18 '18; Same cond. Iron Tr R 63: 496-7 Ag 29 '18; Discussion. *Am Inst Min E Bul* 142:1533-42; 143:1686-92 O-N '18

Carbonization of coal. W. Savage. *Il* chart Chem & Met Eng 19:579-82 O 1 '18; Excerpt. Gas Age 42:375-7 N 1 '18

Carbonization of Missouri cannel coals. H. L. Dunlap, K. K. Kershner and V. X. Smiley. *Il* diag Mo U Sch Mines & Met Bul tech ser 5:1-49 Ag '19

Chemical composition of coal. diag Gas Age 41:468-70 My 15 '18

Comparative study of the thermal decomposition of coal and of some of the products of its carbonization. M. C. Whitaker and J. R. Suydam, Jr. *J Ind & Eng Chem* 10:431-2 Je '18

Diesel engine as related to the 6,200,000,000 horse-power hours wasted in 1917 in bee-hive coke ovens. P. L. Scott. Sibley J 33: 10-11 O '18

Distillation at low temperature. Gas Age 42: 466-7 D 2 '18

Distillation of coal. Met & Chem Eng 18:374 Ap 1 '18

Distillation of coal at low temperature. diag Chem & Met Eng 20:78-9 Ja 15 '19

Distillation of coal in a vacuum. A. Pictet. Chem & Met Eng 19:415-18 S 25 '18

Fuel conservation after the war. Gas Age 41: 272 Mr 15 '18

Future sources of oil and gasoline. M. A. Allen. *Il* Gen Elec R 21:73-7 Ja '18

G-L low-temperature carbonizing process. *Il* Coal Age 15:810-12 My 1 '19; Same cond. Gas Age 43:586-7 Je 2 '19

Low temperature carbonization of coal. E. C. Evans. *Sci Am S* 86:254-6 O 19 '18

Low temperature distillation of coal. C. M. Garland. *Il* diag plan Power 50:248-51 Ag 12 '19; Abstract. Mech Eng 41:835-6 O '19

Low-temperature distillation of Illinois and Indiana coals. G. W. Traer. *Am Inst Min E Bul* 141:1463-70 S '18; Same. Coal Age 14: 815-18 O 31 '18; Discussion. *Am Inst Min E Bul* 143:1695-6, 1783-5 N-D '18

National fuel research. *Sci Am S* 85:26-7 Ja 12 '18

Production of oil from cannel coal. Engineer 126:120 Ag 9 '18

Studies in the production of oils and tars from bituminous materials. J. C. Ingram. *Il* diag Mo U Sch Mines & Met Bul tech ser 3:1-65 My '17

See also Coal products; Coal-tar products

**Coal drying**

Preparation of bituminous coal. E. Prochaska. *Il* diag plan Coal Age 16:9-15 Ji 3 '19

**Coal dust**

Dust inhalation in mines; abstracts. J. S. Haldane. *Sci Am S* 86:119 Ag 24 '18; Eng & Min J 106:475-7 S 14 '18

Prevention of coal-dust explosions in mines. *Sci Am S* 86:189 S 21 '18

See also Coal, Pulverized

**Coal dust as fuel**

Burning dust-bearing coal. L. A. Stenger. Elec W 71:1080-1 My 25 '18

Novel coal cake developed and used at the western front in France. diag Coal Age 15:703 Ap 17 '19

See also Coal, Pulverized

**Coal famine, 1917-1918**

America's coal crisis. Heat & Ven 15:56-7 F '18

Better handling of coal problem needed. Elec W 71:298-9 F 9 '18

Breakdown of the railroads. J. Keely. Coal Age 13:45-6 Ja 12 '18

Chicago section A. S. M. E. discusses coal situation. Power 47:384-5 Mr 12 '18

Coal problem. E. G. Bailey. Gas Age 41:264 Mr 15 '18

Coal supply and the railroads. Power 47:265-6 F 19 '18

Coal-unloading piers the key to the critical coal situation in New York city; report of the Coal conservation committee of New York state. Power 47:193 F 5 '18

Corrective steps for our coal problem; central-station companies deeply concerned. *Il* Elec W 71:188-9 Ja 26 '18

Director General McAdoo speeds up coal movement. *Il* Ry Age 64:125-6 Ja 11 '18

Effect of fuel order on utilities. Elec R 72:145-6 Ja 26 '18

Effect of Garfield fuel-saving order. Elec W 71:266-7 F 2 '18

Electric railways co-operate in carrying out Garfield order. Elec Ry J 51:182-3 Ja 26 '18

Electric rate increases to follow high cost of coal. Elec W 71:240-1 F 2 '18

Facing the fact of coal shortage; conditions serious for central-station companies. *Il* Elec W 71:136-7 Ja 19 '18

Five coal-less days and ten heatless holidays; fuel administration orders curtailment of coal burning and a suspension of industries. Ry Age 64:198-200 Ja 25 '18

Fuel administration—its task; address and discussion before Editorial conference. H. A. Garfield. Coal Age 12:1089-92 D 29 '17; Same. Power 47:32-4 Ja 1 '18; Excerpt. Elec Ry J 50:1162 D 29 '17

Fuel administration mandate. Power 47:191 F 5 '18

Fuel administration plan for distribution of coal through district managers. Ry R 62:151-2 F 2 '18

Fuel famine of 1917. J. D. A. Morrow. map Elec W 71:8-9 Ja 5 '18

Fuel question. H. A. Garfield. *Il* Sci Am 118: 307-+ Ap 6 '18

Fuel situation as it confronts New England. W: H. Kenerson. Power 47:306 F 26 '18

Full text of the regulation of United States fuel administrator issued Jan. 17. Elec W 71:217 Ja 26 '18

General compliance with Garfield order. Elec W 71:214-16 Ja 26 '18

Interview with the fuel administrator. F. W. Parsons. Coal Age 13:171 Ja 26 '18

Investigation of the fuel problem in the Middle West. A. A. Potter. *Am Soc M E J* 40: 379-81 My '18; Discussion. 40:684-5 Ag '18

Lack of coal stops power in New Jersey. *Il* Elec W 71:478-80 Mr 2 '18

Load curves visualize effect of fuel-saving order on central-station company. Elec R 72:202 F 2 '18

New England coal situation very serious. J. J. Storrow. Elec W 71:84-5 Ja 12 '18

Problem of coal supply. E. W. Parker. *Il* J Fr Inst 185:445-60 Ap '18

Relief for New England coal situation. C: H. Bromley. *Il* Power 47:49-51 Ja 8 '18

Scenes at the coal mines and some transportation problems. *Il* Sci Am S 85:72 F 2 '18

Solution of greater New York's coal problem. Power 47:227-8 F 12 '18

Some why's of the coal shortage. Power 47: 289-91 F 26 '18

What caused the coal crisis? Eng & Min J 105:320-1 F 16 '18

While the idle millions shiver; conditions at the coal terminal, Perth Amboy, N.J. *Il* Power 47:178-9 F 5 '18

Why and wherefore of the coal shortage. J. D. A. Morrow. Coal Age 13:10-12 Ja 5 '18

Zone system for the distribution of coal. Ry Age 64:251-2 F 1 '18

Coal gas. See Coke-oven gas; Gas

Coal grading. See Coal preparation

Coal handling

Anthracite and bituminous coal storage. H. Goldstein. *Il* diag Coal Age 13:4-9 Ja 5 '18

Auxiliary coal unloader and conveyor. *Il* Iron Age 101:1269 My 16 '18

Box-car loader in the present emergency. E. B. Usher. *Il* Coal Age 14:102-3 Ji 20 '18

**Coal handling—Continued**

- Bunker coal spreader. C. H. Willey. diag Int Marine Eng 23:382-3 Je '18
- Coal and coke handling and screening; Robins conveying equipment. II Gas Age 42:237 S 2 '18
- Coal crushing installation at an Illinois mine. W. G. Kimball. II Coal Age 15:52 Ja 9 '19
- Coal-handling device. II Elec W 71:74 Ja 5 '18
- Coal handling for a shop power plant. II Elec Ry J 53:282-3 F 8 '19
- Coal-handling methods in suburban reserve yard. II Elec W 71:828 Ap 20 '18
- Coal handling plant at Oran, Algeria. II diags Engineer 125:204-5, 208 Mr 8 '18
- Coal-handling plant at Sewalls Point, Virginia. II Coal Age 14:1122-4 D 19 '18; Same. Eng N 81:1086-8 D 12 '18; Same. Power 49:54-6 Ja 14 '19
- Coal handling plant of Virginian railway. E. F. Case. II diags Ry R 63:731-5 N 23 '18; Same cond. Iron Age 102:1435-8 D 12 '18
- Coal handling plants for mills. G. P. Carver. diags Textile World 53:3201-4 Ja 12 '18
- Coal storage in large quantities. H. J. Edsall. II diags Ind Management 56:193-200 S '18
- Coal transportation by aerial tramway. F. W. Grice. II Coal Age 15:808-9 My 1 '19
- Coxton coal mixing plant, Lehigh Valley R.R. II diags plan Ry R 64:885-7 Je 14 '19
- Economical method of handling coal and ashes. II Elec W 72:985 N 23 '18
- Effective system of coal handling at Providence. G. K. Jenckes. diag Gas Age 42:158 Ag 15 '18
- Electric deliveries for the Black Diamond. A. J. Marshall. II Elec R 73:70-1 JI 13 '18
- Electric truck reduces cost of coal handling. Elec R 73:1017-18 D 28 '18; Same. Elec W 73:86 Ja 11 '19; Same. Iron Tr R 64:210 Ja 16 '19
- Electricity as applied to loading and unloading coal and ore boats. R. H. McLain. II diag Gen Elec R 22:352-65 My '19
- Electricity facilitates coal handling at Camp Devens, Ayer, Mass. II Elec W 71:567 Mr 16 '18
- 52,000-kw. station of New Bedford company. II Elec W 71:397 F 23 '18
- Godfrey coal conveyor. II diag Elec R 72:695-7 Ap 20 '18; Power 48:766 N 26 '18
- Handling bulk material by man and machine power—a comparison. G. F. Zimmer. diags Ind Management 55:190-2 Mr '18
- Handling coal and ash at Youngstown, O. diags Iron Age 102:367-8 Ag 8 '18
- Handling coal and ashes in the boiler house. H. J. Edsall. II Coal Age 13:694-7 Ap 13 '18
- Handling coal at the Melco power plant. II Power 48:945-6 D 31 '18
- Handling coal for power plant with bottomless power scrapers. II diag Eng & Contr 51:521 My 14 '19
- Handling river coal at Harrisburg. H. J. Edsall. II Coal Age 15:564-7 Mr 27 '19
- Handling roundhouse coal. II Power 48:372-5 S 10 '18
- Huge bridge to facilitate coal handling. II Sci Am 120:163 F 22 '19
- Insuring adequate coal supply with the least expenditure. G. E. Wood. II diags plan Elec Ry J 54:312-15 Ag 16 '19
- Labor-saving coal handling for the factory power house. R. Trautschold. II Ind Management 55:447-53 Je '18
- Labor-saving methods and appliances for loading coal. G. W. Engel. diags plans Coal Age 14:974-80 N 28 '18
- Loading out coal with electric shovels. W. B. Brennan. II Coal Age 14:1018-19 D 6 '18
- Management of the power plant. R. June. II Textile World 55:1453-4, 2089+, 2719+ Mr 1, Ap 5, My 3 '19; Excerpt. Elec R 75:481-3, 691-2 S 20, O 25 '19
- Mine coal handling and storage plant, Allicia, Pennsylvania. II Iron Age 101:1423 My 30 '18
- Modern producer coal-handling equipment. II Iron Age 102:1330 N 28 '18
- New coal-handling plants for Philadelphia water-works. H. R. Cady. diags plans Eng N 82:1095-7 Je 5 '19
- New coke plant of La Belle iron works. II Iron Age 104:699-701 S 11 '19; Same. Iron Tr R 65:697-700 S 11 '19
- New design for coal loading pier. W. L. Moffett. II plan Marine R 49:567-9 D '19
- New methods of handling coal electrically. C. L. Packard. II Coal Age 13:922-4 My 18 '18
- Plant to transfer coal and ore mechanically. II diags Ry Age 64:569 Mr 15 '18
- Producer coal-handling equipment. II Power 48:950-1 D 21 '18
- Proposed coal-loading machine. H. R. Kirkbride. diag Coal Age 15:620-1 Ap 3 '19
- Revolving dumps at Docena and Edgewater. II diags plan Coal Age 13:691-2 Ap 13 '18
- Rotary car dump for boiler room coal. R. W. Mayer. diag Coal Age 13:771 Ag 27 '18
- Rotary dump at shaft bottom. J. W. Gray. II diags plan Coal Age 13:384-5 F 23 '18
- Saving \$3,000 per year in coal handling. II Elec Ry J 52:844 N 9 '18
- Selection of coal and ash conveyors. H. E. Birch. II diags Power 47:82-6 Ja 15 '18
- Shipping facilities at the world's largest coal mine. R. W. Mayer. Coal Age 14:536-8 S 26 '18
- Storage bin and loading chute for coaling contractor's equipment. II Eng & Contr 51:381 Ap 16 '19
- Storage of bituminous coal. H. H. Stoeck. diags plans Ill U Eng Exp Sta Circ 6:1-187 '18; Excerpta. Gas Age 42:145-9, 193-6, 207-10, 255-8 Ag 15-S 16 '18; Excerpt. Eng & Contr 50:54-5 JI 17 '18; Excerpta, with discussion. W Soc E J 23:270-305 Ap '18; Abstract. Power 47:814-16 Je 4 '18; Conclusions. Ry R 62:638-41 My 4 '18
- Store coal now against winter shortage. W. H. Lloyd. II Iron Tr R 62:1481-4 Je 13 '18
- Storing coal in a small plant. II Elec W 72:148-9 JI 27 '18
- Storing coal with a fan. H. H. Finch. II Power 49:712 My 13 '19
- Successful steam jet reloader. R. L. Sinyard. diags Coal Age 13:317 My 4 '18
- Surface plant of the Orient mine in Franklin county, Illinois. II Coal Age 14:932-6 N 21 '18
- Transferring coal with scraper. J. M. Purcell. diag Power 48:64 JI 9 '18
- Underground coal-loading machinery. E. N. Zern. II diag Coal Age 15:784-91 My 1 '19
- See also* Coal—Thawing; Coal—Transportation; Coal piers; Coal storage; Coal-ing; Coaling stations; Coke handling; Colliers
- Coal hoppers**
- Preventing fire in coal hoppers. M. Easton. Elec R 74:70-1 Ja 11 '19
- Coal inspection**
- Government coal-inspection system through Bureau of mines proposed. P. Wooton. Coal Age 15:1129 Je 19 '19
- Coal lands**
- Methods for more efficiently utilizing our fuel resources. F. P. Coffin. II map Gen Elec R 22:517-35 JI '19
- Subleasing of coal lands. Coal Age 13:830 My 4 '18
- See also* Coal mines and mining
- Coal measurement**
- Cubic contents per ton of coal. Coal Age 13:805 Ap 27 '18
- How big is 150,000,000 tons of coal? W. F. Schaphorst. diag Coal Age 14:973 N 28 '18
- More accurate method of making bunker surveys. H. Wygodsky. diag Elec W 70:1104 D 8 '17
- See also* Coal meters
- Coal meters**
- Coal meter for boilers. II diags Engineer 127:261 Mr 14 '19
- Coal meter for chain-grate stokers. diags Power 50:485-6 S 16 '19
- Coal miners**
- Alabama wage is settled. Coal Age 13:797 Ap 27 '18
- Anthracite wage increase proposed. Coal Age 14:789 O 24 '18

**Coal miners—Continued**

- Can output be increased scientifically? W. E. Joyce. Coal Age 14:356-7 Ag 22 '18
- Coal-mine labor the world around. Coal Age 15:721 Ap 17 '19
- Coal production and booze. Coal Age 13:424, 547-8; 13:156-7, 300, 346-7, 556-7, 758, 843-4 S 8, 29 '17, Ja 19, F 9-16, Mr 28, Ap 20, My 4 '18
- Conference between the United States fuel administrator and the international officials of the United mine workers of America. Coal Age 14:238 Ag 1 '18
- Cost of living in United Kingdom. Coal Age 12:1017 D 15 '17
- Dealing with slackers in mines. G. Libiez. Coal Age 14:413 Ag 29 '18
- Education—the financial and social barometer. R. Z. Virgin. Coal Age 14:446-7 S 5 '18
- Efficiency of mine workers. Coal Age 15:1095-6, 1136-7; 16:204-5, 286-7, 418, 461 Je 12-19, Jl 31, Ag 14, S 4-11 '19
- Employment of women in mining. F. W. Parsons. Coal Age 13:859 My 11 '18
- Expediting locomotive haulage. M. Ashley. Coal Age 15:244-5 Ja 30 '19
- Hindrances to coal production. S. D. Hainley. Coal Age 14:1044 D 5 '18
- Intemperance hampers production. Coal Age 14:463-4 S 5 '18
- Intemperate men cause tonnage loss. Coal Age 14:302 Ag 15 '18
- Justice in the increase of wages. Coal Age 12:1068-9 D 22 '17
- Justice to the miner. Coal Age 14:413-14, 916-17, 1046-7, 1091 Ag 29, N 14, D 5-12 '18
- Labor-adjusters approve wage contract. Coal Age 14:829 O 31 '18
- Labor shortage at hard coal mines. Coal Age 13:841 My 4 '18
- Labor situation. R. D. Hall. See weekly numbers of Coal Age
- Large outputs of patriotic miners. Il Coal Age 14:652 O 3 '18
- Mass education needed. Coal Age 12:987; 13:32 D 8 '17, Ja 5 '18
- Nationalities in Clearfield district. Coal Age 14:409 Ag 29 '18
- Our great-hearted coal miners. H. Flexner. Il Coal Age 14:498-501 S 12 '18
- Overlooking the salaried man. Coal Age 13:344-5, 471 F 16, Mr 9 '18
- Payment for yardage and deadwork. Coal Age 15:464, 725-6 Mr 6, Ap 17 '19
- Saloon evil in the mining industry. Coal Age 12:1008-9 D 15 '17
- Union attitude on clean coal. Coal Age 13:465 Mr 9 '18
- Unrest in Canadian coal fields. Coal Age 14:747-8 O 17 '18
- Wage adjustment. Coal Age 14:752-3; 15:27 O 17 '18, Ja 2 '19
- Wage increase. W. B. Wilson. Coal Age 14:703 O 10 '18
- Wages vs. work hours. A. Caramaxi. Coal Age 16:584-5 O 2 '19
- War as a supreme test of efficiency. E. N. Hurley. Coal Age 13:1058-61 Je 8 '18
- What is the matter with the miner? A. H. Stow. Coal Age 14:539-40 S 19 '18; Discussion. 14:753-4 O 17 '18
- Women in industry. Coal Age 12:1067; 13:70, 890 D 22 '17, Ja 12, My 11 '18
- Work of National production committee of U.S. Fuel administration. J. B. Neale. Am Inst Min E Bul 146:439-44 F '19; Discussion. 148:748-9 Ap '19
- Coal miners' strike, 1919**
- Criminal coal strike. Ry R 65:693-4 N 8 '19
- Increase of 14 per cent offered coal miners. Ry Age 67:845-6 O 24 '19
- Miners' strike ended by court order. Ry R 65:730-1 N 15 '19
- Soft coal miners remain on strike and situation is serious. Ry R 65:769-71 N 23 '19
- Strike of bituminous miners called off. Ry Age 67:706-8 O 3 '19
- Strike of the soft coal miners. Ry R 65:687-9 N 8 '19
- Coal mines and mining**
- Anthraxite mine-cave situation. Coal Age 14:598-601 S 26 '18
- Coal mine electrification. Elec R 73:293-4 Ag 24 '18
- Coal mine photography. H. A. Williamson. Coal Age 13:1053-4, 1107-8, 1148-9 Je 8-22 '18
- Coal mining and man power; longwall method. F. A. Pocock. Coal Age 14:350-1 Ag 22 '18
- Coal wastage. F. S. Peabody. Am Inst Min E Bul 125:776-81 My '17; Discussion. 133:16-24 Ja '18
- Condemn the resistless stopping. J. Verner; W. H. Noone. Coal Age 13:823-9 Ap 6 '18
- Conservation of coal. J. A. Morrison. diag Coal Age 16:306 Ag 21 '19
- Correct sphere of the country bank. Coal Age 14:73 Jl 13 '18
- Drawing pillars in machine mining. Coal Age 15:23, 238-9, 330-1, 415-16, 463, 586-7 Ja 2, F 6-13, 27, Mr 6, 27 '19
- Drawing pillars on steep pitches. R. Bowen. diag Coal Age 15:1175 Je 26 '19
- Drill mounting for drilling coal. B. B. Brewster. diag Coal Age 13:792 Ap 27 '18
- Dumping mine refuse. J. A. Smith. diag Coal Age 13:3 Ja 5 '18
- Economical generation of thermal power at coal mines. J. B. C. Kershaw. Il diag Coal Age 12:923-4, 969-72; 13:284-7, 325-8 D 1-8 '17, F 9-16 '18
- Electricity in coal-mining operations. F. Huskinson. Il Elec R 73:1-4, 81-2, 245-7, 287-9, 494-5 Jl 6, 20, Ag 17-24, S 28 '18
- Electricity saves labor in coal mining. Il Elec R 73:839-40 D 14 '18
- Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. Il diag plans Am Inst Min Bul 153:sup2445-73 S '19; Discussion. 155:3044-7 N '19
- Five features in mine workings. diag Coal Age 13:58 Ja 13 '18
- Get ready! G. N. Lantz. Coal Age 16:574 O 2 '18
- Hindrances to coal production. J. H. Tipton. Coal Age 14:1087 D 12 '18
- Ideas and suggestions for use around the mine; drawings. Coal Age 13:172-3 Ja 26 '18
- Illinois coal mine electrified throughout. Il diag Elec W 73:1372-4 Je 28 '19
- Importance of proper robbing methods. J. T. Morris. diag Coal Age 13:501-2 Mr 16 '18
- Increased production in wartime. R. M. Magraw. Coal Age 14:635-8 O 3 '18
- Increasing coal mine efficiency. C. E. Stuart. diag Coal Age 14:724-7, 773-8, 820-3, 857-60, 903-4 O 17-N 14 '18
- Interesting summer sessions of three coal-mining institutes. R. D. Hall. Coal Age 15:1112-17 Je 19 '19
- Loading coal at the face. Coal Age 14:282-3, 416, 567, 658-9 Ag 8, 29, S 19, O 3 '18
- Locating the coal beyond a fault. diag plan Coal Age 14:797, 915, 1088-9; 15:30-1, 158-9, 197-8 O 24, N 14, D 12 '18, Ja 2, 16-23 '19
- Longwall system for low coal seams. diag Coal Age 15:520, 965-6, 1176-7 Mr 20, My 22, Je 26 '19
- Man power and longwall mining. diag plan Coal Age 14:564-5, 794-5 S 19, O 24 '18
- Man who mines our coal; operator's point of view toward the fuel shortage. D. C. Ashmead. Il Sci Am 118:454-5+ My 18 '18
- Method employed in working the Crescent mine. R. W. Mayer. Il diag Coal Age 15:1023-9 Je 5 '19
- Method of driving rooms without the aid of regular sights. O. Bullock. diag Coal Age 15:396 F 13 '19; Discussion. 15:725, 1135; 16:287-8 Ap 17, Je 19, Ag 14 '19
- Method of working thick coal. M. Stafford. diag Coal Age 14:890-1 N 14 '18
- Methods of operation. J. F. K. Brown. Coal Age 14:313-15 Ag 16 '18
- Methods of working 10-ft. inclined seam. Coal Age 13:561 Mr 23 '18; Discussion. 13:803-4, 847, 982, 1076-7, 1126-7; 14:611-12 Ap 27-MY 4, 26, Je 8-15, S 26 '18
- Mining a thick inclined seam. Coal Age 13:389 F 23 '18
- Model Illinois coal mine. Il map plan Coal Age 16:638-44 O 16 '19
- Modern shaft development of the Consolidation coal company. G. W. Harris. Il diag plan Coal Age 15:480-5, 527-31 Mr 13-20 '19

**Coal mines and mining—Continued**

- Oblique faced rooms. G. W. Sutherland. *diag* Coal Age 14:580-1 S 26 '18
- Outlook in coal mining. Coal Age 15:1138; 16:247-8, 288 Je 19, Ag 7-14 '19
- Panel system of mining. Coal Age 15:419, 634-5, 968-7 F 27, Ap 3, My 22 '19
- Plant of the Williams Pocahontas coal co. G. S. Jaxon. *il* *diags* plan Coal Age 14:1106-9 D 19 '18
- Problem in coal extraction. plan Coal Age 16:234-5 Ag 7 '19; Discussion. 16:416, 457-9, 541-3, 662-3, 722-3 S 4-11, 25, O 16-23 '19
- Problems connected with mining at a depth in Great Britain. G. B. Walker. Coal Age 15:269 F 6 '19
- Progress of electricity in coal mining. F. Huskinson. *il* Coal Age 14:892-7 N 14 '18
- Reducing costs in handling coal. Coal Age 12:1027-8 D 15 '17
- Regarding longwall. F. A. Pocock. *diag* Coal Age 15:395-6 F 27 '19; Discussion. 15:764-5, 828-9, 1133-4; 16:201-2, 500 Ap 24-My 1, Je 19, Ji 31, S 18 '19
- Research in the coal-mining industry. E. A. Holbrook. *Am Inst Min Bul* 153:1723-37 S '19; Discussion. 155:3047-9 N '19
- Robbing pillars, in anthracite mines. Coal Age 15:938; 16:27, 115-16 My 22, Ji 3, 17 '19
- Roof conditions in longwall work. Coal Age 15:591, 920-1, 966, 1055-6 Mr 27, My 15-22, Je 5 '19
- Rooster coal, Pittsburgh no. 8 seam. *diag* Coal Age 13:349 F 16 '18; Discussion. 13:428-9, 468-9, 640 Mr 2-9, Ap 6 '18
- Sealing up old or abandoned workings in gaseous mines. C. Thompson. Coal Age 15:1110-11 Je 19 '19; Discussion. E. H. Cox. Coal Age 16:333-4 Ag 21 '19
- Shaft vs. slope opening. Coal Age 12:551, 775-6, 989-90, 1110-11; 13:347-8, 388, 429 S 29, N 3, D 8, 29 '17, F 16-Mr 2 '18
- Should new coal mines be opened? G. S. Rice. *chart* Coal Age 13:744-5 Ap 20 '18
- Snow-bird mine. S. C. Reynolds. *il* Coal Age 14:58-9 Ji 13 '18
- Specializing in the mine. J. Appleton and J. Somers. *il* Coal Age 14:109-11 Ji 20 '18
- Squeeze in the Maxwell shaft. D. C. Ashmead. *diags* plans Coal Age 12:1004-5 D 15 '17
- Strong vs. weak stoppings. Coal Age 13:1077-8, 1211-12 Je 8, 29 '18
- To speed up development work. H. Goodman. Coal Age 13:1185 Je 29 '18
- Turning a room without the engineer. J. A. Monico. *diag* Coal Age 16:89 Ji 17 '19
- Unusual bounce condition. A. C. Watts. *il* plan Coal Age 14:1028-30 D 5 '18; Discussion. H. M. Chance. 15:198-9 Ja 23 '19
- Use of electric power in the mining of anthracite coal. J. B. Crane. *il* *Am Inst E E* Pro 37:1197-1202 O '18; Same. *Elec R* 73:976-7 D 21 '18; Same. *Gen Elec R* 22:146-8 F '19
- Valley Camp coal co.'s tippie at Parnassus, Penn. G. S. Jaxon. *il* Coal Age 14:582-5 S 26 '18
- Vein, seam, horizon, blanket or bed? Coal Age 14:72 Ji 13 '18
- Wagon mine a menace. Coal Age 14:282, 464, 834-5 Ag 8, S 5, O 31 '18
- Wagon mines vs. patriotism. Coal Age 12:466-7, 593; 13:158-9, 515-16 S 15, O 6 '17, Ja 19, Mr 16 '18
- Waste of coal. Coal Age 14:1176; 15:160, 544, 587-8, 964, 1008; 16:69-70 D 26 '18, Ja 16, Mr 20-27, My 22-29, Ji 10 '19
- Wasting anthracite by culm flushing. E. B. Wilson. Coal Age 12:1017 D 15 '17
- What the coal miner can do to help the government, the railroads and the men at the front. J. P. White. *Ry R* 62:758-9 My 25 '18; Same cond. *Ry Age* 64:1343 My 31 '18
- Working Pittsburgh no. 8 coal. Coal Age 12:509, 689-90, 733-4, 774-5, 818-19, 863-4, 1070 S 22, O 20-27, N 3-17, D 22 '17
- Working thin beds by longwall. R. Gascoyne. Coal Age 13:621-3 Ap 6 '18

*See also* Coal breakers; Coal cutters; Coal dust; Coal handling; Coal lands; Coal miners; Coal mining machinery; Coal washing; Mine accidents; Mine gases; Mining engineering, and references under that subject

**Accidents and explosions**

- Baltimore tunnel disaster. F. H. Kneeland. *diags* plan Coal Age 16:56-8 Ji 10 '19
- Bumps and outbursts of gas in the Crowsnest Pass coal field. G. S. Rice. *diags* maps Coal Age 15:660-5 Ap 10 '19
- Coal-mine accidents by nationality. Coal Age 15:1044 Je 5 '19
- Coal-mine fatalities in the United States. 1917. A. H. Fay. *U S Bur Mines* 85p '18; Excerpts. Coal Age 13:111 Ja 19 '18; Excerpt. *Eng & Min J* 105:429 Mr 2 '18; Excerpt. *Sci Am* 118:245 Mr 16 '18
- Coal-mine fatalities in the United States. 1918. A. H. Fay. *U S Bur Mines* 61p '19; Abstract. Coal Age 15:113-14 Ja 16 '19
- Eye hazard in coal mining. Coal Age 14:403 Ag 29 '18
- Flare-up in Baltimore tunnel. Coal Age 15:1076 Je 12 '19
- Gas ignition at Alderson (Okla.) mine. Coal Age 16:191 Ji 31 '19
- Importance of safety in mining and metallurgical industries. W. B. Plank. Coal Age 16:228-31 Ag 7 '19
- Shotfiring re explosion. Coal Age 13:71-2, 300-2, 430-1, 470, 601-2, 642-3 Ja 12, F 9, Mr 2-9, 30-Ap 6 '18
- Summary statement of fatalities in the mineral industry of the United States for the year 1916. Coal Age 12:1107 D 29 '17
- War-time conditions bring about high fatality record in coal mines. Coal Age 13:420 Mr 2 '18
- See also* Coal mines and mining—Safety measures; Mine accidents; Mine explosions

**Accounting**

*See* Mine accounting

**Bibliography**

Mining and metallurgical index. *See* monthly numbers of Bulletin of the American institute of mining engineers

**Cost**

- Anthracite mining costs. R. V. Norris. *Am Inst Min E Bul* 146:249-62 F '19; Same. Coal Age 15:1124-8 Je 19 '19; Discussion. *Am Inst Min Bul* 148:739-47 Ap '19
- Cost reports of the Federal trade commission: coal; Pennsylvania—bituminous. charts *U S Fed Tr Comm* 103p Je 30 '19
- Illinois coal-mine power plants. E. Steck. Coal Age 16:355-6 Ag 28 '19
- Some items that enter into the cost of producing coal. Coal Age 15:945 My 22 '19
- What price should the coal operator charge the boiler-room coal account? C. W. Hippard. Coal Age 15:955 My 22 '19

**Examinations**

- Answering examination questions. Coal Age 13:158, 348 Ja 19, F 16 '18
- British Columbia examination, first-class. Nov. 13, 1917; selected questions. Coal Age 12:1073, 1114 D 22-29 '17
- Examination questions. *See* weekly numbers of Coal age
- Unpractical examination questions. Coal Age 16:285-6, 374-5 Ag 14, 28 '19

**Explosives**

- Analytical method for detecting blown-out shots in coal mines. G. F. Hutchison and J. Barab. *U S Bur Mines Tech Pa* 210:1-18 '19
- Permissible explosives. J. E. Miller. *il* Coal Age 16:226-7 Ag 7 '19
- Permissible explosives in mining. L. R. Thomas. Coal Age 14:518 S 12 '18
- Questionnaire on explosives regulation. F. S. Peabody. Coal Age 12:1012 D 15 '17
- Storage of powder and explosives at coal mines. E. M. Kimball. *il* Coal Age 15:794-5 My 1 '19
- Tests and comparisons of various types of permissible explosives. J. C. Thompson. Coal Age 16:94-5 Ji 17 '19
- Transporting powder in mines. W. H. Noone. Coal Age 16:335-6 Ag 21 '19

**Coal mines and mining—Explosives—Continued**  
Use of permissible explosives in the coal mines of Illinois. J. R. Fleming and J. W. Koster. II diags plans map U S Bur Mines Bul 137:1-110 '17

See also Explosives

#### Law

See Mining law

#### Machinery

See Coal mining machinery

#### Management

Avoidable degradation of coal. R: Bowen. Coal Age 16:586-7 O 2 '19  
Coal company organization. W. W. Beddow. chart Coal Age 13:778-80 Ap 27 '18  
Coal mine gatehouse—need of a checking system. Coal Age 12:959 D 8 '17; Discussion. 13:209, 256-7, 711 Ja 26-F 2, Ap 13 '18  
Conservation of miners by employment of mechanical equipment. R. L. Herrick. II Coal Age 14:162-7 Jl 25 '18  
Cost of coal. Coal Age 13:1190-2 Je 29 '18  
Efficiency in mine management. Coal Age 15:200, 246-7, 547-8, 588-9, 1012 Ja 23-30, Mr 20-27, My 29 '19  
Efficient coal-mine gatehouse. R. M. Magraw. diags plan Coal Age 13:282-3 F 9 '18  
Efficient division of work in coal mining. R. W. Mayer. Coal Age 13:367 F 23 '18  
Handling material and supplies at coal mines. R. M. Magraw. diags Coal Age 13:818-22 My 4 '18  
How a western coal company solved its labor problem. G. C. McFarlane. Coal Age 15:347 My 8 '19  
Maximum production for humanity's sake. H. K. Porter. II Coal Age 14:97-8 Jl 20 '18  
Mining institute discusses anthracite prices. Coal Age 15:448-9 Mr 6 '19  
Motor truck vs. teams for local hauling around the mine. II Coal Age 12:1006-7 D 15 '17  
Need of efficiency in coal mining. Coal Age 14:983-5 N 28 '18  
Science and research in coal mining. G. W. Harris. Coal Age 15:17-19 Ja 2 '19  
Uniform cost sheet. Coal Age 14:545-7 S 19 '18  
War as a supreme test of efficiency. E: N. Hurley. Coal Age 13:1068-61 Je 8 '18  
Wartime economies. G: B. Pryde. Coal Age 14:633-5 O 3 '18

See also Coal miners

#### Power

See Electricity in mining; Mining engineering—Power

#### Safety measures

Alarm to show fan trouble. W. F. Decker. diags Power 48:909 D 24 '18  
Automatic deflector. diags Coal Age 14:92-3 Jl 20 '18  
Blacklisting to prevent mine accidents. Coal Age 12:1028; 13:29-31, 74, 212-13, 260, 302-3 D 15 '17, Ja 5-12, 26, F 2-9 '18  
Burrell gas detector. G: Wilkinson. Coal Age 15:1094-5 Je 12 '19  
Danger and discipline. J: Rose. Coal Age 13:431-2 Mr 2 '18; Discussion. 13:640-1 Ap 6 '18  
Device that makes for safety in shotfiring in mines. diags Coal Age 16:489 S 18 '19  
First aid to the uninjured. Coal Age 13:156, 299, 641-2, 804, 982-3, 1029-30, 1210-11; 14:283 Ja 19, F 9, Ap 6, 27, My 26, Je 1, 29, Ag 8 '18  
Forms for use in recording compensation. Coal Age 14:506-8 S 12 '18  
Hazards and safeguards in anthracite breakers and washeries. D. K. Glover. Coal Age 14:901-2 N 14 '18  
If we would be safe, all must help. S. D. Otis. Coal Age 14:132 Jl 20 '18  
Importance of safety in mining and metallurgical industries. W. B. Plank. Coal Age 16:228-31 Ag 7 '19  
Local would single shift gassy mines. Coal Age 14:559-60 S 19 '18

Merit rating of coal mines under workmen's compensation insurance. E. C. Lee. Am Inst Min E Bul 130:1826-32 O '17; Discussion. 133:28-30 Ja '18

Miner and safety. Coal Age 14:707-8, 877, 1177-8 O 10, N 7, D 26 '18

New method of gas detection. E. P. Brennan. Coal Age 15:896-7 My 15 '19

Precautions to be observed in coal mines during cold weather. F: B. Hicks. Coal Age 13:47 Ja 12 '18

Prevention of coal-dust explosions in mines. Sci Am S 86:189 S 21 '18

Safety-first provisions at an anthracite colliery. D. C. Ashmead. II Coal Age 12:965-6 D 8 '17

Safety handling of explosives. R: Bowen. Coal Age 15:1134-5 Je 19 '19

Safety trip-alarms and lights. F. Huskinson. II Coal Age 12:748-9 N 3 '17; Same. Eng & Min J 105:21 Ja 5 '18

See also Car stop; Mine foremen; Mining engineering—Safety measures

#### Spontaneous combustion

See Coal storage

#### Stripping operations

Anthracite coal stripping. T: F. Kennedy. Coal Age 12:1087-8; 13:13-15, 237-8, 410-12; 14:644-7 D 29 '17, Ja 5, F 2, Mr 2, O 3 '18

Coal stripping in Georges Creek region. II Coal Age 12:973 D 8 '17

Coal-stripping operations in Ohio. S. B. Creamer. II diags Coal Age 15:1034-5; 16:134-5 Je 5, Jl 24 '19

Coal stripping with an elevating grader. C. P. Burton. diags Eng & Contr 49:624 Je 19 '18; Excerpts. Coal Age 14:694 O 10 '18

Economy of mining coal by stripping. E. C. Drum. II Coal Age 12:1055-6 D 22 '17

Increased coal output by stripping. A. C. Vicary. II Coal Age 14:94-6 Jl 20 '18

Machinery used in the stripping of coal. S. B. Creamer. II Coal Age 15:984-5 My 29 '19

Methods and cost of stripping coal beds with motor-driven drag line. II Eng & Contr 49:610 Je 19 '18

Modern coal stripping in Ohio. W. E. Holloway. II Coal Age 13:503-4 Mr 16 '18

Recovering outcrop by stripping. Coal Age 12:737, 902-3, 989 O 27, N 24, D 8 '17

Small stripping with heavy overburden. D. J. Baker. II Coal Age 16:397-8 S 4 '19

Steam-shovel mining of bituminous coal; costs. H. H. Stoek. II map Am Inst Min E Bul 129:1385-1417; Bibliography. 1417-19 S '17; Excerpt. Eng & Contr 48:234-5 S 19 '17; Discussion. Am Inst Min E Bul 133:24 Ja '18

Strip mining where bad roof prevails. R. W. Mayer. Coal Age 13:735-7 Ap 20 '18

Stripping retrospect; Pennsylvania. II Coal Age 13:288-9 F 9 '18

#### Ventilation

See Mine ventilation

#### Alaska

Methods for more efficiently utilizing our fuel resources. F. P. Coffin. II map Gen Elec R 22:517-35 Jl '19

Reserve coal deposits are blocked out at government mine at Eeka. S. S. Smith. II Coal Age 15:940-2 My 22 '19

#### Alberta

Coal mining in Alberta during 1917. J. T. Stirling. Coal Age 13:538-9 Mr 23 '18

Mines of the Jasper park collieries, limited, at Pocahontas. J. H. McMillan. II diags plan Coal Age 16:522-6 S 25 '19

Yellowhead coal district. S. Mac Vicar. diags plan Coal Age 15:608-10 Ap 3 '19

#### Algeria

Coal riches in southern Algeria. Coal Age 13:876 My 11 '18

Development of coal deposits in Algeria. Sci Am 118:421 My 4 '18

## Coal mines and mining—Continued

**Arizona**  
Jerome district of Arizona. J. R. Finlay. Eng & Min J 106:605-10 O 5 '18

**Belgium**  
Belgian coal and coke industry in the war. Coal Age 12:713-15 O 27 '17; Same. Eng & Min J 104:880-2 N 17 '17; Excerpt. J Fr Inst 185:278 F '18  
Coal-mining situation in Belgium in 1919. Coal Age 16:358 Ag 28 '19

**Brazil**  
Fuel problem of Brazil. Coal Age 14:1160-2 D 26 '18

**British Columbia**  
Bumps and outbursts of gas in the Crownest Pass coal field. G. S. Rice. diag maps Coal Age 15:660-5 Ap 10 '19  
Coal in the Peace river district of British Columbia. R. Dunn. Coal Age 15:1085 Je 12 '19  
Coal mining in British Columbia. R. Dunn. Coal Age 14:55-7 JI 13 '18  
Increasing coal mine efficiency. C. E. Stuart. il Coal Age 14:857-60 N 7 '18  
New Harewood mine. Coal Age 14:59 JI 13 '18  
New mine at Cassidy's. il Coal Age 14:981-2 N 23 '18  
Plants of the Crownest Pass coal field. R. Dunn. il Coal Age 16:273-4 Ag 14 '19

**Bulgaria**  
Bulgaria has only one railroad mine. Coal Age 13:620 Ap 6 '18

**Canada**  
Activities in Alberta. British Columbia and Saskatchewan in 1918. Coal Age 15:97-8 Ja 16 '19

Coal resources of western Canada. J. White. maps Coal Age 15:744-8, 858-62 Ap 24, My 8 '19  
Provincial rights dispute in Canada. R. Dunn. map Coal Age 14:352-3 Ag 22 '18

*See also* Coal mines and mining—Alberta

**Chile**  
Chilean coal-mining industry. Coal Age 14:1034-6 D 5 '18

**China**  
Coal and iron deposits of the Pen-hsi-hu district, Manchuria. C. F. Wang. il diag maps plan Am Inst Min E Bul 134:223-50 F '18; Same cond. Iron Tr R 62:483-5 F 14 '18; Excerpts. Iron Age 101:386-8 F 7 '18; Discussion. Am Inst Min E Bul 136:818-19 Ap '18

**Colombia**  
Coal mining at Bolivar, Colombia. F. L. Bell. Coal Age 16:240 Ag 7 '19

**France**  
Coal industry; abstracts. A. J. Baldwin. il Coal Age 15:276-9 F 6 '19; Power 49:166-7 F 4 '19

Coal production in France since 1913. Coal Age 14:900 N 14 '18  
Germany wants Lorraine ore. M. Knecht. Iron Tr R 63:169 JI 18 '18  
Lens, the coal field of France. F. Haas. il Coal Age 15:392-4 F 27 '19  
Mines of Bruay, France. G. Libiez. il diag plans Coal Age 15:522-3 Mr 20 '19

**Germany**  
Coal resources of Germany. map Coal Age 15:632-3; 16:332-3, 548-9 Ap 3, Ag 21, S 35 '19  
Kaiser must yield mineral spoils. F. Miltoun. map Iron Tr R 63:148-9 JI 18 '18

**Great Britain**  
New English coal field to be extensively developed. Coal Age 15:567 Mr 27 '19  
Output per underground employee in British coal mines decreases. Coal Age 15:178 Ja 23 '19

**Illinois**  
Coal industry of Illinois. C. M. Young. map Am Inst Min E Bul 129:1369-84 S '17; Discussion. 133:25-8 Ja '18  
Illinois plant operates by storage. il Coal Age 14:263 Ag 8 '18  
Kathleen mine of the Union colliery company at Dowell, Illinois. il Coal Age 13:1186-8 Je 29 '18  
Longwall mining at La Salle, Illinois. G. W. Harris. il map Coal Age 14:388-92 Ag 29 '18  
Low-sulphur coal in Illinois. G. H. Cady. map Coal Age 16:187 JI 31 '19  
Machine mining at La Salle. G. W. Harris. il diag Coal Age 14:536-8 S 19 '18  
Model safety-first coal mine in Central Illinois. il diag plans map Coal Age 14:4-10 JI 6 '18  
New plant of pioneer operation in Franklin county; Zeigler mine. G. W. Harris. il Coal Age 14:252-5 Ag 8 '18  
Orient mine of Franklin county. G. W. Harris. il map Coal Age 14:344-9 Ag 22 '18  
Peabody coal development in Central Illinois. G. W. Harris. il diag Coal Age 14:810-14 O 31 '18  
Percentage of extraction of bituminous coal with special reference to Illinois conditions. C. M. Young. diag maps plans Ill U Eng Exp Sta Bul 100:1-173 '17  
Present Illinois coal-mining industry. G. H. Cady. il Coal Age 13:1142-5 Je 22 '18  
Surface plant of the Orient mine in Franklin county. il Coal Age 14:932-6 N 21 '18

**India**  
Coal mining in India in 1917. Coal Age 15:399 F 27 '19

**Ireland**  
Britain's pocketed coal mines. D. J. O'Byrne. Coal Age 13:869 My 11 '18

**Kentucky**  
Hazard coal field. P. M. Sherwin. il Coal Age 14:1031-4 D 5 '18  
New development on Pond Creek, Pike county, Kentucky. M. W. Gilliam. il Coal Age 16:488 S 18 '19

**Malay peninsula**  
Coal production. Engineer 126:191 Ag 30 '18

**Nova Scotia**  
Nova Scotia's submarine coal mining problem. Coal Age 15:997-8 My 29 '19

**Ohio**  
Coal-stripping operations in Ohio. S. B. Creamer. il diag Coal Age 15:1034-5; 16:134-5 Je 5, JI 24 '19  
Coals of Ohio and their limitations for by-product coke. W. Stout. map Am Inst Min Bul 153:sup2369-87 S '19; Same. Coal Age 16:674-7, 707-11 O 23-30 '19  
Modern coal stripping in Ohio. W. E. Holloway. il Coal Age 13:503-4 Mr 16 '18  
Modern shaft mine at Amsterdam. J. L. Ball. il Coal Age 16:46-7 JI 10 '19

**Oklahoma**  
Suggestions for improved methods of mining coal on Indian lands in Oklahoma. J. J. Rutledge and D. Harrington. diag plans U S Bur Mines Tech Pa 154:1-31 '18

**Pennsylvania**  
Agencies in the transformation of the Connelville region. J. L. Gans. Coal Age 15:568-9 Mr 27 '19  
Consumers mining co. development. Coal Age 14:684 O 10 '18  
Development of large coal tract in Greene county. Coal Age 15:265 F 6 '19  
Holsting water in tanks by electricity. G. W. Harris. il diag plan Coal Age 13:1094-1100 Je 15 '18  
Large coal mine on the Allegheny river. R. W. Mayer. Coal Age 16:316-18 Ag 21 '19  
Low-sulfur coal in Pennsylvania. H. M. Chance and T. M. Chance. Am Inst Min Bul 152:1459-68 Ag '19; Discussion. 154:2961-2 O '19

**Coal mines and mining—Pennsylvania—Cont.**

Mining anthracite in the Pennsylvania Wyoming region in 1917. J. H. Haertter. Coal Age 13:198-9 Ja 26 '18  
 New plant and mines of the Coal Run mining company. D. C. Ashmead. *il* diag plan Coal Age 13:616-20 Ap 6 '18  
 St Vincent mine of the Mount Pleasant by-product coal co. P. B. Rule. *il* diag plan Coal Age 16:264-7 Ag 14 '19  
 Story of coal. W. B. Richards. *il* diag map Coal Age 15:441-5 Mr 6 '19  
 Up-to-date plant of the Buckeye coal company at Nemacolin. D. J. Baker. *il* Coal Age 16:560-3 O 2 '19

**Philippine Islands**

Coal in the Philippines. Eng & Min J 105:17 Ja 5 '18  
 Mindanao coal mines. M. Woolley. *il* Coal Age 15:492-3 Mr 13 '19  
 Philippine coal fields develop slowly. map Coal Age 14:594-5 S 26 '18

**Scotland**

Coal mines in Scotland. J. A. Douglas. Coal Age 16:586 O 2 '19  
 Coal mining in France and Scotland. Coal Age 16:395-6 S 4 '19

**Serbia**

Coal production of Serbian mines. Sci Am 118:159+ F 16 '18

**South Africa**

Output of South African coal mines in 1917 shows increase over 1916. Coal Age 15:123 Ja 16 '19

**Spitsbergen**

Coal and iron from the Arctic. H. J. Shepstone. *il* map Sci Am 121:362-3+ O 11 '19

**Tennessee**

Blue gem coal in Tennessee. Coal Age 14:80 Jl 13 '18; Discussion. H. B. Bonney. 14:189 Jl 25 '18  
 Coal pyrite resources of Tennessee. E. A. Holbrook and W. A. Nelson. flow sheets Coal Age 15:1077-9 Je 12 '19

**Texas**

Report on the Colorado coal field. N. F. Drake. diag map Texas U Bul 1755:1-75 O 1 '17

**United States**

Activities in different coal-producing states during 1918. Coal Age 15:82-97 Ja 16 '19  
 Activities in different coal-producing states in 1917. Coal Age 13:88-107 Ja 19 '18  
 Coal—now and next year. C. E. Lasher. maps Coal Age 15:99-104 Ja 16 '19  
 Coal production in 1918. Coal Age 15:127 Ja 16 '19  
 Consolidation coal company. G. W. Harris. *il* plans map Coal Age 14:1148-53 D 26 '18  
 Mining chronology of 1917. R. D. Hall. Coal Age 13:195-7 Ja 26 '18  
 Opening new mines. J. L. Donahue. Coal Age 13:516-17, 801-2 Mr 16, Ap 27 '18  
 Production of soft and hard coal in the United States in 1918. Coal Age 16:485 S 18 '19  
 Tonnage lost because of car shortage. Coal Age 13:933 My 18 '18

**Utah**

Coal mining in Utah during 1917. A. C. Watts. *il* Coal Age 13:174-82 Ja 26 '18  
 One-year retrospect of the coal industry of Utah. A. C. Watts. Coal Age 15:610-11 Ap 8 '19  
 Utah leads in production per man. Coal Age 13:587 Mr 30 '18

**Vancouver, B.C.**

Coal industry of Vancouver island. R. Dunn. Coal Age 13:829-30 My 4 '18

**Venezuela**

Where government runs the coal mines. F. A. Henry. map Coal Age 14:784 O 24 '18

**Washington**

Coal mining in Carbonado, Washington. F. G. Jarrett. *il* Coal Age 14:308-12 Ag 15 '18  
 Coal mining in Washington. F. A. Hill. Am Inst Min E Bul 136:951-3 Ap '18; Same. Coal Age 13:833-4 My 4 '18; Discussion. Am Inst Min E Bul 143:1684-6 N '18

**West Virginia**

Neglected coal field in West Virginia. Coal Age 14:595 S 26 '18  
 Original Pocahontas coal field. *il* Coal Age 15:996 My 29 '19

**Coal mines and mining, Subaqueous**

Nova Scotia's submarine coal mining problem. Coal Age 15:997-8 My 29 '19

**Coal mining Institute of America**

Annual meeting of the Coal mining institute of America. F. H. Kneeland. Coal Age 14:1080-2 D 12 '18  
 Meeting, Pittsburgh, Dec. 5-6. R. D. Hall. Coal Age 12:1010-11, 1053-4, 1097-9 D 15-29 '17

**Coal mining Institutes**

Interesting summer sessions of three coal-mining institutes. R. D. Hall. Coal Age 15:1112-17 Je 19 '19

**Coal mining machinery**

Coal conveyors at the face. Coal Age 14:142, 371-2 Jl 20, Ag 22 '18  
 Cost data on drag-line operation for coal mine. L. W. Nickel. *il* Elec R 72:101-2 Ja 19 '18; Same. Coal Age 13:323-4 F 16 '18; Abstract. Eng N 80:742 Ap 11 '18  
 Electric winding machine. E. M. Mackie. *il* Coal Age 15:792 My 1 '19  
 Electrical labor-saving devices in coal mining. G. Bright. *il* Coal Age 14:116-20 Jl 20 '18  
 Face coal shoveler and loader. *il* Coal Age 14:711 O 10 '18  
 Increased production by use of modern mining machinery. M. Raymond. *il* Coal Age 14:127-9 Jl 20 '18  
 Labor-saving methods and appliances for loading coal. G. W. Engel. diag plans Coal Age 14:974-80 N 28 '18  
 Machine mining at La Salle, Illinois. G. W. Harris. *il* diag Coal Age 14:536-8 S 19 '18  
 Machinery used in the stripping of coal. S. B. Creamer. *il* Coal Age 15:984-5 My 29 '19  
 Mechanical mining without explosives. N. D. Levin. *il* Coal Age 13:684-7 Ap 13 '18  
 Mining coal by machinery. N. D. Levin. *il* diag Coal Age 15:176-8 Ja 23 '19  
 Motor troubles with undercutters. F. Huskinson. Coal Age 13:316 F 16 '18  
 Portable coal loaders. Coal Age 14:961, 1135; 15:67-8 N 21, D 19 '18, Ja 9 '19  
 Scraper mining of thin bed anthracite. E. P. Humphrey. *il* diag Coal Age 14:316-18 Ag 15 '18  
 Simple face conveyor. H. G. Davis. diag Coal Age 14:92 Jl 20 '18; Discussion. 14:371, 611 Ag 22, S 26 '18  
 Successful shoveling machine. *il* Coal Age 13:670-1 Ap 13 '18  
 Suggestion for increasing coal production. N. D. Levin. *il* Coal Age 14:104-5 Jl 20 '18  
 Underground coal-loading machinery. E. N. Zern. *il* diag Coal Age 15:784-91 My 1 '19  
 Waste in lubrication. Coal Age 13:1123 Je 15 '18

See also Coal breakers; Coal cutters

**Coal piers**

Jersey Central is building a modern coal pier. *il* map plan Ry Age 67:388-92 Ag 29 '19  
 New design for coal loading pier. W. L. Moffett. *il* plan Marine R 49:567-9 D '19  
 New Reading coal pier has interesting features. *il* plan Ry Age 64:709-11 Mr 22 '18  
 Solution of greater New York's coal problem. Power 47:227-8 F 12 '18

See also Coal handling

**Coal preparation**

Automatic anthracite coal jig control. diag Coal Age 13:682-3 Ap 13 '18  
 Avoidable degradation of coal. B. Shubart. diag Coal Age 16:401-3 S 4 '19

**Coal preparation—Continued**

- Better preparation and utilization of coal. G. W. Evans. *Coal Age* 15:666-8 Ap 10 '19
- Bradford coal breaker and preliminary mechanical cleaner. *diags Coal Age* 15:352-5 F 20 '19
- Coal crushing in a by-product coke oven plant. *il Gas Age* 44:337-9 O 15 '19
- Coal crushing installation at an Illinois mine. W. G. Kimball. *il Coal Age* 15:52 Ja 9 '19
- Coal preparation and coal sizes. O. Monnett. *Power* 48:108 JI 16 '18
- Coal problem. E. G. Bailey. *Power* 47:378-81 Mr 12 '18; *Abstract. Ry Age* 64:796 Mr 29 '18
- Drifton breaker. E. P. Humphrey. *diags Am Inst Min E Bul* 134:199-210 F '18; *Same. Coal Age* 13:580-5 Mr 30 '18
- Grading small coal by air currents. *Sci Am* 120:146 F 15 '19
- Impurities in raw coal and their removal. *Coal Age* 16:150-1 JI 24 '19
- Modern anthracite preparation plant. D. C. Ashmead. *flow sheet il Coal Age* 12:1046-9 D 22 '17
- New method of separating slate from coal. H. M. Chance. *il diags Sci Am S* 86:348-50 N 30 '18
- Preparation of bituminous coal. E. Prochaska. *Coal Age* 15:943-5, 986-9, 1030-3, 1080-5, 1118-22; 16:9-15, 96-103 My 22-Je 19, JI 3, 17 '19
- Preparation of coal. C. S. Donaldson. *Coal Age* 13:645 Ap 6 '18
- Preparation of no. 4 buckwheat in the cone separator. *diags plan Coal Age* 15:184-6 Ja 23 '19
- Preparing no. 3 Pocahontas coal. R. G. Miller. *il diags plan Coal Age* 13:276-7 F 9 '18
- Rolls for the preparation of coking coals. *il diags Coal Age* 15:612-15 Ap 3 '19
- Use of the Dorr thickener and classifier in coal preparation. J. Griffen. *diags Coal Age* 16:146-8 JI 24 '19
- See also* Coal breakers; Coal screening; Coal washing

**Coal prices. See Coal—Prices****Coal products**

- Chart showing products derived from coal. *Coal Age* 15:1152 Je 26 '19

*See also* Coal distillation; Coal tar; Coke manufacture; Gas manufacture and works

**Coal pulverizing. See Coal, Pulverized****Coal pumping. See Coal—Transportation****Coal purchasing**

- Burning a million tons of coal a year. *Elec R* 73:379-80 S 7 '18
- Economical purchase and use of coal for heating homes, with special reference to conditions in Illinois. *chart diags map ill U Eng Exp Sta Circ* 4:1-53 '17; *Abstract. Heat & Ven* 14:34-40 O '17; *Excerpts. Sci Am S* 85:39 Ja 19 '18
- Right coal test is dollar economy. E. P. Later. *Iron Tr R* 61:1270-3 D 13 '17

**Coal sampling**

- Analyses of mine and car samples of coal collected in the fiscal years, 1913 to 1916. U S Bur Mines *Bul* 123:2-3 '18
- Clean and otherwise acceptable coal. H. A. Turner. *Coal Age* 13:373-4 F 23 '18
- Directions for sampling coal for shipment or delivery. G. S. Pope. *pl U S Bur Mines Tech Pa* 133:1-13 '17; *Excerpt (plate). Power* 47:476 Ap 2 '18
- Preparing coal samples for analysis. *diags Power* 49:928-30 Je 17 '19
- See also* Coal—Analysis

**Coal screening**

- Marcus screen at plants of the Carnegie coal co., Pennsylvania. R. G. Miller. *il diags Coal Age* 14:171-4 JI 25 '18
- Modern tippie equipped with a simple balanced horizontal screen. F. J. Schraeder. *il diags Coal Age* 15:233-5 Ja 30 '19
- New type of screen. M. Raymond. *il diag plan Coal Age* 14:589-90 S 26 '18

**Coal shortage. See Coal famine, 1917-1918; Coal supply****Coal slush. See Culm****Coal storage**

- Anthracite and bituminous coal storage. H. Goldstein. *il diags Coal Age* 13:4-9 Ja 5 '18
- Checking stored-coal temperatures electrically. T. W. Poppe. *diag plan Elec W* 72:740 O 19 '18; *Same. Power* 48:674 N 5 '18
- Coal pile causes corrosion and cable failures. *Elec R* 72:162-3 Ja 26 '18
- Coal problem under war conditions. H. H. Stoek. *Coal Age* 14:895-6 Ag 29 '18
- Coal storage in gas works in France. *Gas Age* 41:570-1 Je 15 '18
- Coal storage in large quantities. H. J. Edsall. *il diags Ind Management* 56:193-200 S '18
- Deterioration in heating value of coal during storage. *Power* 47:101-2 Ja 15 '18
- Diffusion of oxygen through stored coal. S. H. Katz. *il diags U S Bur Mines Tech Pa* 170:1-44 '17; *Excerpt. Gas Age* 42:200 S 2 '18
- Effects of moisture on the spontaneous heating of stored coal. S. H. Katz and H. C. Porter. *il diags plan U S Bur Mines Tech Pa* 172:1-23 '17
- Essential considerations in the coal industry. J. F. Springer. *Am Ind* 18:11-12 Mr '18
- Experiences with the storage of coal; symposium. *Am Soc M E J* 40:pt 2, 651-4 JI 18; *Excerpts. Power* 48:248-9 Ag 13 '18
- Facts and figures on storing coal. *Elec R* 72:687 Ap 20 '18
- Fires in coal storage piles. *Sci Am S* 84:384 D 15 '17
- Handling fires in stored coal. H. A. Ward. *il diag Power* 50:563-4 O 7 '19
- Heating of coal in piles. C. M. Young. *Am Inst Min E Bul* 134:211-12 F '18; *Same. Coal Age* 13:453 Mr 9 '18; *Abstract. Iron Age* 101:379 F 7 '18
- Hints on the storage of coal from the Bureau of mines. *Coal Age* 13:585-6 Mr 30 '18; *Same. Ry R* 62:507 Ap 6 '18; *Same. Power* 47:530 Ap 9 '18; *Same. Gas Age* 41:482 My 15 '18; *Same. Textile World* 53:589+ Je 1 '18; *Same. Am Soc Heat & V E* 24:420-2; *Discussion. 423-4 '18*
- How to store your coals. *Iron Tr R* 63:21 JI 4 '18
- Increased storage authorized. *Power* 48:652 O 29 '18
- Insuring adequate coal supply with the least expenditure. G. E. Wood. *il diags plans Elec Ry J* 54:312-15 Ag 16 '19
- Keeping the coal pile cool. *diag Elec R* 74:642 Ap 19 '19
- Limitations upon coal storage by utilities and industrial plants. *Elec R* 73:330 Ag 31 '18; *Same. Dom Eng* 84:328 Ag 31 '18; *Same. Ry R* 63:393 S 14 '18; *Abstract. Iron Tr R* 63:511 Ag 29 '18
- Loss in storage of anthracite. *Coal Age* 14:330 Ag 15 '18
- Mixing coal in storage. G. F. Zimmer. *diags Power* 47:344 Mr 5 '18
- Notes on spontaneous combustion of coal. *Heat & Ven* 15:39-40 JI '18
- Physical and chemical changes in stored coal; European results of tests. *il Gas Age* 42:245-7 S 16 '18
- Result of experience with submerged coal storage. T. N. Wynne. *Elec W* 73:83-4 Ja 11 '19
- Revision of storage regulations. *Power* 48:508-9 O 1 '18
- Safe storage for bituminous coal. J. F. Springer. *il Iron Tr R* 62:1182-7 My 9 '18
- Safeguarding coal storage. *Factory* 21:1142+ D '18
- Smother the fire before it appears. G. J. Young. *diag Coal Age* 13:782-3 Ap 27 '18
- Spontaneous heating of coal. J. Morrison. *Gas Age* 41:347 Ap 15 '18
- Spontaneous ignition of bituminous coal. J. F. Springer. *il diag Power* 47:536-9 Ap 15 '18
- Spontaneous stockpile fires. *Coal Age* 12:771 N 3 '17; *Same. Eng & Min J* 105:156 Ja 19 '18
- Storage and weathering of coal. W. D. Stuckenberg and J. F. Kohout. *Power* 47:234-5 F 12 '18
- Storage of bituminous coal. J. H. Anderson. *Power* 48:321-2 Ag 27 '18
- Storage of bituminous coal. H. H. Stoek. *diags plans ill U Eng Exp Sta Circ* 6:1-187 '18; *Excerpts. Gas Age* 42:145-9, 193-6, 207-10,



**Coal storage—Continued**

- 255-8 Ag 15-8 '18; Excerpt. Eng & Contr 50:54-5 J1 17 '18; Excerpts, with discussion. W Soc E J 23:270-305 Ap '18; Abstract. Power 47:814-16 Je 4 '18; Conclusions. Ry R 62:638-41 My 4 '18
- Storage of coal. Ry R 64:712-14 My 17 '19
- Storage of coal by railroads during 1918. H. H. Stoeck. Ry Age 66:1811-12 My 30 '19; Same. Ry Mech Eng 93:435-7 J1 '19; Excerpt. Ry R 64:793 My 31 '19
- Storage of coal in bulk; abstract. Elec W 70:1204 D 22 '17
- Storage of coal under water. Sci Am 120:359 Ap 5 '19
- Storage of coal under water. R. d'Estappe. Gas Age 41:324-5 Ap 1 '18
- Storage of coal; use of CO<sub>2</sub> to exclude air. diag Eng & Min J 105:601-2 Mr 30 '18
- Storage of soft coal. Elec R 73:628 O 19 '18
- Storage of soft coal. W. L. Abbott. Power 48:176-7 J1 30 '18
- Storage policy of Fuel administration. Coal Age 14:405 Ag 29 '18
- Store coal now against winter shortage. W. H. Lloyd. Il Iron Tr R 62:1481-4 Je 13 '18
- Storing coal. W. F. Schaphorst. Am Gas Eng J 109:295 S 28 '18
- Storing coal against a crisis. J. F. Springer. Il Am Ind 18:19-21 Ap '18
- Storing coal at Mooseheart, Illinois. Il Power 48:76-8 J1 16 '18
- Storing coal in a small plant. Il Elec W 72:148-9 J1 27 '18
- Storing of coal is shown feasible by University of Illinois tests. Iron Tr R 61:1373-5 D 27 '17
- Storing small coal. M. Meredith. Coal Age 14:255 Ag 8 '18
- Submerged coal storage pit for interurban railway. Elec Ry J 52:829 N 9 '18
- Thrifty in using power. Factory 21:740-1 O '18
- What constitutes storage of coal? A. L. H. Street. Coal Age 13:9 Ja 5 '18
- See also Coal bins; Coal hoppers
- Coal strike, 1919.** See Coal miners' strike, 1919
- Coal stripping.** See Coal mines and mining—Stripping operations
- Coal supply**
- Alarming shortage of coal in Europe. Coal Age 16:166-7 J1 24 '19; Excerpts. Power 50:160 J1 22 '19; Excerpts. Ry R 65:156-7 Ag 2 '19
- Another fuel famine impending. Ind Management 58:250 S '19
- Basis for limitation of coal for domestic purposes. Am Soc Heat & V E 24:273-5; Discussion. 276-84 '18
- Bituminous coal situation. Ry Age 67:494-6 S 12 '19
- Buy coal now—Garfield fears higher prices. Gas Age 43:376-7 Ap 1 '19
- Can output be increased scientifically? W. E. Joyce. Coal Age 14:356-7 Ag 22 '18
- Canada's coal supply a matter of international moment. A. V. White. Am Gas Eng J 111:186-6 Ag 30 '19
- Canadian fuel situation in war time. T. Britt. Ry R 62:114-15 Ja 26 '18
- Causes of German coal shortage; abstract. Elec W 70:1204 D 22 '17
- Characteristics of American coals in by-product coking practice. F. W. Sperr, jr. Il J Fr Inst 186:133-63 Ag '18; Same. Coal Age 14:1068-71, 1114-17, 1156-8 D 12-26 '18
- Coal and coke report as issued by Geological survey. Am Gas Eng J 108:68 Ja 19 '18
- Coal and gas situation in England. Gas Age 41:100-1 F 1 '18
- Coal deficit threatens to cause famine in fuel. Elec W 71:1282-3 Je 15 '18
- Coal, explosives, war. H. J. Broughton. Coal Age 14:158-61, 214-16, 258-61 J1 25-Ag 8 '18
- Coal fields of the United States. M. R. Campbell. diag map Gen Elec R 21:602-19 S '18
- Coal in Germany and France. S. Paige. Am Inst Min E Bul 141:1492-5 S '18
- Coal is money. W. F. Schaphorst. Gas Age 42:157 Ag 15 '18
- Coal preference again in force. Iron Tr R 65:1263-4 N 6 '19
- Coal problem; statement before the Senate committee investigating prices and car shortage. W. D. Hines. Ry R 65:380-1, 395-8 S 13 '19; Same. Ry Age 67:501-5 S 12 '19
- Coal problem under war conditions. H. H. Stoeck. Coal Age 14:393-6 Ag 29 '18
- Coal production far short of requirements. Elec R 73:296 Ag 24 '18
- Coal shortage. P. B. Noyes. Elec W 71:1256-7 Je 15 '18
- Coal situation. Am Mach 49:61 J1 11 '18
- Coal situation. Ry R 63:428 S 21 '18
- Coal situation from the operators' point of view. J. D. A. Morrow. Heat & Ven 16:25-30 N '19
- Coal supply. R. J. McClelland. Sci Am 120:369 Ap 12 '19
- Coal supply made sure by buying mines; forehanded policy of Commonwealth Edison company of Chicago. Elec W 71:500-1 Mr 9 '18
- Coal—the measure of a nation's power. Iron Tr R 62:319 Ja 31 '18
- Country's coal requirements. Heat & Ven 15:49 S '18
- Denmark's coal supply. E. W. Thompson. Coal Age 15:271 F 6 '19
- Director general in charge of coal distribution. Ry Age 67:703-6 O 3 '19
- Director general of railroads indorses coal-zoning plan. Coal Age 15:150-1 Ja 16 '19
- Doings of the United States Railroad administration. Ry Age 67:368-70 Ag 22 '19
- Effect of poor coal on plant efficiency. W. C. Slade. Power 47:420-1 Mr 19 '18; Same cond. Elec W 71:672-3 Mr 30 '18
- Energy resources of the United States: a field for reconstruction. C. G. Gilbert and J. E. Pogue. Il diag map U S National Museum Bul 102, v 1:7-28 '19; Excerpts. Ry R 62:517-21 Ap 6 '18; Excerpts. Gen Elec R 22:72-81, 149-51 Ja-F '19
- Facts about the coal shortage. R. D. Hall. Coal Age 16:177 J1 31 '19
- France still in need of 30,000,000 tons of German coal. F. Miltoun. Iron Tr R 65:247 J1 24 '19
- Fuel outlook. Il map Heat & Ven 16:21-6 S '19
- Fuel problem of Canada—some national and international aspects. A. V. White. Gen Elec R 22:465-74 Je '19
- Fuel situation in New England. C. T. Main. Power 48:508 O 1 '18
- Gas coal situation. F. A. Bourget. Gas Age 44:275-8 O 1 '19
- General need of fuel conservation in the boiler rooms. V. H. Manning. Am Gas Eng J 107:558-4 D 15 '17; Same. Coal Age 12:1086 D 29 '17; Same. Elec R 71:1068 D 22 '17; Same. Elec W 70:1161 D 15 '17; Same. Iron Age 100:1480 D 20 '17; Same. Ry Age 63:1129-30 D 21 '17; Same. Ry R 61:727 D 15 '17; Same. Int Marine Eng 23:3 Ja '18
- High coal prices and alleged car shortage. Ry R 65:269-73 Ag 23 '19
- Industrial coal for next winter; program of the United States Fuel administration. Ind Management 56:101-3 Ag '18
- Is our fuel supply nearing exhaustion? R. H. Fernald. Il Gen Elec R 21:542-55 Ag '18; Same. Ry R 63:271-5, 303-5 Ag 24-31 '18; Same cond. Iron Tr R 63:323-7 Ag 8 '18
- Latest advices on next winter's coal situation. Heat & Ven 15:45-6 S '18
- Need for fuel conservation. P. B. Noyes. Ry Mech Eng 92:354-5 Je '18
- Our national coal supply and its utilization. C. G. Gilbert and J. E. Pogue. map Gas Age 42:97-100, 154-6 Ag 1-15 '18
- Plea for more anthracite. H. A. Garfield. Coal Age 14:367 Ag 22 '18
- Possible government fuel ration. diag Am Arch 114:303-4 S 4 '18
- Present fuel situation. F. F. Uehling. Ind Management 56:140-3 Ag '18
- Problem of coal supply. E. W. Parker. Il J Fr Inst 185:445-60 Ap '18
- Proposed coal-rationing rules for the United States; allowances designed for heating, cooking and hot-water service in residences, flats and apartment houses. Heat & Ven 15:21-3 N '18

**Coal supply—Continued**

- Publications of the United States Fuel administration. Heat & Ven 15:47 S '18  
 Report of coal conservation committee of Great Britain. maps Engineer 126:153 Ag 23 '18  
 Review of the coal situation of the world. G. S. Rice. Am Inst Min E Bul 133:131-41 Ja '18; Discussion. 136:808-10; 137:1009-13 Ap-My '18; Discussion. E. Ludlow. Iron Tr R 62:1549 Je 20 '18  
 Some truths about anthracite. Coal Age 16: 271-2 Ag 14 '19  
 Statistical sidelights on our national fuel problem. charts Coal Age 16:440-2 S 11 '19  
 Substitutes for coal. F. Hall. Coal Age 13: 969-70 My 25 '18  
 Trade conditions in New England in 1918. G. G. Wolkins. II Coal Age 15:115-20 Ja 16 '19  
 War as a test of efficiency. E. N. Hurley. Am Mach 49:11-12 Jl 4 '18  
 Winning the war with coal. V. Fisher. Coal Age 14:986-7 N 28 '18  
 World's coal supply. II Sci Am 120:170-1 F 22 '19  
*See also* Coal famine, 1917-1918; Coal trade; United States—Fuel administration

**Clean coal**

- Clean coal; United States Fuel administration inspection system. Ry R 62:397-8 Mr 16 '18; Same. Power 47:419 Mr 19 '18; Same. Coal Age 13:510-11 Mr 16 '18  
 Emergency and clean coal. G. H. Elmore. diags plan Coal Age 14:122-6 Jl 20 '18  
 Guarding the quality of coal. E. L. Cole. II Power 48:18 Jl 2 '18  
 How use of fuel will be economized; coal budget plan of Fuel administration. Elec Ry J 51:87 Ja 12 '18  
 Loading and shipping clean coal. Coal Age 13: 599, 754, 802-3, 892-3, 1026-8, 1075, 1169-70 Mr 30, Ap 20-27, My 11, Je 1-8, 22 '18  
 Regulations concerning clean coal in effect June 1. Power 48:142 Jl 23 '18  
 Ship clean coal. E. G. Bailey. Am Gas Eng J 108:272-3 Mr 23 '18  
 Struggling with poor coal. G. E. Wood. Elec Ry J 51:573-4 Mr 23 '18; Same cond. Power 47:491 Ap 2 '18  
 Union attitude on clean coal. Coal Age 13:465 Mr 9 '18  
 What are the economic effects of impurities in coal; symposium. diag Am Soc M E J 40:pt 2, 607-13 Jl '18; Excerpts. Power 48: 102-4 Jl 16 '18; Excerpts. Metal Work 90: 243 Ag 30 '18; Excerpt. Iron Tr R 63:501 Ag 29 '18

*See also* Coal washing**War measures**

- America's coal problem in 1918. H. A. Garfield. Heat & Ven 15:44-6 My '18  
 Anthracite distribution program for current coal year. Coal Age 13:1061-2 Je 8 '18  
 Changes in coal-zoning plan. Power 47:748 My 21 '18  
 Clean coal; United States Fuel administration inspection system. Ry R 62:397-8 Mr 16 '18; Same. Power 47:419 Mr 19 '18; Same. Coal Age 13:510-11 Mr 16 '18  
 Coal drive started by Fuel administration. Eng N 81:649 O 3 '18  
 Coal industry's part in the war. J. J. Cornwall. Coal Age 14:695-7 O 10 '18  
 Coal situation. Elec R 73:799 My 11 '18  
 Coal storage imperative. J. D. A. Morrow. Iron Age 101:1001 Ap 18 '18  
 Conference on railroad fuel supply. Coal Age 13:461 Mr 9 '18  
 Contracts to be regulated. Coal Age 13:23 Ja 5 '18  
 Co-operation of coal operators asked. E. N. Hurley. Elec R 72:949 Je 8 '18  
 Distribution of anthracite. A. S. Learoyd. Am Inst Min Bul 152:1301-8 Ag '19  
 Early coal-buying campaign in New Jersey; action taken by Richard C. Jenkinson, Federal fuel administrator. Heat & Ven 15:56-7 Je '18

- England's fuel-rationing order. Heat & Ven 15:17-21 N '18  
 Fuel administration—its task; address and discussion before Editorial conference. H. A. Garfield. Coal Age 12:1089-92 D 29 '17; Same. Power 47:32-4 Ja 1 '18; Excerpt. Elec Ry J 50:1162 D 29 '17  
 Fuel administration makes clear its attitude regarding jobbers. Coal Age 13:460 Mr 9 '18  
 Fuel administration's regulations as to clean coal. Power 47:712 My 14 '18  
 Fuel problem in the United States. F. C. Honnold. Am Soc Heat & V E 23:577-81; Discussion. 582-4 '17  
 Fuel regulations. P. B. Noyes. Power 48:471-2 S 24 '18  
 Fuel session of the American society of mechanical engineers. Iron Age 101:1534-7 Je 13 '18  
 Government and the distribution of coal; the wisest kind of regulation, and what it would do to relieve the situation. II Sci Am 119:6-11 Jl 6 '18  
 Guarding the quality of coal. E. L. Cole. II Power 48:18 Jl 2 '18  
 Important zone modifications. Coal Age 13: 835-6 My 4 '18  
 Investigation of the fuel problem in the Middle West. A. A. Potter. Am Soc M E J 40:379-81 My '18; Discussion. 40:684-5 Ag '18  
 Licensing plan for jobbers. Coal Age 13:546-7 Mr 23 '18  
 Limiting coal impurities in Pennsylvania. E. L. Cole. Am Soc M E J 40:pt 2, 604-6 Jl '18; Same cond. Iron Age 101:1535-6 Je 13 '18; Excerpts. Power 48:30 Jl 2 '18  
 Maps of the bituminous coal zones. Ry Age 64:976-8 Ap 12 '18  
 Moral value of fuel administering. J. C. Taylor. Coal Age 14:13 Jl 6 '18  
 New England coal situation. Iron Age 101: 1373 My 23 '18  
 New zone system of coal distribution. Ry Age 64:723-6 Mr 22 '18; Excerpt. Ry R 62:431-3 Mr 23 '18; Excerpts. Elec Ry J 51:623-4 Mr 30 '18  
 Philadelphia plan of coal allotment. J. S. Carson. II Heat & Ven 15:17-30 O '18  
 Plans completed for zone system of coal distribution. Eng & Min J 105:605-6 Mr 30 '18  
 Regulations concerning clean coal in effect June 1. Power 48:142 Jl 23 '18  
 Regulations governing retail distribution. Coal Age 13:510 Mr 16 '18  
 Status of the coal jobber. Coal Age 13:75 Ja 12 '18  
 Testimony before Senate investigating committee. F. S. Peabody. Coal Age 13:146-7, 201 Ja 19-26 '18  
 U. S. Fuel administration limits coal storage by industrial plants. Elec W 72:414 Ag 81 '18  
 U. S. Fuel administration to increase coal production. Coal Age 13:1116 Je 15 '18  
 Visualizing the coal needs of the nation. II Ind Management 57:349-52 My '19  
 War and British coal supplies. M. Meredith. Coal Age 14:308-7 Ag 15 '18  
 War's influence on the coal situation. C. H. Bromley. Power 46:329-32 D 18 '17  
 What the coal operator can do to help win the war. H. N. Taylor. Ry R 62:757-8 My 25 '18; Same. Ry Age 64:1342-3 My 31 '18; Same. Coal Age 13:1011-12 Je 1 '18  
 Zone system for coal distribution. Elec R 72: 679 Ap 20 '18  
 Zone system for the distribution of bituminous coal map (supp) Am Mach 48:842-5 My 16 '18; Same. Coal Age 13:878-81 My 11 '18; Same. Elec Ry J 51:968-9 My 18 '18; Same. Power 47:688-91 My 14 '18; Abstract. Elec W 71:1026-7 My 18 '18
- Coal tar**  
 Carbonization of coal. W. Savage. II chart Chem & Met Eng 19:579-82 O 1 '18; Excerpt. Gas Age 42:375-7 N 1 '18  
 Continuous process for distilling coal tar. II diags plans Gas Age 44:149-52 Ag 15 '19  
 European practice in fuel conservation. E. Piernet. diags Gas Age 42:101-3 Ag 1 '18

**Coal tar—Continued**

Notes on free carbon of tar. J. M. Weiss and C. R. Downs. *J Ind & Eng Chem* 10:400-1 My '18

Oil for creosoting wood paving blocks; the Chicago specifications and the injunction suit to prevent their use. *Munic J* 44:260-1 Mr 30 '18

Recovery of byproducts in coke manufacture. M. Meredith. *Coal Age* 14:60-2 JI 13 '18

Research and progress in byproduct coking in Great Britain. J. B. C. Kershaw. *Il Coal Age* 14:898-900 N 14 '18; Same. *Gas Age* 43:77-9 Ja 15 '19

Tar disposal in Ford producer-gas plants. *diag Power* 50:66-7 JI 8 '19

Tars distilled from bituminous coal in hand-fired furnaces. S. H. Katz. *Il diag U S Bur Mines Tech Pa* 195:1-17 '18; Excerpt. *Gas Age* 42:380 N 1 '18

Tests of the absorption and penetration of coal tar and creosote in longleaf pine. C. H. Teesdale and J. D. MacLean. *Il U S Agric Bul* 607:1-42 '18

Use of tar oil in internal combustion engines. A. W. H. Grieppe. *Il diag Gas Age* 41:548-50 Ap 15 '18

Washing and distillation of liquids, *diag Gas Age* 40:573-5 D 15 '17

See also Tar

**Analysis**

Methods of analysis used in the coal-tar industry. J. M. Weiss. *diag plan J Ind & Eng Chem* 10:732-8, 817-23, 911-16, 1006-12 S-D '18

**Coal-tar products**

Applications of physical chemistry in the coal-tar industry. W. J. Huff. *J Ind & Eng Chem* 10:1016-19 D '18

Barrett company, Frankford, Philadelphia. *Il Chem & Met Eng* 21:493-6 O 15 '19

Carbocool; smokeless fuel from high-volatile coals. C. T. Malcolmson. *Am Inst Min E Bul* 137:971-7 My '18; Same abr. *Coal Age* 13:912-15 My 18 '18; Same cond. *Iron Tr R* 63:496-7 Ag 29 '18; Discussion. *Am Inst Min E Bul* 142:1533-42; 143:1686-92 O-N '18

Census of dyes and coal-tar chemicals, 1918. (Tariff information ser. 11) 103p '19 U.S. Tariff commission, Washington, D.C.

Chart showing products derived from coal. *Coal Age* 15:1153 Je 26 '19

Coal by-product output; U.S. tariff commission report. *Iron Tr R* 63:741 S 26 '18

Coal-tar dye census for 1917. *Textile World* 54:1319 S 21 '18

Coal tar products graphically represented; chart. *Gas Age* 42:392 N 1 '18

Coal-tar products in the United States in 1917. *J Ind & Eng Chem* 10:582 JI '18

Compounds of phenol and the cresols with pyridine. F. W. Skirrow and T. V. Binmore. *Am Chem Soc J* 40:1431-42 S '18

Dyes and other coal-tar chemicals. U S Tariff Comm 83p '18; Excerpt. *Chem & Met Eng* 20:70-2 Ja 15 '19

Nitro compounds from tar oils; patent. *Met & Chem Eng* 18:484-5 My 1 '18

Price of coal-tar crudes, intermediates and dyes. charts *Color Tr J* 5:138-40 N '19

Production of American dyes and coal tar chemicals during 1917. G. Jones. *Chem & Met Eng* 19:546 O 1 '18

Recovering ammonia at tar-distilling plants. C. R. Woodward. *Met & Chem Eng* 18:299-301 Mr 15 '18

Synthetic phenol. A. G. Peterkin. flow sheet *Il chart Chem & Met Eng* 19:255-60 S 1 '18; Same. *J Ind & Eng Chem* 10:738-44 S '18; Discussion. E. E. Hotson. *Chem & Met Eng* 19:540-1 O 1 '18

See also Benzene; Benzol; Coal distillation; Gas; Oils and fats; Toluene

**Coal testing**

Carbonization of Illinois coals in inclined gas retorts. F. K. Ovitiz. *Coal Age* 15:803 My 1 '19

Comparative tests of six sizes of Illinois coal on a Mikado locomotive. E. C. Schmidt, J. M. Snodgrass and O. S. Beyer, Jr. *Il diag Ill U Eng Exp Sta Bul* 101:1-97 '17; Same

cond. *Ry Age* 63:51-6 JI 13 '17; Same cond. *Ry Mech Eng* 92:80-2 F '18

Experimental-retort tests of Orient coal; description of experimental work for coking Illinois coal. R. S. McBride and I. V. Brumbaugh. *diag Chem & Met Eng* 21:171-4 Ag 15 '19; Same. *Coal Age* 16:567-9 O 2 '19

Firing bituminous coals in large house-heating boilers. S. B. Flagg. *Il diag U S Bur Mines Tech Pa* 180:1-19 '17; Excerpt. *Power* 47:244 F 12 '18

Fusibility of ash from Pennsylvania coals. W. A. Selvig and A. C. Fieldner. *Coal Age* 15:1086-9 Je 12 '19; Same cond. *Chem & Met Eng* 20:629 Je 15 '19; Same cond. *Power* 49:897 Je 10 '19; Discussions. A. G. Blakeley. *Chem & Met Eng* 21:60 Je 15 '19; *Coal Age* 16:244 Ag 7 '19

Fusibility of coal ash. W. A. Selvig, W. C. Ratliff and A. C. Fieldner. *Chem & Met Eng* 20:274-6 Mr 15 '19; Same cond., with tables. *Coal Age* 15:698-703 Ap 17 '19; Excerpts. *Power* 49:479-80 Ap 1 '19; Abstract. *Elec W* 73:640-1 Mr 29 '19

Fusibility of West Virginia coal ash. W. A. Selvig. *Il Coal Age* 15:12-16 Ja 2 '19; Same cond. *Power* 48:566-7 O 15 '18; Same cond. *Chem & Met Eng* 19:826-8 D 15 '18

Low-rate combustion in fuel beds of hand-fired furnaces. H. Kreislinger, C. E. Augustine and S. H. Katz. *diag U S Bur Mines Tech Pa* 139:1-54 '18; Excerpts. *Power* 48:576-7 O 15 '18

Research laboratories for coal and by-products. F. W. Sperr, Jr. *Il Gas Age* 44:281-8 O 1 '19

Right coal test is dollar economy. E. P. Later. *Iron Tr R* 61:1270-2 D 13 '17

Test data taken on 6000 samples of Indiana coal. *Elec W* 73:35 Ja 4 '19

Testing of coals for byproduct coking and gas manufacture. H. C. Porter. *diag Am Inst Min Bul* 153:1587-95 S '19

Tests on bituminous and mixed coals. charts *Textile World* 55:2715+ My 3 '19

Weights of various coals. S. B. Flagg. *U S Bur Mines Tech Pa* 184:1-11 '18; Excerpt. *Elec R* 73:133 JI 27 '18

See also Coal—Analysis

Coal tipples. See Mine tipples

**Coal trade**

Coal and coke in 1917. *Iron Age* 102:849 O 3 '18

Coal production of the world. *Eng & Min J* 105:71 Ja 12 '18

Convention of National retail coal merchants' association, Buffalo. *Coal Age* 15:951-2 My 22 '19

Credit of the coal man. J. C. Taylor. *Coal Age* 14:267-8 Ag 8 '18

Experts testify in investigation of coal industry. P. Wooton. *Coal Age* 16:450-1 S 11 '19

Extending the coal operator's field for profits. G. H. Cushing. *Coal Age* 15:534-6 Mr 20 '19

Investigation of coal industry now under way. *Coal Age* 16:408-9 S 4 '19

Large refund will be made to exporters of American coal. P. Wooton. *Coal Age* 16:154-5 JI 24 '19

Part of coal in helping to win the war. J. H. Wheelwright. *Ry Age* 65:111-12 sec 2 JI 13 '18; Excerpts. *Coal Age* 13:786-7 Ap 27 '18

Pooling report of the Wholesale coal trade association. *Coal Age* 15:186-7 Ja 23 '19

Pricing f.o.b. mine with freight allowed. J. C. Taylor. *Coal Age* 13:502 Mr 16 '18

Problems in the merchandising of coal. G. H. Cushing. *Coal Age* 15:452-3 Mr 6 '19

Regulations for handling of bituminous coal. *Ry R* 64:392 F 22 '19

Review of the coal situation of the world. G. S. Rice. *Am Inst Min E Bul* 133:131-41 Ja '18; Discussion. 136:808-10; 137:1009-13 Ap-May '18; Discussion. E. Ludlow. *Iron Tr R* 62:1549 Je 20 '18

Senate committee obtains data on export coal situation. P. Wooton. *Coal Age* 16:492-3 S 18 '19

World's coal production. *Coal Age* 13:113 Ja 19 '18

See also Coal—Prices; Coal supply

## Coal trade—Continued

## British Columbia

Record tonnage in 1918. R. Dunn. Coal Age 13:962 My 25 '18

## Canada

Coal and coke production in Canada during 1917. Coal Age 13:539 Mr 23 '18  
Toronto coal trade in 1918. P. Thompson. Coal Age 15:136-7 Ja 16 '19

## France

Coal situation in France. Power 47:564 Ap 16 '18

## Germany

Germany wants to keep Briey mines. Iron Tr R 62:1043-4 Ap 25 '18

## Great Britain

Coal output of United Kingdom in 1918. Coal Age 15:901 My 15 '19  
England's coal trade in 1918. Coal Age 15:380 F 20 '19  
Output and price of coal. Engineer 128:66-7 Jl 18 '19  
What British labor wants; nationalization of coal mines. Coal Age 13:466-7 Mr 9 '18

## United States

Activities in different coal-producing states in 1917. Coal Age 13:88-107 Ja 19 '18; Correction for West Virginia statistics. Coal Age 13:253 F 2 '18  
Activities of the Wholesale coal trade association of New York. C: S. Allen. Coal Age 15:104 Ja 16 '19  
Algerian market for American coal. A. C. Frost. Coal Age 15:309 F 13 '19  
American coal output and some problems of the industry. Coal Age 16:239 Ag 7 '19  
American opportunities in the foreign coal trade. Coal Age 15:486-8 Mr 13 '19  
Anthracite in New England in 1917. G. G. Wolkins. Coal Age 13:121-2 Ja 19 '18  
Anthracite in New England in 1918. G. G. Wolkins. Coal Age 15:130-2 Ja 16 '19  
Anthracite industry in 1917. E: W. Parker. Coal Age 13:108-10 Ja 19 '18  
Anthracite industry in 1918. E: W. Parker. Coal Age 15:108-10 Ja 16 '19  
Baltimore coal trade in 1918. Coal Age 15:270-1 F 6 '19  
Baltimore trade in 1917. Coal Age 13:129-30 Ja 19 '18  
Birmingham (Ala.) coal trade in 1917. H. B. McLaurine. Coal Age 13:130-1 Ja 19 '18  
Bituminous coal and coke production in 1918. Eng & Min J 107:329 F 15 '19  
Bituminous coal in 1917. C. E. Leshner. Coal Age 13:112-13 Ja 19 '18  
Buffalo coal market in 1918. J: W. Chamberlain. Coal Age 15:137-8 Ja 16 '19  
Buffalo (N.Y.) coal trade in 1917. J. W. Chamberlain. Coal Age 13:131-2 Ja 19 '18  
Cincinnati coal trade in 1917. K. C. Crain. Coal Age 13:127-9 Ja 19 '18  
Cincinnati market conditions in 1918. K. C. Crain. Coal Age 15:138-9 Ja 23 '19  
Cleveland coal situation in 1918. E. C. Boehringer. Coal Age 15:179-80 Ja 23 '19  
Coal dumpings at Hampton Roads piers in 1918. Coal Age 15:226 Ja 30 '19  
Coal mining results in 1917. Coal Age 13:87 Ja 19 '18  
Coal problem. E. G. Bailey. Power 47:378-81 Mr 12 '18; Abstract. Ry Age 64:796 Mr 29 '18  
Coal production in the United States in 1917, arranged by states. Coal Age 13:117 Ja 19 '18  
Coal production of United States in 1917. Eng & Min J 105:86 Ja 12 '18  
Colorado's forecast for 1918. F. W. Whiteside. Coal Age 13:144-5 Ja 19 '18  
Comparative coal production and shipments. Power 50:240 Ag 5 '19  
Comparison of bituminous and anthracite statistics for Pennsylvania—1918. R. D. Hall. Coal Age 15:757 Ap 24 '19  
Continued governmental co-operation with coal industry urged. Coal Age 15:580 Mr 27 '19

Detroit coal market in 1918. E. E. Dunbar. Coal Age 15:134-6 Ja 16 '19

Exports of anthracite and bituminous coal and coke from the United States during the fiscal year ended June 30, 1918; tabulation. Coal Age 15:379-80 F 20 '19

Governor Sproul withdraws his criticisms of the anthracite industry. Coal Age 15:712-13 Ap 17 '19

High lights in the coal trade during the war period. A. Moss. Coal Age 15:227-32 Ja 30 '19

Interpretation asked on contract clause for railroad coal. Coal Age 15:625-6 Ap 3 '19

Louisville coal trade in 1918. A. W. Williams. Coal Age 15:182-3 Ja 23 '19

Market conditions in Middle West in 1917. O. M. Burnett. Coal Age 13:141-4 Ja 19 '18

Market conditions in New England in 1917. G. G. Wolkins. Coal Age 13:185-90 Ja 26 '18

Middle West coal trade in 1918. H. A. Requa. Coal Age 15:147-8 Ja 16 '19

Milwaukee coal trade in 1918. H. Bleyer. Coal Age 15:138-9 Ja 16 '19

Missouri coal trade conditions in 1918. E. J. Wallace. Coal Age 15:310-13 F 13 '19

New York coal trade in 1917. W. W. Morris. Coal Age 13:132-5 Ja 19 '18

New York coal trade in 1918. R. W. Morris. Coal Age 15:124-7 Ja 16 '19

1917 coal trade of the Northwest. W. L. Kidston. Coal Age 13:118-21 Ja 19 '18

Northwest coal trade in 1918. W. L. Kidston. Coal Age 15:145-7 Ja 16 '19

Ohio coal trade in 1918. J. W. Lehman. Coal Age 15:139-40 Ja 16 '19

Ohio trade in 1917. J. W. Lehman. Coal Age 13:140-1 Ja 19 '18

Our coal exports to Canada during 1916 and 1917. Coal Age 13:376 F 23 '18

Philadelphia coal trade in 1917. W. D. Hammer. Coal Age 13:136-40 Ja 19 '18

Philadelphia coal trade in 1918. Coal Age 15:128-30 Ja 16 '19

Pittsburgh district in 1917. B. E. V. Luty. Coal Age 13:122-3 Ja 19 '18

Production and uses of coal in the United States; tabulation. L. P. Breckenridge. Power 47:241 F 12 '18

Production in Colorado in 1918 and the outlook for the coming year. F. W. Whiteside. Coal Age 15:141-2 Ja 16 '19

Prosperity of the employee essentially involved in the prosperity of the employer. J: St John. Am Gas Eng J 110:293-4 Ap 5 '19

Résumé of the anthracite industry in 1917. H. M. Crankshaw. Coal Age 13:191-3 Ja 26 '18

Résumé of the anthracite situation. Coal Age 16:279-80 Ag 14 '19

St. Louis coal trade in 1917. E. J. Wallace. Coal Age 13:183-5 Ja 26 '18

Soft coal loadings at Lake Erie docks. Coal Age 14:814 O 31 '18

Southern Illinois in 1917. E. J. Wallace. Coal Age 13:124-6 Ja 19 '18

What well known New York coal men think of the future—with some remarks on coal exports. Coal Age 15:121-3 Ja 16 '19

## Coal washing

Coal tippie and washery at Lehigh, Mont. E. P. Stewart. flow sheet Coal Age 15:9-11 Ja 2 '19

Coal washing on concentrating tables. J. B. Morrow. Coal Age 16:532 S 25 '19

Dewatering pits for washed coal. Coal Age 14:1072-5 D 12 '18

Draper coal washing machine. diagrs Engineer 127:180-1 F 21 '19

Emergency and clean coal. G. H. Elmore. diagrs plan Coal Age 14:122-6 Jl 20 '18

Hinckston run mine of Cambria steel co. W: E. Winn. Coal Age 14:647 O 3 '18

Mechanical separation of sulfur minerals from coal. J. R. Campbell. flow sheets Il Am Inst Min Bul 153:1779-89 S '19; Discussion. 156:3121-3 D '19

New apparatus for washing coal. Sci Am 119:283+ O 5 '18

New steel washery of the Locustdale coal company. W. L. Cross. flow sheet Il diagrs Coal Age 13:956-9 My 25 '18

- Coal washing—Continued**  
Preparation of bituminous coal. E. Prochaska. Coal Age 15:943-5, 986-9, 1030-3, 1080-5, 1118-22; 16:9-15, 96-103 My 22-Je 19, JI 3, 17 '19  
Recovery of pyrite from washery refuse. E. A. Holbrook. flow sheets Coal Age 15: 848-51 My 8 '19  
Some factors that affect the washability of a coal. T. Fraser and H. F. Yancey. II Am Inst Min Bul 153:1817-27 S '19; Same. Coal Age 16:702-6 O 30 '19; Discussion. Am Inst Min Bul 155:3034-5; 156:3131-2 N-D '19  
See also Coal supply—Clean coal
- Coal weathering**  
Weathering of coal. II Sci Am 119:316 O 19 '18
- Coal weighing**  
Illinois mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 169:385-93 '19  
Reliance automatic coal scale. II Power 49: 521 Ad 8 '19
- Coaling**  
Bunkering big ships. J. F. Springer. II Sci Am 121:34-5+ JI 12 '19  
Mechanical coaling apparatus used on large liners; manufactured by Michener storage co. II Int Marine Eng 24:425-6 Je '19; Eng N 82:1171 Je 12 '19
- Coaling stations**  
Coaling locomotives on the Norfolk & Western. II Coal Age 13:678-9 Ap 13 '18  
Coaling plants and fuel. W. T. Krausch. Ry Age 63:993-5 N 30 '17; Same abr. Ry R 62: 102-4 Ja 19 '18; Abstract. Eng N 80:162-3 Ja 24 '18  
Example of modern coaling station construction. II diag plan Ry Age 64:1273-5 My 24 '18  
Frisco railway tries cylindrical coaling stations. II diag plans Eng N 80:270-1 F 7 '13  
Locomotive coaling plant. II diags Engineer 126:414 N 15 '18  
New design for engine coaling facilities. diag plan Ry Age 65:615-16 O 4 '18  
New division terminals built to meet labor law; standardized layouts at ends of shortened runs. diag plan Eng N 81:439-41 S 5 '18  
New Philadelphia & Reading coaling station. II plans Ry R 64:174-6 F 1 '19  
Unique coaling plant at Nashville, Ga. II Ry Age 63:1139 D 21 '17  
U.S. bunker facilities expand. II maps (supp) Marine R 49:533-5 N '19
- Coaling vessels.** See Colliers
- Coast defense**  
Distant control of projectors for sea coast defense. J. L. Hall. diags Gen Elec R 22: 676-9 S '19
- Coastal motor boat.** See Torpedo boats
- Coasting.** See Electric railroads—Coasting
- Coating with metal.** See Metal coating
- Cob houses**  
Cob houses. T. C. Bridges. Am Inst Arch J 6:582 D '18
- Cobalt**  
Cobalt-crom high-speed steel for milling cutters, taps, and reamers. Mach 25:39 S '18  
Cobalt high speed steel not a German discovery. Iron Age 101:321 Ja 31 '18  
Favorable results from cobalt. N. B. Hoffman. Iron Age 104:21-2 JI 3 '19  
High cobalt content and high drawing temperatures; discussion. J. H. Farker. Iron Age 104:20-1 JI 3 '19
- Cobalt plating**  
Cobalt plating. C. O. Baltus. Metal Ind n s 15:20-1 Ja '17
- Cobaltcrom**  
Making cobaltcrom steel tools. II Mach 25: 1173-4 Ag '19
- Cochineal**  
Use of organic dyestuffs for lake manufacture. B. De Puyster. Color Tr J 4:39-43 F '19
- Cockle burr oil**  
New seed oil from cockle burr. L. B. Rhodes. J Fr Inst 187:744 Je '19
- Cocoa**  
Chocolate and cocoa. II Sci Am S 86:232 O 13 '18  
Effect of alkali treatment on cocoas. E. Bloomberg. U S Agric Bul 666:1-20 '18  
Examination of cocoa powders for the content of husks. Sci Am S 85:342 Je 1 '18
- Coconut**  
Coconut palm; its culture and uses, with special reference to the industry in the Philippine Islands. P. J. Wester. II Sci Am S 87:276-8 My 3 '19
- Coconut oil**  
Good milk with cows 10,000 miles away. Sci Am 119:295 O 12 '18  
Handling cocoanut oil in bulk. Sci Am 120: 205 Mr 1 '19  
Methods for the production of pure cocoanut oil. Sci Am S 86:203 S 28 '18
- Cod liver oil**  
Cod liver oil from Newfoundland. Sci Am 118: 527 Je 8 '18
- Coffee**  
Side lights on the coffee industry. H. M. Wright. II Sci Am S 86:168-9 S 14 '18  
Tendency of bakers to take on sidelines opens wide field for gas-fired coffee roasters. Am Gas Eng J 108:475-6 My 18 '18  
Use of gas in the coffee roasting industry. E. F. Davis. II Gas Age 42:60-5 JI 15 '18  
With the same equipment output is increased 30 per cent by using gas for coffee roasting. B. Rahn. II diag Am Gas Eng J 108:461-4 My 18 '18
- Cofferdams**  
Canvas covered cofferdams. E. B. Thomson. II diags plan Eng & Contr 49:296 Mr 20 '18  
Closure of concrete dam completed behind needle dam. diag plan map Eng N 82:129-30 Ja 16 '19  
Cofferdam experience at a bridge in Chicago river. H. E. Young and W. A. Mulcahy. II diags Eng N 83:268-9 Ag 7 '19  
Hoops made of old steel rails brace circular steel cofferdams. W. T. Penney. II Eng N 81:148 JI 18 '18  
New type of thin-wall cofferdam. II diags plan Eng N 83:817-18 O 30 '19  
Nomographic chart in cofferdam design. W. A. Lyon. charts Eng N 82:1029-30 My 22 '19  
Notes on the design of a single-wall cofferdam. F. R. Sweeny. diags plan Eng N 82: 708-11 Ap 10 '19  
Rapid building of timber cofferdam. II Eng & Contr 50:283 S 18 '18  
See also Bridges—Foundations and piers; Foundations; Piles and pile driving
- Coffers**  
Old-time iron treasure chest. A. E. Outerbridge, Jr. II Iron Age 101:309-13 Ja 31 '18; Same. Sci Am S 85:260-2 Ap 27 '18
- Coffin, Charles A.**  
Made Officer of the Legion of honor. Gen Elec R 21:411 Je '18
- Cohesion**  
Electromagnetic hypothesis of the kinetics of heterogeneous equilibrium, the structure of liquids, and cohesion. W. D. Harkins and H. H. King. diag Am Chem Soc J 41: 970-92 Je '19
- Cohune oil**  
New source of vegetable fat. II Sci Am 119: 357+ N 2 '18
- Colls**  
Blind employes tape colls. II Elec R 72:852 My 18 '18  
Checking motor field colls. E. C. Parham. diags Power 49:845 Je 3 '19  
Device for winding a coil of any shape. F. Huskinson. diags Elec W 72:162 JI 27 '18  
Double duty finger guld. M. Harris. II Am Mach 48:290-1 F 14 '18  
Instruction of blind workers in plant of Crocker-Wheeler company. II Elec W 71: 114 Ja 12 '18  
Leesona electric coll winding machines. II Engineer 126:167 Ag 23 '18  
Making colls for small windings. M. Clement. diag Power 48:130 JI 23 '18

**Coils—Continued**

- Methods of insulating A. C. generator coils. H. D. Stephens. *II* *diags* *Power* 48:333-5 S 3 '18  
Mica-insulated coil for high temperatures. *Elec* W 74:301 Ag 9 '19  
Rehabilitating the blind. S. S. Wheeler. *Elec* W 71:1255 Je 15 '18  
Winding and forming armature and stator coils. F. Huskinson. *II* *diags* *Coal* Age 13:1140-1 Je 23 '18

See also Armatures

**Coils, Induction.** See Induction coils

**Coils, Reactance.** See Reactors

**Coils, Resistance.** See Resistance coils

**Coins**

- Counterfelt gold coins worth more than their face value. *Sci Am* 118:403 My 4 '18  
War coins of the Central powers. *Sci Am* S 86:202 S 28 '18

**Coke**

- By-product coke. W: T. Harms. *Heat & Ven* 16:50-1 F '19  
By-product coke available as generator fuel. *Gas* Age 44:143-4 Ag 15 '19  
Coke firing. *diags* *Mech Eng* 41:696-8 Ag '19  
Coke for boiler furnaces. M. Meredith. *Coal* Age 13:925 My 18 '18  
Coke fuel steam motor. *II* *diags* *Engineer* 126:101-2+ Ag 2 '18  
Coke hardness tester. *diags* *Gas* Age 42:161-2 Ag 15 '18  
Coke, pig iron and transportation. *Chem & Met Eng* 19:603 O 15 '18  
Complete instructions for using coke sent to Indianapolis consumers. *Am Gas Eng J* 110:105-6 F 1 '19  
Determination of moisture in coke. A. C. Fieldner and W. A. Selvig. *U S Bur Mines Tech Pa* 148:1-12 '17; Excerpt (Determination by drying lump samples on hot plate). *Foundry* 46:4 Ja '18; Summary. *Gas* Age 42:200 S 2 '18  
Experiences in the combustion of coke under boilers. *diags* *Elec* R 75:495-6 S 20 '19  
Gas coke has been found not to be suitable fuel for domestic use. R. W. Cowie. *Am Gas Eng J* 108:440 My 11 '18  
Gas producer using gasworks coke. A. B. Roxburgh. *II* *diag* *Engineer* 125:369 Ap 26 '18  
How to save manganese and coke. *Iron Tr R* 63:1347-8 D 12 '18  
Importance of coke hardness; abstracts. G. D. Cochran. *Engineer* 125:401 My 10 '18; *Iron Tr R* 63:562 S 5 '18  
Making coke into a suitable household fuel. *Sci Am* 118:412 My 4 '18  
Manganese-alloy furnaces. P. H. Royster. *Iron Age* 102:1607 D 26 '18  
Mechanical condition of blast furnace coke. G. D. Cochran. *II* *Iron Age* 102:202-3 JI 25 '18; Bibliography. 102:358 Ag 8 '18  
Proportion of coke made in by-product ovens in the United States; symposium. *Am Soc M E J* 40:pt 2, 657 JI '18  
Semi-coke and fuel economy. *Ry R* 62:548-9 Ap 13 '18  
Using coke in power plants. *diag* *Elec* R 74:110 Ja 18 '19  
Utilization of coke in Europe. A. W. H. Griepke. *Gas* Age 44:61-2 JI 15 '19  
Weighing a 2,000-ton coke pile with postal scales. R. W. Bumstead. *II* *Factory* 23:1053-4 N '19  
Why and how coke should be used for domestic heating. H. Kreisinger and A. C. Fieldner. *diag* *U S Bur Mines Tech Pa* 242:1-17 '19

See also Coal; Coke-oven gas; Coke ovens

**Prices**

- Birmingham (Ala.) coke market, 1917. H. B. McLaurine. *Coal* Age 13:126-7 Ja 19 '18  
Chart of average monthly prices at ovens of Connellsville furnace coke 1900-1917. *Iron Tr R* 62:21 Ja 3 '18  
Coke is at a low price level and present is time to buy. H. G. Stillson. *Am Gas Eng J* 111:26-7 JI 12 '19

Connellsville coke prices for eighteen years.

*Iron Age* 103:20 Ja 2 '19

How coke prices are regulated. *Foundry* 46:

242-3 Je '18

New prices on coke and breeze. *Coal* Age 14:

68 JI 13 '18

**Coke breeze**

Coke breeze. *Gas* Age 42:214-15 S 2 '18

Coke breeze for steam raising. *Power* 47:419

Mr 19 '18

Home-made briquette plant converts waste

into a useful, salable product. H: M. Bal-

sam. *II* *diags* *plan* *Am Gas Eng J* 109:175-7

Ag 24 '18

New prices on coke and breeze. *Coal* Age 14:

68 JI 13 '18

**Coke dust**

Low-grade fuels; possible methods of disposal.

J. W. Cobb and W. Chaney. *Sci Am* S 86:

191-2 S 21 '18

**Coke handling**

Changes in beehive coke oven construction

due to mechanical operation. G: W. Harris.

*II* *diags* *plans* *Coal* Age 15:44-8 Ja 9 '19

Coal and coke handling and screening; Robins

conveying equipment. *II* *Gas* Age 42:237 S

2 '18

How one company sizes its by-product coke

for domestic consumers. A. H. Harris, Jr. *II*

*diags* *Am Gas Eng J* 108:292-5 Mr 30 '18

Manufacturing plant of the Providence gas

co. W. M. Russell. *II* *diags* *Chem & Met*

*Eng* 21:147-53 Ag 1 '19

Plant of the Seaboard by-product coke com-

pany. D. Mac Arthur. *II* *diags* *map* *Gas* Age

43:1-6 Ja 1 '19

**Coke industry**

American and British by-product coke. *Iron*

Age 103:1581-3 Ja 12 '19

American by-product coke oven industry

leads. R: Gunderson. *II* *Gas* Age 43:407-11

Ap 15 '19

Beehive oven supremacy passing—but not yet

passed. J: L. Gans. *Coal* Age 15:618-20 Ap

3 '19

Belgian coal and coke industry in the war.

*Coal* Age 12:713-15 O 27 '17; Same. *Eng &*

*Min J* 104:880-2 N 17 '17; Excerpt. *J Fr Inst*

185:278 F '18

Bituminous coal and coke production in 1918.

*Eng & Min J* 107:329 F 15 '19

By-product coke capacity. *Iron Tr R* 62:1261-2

My 16 '18

By-product coke outstrips beehive. chart *Iron*

*Tr R* 64:99-101 Ja 2 '19

Coal and coke in 1917. *Iron Age* 102:849 O 3 '18

Coal and coke production in Canada during

1917. *Coal* Age 13:539 Mr 23 '18

Coal by-product output; U. S. tariff commis-

sion report. *Iron Tr R* 63:741 S 26 '18

Coke industry in 1918. W. S. Blauvelt. *Coal*

Age 15:181 Ja 23 '19

Coke selling letters that interest dealers.

*Gas* Age 44:153-4 Ag 15 '19

Connellsville and byproduct coke industries

during 1918. B. E. V. Luty. *Coal* Age 15:

143-4 Ja 16 '19

Connellsville and byproduct coke industries

in 1917. B. E. V. Luty. *Coal* Age 13:115-17

Ja 19 '18

Development of the coke industry in Colorado,

Utah, and New Mexico. F. C. Miller. *Am*

*Inst Min E Bul* 140:1307-10 Ag '18; Same

cond. *Eng & Min J* 106:385 Ag 31 '18; Same

cond. *Iron Age* 102:574 S 5 '18; Discussion.

*Am Inst Min E Bul* 143:1693-5 N '18

Displaying coke. *II* *Gas* Age 44:250 S 15 '19

European practice in fuel conservation. E.

Piernet. *diags* *Gas* Age 42:101-3 Ag 1 '18

Exports of anthracite and bituminous coal

and coke from the United States during

the fiscal year ended June 30, 1918; tabula-

tion. *Coal* Age 15:379-80 F 20 '19

Federal trade commission reports on coke.

*Coal* Age 12:1095-6 D 29 '17

Importance of by-product coking. *Gas* Age

42:103 Ag 1 '18

Increasing production of by-product coke.

*Chem & Met Eng* 19:167 Ag 15 '18

Inducing local dealers to sell domestic coke.

*Gas* Age 44:85-9 Ag 1 '19

**Coke industry—Continued**

- Japanese coke production. Chem & Met Eng 19:314 S 15 '18
- Marketing and handling of domestic coke. J. A. Galligan. diags Gas Age 44:10-13 J1 1 '19
- Our national coal supply and its utilization. C. G. Gilbert and J. E. Pogue. Gas Age 42: 99-100 Ag 1 '18
- Rate of coke production. Am Gas Eng J 109: 52 J1 20 '18
- Report of Geological survey on production and shipment of coal and coke. Am Gas Eng J 109:496-8 N 23 '18
- Talks to coke men; responsibility for decreased production of iron and steel is frankly discussed. Iron Age 102:746 S 26 '18
- Traffic conditions supplemented by labor shortages cut 1917 production. Iron Tr R 62: 21-3 Ja 8 '18
- See also* Coke—Prices
- Coke manufacture**
- By-product coke and coking operations. C. J. Ramsburg and F. W. Sperr, jr. II J Fr Inst 183:391-431 Ap '17; Same. Am Soc M E J 39:495-506 Je '17; Same. Coal Age 13:772-7, 825-8, 870-3 Ap 27-May 11 '18; Same cond. Gas Age 40:549-52; 41:8-13 D 15 '17-Ja 1 '18; Abstract. Am Gas Eng J 106:376-8 Ap 14 '17
- By-product coke; discussion. Gas Age 41:304 Ap 1 '18
- By-product coke ovens. E. B. Elliott. II chart diag map Gen Elec R 21:467-80 J1 '18
- Carbonization of Illinois coals in inclined gas retorts. F. K. Ovirtz. Coal Age 15:803 My 1 '19
- Characteristics of American coals in by-product coking practice. F. W. Sperr, jr. II J Fr Inst 186:133-63 Ag '18; Same. Coal Age 14:1068-71, 1114-17, 1156-8 D 12-26 '18
- Chester producer fired by-product coke ovens. J. D. Shattuck. II Gas Age 43:7-10 Ja 1 '19
- Coal crushing in a by-product coke oven plant. II Gas Age 44:337-9 O 15 '19
- Coals of Ohio and their limitations for by-product coke. W. Stout. map Am Inst Min Bul 153:sup2369-87 S '19; Same. Coal Age 16:674-7, 707-11 O 23-30 '19
- Coke formation. Sci Am S 87:101 F 15 '19
- Coke from small coal gas plants for domestic use. C. J. Hauschildt. Am Gas Eng J 111:84- J1 5 '19
- Coke made from high-volatile coal. F. F. Marquard. II Iron Tr R 64:1433-5 My 29 '19; Abstract. Iron Age 103:1426-7 My 29 '19
- Coke making in New South Wales. R. J. N. Robertson. Coal Age 14:778-9 O 24 '18
- Coking of Illinois coal in Koppers type oven; abstracts. R. S. McBride and W. A. Selvig. II Chem & Met Eng 21:122-8 Ag 1 '19; Iron Age 104:283-6 J1 31 '19; Gas Age 44:197-201 S 1 '19; J Fr Inst 188:688-91 N '19
- Electric power for coking plants. F. E. Harris. Gas Age 43:10 Ja 1 '19
- Manufactured gas used to produce oil; still will extract oil from shale at a low cost. J. E. Darst. Am Gas Eng J 111:184 Ag 30 '19
- New coke oven installation. II diags Engineer 126:430-2, 440 N 22 '18
- New coke plant of La Belle iron works. II Iron Age 104:699-701 S 11 '19; Same. Iron Tr R 65:697-700 S 11 '19
- New French coke-pulling device. diags Coal Age 15:576 Mr 27 '19
- Plant of the West Virginia coal and coke company. II Coal Age 15:572-3 Mr 27 '19
- Preparation of domestic coke. A. H. Harris, jr. II Gas Age 43:17-18 Ja 1 '19
- Republic by-product coke plant at Youngstown. II Gas Age 43:13-15 Ja 1 '19
- Rolls for the preparation of coking coals. II diags Coal Age 15:612-15 Ap 3 '19
- Sulfur in the coking process. S. W. Parr. Am Inst Min Bul 153:1807-9 S '19
- Temperatures in by-product coke over practice. R. S. McBride and W. A. Selvig. II Gas Age 44:235-7 S 15 '19
- Two batteries added to coke plant of Youngstown sheet & tube co., Hubbard, O. II Iron Tr R 64:267-70 Ja 23 '19; Same. Coal Age 15:654-7 Ap 10 '19; Same. Iron Age 103: 1691-5 Je 26 '19; Same. Gas Age 44:93-7 Ag 1 '19
- See also* Coke ovens
- By-products**
- American vs. British byproduct coking practice. Coal Age 16:435-6 S 11 '19
- By-product coke. Gas Age 40:545-6 D 15 '17
- By-product coke industry in war time. W. H. Blauvelt. Iron Age 101:1544-5 Je 13 '18; Same. Iron Tr R 62:1556-7 Je 20 '18
- Byproduct coke oven and its products. W. H. Blauvelt. diags Am Inst Min E Bul 135:597-614 Mr '18; Same. Coal Age 13:624-7, 739-43 Ap 6, 20 '18; Same cond. Iron Tr R 62:659-64 Mr 14 '18; Excerpt. Gas Age 42:210-11 S 2 '18; Discussion. Am Inst Min E Bul 142: 1557; 143:1677-8 O-N '18
- By-product coke plants in the United States, Jan. 1, 1918; their capacities for coal consumption, coke, ammonia and toluol production. Iron Age 101:857 Ap 4 '18
- By-product plant of the Brier Hill steel company. F. T. Moran. II Gas Age 43:351-3 Ap 1 '19
- Coke plant producing gas for domestic purposes. II Gas Age 43:11-12 Ja 1 '19
- Copper bulbs for testing wash oil. diags Gas Age 41:331 Ap 1 '18
- Developments in byproduct coking. G. B. Walker. Coal Age 13:375-6 F 23 '18; Abstract. Met & Chem Eng 18:371 Ap 1 '18
- Importance of by-products during the war. C. G. Atwater. II Gas Age 43:339-43 Ap 1 '19
- Innovation in the coke industry. J. L. Gans. Coal Age 14:256-7 Ag 8 '18
- Plant of the Seaboard by-product coke company. D. Mac Arthur. II diags map Gas Age 43:1-6, 69-73 Ja 1-15 '19
- Recovery of byproducts in coke manufacture. M. Meredith. Coal Age 14:60-2 J1 13 '18
- Relation of by-products to chemical industries. W. H. Blauvelt. II Gas Age 43:19-21 Ja 1 '19
- Research and progress in byproduct coking in Great Britain. J. B. C. Kershaw. II Coal Age 14:853-6, 898-900, 941-6; 15:752-6 N 7-21 '18, Ap 24 '19
- Steel industry helps explosive output. W. A. Forbes. Iron Tr R 62:1557-8 Je 20 '18
- Two tables that will prove valuable in coking practice. Coal Age 14:1084-5 D 5 '18
- Washing light oil fractions from coke oven gas. F. D. Schreiber. II Gas Age 43:22-4 Ja 1 '19
- Wastage of coke byproducts. F. MacCoy. II Eng & Min J 106:254-5 Ag 10 '18
- See also* Coke-oven gas
- Experiments**
- Experimental-retort tests of Orient coal; description of experimental work for coking Illinois coal. R. S. McBride and I. V. Brumbaugh. diags Chem & Met Eng 21:171-4 Ag 15 '19; Same. Coal Age 16:567-9 O 2 '19
- Coke-oven gas**
- By-product oven looms up as a serious factor in the gas business. A. H. Harris, jr. Am Gas Eng J 111:372-6 O 18 '19
- Coke oven gas and the demand for cheap fuel. Gas Age 43:16-17 Ja 1 '19
- How war affected the German gas industry. Gas Age 42:378-80 N 1 '18
- Measuring coke oven gas. T. E. Estep, jr. II diags Gas Age 43:381 Ap 1 '19
- Recent developments in by-product coking in England. G. B. Walker. Sci Am S 87:171 Mr 15 '19
- Recovery of light oils from coke-oven gas. W. H. Wright. Sci Am S 85:204 Mr 30 '18
- Seeking a solution of the problem on which its existence depends the gas industry turns to consideration of the by-product coke oven. C. B. Cooke, jr. chart Am Gas Eng J 111:485-91 N 22 '19
- Tin plating with coke oven gas. W. J. Harris, jr. II Iron Age 100:1418-19 D 13 '17
- Transmission of coke oven gas in Silesia. Sci Am S 85:411 Je 29 '18

**Coke-oven gas—Continued**

- Use of waste gases for steam generation. J. B. C. Kershaw. *Engineer* 124:27-9 J1 13 '18; Same. *Coal Age* 14:591-4 S 26 '18  
 Washing light oil fractions from coke oven gas. F. D. Schreiber. *Il Gas Age* 43:22-4 Ja 1 '19  
 Zinc-smelting works of Vado Ligure, Italy. E. Ferraris. *diags Eng & Min J* 106:212 Ag 3 '18; Discussion. J. A. Singmaster. 106:537 S 21 '18

*See also* Blast furnace gas; Coke manufacture—By-products

**Coke ovens**

- Bond issue for construction of forty new coke ovens authorized by Public service commission of Indiana. *Am Gas Eng J* 108:523-5, 575-6 Je 1, 15 '18  
 By-product coke oven and its products. W. H. Blauvelt. *diags Am Inst Min E Bul* 135:597-614 Mr '18; Same. *Coal Age* 13:624-7, 739-43 Ap 6, 20 '18; Same cond. *Iron Tr R* 62:659-64 Mr 14 '18; Discussion. *Am Inst Min E Bul* 142:1557; 143:1677-8; 144:1770-1 O-D '18  
 By-product coke oven industry in 1917. C. J. Ramsburg. *Iron Age* 101:39-4 Ja 3 '18  
 By-product coke oven installation on Teesside, England. *diags plan Engineer* 125:402 My 10 '18  
 By-product coke oven pressure regulation. C. H. Smoot. *Il diags Gas Age* 42:5-9 J1 1 '18  
 By-product coke ovens. E. B. Elliott. *Il chart diag map Gen Elec R* 21:467-80 J1 '18  
 By-product ovens. W. E. Steinwedell. *Gas Age* 43:15 Ja 1 '19  
 Carbonization committee report shows distinct trend of gas industry towards by-product oven. *Am Gas Eng J* 111:396-402+ O 25 '19  
 Cementing leaks in brick work. *Il diags Gas Age* 44:146 Ag 15 '19  
 Changes in beehive coke oven construction due to mechanical operation. G. W. Harris. *Il diags plans Coal Age* 15:44-8 Ja 9 '19  
 Coke making in New South Wales. R. J. N. Robertson. *Coal Age* 14:778-9 O 24 '18  
 Coke oven which operates on the regenerative principle; patent. *diags Chem & Met Eng* 19:45 J1 1 '18  
 Corrosion of coke-oven walls. H. Schwenke. *Iron Age* 102:868 O 3 '18  
 Engineering opportunity—the by-product coke oven. *Chem & Met Eng* 20:2-4 Ja 1 '19  
 Great by-product coke plant at Clairton, Pa. *Iron Age* 101:83 Ja 3 '18  
 Inclined chamber ovens at Auburn Junction; operation results. C. E. Reese. *Il diag Gas Age* 43:80-2 Ja 15 '19  
 Inclined chamber ovens experience at Battle Creek. F. W. Seymour. *Gas Age* 43:82-3 Ja 15 '19  
 Insulation for by-product coke ovens. P. A. Boeck. *Il diags Gas Age* 43:24-6 Ja 1 '19  
 Manufacturing plant of the Providence gas co. W. M. Russell. *Il diags Chem & Met Eng* 21:147-53 Ag 1 '19  
 Modern rectangular coke-oven plant. D. C. Ashmead. *Il Coal Age* 13:362-7 F 23 '18  
 New coke ovens at the Providence gas works. E. H. Bauer. *Il Gas Age* 43:461-5, 516-20 My 1-15 '19  
 Patching of jamb leaks on coke-oven brickwork. R. L. Fletcher. *Il plan Gas Age* 44:15-17 J1 1 '19  
 Plant of the Seaboard by-product coke company. D. Mac Arthur. *Il diags map Gas Age* 43:1-6, 69-73 Ja 1-15 '19  
 Temperatures in by-product coke oven practice. R. S. McBride and W. A. Selwig. *Il Gas Age* 44:235-7 S 15 '19  
 Use of electricity in the iron and steel trades; Newcastle local section; chairman's address. A. H. W. Marshall. *Inst E E J* 56:23-9 D '17  
*See also* Coke manufacture; Coke-oven gas; Fire brick

**Accidents**

- Coke-oven accidents in the United States during the calendar year 1917. A. H. Fay. *U S Bur Mines Tech Pa* 206:1-18 '18

- Coke-oven accidents in the United States during the calendar year 1918. A. H. Fay. *U S Bur Mines Tech Pa* 239:1-23 '19

**Cold storage**

- Cold storage of food. I. Jørgensen and W. Stiles. *Sci Am S* 88:150-1, 178+ S 6, 20 '19  
 Large government storage plant for Chicago. *Il diag Power* 50:528-31 S 30 '19  
 Simple design marks cold storage building for apples. S. T. Smith. *Il diags plans Eng N* 80:1175-7 Je 20 '18

*See also* Refrigeration and refrigerating machinery; Refrigerator cars

**Cole, Timothy**

- Work of Timothy Cole, master wood-engraver, on exhibition at Chicago art institute. N. J. Quirk. *Il Inland Ptr* 64:185-6 N '19

**Collecting of accounts**

- Avoiding bad accounts and collecting bills. *Metal Work* 88:775-6 D 28 '17  
 Bonus system as applied to the collection department of a public utility. P. Bucher. *Am Gas Eng J* 109:193-7 Ag 31 '18  
 Collection method for isolated communities. P. M. Cordell. *Elec W* 73:795 Ap 19 '19  
 Credit department's relations with customers. *Elec W* 17:53-4 Ja 5 '18  
 Getting the money in on time. E. H. Schulze. *Metal Work* 91:203 F 14 '19; Same. *Bldg Age* 41:95 Mr '19  
 How to collect from a chronic bill slacker; prize essays. *Horseless Age* 43:26-7 Ja 15 '18  
 How to improve your collection methods. E. L. Seabrook. *Bldg Age* 40:271-3 My '18  
 Interest can be collected on unpaid accounts. E. J. Buckley. *Metal Work* 89:744 Je 7 '18  
 Reducing the delinquent account by 80 per cent in Muncie, Indiana. *Elec W* 71:937 My 4 '18  
 Side-stepping the pitfalls in credits and collections. J. M. Ward. *Dom Eng* 85:449-50 D 21 '18  
 Speeding up collections of customers' accounts; methods and policies used by more than thirty Indiana companies. O. M. Booher. *Elec W* 72:358 Ag 24 '18  
 Successful methods of collecting bad accounts. C. A. Gauss. *Elec R* 75:764-6 N 1 '19  
 Turning book accounts into cash. J. S. Vogel. *Dom Eng* 81:550 D 28 '17  
*See also* Billing

**Collective bargaining. See Trade agreements****Collective bonus. See Bonus system****Collectors and collecting**

- Hobbies and hobbyists. *Sci Am* 121:180 Ag 23 '19

**College architecture**

- Administration building and Finney memorial chapel, Oberlin college; views. *Arch Rec* 46:270-3 S '19  
 College group. *Am Arch* 115:pl 204-6 Je 18 '19  
 Hilcard hall, University of California. R. F. Bach. *Il plans Arch Rec* 46:203-10 S '19  
 Memorial quadrangle of Yale college. M. Wilcox. *Il plan Arch Rec* 43:148-59 F '18  
 New university of Colorado buildings, Boulder, Colo. A. Embury. *Il plans Arch Forum* 31:71-80 S '19  
 Ogden Hall, Hampton normal and agricultural institute, Hampton, Virginia. *Arch & Bldg* 51:64, pl 125-6 Ag '19  
*See also* College buildings; Fraternity houses

**College buildings**

- University of Nebraska; dedication of the new chemistry hall. W. L. Sibert. *Il plans J Ind & Eng Chem* 11:671-4 J1 '19  
*See also* College architecture

**College education**

- University training for engineers. E. C. W. Elliot. *Elec W* 73:683-4 Ap 5 '19  
*See also* Classical education

**Colleges and universities**

- Business training at the universities. *Engineer* 125:519 Je 14 '18



**Colleges and universities—Continued**

University of Uncle Sam. Eng N 81:420 Ag 29 '18

See also Academic freedom; College architecture; Engineering colleges; Scholarships and fellowships

**Entrance requirements**

Round pegs and square holes. Sci Am 120:92 F 1 '19

**War service**

Army without reserves. J Ind & Eng Chem 10:508-10 J1 '18; Discussion. 10:635-92 S '18

College heads discuss war educational plans. Eng N 81:463 S 5 '18

Colleges not to be hindered in turning out engineers. Eng N 80:327 F 14 '18

Columbia university an armed camp. Sci Am 118:87 Ja 26 '18

List of war emergency courses offered by colleges. E. M. Johnson. Special Libraries 9:6-11 Ja '18

Place of the university in chemical war work. E. W. Washburn. J Ind & Eng Chem 10:786-8 O '18; Abstract. Chem & Met Eng 19:545 O 1 '18

Training the fighting mechanic. II Motor Age 33:22-3 Je 20 '18

See also United States—Army—Students' army training corps

**United States**

Universities and the new world. G: F. Swain. J Elec 42:12-14 Ja 1 '19

See also Washington. University

**Collets**

Bath spring collet and indexing head. II Am Mach 51:484-5 S 4 '19

Chip ejector for hinged collets. H. M. Black. diag Am Mach 48:549-50 Mr 28 '18

Forming and piercing dies for pronged collets. B. Menkin. diag Mach 25:1147-8 Ag '19

Stop for spring collet. D. A. Baker. diag Mach 25:372 D '18

Stop for spring collet. J. A. Shand. diag Mach 25:69 S '18

**Colliers**

S. S. Freeman launched by the New York shipbuilding corporation. Int Marine Eng 23:54 F '18

10,000-ton collier built in Australia. II Int Marine Eng 24:584-5 S '19

Tuckahoe, five thousand-ton collier built in thirty-seven days. II Int Marine Eng 23:358 Je '18

**Collins, Alexander Washington, 1870-1918**

Only a compositor! por Inland Ptr 61:191-2 My '18

**Collins, Edgar Archibald, 1877-1918**

Sketch. G: E. Collins. Am Inst Min E Bul 143:sup32-3 N '18

**Collisions (railroad). See Railroads—Accidents****Colloidal fuel. See Fuel, Colloidal****Colloids**

Colloid state from the electrical standpoint. W. C. M. Lewis. Eng & Min J 107:696-8 Ap 19 '19

Colloidal-chemical theory of water absorption by protoplasm. M. H. Fischer. Am Chem Soc J 40:862-7 My '18

Colloidal membrane. F. Tinker. Sci Am S 87:199 Mr 29 '19

Colloidal phenomena and the adsorption formula. J: A. Wilson and W. H. Wilson. Am Chem Soc J 40:886-95 Je '18

Colloidal products of the reactions between potassium dichromate and stannous salts. J. C. Witt. Am Chem Soc J 40:1026-30 J1 '18

Colloids and chemical industry. W. C. M. Lewis. Sci Am S 85:379 Je 15 '18

Colloids and flotation. F: G. Moses. U S Bur Mines Tech Pa 200:1-22 '18

Colloids at work. Sci Am 120:252 Mr 15 '19

Colloids in flotation. J. A. Pearce. Chem & Met Eng 20:52-3 Ja 15 '19

Dispersoidology and the theory of von Weimarn. S. C. Bradford. Sci Am S 87:182-3 Mr 22 '19

Fallacy of determining electrical charge of colloids by capillarity. A. W. Thomas and I. D. Garard. Am Chem Soc J 40:101-6 Ja '18

Gelation of the natural emulsoids. S. C. Bradford. Sci Am S 86:154-5 S 7 '18

Jellies by slow neutralization. H. N. Holmes and P. H. Fall. Am Chem Soc J 41:763-4 My '19

Liquefaction or solution of gelatin in polybasic acids and their salts. M. H. Fischer and W. D. Coffman. II Am Chem Soc J 40:303-12 Ja '18

Metals and alloys from a colloid-chemical viewpoint. J. Alexander. Am Inst Min E Bul 146:427-30 F '19; Same. Eng & Min J 107:354-5 F 22 '19; Discussion. Am Inst Min Bul 148:707-10; 149:776-7 Ap-May '19

Molecular mechanism of colloidal behavior. R: C. Tolman and A. E. Stearn. Am Chem Soc J 40:264-72 Ja '18

Molecular mechanism of colloidal behavior; the chemical nature of the adsorption of acids and alkalis by the protein molecule. R. S. Bracewell. Am Chem Soc J 41:1511-15 O '19

Molecular mechanism of colloidal behavior; the swelling of fibrin in alkalies. R: C. Tolman and R. S. Bracewell. Am Chem Soc J 41:1503-10 O '19

Movement to develop research in colloid chemistry. H. N. Holmes. bibliog J Ind & Eng Chem 11:794-5 Ag '19

Notes on troubles from colloids in flotation. Eng & Min J 108:510-12 S 20 '19

Outline of colloid chemistry. W. D. Bancroft. J Fr Inst 185:29-57, 199-230, 373-87 Ja-Mr '18; Excerpts. Eng & Min J 106:350-1 Ag 24 '18

Peptization of ferric arsenate and phosphate and the formation of their gels. H. N. Holmes and R. Arnold. Am Chem Soc J 40:1014-19 J1 '18

Precipitation of colloidal gold and platinum on metallic surfaces. E. E. Spear and K. D. Kahn. Am Chem Soc J 40:181-4 Ja '18

Role of colloids in chemical processes. J. Alexander. Chem & Met Eng 19:630-2 O 15 '18

Role of colloids in chemical processes. A. Schwarz. Chem & Met Eng 19:701 N 15 '18

Rubber as a colloid. D. F. Twiss. Sci Am S 87:306-7 My 17 '19

Swelling of gelatin in polybasic acids and their salts. M. H. Fischer and M. O. Hooker. Am Chem Soc J 40:272-92 Ja '18

Swelling of protein colloids. L. J. Henderson and E. J. Cohn. Am Chem Soc J 40:857-61, 867-8 My '18

Vibration and syneresis of silicic acid gels. H. N. Holmes, W. E. Kaufmann and H: O. Nicholas. Am Chem Soc J 41:1329-36 S '19

World of neglected dimensions; how sub-microscopic colloids are assisting the world of industry. K. Knipe. II Sci Am 121:392 O 18 '19

See also Catalysis

**Colombia, South America**

Guamoco district of Colombia. S. F. Eaton. II Eng & Min J 107:513-15, 609-13 Mr 22, Ap 5 '19

Republic of Colombia seeks American capital. Am Lumberman 2254:58 J1 27 '18

**Commerce**

Colombian markets for American furniture. H. E. Everley. U S Bur For & Dom Com 162:1-34 '18

Construction materials and machinery in Colombia. W. W. Ewing. II U S Bur For & Dom Com 160:1-75 '18

Transportation on the Magdalena river, Colombia. H. W. Wright. II Sci Am S 87:88-9 F 8 '19

**Colonial architecture. See Architecture, Colonial****Colonial trust company, Philadelphia**

Building for the Colonial trust co. II Am Arch 115:877-8, pl 207-11 Je 25 '19

**Color**

Applied psychology of color. B. Irwin. Color Tr J 4:79-80 Ap '19

**Color—Continued**

- Clothes and color. F. Gifford. *Color Tr J* 5: 100-2 O '19
- Color and color photography. C. D. Hodgman. *Sci Am S* 84:399-400 D 22 '17
- Color from the physical point of view. H. C. Richards. *bibliog Illum Eng Soc* 13:7-13 no 1 '18; *Abstracts. Gas Age* 40:484 N 15 '17; *J Fr Inst* 185:441-2 Mr '18
- Color in illumination; with discussion. B. Irwin. *diag Illum Eng Soc* 13:14-20 no 1 '18
- Color of inorganic compounds. F. R. v. Blchowsky. *Am Chem Soc J* 40:500-3 Mr '18
- Color of water. W. D. Bancroft. *J Fr Inst* 187:249-71, 459-85 Mr-Apr '19; *Same. Sci Am S* 87:374-5+, 393-5, 410-11+; 88:62-3 Je 14-28, J1 26 '19
- Color standards for cottonseed oil. H. V. Army. C. Kish and F. Newmark. *J Ind & Eng Chem* 11:950-3 O '19
- Color tendencies in modern textile designs. F. L. Kaplan. *Color Tr J* 5:14-15 J1 '19
- Effect of wall colors on lighting requirements. *Elec W* 74:363 Ag 16 '19; *Same. Sci Am S* 88:176 S 13 '19
- How color of surroundings affects health. *Am Arch* 115:787-8 Je 4 '19
- Peculiarities of color and their bearing on photographic work. A. J. Bull. *diag Sci Am S* 86:69 Ag 3 '18
- Potentiality of color in lighting; with discussion. M. Luckiesh. *Illum Eng Soc* 13:1-6 no 1 '18
- Psychology of color in relation to illumination. L. T. Troland. *Illum Eng Soc* 13:21-37 no 1 '18; *Same. Sci Am S* 86:114-15, 134-5 Ag 24-31 '18
- Reflection factors. *Gas Age* 44:230 S 1 '19
- Some interesting color phenomena. M. Luckiesh. *diag Sci Am* 121:135+ Ag 9 '19
- Studies on anthocyanins; color variation in anthocyanins. K. Shibata, Y. Shibata and I. Kasliwagi. *Am Chem Soc J* 41:208-20 F '19
- System of color classification. E. W. Pierce. *Textile World* 53:6347+ Je 29 '18
- Temperature of steel and colors exposed to the sun. *Eng & Contr* 50:224-5 Ag 28 '18
- Three dimensions of color. E. C. Andrews. *diag Inland Ptr* 62:554-6, 673-4; 63:73-4 F-Apr '19
- Work of the national Bureau of standards on the establishment of color standards and methods of color specification; with discussion. L. G. Priest. *Illum Eng Soc* 13:38-49 no 1 '18
- See also* Brass—Coloring; Camouflage; Colorimetric analysis; Dyes and dyeing; Glass, Colored; Indigo; Light; Light, Colored; Paint; Painting; Pigments; also headings beginning Color
- Terminology**
- Need of standardization of color terms—work of A. H. Munsell. E. C. Andrews. *Inland Ptr* 62:409-10 Ja '19
- Color in architecture**
- Color in decoration. E. Jordan. *Il Am Arch* 114:111-12 J1 24 '18
- Color—its application in architecture. *Am Arch* 114:466-7 O 16 '18
- Use of color in operating rooms. *Il diag plans Am Arch* 114:651-8 D 4 '18
- Color matching**
- Color matching lighting. G. H. Stickney. *Il Sibley J* 32:104-7 Ap '18
- Color of animals**
- How plants and animals utilize color. J. Dufrénoy. *Sci Am S* 87:102 F 15 '19
- Color of insects**
- Influence of colors on butterflies. *Sci Am S* 87:201 Mr 29 '19
- Color of plants**
- How plants and animals utilize color. J. Dufrénoy. *Sci Am S* 87:102 F 15 '19
- Color photography**
- Color and color photography. C. D. Hodgman. *Sci Am S* 84:399-400 D 22 '17
- Color photography screens. *J Ind & Eng Chem* 10:649 Ag '18
- Dufay versicolor process in color photography. *diag Sci Am S* 85:237 Ap 13 '18

**Color printing**

- Any color if it's red. J. L. Frazier. *Inland Ptr* 61:65-6 Ap '18
- Mixing colors. G. Colt. *Inland Ptr* 61:334 Je '18
- Producing paint sample-cards by printing. *Il Inland Ptr* 62:80 O '18
- Use of color as applied to catalogue illustrations; specimen. *Inland Ptr* 60:753 Mr '18
- Color sense**
- Color vision. *Sci Am S* 87:173 Mr 15 '19
- Relative sensibility of the average eye to light of different colors and some practical applications to radiation problems. W. W. Coblentz and W. B. Emerson. *bibliog Il diag U S Bur Stand Bul* 14:167-236 Je 17 '18; *Excerpts. Sci Am S* 86:83, 96 Ag 10 '18; *Summary. Sci Am S* 86:301 N 9 '18
- Statistical survey of color vision. *Sci Am S* 88:217 O 11 '19
- Theories of color sensation. F. Gifford. *Color Tr J* 4:65-3 Mr '19
- Theory of color vision and the selective action of the eye. R. A. Houston. *diag Sci Am S* 86:92-3 Ag 10 '18
- Colorado**
- Industries and resources**
- Ore treatment in Colorado. *map Eng & Min J* 106:386-9 Ag 31 '18
- See also* Mines and mineral resources—Colorado; Silver mines and mining—Colorado
- Colorado engineering council**
- Colorado engineering council working. *Eng N* 83:284 Ag 7 '19
- Colorado fuel and iron company**
- Solving labor problem with Colorado representation plan. *Iron Tr R* 64:1139-47 My 1 '19
- Colorado Midland railroad**
- Light-traffic railway vs. highway and motor truck. C. C. Williams. *Eng N* 81:984-5 N 28 '18
- Colorado river**
- Colorado river flood control by storage. E. C. La Rue. *Il map Eng N* 82:456-61 Mr 6 '19
- Commission to study the Colorado and save Imperial Valley. *Eng N* 82:315-16 F 13 '19
- Colorado Springs, Colorado**
- Water supply**
- Water-works of Colorado Springs. *Il Munic J* 44:425-7 My 25 '18
- Colorado university**
- New university of Colorado buildings, Boulder, Colo. A. Embury. *Il plans Arch Forum* 31: 71-80 S '19
- Coloration, Protective. See Camouflage**
- Colored glass. See Glass, Colored**
- Colored light. See Light, Colored**
- Colorimetric analysis**
- Arsenic in sulfured food products. W. D. Collins. *diag J Ind & Eng Chem* 10:360-4 My '18
- Colorimetric determination of bismuth. H. A. B. Motherwell. *Eng & Min J* 104:1091-2 D 22 '17; *Discussion. W. T. Phillips. 105:882-3 My 11 '18*
- Colorimetric determination of organic substances. H. Heidenhain. *diag J Ind & Eng Chem* 11:297-9 Ap '19
- Hydrochloric acid color method for determining iron. J. C. Hostetter. *Am Chem Soc J* 41:1531-43 O '19
- Improved method for determining citral; modification of the Hiltner method. C. E. Parker and R. S. Hiltner. *J Ind & Eng Chem* 10:608-10 Ag '18
- Coloring of metals. See Metal coloring**
- Coloring of photographs. See Photographs—Coloring**
- Columbia university**
- Columbia university an armed camp. *Sci Am* 118:87 Ja 26 '18
- State registration of architects and Columbia university. R. F. Bach. *Arch Rec* 44:183-3 Ag '18

**Columbus, Georgia****Rapid transit**

Energy consumption halved by safety-car service. *Il Elec Ry J* 52:560 S 28 '18

**Columbus, Ohio****Sanitary affairs**

Garbage disposal in Columbus. *Munic J* 44:259-60 Mr 30 '18

**Streets**

Street repairs in Columbus. *C: C. Brown. Munic J* 44:92-4, 110-12 F 2-9 '18

**Water supply**

Columbus waterworks in 1918. *Munic J* 46: 221-2 Mr 22 '19

**Columbus railway, light & power company**

Canal street substation. *E. W. Clark. Il Elec R* 74:870-1 Ap 26 '19

**Column footings**

Anchor bolts held in correct position while concreting footings. *A. P. Roscoe. diag plan Eng N* 82:588-9 Mr 20 '19

**Columns**

Cast-iron columns carry concrete flat-slab floor. *W. J. Knight. Il diags Eng N* 80:83 Ja 10 '18

Handy tables showing safe loads of wood columns. *W. A. Gieser. Bldg Age* 40:265 My '18

How to build and fireproof with hollow tile. *J. J. Cosgrove. diags Bldg Age* 41:204-5 Je '19

Strength of various long columns. *W: Jackson. Eng & Contr* 52:112 JI 23 '19

*See also* Architecture; Poles; Strains and stresses

**Cost**

Cost of erecting pillars. *H. R. Ferriss. Il diags plan Eng & Contr* 51:88 Ja 22 '19

**Testing**

Fire tests of building columns. *Il Am Arch* 118:74-5 Ja 16 '18; *Munic Eng* 54:154-5 Ap '18

Hooped concrete columns with cast iron cores. *L. J. Mensch. Il diags Am Arch* 116: 155-62 JI 30 '19

Low working stress for square-end steel columns is recommended by column committee of the American society of civil engineers; abstracts. *Eng N* 80:250-3 F '18; *Eng & Contr* 49:223-5 F 27 '18

Tests of large bridge columns. *J. H. Griffith and J. G. Bragg. Il diags U S Bur Stand Tech Pa* 101:1-139 '18; *Abstract. J Fr Inst* 186:247-9 Ag '18

**Columns, Concrete**

Compressing concrete increases its strength. *F. P. McKibben. Il diag Eng N* 81:1031-3 D 5 '18

Economy in the design of concrete buildings. *C. W. Mayers. diags Boston Soc C E J* 5:62-73 F '18; Same cond. *Concrete* 12:117-18 Ap '18; *Discussion. F. S. Bailey and others. Boston Soc C E J* 5:307-20 Je '18

European design of concrete columns. *W: W. Hay. Concrete* 15:104 S '19

Hooped concrete columns with cast iron cores. *L. J. Mensch. Il diags Am Arch* 116: 155-62 JI 30 '19

How much does concrete shrink in a building column? *C. H. Cotter. diag Eng N* 81:506-7 S 12 '18

Notes on flat slab design: thickness of slab, column heads and bending in columns. *A. M. Wolf. diags Eng & Contr* 49:210-18 F 27 '18

Short base cast in advance makes setting of column forms easy. *H. L. Richardson. Il Eng N* 80:428 F 28 '18

Strengthening columns of reinforced concrete. *Concrete* 13:128-9 O '18

Tests of eighteen concrete columns reinforced with cast iron. *J Fr Inst* 188:403-4 S '19; Same. *Eng N* 83:521 S 11 '19; Same. *Concrete* 15:138 O '19

Use minimum steel for economy in concrete design. *A. M. Wolf. Concrete* 14:139-41 Ap '19

*See also* Poles, Concrete

**Columns, Steel**

Low working stress for square-end steel columns is recommended by column committee of the American society of civil engineers; abstracts. *Eng N* 80:250-3 F 7 '18; *Eng & Contr* 49:223-5 F 27 '18; *Discussion. Eng N* 80:242-3, 474-5 F 7, Mr 7 '18

Restudy of column loadings to unify column formulas. *Eng N* 82:343-5, 485-6 F 13, Mr 6 '19

Structural steel columns. *Concrete* 12:63-4 F '18

Tests of large bridge columns. *J. H. Griffith and J. G. Bragg. Il diags U S Bur Stand Tech Pa* 101:1-139 '18; *Abstract. J Fr Inst* 186:247-9 Ag '18

**Combustion**

Air required for combustion of different fuels.

Power 48:433 S 17 '18

Burning air. *Am Gas Eng J* 111:66 JI 26 '19

Burning dust-bearing coal. *L. A. Stenger. Elec W* 71:1080-1 My 25 '18

Chimney size and air for fuel combustion. *Il diags Metal Work* 89:74-5 Ja 11 '18

Combustion. *M. B. Smith. Dom Eng* 88: 161-2 JI 26 '19

Combustion and boiler settings. *A. D. Williams. Power* 49:57-9, 205-8 Ja 14, F 11 '19

Combustion and fuel economy. *Locomotive* 31: 226-32 O '17

Combustion in its relation to boilers. *E. A. Uehling. Power* 48:804-6 D 3 '18

Combustion in rotary kilns. *W. H. Klein. diags Concrete* 15:sup49-51 O '19

Combustion indicator. *diag J Ind & Eng Chem* 11:972 O '19

Combustion of coal and design of furnaces. *H: Kreislinger, C. E. Augustine and F. K. Ovitiz. Il diags plan U S Bur Mines Bul* 135:1-144 '17; *Abstract. Power* 47:596-600 Ap 23 '18; *Abstract. Int Marine Eng* 23:243 Ap '18

Computation of combustion data. *A. D. Pratt. Power* 50:236-8 Ag 5 '19

Controlling efficiency of combustion. *E. A. Uehling. Power* 48:921-3 D 24 '18

Course in combustion engineering to promote fuel conservation. *Elec R* 75:693-4 O 25 '19

Economical use of coal in railway locomotives. *Il diags Ill U Eng Exp Sta Circ* 8:1-71 '18

Effect of steam blowers on combustion. *W. D. Owens. Coal Age* 15:53 Ja 9 '19

Efficient combustion of bituminous coal with underfeed stokers. *R. C. Hine. Il chart diag Ind Management* 55:388-91 My '18

Flue gas analysis. *Locomotive* 32:166-76 Ap '19

Formula for calculating the heat carried to waste by the flue gases. *E. A. Uehling. Stevens Ind* 34:124-38 Ap '17; Same abr. *Am Gas Eng J* 107:62-4 JI 21 '17; *Excerpt. Power* 47: 395 Mr 19 '18

Fuel conservation by the economical combustion of soft coal. *G. L. Larson. Wis U Bul Eng S* 8:449-58 no 7 '17

Fuel economy made simple. *A. Bement. Power* 48:524-6 O 8 '18

Fuels and combustion. *A. G. King. Dom Eng* 82:249-50+ F 16 '18

Grate area and the underfeed stoker. *F. H. Daniels. Power* 47:373-4 Mr 12 '18

Hays school of combustion. *Power* 50:443 S 9 '19

How can soft coal be burned without smoke in marine boilers; symposium. *Am Soc M E J* 40:pt 2, 619-22 JI '18; *Excerpt. Sci Am S* 86:137 Ag 31 '18; *Abstract. Int Marine Eng* 23:466-7 Ag '18

How much do you lose? *Factory* 21:342+ Ag '18

Influence of chemistry upon improvement in stoker design. *C. H. McClure. Elec R* 74: 620-1 Ap 19 '19

Making the CO<sub>2</sub> recorder pay dividends. *M. A. Saller. Power* 49:95-6 Ja 21 '19

Management of the power plant. *R. June. Textile World* 54:1097+ S 7 '18; Same. *Elec R* 74:257-60 F 15 '19

New views of the combustion of the volatile matter in coal. *S. H. Katz. diag U S Bur Mines Tech Pa* 183:1-13 '18; Same. *Gas Age* 41:404-7 My 1 '18

**Combustion—Continued**

- Phlogiston theory. C. A. Bowsher. *Sci Am* S 85:43 Ja 19 '18
- Principles of combustion in the steam boiler furnace. *Power* 49:664-5 Ap 29 '19
- Rapid organic combustion. P. A. Levene and F. W. Bieher. *diags Am Chem Soc J* 40:460-2 F '18
- Rapid organic combustion of substances containing nitrogen. H. L. Fisher and A. H. Wright. *Am Chem Soc J* 40:868-9 My '18
- Regulating combustion in modern furnaces. L. Conger. *Elec W* 71:1380 Je 29 '18
- Unpreventable losses in coal combustion under boilers. H. O'Neill. *Power* 47:502-4 Ap 9 '18
- Water works operation; pumping plant. *Munic J* 45:245-6 S 28 '18
- What percentage of CO<sub>2</sub> can be obtained? *Power* 48:956-7 D 31 '18

*See also* Firing; Flames; Fuel; Mechanical draft; Smoke; Smoke prevention; Spontaneous combustion

**Combustion, Spontaneous.** *See* Spontaneous combustion

**Combustion, Surface**

- Surface combustion applied to galvanizing. W. J. Harris, jr. *il diag plan Met & Chem Eng* 16:613-14 My 15 '17; Same (Gas for heating galvanizing baths meets coke fuel cost). *Am Gas Eng J* 106:337-40 Ap 7 '17; Same. *Metal Ind* 15:156-8 Ap '17; Same cond. *Iron Age* 99:832-3 Ap 5 '17

**Comets**

- Encke's comet, a frequent visitor. C. N. Holmes. *Sci Am* S 86:69 Ag 3 '18

**Comfort stations.** *See* Public comfort stations

**Comité des forges de France**

- Syndicate rules French iron trade. F. Mil-toun. *Iron Tr R* 64:1553-5 Je 12 '19

**Commerce**

- Commerce and our universities. *Engineer* 125:386 My 3 '18

**Commercial outlook—national and international.** O. F. Austin. *Metal Ind* 15:178-80 Ap '17

**Economic reconstruction; analysis of main tendencies in the principal belligerent countries of Europe.** U S Bur For & Dom Com misc ser 73:1-74 '18

*See also* Business; Canals; Commercial law; Convoy; Credit; Embargo; European war—Economic aspects; Export trade; Free harbors; Government regulation of industry; Interstate commerce commission; Monopolies; Ports; River traffic; Shipping; Trade marks; Trusts, Industrial; Waterways; also names of countries, subhead Commerce, e.g., United States—Commerce

**Bibliography**

List of dictionaries of commercial commodities and other books descriptive of material used in the arts, manufactures, and commerce; comp. under direction of H. H. B. Meyer. *Special Libraries* 9:46-50 F '18

**Commercial aeronautics.** *See* Aeronautics, Commercial

**Commercial arbitration.** *See* Arbitration, Commercial

**Commercial correspondence**

- Putting personality into letters. R. F. Duysters. *Bldg Age* 40:364-7 Jl '18

Writing business letters. O. E. Norman. *Gas Age* 41:26 Ja 1 '18

*See also* Sales letters

**Commercial education.** *See* Business education

**Commercial law**

American institute of accountants board of examiners; May, 1918, examinations. *J Account* 25:403-5 Je '18

American institute of accountants' examination in commercial law, May 15. *J Account* 27:403-6 Je '19

Be sure your sales of goods are not voidable. E. J. Buckley. *Metal Work* 89:43 Ja 4 '18

Commercial laws of Switzerland. A. J. Wolfe. *bibliog U S Bur For & Dom Com* 150:1-52 '17

Legal advice with a guarantee. *Sci Am* 121:152 Ag 16 '19

Liability of manager of corporation. *Dom Eng* 81:506 D 22 '17

When is a restraining agreement legal? E. J. Buckley. *Metal Work* 88:724 D 14 '17

*See also* Arbitration, Commercial; Carriers; Contracts; Corporation law; Government regulation of industry; Guarantees and sureties; Holding companies; Landlord and tenant; Liens; Negotiable instruments; Partnership; Patent laws and legislation; Public utilities; Railroad law; Sales; Trusts, Industrial

**Commercial paper.** *See* Negotiable instruments

**Commercial policy**

Problems of the Pacific; future commercial policy in view of past history. R. F. Irvine. *Sci Am* S 86:162-3 S 14 '18

Why congressional aid for business is imperative. A. Sinsheimer. *Automotive Ind* 41:31 Jl 3 '19

*See also* Free harbors; Tariff

**Commercial products**

Consumption estimates, showing production, imports, exports, and amounts available for consumption of various articles in the United States by years specified. U S Bur For & Dom Com misc ser 72:1-14 '18

*See also* Forest products; Manufactures; also names of individual products

**Commission for relief in Belgium**

Accounting of commission for relief in Belgium. L. D. Mapes. *J Account* 27:1-16 Ja '19

**Commission plan.** *See* Municipal government—Commission plan

**Committee of 100.** *See* American electric railway association—Committee of 100

**Commonwealth Edison company, Chicago**

Activities as shown by department reports. *Elec R* 74:559-60 Ap 5 '19

Annual report. *Elec W* 71:476 Mr 2 '18

Coal supply made sure by buying mines. *Elec W* 71:500-1 Mr 9 '18

War service of the Commonwealth Edison company. L. A. Ferguson. *il diags Elec R* 74:889-92 My 31 '19; Same cond. *Elec W* 73:1230-1 Je 7 '19

**Communication, Military**

Dove of war. L. S. Crandall. *il Sci Am* S 86:276-7 N 2 '18

Ground telegraphy in the world war. W. L. Winter. *diags J Elec* 42:210-11 Mr 1 '19

Military radio communication. A. D. Cameron. *il diag Elec W* 73:521-5 Mr 15 '19

**Communication and traffic.** *See* Carriers; Newspapers; Postal service; Printing; Railroads; Telegraph; Telephone; Transportation; Waterways; Wireless telegraph

**Community centers**

Civic type of war memorial. M. S. Franklin. *diags plan Am Arch* 115:259-68 F 19 '19

Community amusement building. D. J. Baker. *diags plans Coal Age* 16:602-4 O 9 '19

Community building as a war memorial. *Am Arch* 116:pl 33-6 Jl 23 '19

Community building at Heminway park, Watertown, Conn. *Arch Forum* 30:pl 9-11 Ja '19

Community building provides center for social and co-operative activities. *il plans Am Lumberman* 2299:44-5 Je 7 '19

Community club at Havana, Cuba, suggests ideas for social centers in this country. *Am Arch* 116:212 Ag 13 '19

Community house as a war memorial. M. Candier. *il plans Am Arch* 116:195-202, 205-7 Ag 13 '19

Community house in Kansas. R. F. Bach. *il plan Arch Rec* 46:190-2 Ag '19

Missouri county builds community hall. G. W. Boettner. *il plans Am Lumberman* 2310:40-1 Ag 23 '19

New principles governing planning of civic buildings. W. R. Greeley. *il plans Am Arch* 116:208, 209-11, pl 58-60 Ag 13 '19

**Community centers—Continued**

Report of the jury of award of the fourth annual White pine architectural competition for a community center building. *Il* diags plans *Am Arch* 116:471-6, pl 123-34 O 8 '19

Social center; civic enterprises. F. Kimball. *Il* plans *Arch Rec* 46:29-46 J1 '19

Some cities' activities in constructing community houses. *Am Lumberman* 2301:48-9 Je 21 '19

Urban neighborhood club builds a community home; Toledo, Ohio. F. H. Schlapman. *Il* plans *Am Lumberman* 2315:46 S 27 '19

**Community kitchens. See Kitchens, Public****Commutation (electricity)**

Commutation in alternating-current machinery. M. C. A. Latour. *Il* diags *Am Inst E E* Pro 37:169-94 F '18; *Abstract. Elec W* 71:420 F 23 '18

Effect of interpoles on commutation of direct-current machines. R. L. Witham. *Il* diags *Power* 49:303-5 Mr 4 '19

Electrical study course—commutation. diags *Power* 47:362-4 Mr 12 '18

Flat spots on commutators and collector rings. W. C. Kalb. diags *Power* 49:779-81 My 20 '19

How spacing and thickness of brushes affect commutation. W. C. Kalb. diags *Power* 49:970-2 Je 24 '19

**Commutators**

Aurand commutator slotter. diags *Power* 48:880 D 17 '18

Aurand commutator slotter for undercutting mica. *Il* *Elec R* 74:727 My 3 '19

Bearing oil caused commutator insulation to fail. E. C. Parham. *Power* 48:23 J1 2 '18

Built-up mica favored for use in commutators. *Elec W* 74:472 Ag 30 '19

Care and operation of electric motors in factories. J. P. Collopy. *Il* diags *Elec R* 73:649-50 O 26 '18

Chasing the elusive bugs out of the commutator. F. Huskinson. *Coal Age* 14:250-1 Ag 8 '18

Commutator slotting device for use with double-spindle lathe. *Il* *Elec Ry J* 54:578 S 20 '19

Cutting the cost of undercutting commutators. *Il* *Elec R* 74:720-1 My 3 '19

Devices for care of brushes and commutators. J. M. Purcell. diags *Power* 48:172 J1 30 '18

Electrical study course—commutator construction. diags *Power* 47:219-21 F 12 '18

Electrolytic plant favors use of smooth commutators. C. F. Hutchings. *Elec W* 72:649 O 5 '18

Ideal commutator resurfacers. *Il* *Power* 47:154 Ja 29 '18

Iron commutators; abstract. B. G. Lamme. *Elec W* 72:310 Ag 17 '18

Iron commutators; abstract. F. Murgatroyd. *Elec W* 71:366 F 16 '18

Loose commutator connections. diags *Motor Age* 36:48 O 23 '19

Rebuilding a commutator under difficulties. H. Wilson. diags *Power* 49:576 Ap 15 '19

Regulation of alternating-current commutator machines by direct current; abstract. M. Osnos. *Elec W* 72:798 O 26 '18

Slotting both large and small commutators. E. S. Smith. diags *Elec W* 74:888 O 25 '19

Undercutting commutator mica. *Elec R* 72:390 Mr 2 '18

Undercutting or slotting of commutators. F. Huskinson. *Coal Age* 14:298-9 Ag 15 '18

Wiping commutators. W. H. Watson. *Power* 48:573-4 O 15 '18

*See also* Brushes (electric machinery); Electric generators; Electric motors

**Company stores**

Accounting control for company store or commissary. W. P. Field. *J Account* 27:96-106 F '19

Making the workman's dollar bigger. E. P. Harris. *Ind Management* 58:111-12 Ag '19

**Company towns. See Model towns****Compass**

Adjustable-beam compass. R. Liebrich. diags *Am Mach* 48:1114 Je 27 '18

Eliminating deviations of the airplane compass. *Automobile* 37:440 S 13 '17

Magnetic compass. *Il* *Marine R* 49:360-1 J1 '19

Navigational magnetic compass considered as an instrument of precision. M. B. Field. *Il* diags *Inst E E J* 57:349-86 My '19

When the compass goes crazy. C. H. Claudy. *Sci Am* 121:204 Ag 30 '19

Wireless compass. J. Lachenbruch. diags map *Sci Am* 120:291- Mr 22 '19

**Compass, Gyrostatic**

Electrical gyro compass. O. B. Whittaker. *Il* *Elec R* 74:1078-81 Je 28 '19

Equipment used afloat and ashore. *Il* *Marine R* 49:164-5 Mr '19

**Compensation. See Workmen's compensation****Competition**

Open price competition offers remedy for overproduction; system of institute of lighting fixture manufacturers. *Elec R* 73:580 O 12 '18

*See also* Monopolies; Trusts, Industrial

**Competition, Unfair**

Prices and competition. R. Ash. *Am Lumberman* 2304:46-7 J1 12 '19

What are my rights regarding the use of family name in title of corporation? *Dom Eng* 85:329-30 N 30 '18

*See also* Blacklisting

**Competitions, Architectural. See Architecture—Competitions****Competitive bidding. See Contracts, Letting of****Complexes (chemistry)**

Inorganic complexes; the structure of mineral compounds containing a large number of atoms. J. R. Mourelle. *Sci Am S* 87:258-9+ Ap 26 '19

**Composing machines. See Typesetting machines****Composition (art)**

Theory of contrast in pictorial presentation. A. H. Clark. *Am Inst Arch J* 7:125-8 Mr '19

**Compound words**

Compound words in English. F. H. Teall. *Inland Ptr* 62:310 D '18

Phrases, not compounds. F. H. Teall. *Inland Ptr* 62:670 Mr '19

**Compressed air**

Aftercooler for a compressed-air installation. J. K. Long. diags plan *Am Mach* 49:199-200 Ag 1 '18

Air consumption on locomotive auxiliary devices; abstracts. C. H. Weaver. *Ry R* 64:682-5 My 10 '19; *Ry Age* 66:1165-8 My 9 '19; *Ry Mech Eng* 93:423-6 J1 '19

Air feed on turret lathes. *Il* diags *Mach* 25:49 S '18

Air-operated pickling machine. diags *Iron Tr R* 65:570 Ag 28 '19; *Iron Age* 104:702 S 11 '19

Apaco pressure system. diags *Automobile* 37:481-2 S 13 '17

Centralized compressor plant versus independent compressors. E. L. Mills. *Am Mach* 50:1232 Je 26 '19

Centralized compressor plant versus independent compressors. F. Richards. *Am Mach* 50:728 Ap 17 '19

Cleaning practice in textile mills. *Il* diags *Textile World* 54:2983+ D 14 '18

Compressed air for cleaning motors. D. R. Shearer. diags *Power* 47:369 Mr 12 '18; *Discussion. R. K. Long. 47:668 My 7 '18*

Compressed air for cleaning switchboards. *Elec R* 72:847 My 18 '18

Compressed air in a shell plant. R. E. C. Martin and S. B. King. *Il* *Am Mach* 50:395-6 F 27 '19

Compressed air; its energy should be carefully conserved. *Textile World* 56:2017+ O 4 '19

Compressed air plant for contracting. W. L. Saunders. *Eng & Contr* 51:293-4 Mr 19 '19

Compressed air sewage lifting system of Cairo, Egypt. diags plans *Eng & Contr* 50:114-16 J1 31 '18

Compressed air shortage relieved by waste-prevention campaign. *Eng N* 82:934 My 8 '19

**Compressed air—Continued**

- Compressed air tunnel driven around lock to check leak in wall. S. S. Hammel. *Il diag* plan Eng N 80:899-701 Ap 11 '18
- Compressed air tunnel work under 47 lb. pressure. Eng & Contr 49:476 My 15 '18
- Conveying concrete through pipes by compressed air. *diag* Eng & Contr 49:106-7 Ja 30 '18
- Cooling forgings by compressed air. Iron Tr R 62:720 Mr 21 '18
- Definitions adopted by Compressed air society. Ry Age 65:79-80 Jl 12 '18; Same. Am Mach 49:73 Jl 11 '18; Same. Elec Ry J 52:325 Ag 24 '18
- Drop of pressure in compressed-air hose; abstract. W. S. Weeks. Am Soc M E J 40:104 Ja '18
- Equalizing compressed air in multiple pneumatic pressure water storage tanks. *diag* Dom Eng 86:565 Mr 29 '19
- Installing apparatus to protect dam from heavy ice. Elec W 71:778 Ap 13 '18
- Mudding coal at St Eloy, France. M. A. Plasard. *diag* plan Coal Age 15:266-9 F 6 '19
- Painting with a jet of air. Sci Am 121:14 Jl 5 '19
- Pneumatic method of concreting. H. B. Kirkland. *Il diag* plans W Soc E J 23:319-49 My '18; Excerpts. Ry R 62:714-18 My 18 '18; Ry Age 64:1223-5 My 17 '18; Eng & Contr 49:478-9 My 15 '18; Discussion. W Soc E J 23:349-55 My '18
- Pneumatic tie tampers fitted with pick points used for widening rock cut. Eng & Contr 50:197 Ag 21 '18
- Pneumatic water works. Sci Am 118:408 My 4 '18
- Power required to compress air. Coal Age 12:1032 D 15 '17
- Stratton air separator. *Il Ind Management* 55:156 F '18; Iron Age 101:693 Mr 14 '18; Foundry 46:287-8 Je '18; Sci Am 119:112 Ag 10 '18; Eng & Min J 106:498 S 14 '18
- See also Air compressors; Air engines; Air lifts; Caissons; Pneumatic tools; Vacuum cleaning

**Laws and regulations**

- Extract from New York state compressed air law. Eng Soc W Pa 34:511-14 O '18

**Compressed air in mining**

- Air compressor in a gassy mine. Coal Age 13:759 Ap 20 '18; Discussion. 13:898 My 11 '18

**Compressed gas**

- Fracture of two compressed-gas cylinders and the cause; abstract. Mech Eng 41:551 Je '19

**Compressibility**

- Compressibility of aqueous solutions, especially of urethane, and the polymerization of water. T. W. Richards and S. Palitzsch. Am Chem Soc J 41:59-69 Ja '19

- Compressibility of aqueous solutions of casein and peptone. S. Palitzsch. Am Chem Soc J 41:348-51 Mr '19

- Determination of the compressibility of solids at high pressures. L. H. Adams, E. D. Williamson and J. Johnston. *Il diag* Am Chem Soc J 41:12-42 Ja '19

**See also Elasticity****Compressing machines**

- Hydraulic scrap metal compress. *Il Iron Age* 101:802 Mr 28 '18

- Compressors. See Air compressors; Ammonia compressors

**Comptoirs. See Trusts, Industrial****Computing. See Calculating****Computing machines. See Calculating machines****Comstock lode, Nevada**

- Mining lower levels of the Comstock lode. L. H. Eddy. *Il diag* Eng & Min J 105:1029-32 Je 5 '18

**Concentrating tables. See Concentrators****Concentration of ore. See Ore treatment****Concentrators**

- Belt concentrators and wet concentration. A. McLaren. Eng & Min J 106:11-13 Jl 6 '18

**Butchart tables. A. P. Watt. Eng & Min J**

- 105:207-8 Ja 26 '18

**Empire concentrating table. D. H. Fairchild.**

- Eng & Min J 107:453 Mr 8 '19

**Ideal dry concentrator. *Il diag* Eng & Min J**

- 106:950-1 N 30 '18

**See also Jigs (mining)****Concentricity**

- Gage for testing concentricity. J. Ahlers. *diag* Am Mach 49:732-3 O 17 '18

**Conchology. See Mollusks****Concrete**

- Better concrete. N. C. Johnson. *Il Sci Am S* 88:236-7+, 276-7 O 25-N 8 '19

- Breaking up concrete. Coal Age 16:140 Jl 24 '19

- Burnt earth concrete, with iron and wood reinforcement. L. P. Hodge. *diag* plans Eng & Contr 52:490-1 O 29 '19

- Calcium aluminum sulphate as a destroyer of concrete. H. Nitzsche. Concrete 15:sup 30 Ag '19

- Conclusions on causes of concrete disintegration. A. Blackie. Eng & Contr 50:503-5 N 27 '18

- Concrete packing stops settlement over tunnel. E. E. Adams. *diag* Ry Age 67:509-11 S 12 '19

- Corrugated concrete roofing. Chem & Met Eng 19:320 S 15 '18

- Determination of voids in concrete. A. J. Hillman. Eng & Contr 50:125 Jl 31 '18

- Does rich concrete in roads crack more than lean? symposium. Eng N 83:518-20, 771 S 11, O 23 '19

- Good concrete—right materials and mixtures. R. Borhek. Concrete 15:98-100 S '19

- How to make patches on concrete surfaces. R. N. Maxwell. Eng N 81:334 Ag 15 '18

- Hydrated lime in concrete. C. F. Lambert. Concrete 13:224-5 Je '18

- Incase wood trusses in concrete to resist acid fumes and fire. Eng N 79:891-2 N 8 '17; Same. J Fr Inst 185:157-8 Ja '18

- Joint committee report. Concrete 10:148-9, 202-3, 236-7; 11:29-30, 60-1, 93-4, 118-19, 158; 12:64-6, 143-5 Ap-N '17, F. Ap '18

- Properties and design of concrete discussed. Eng N 83:41-2 Jl 3 '19

- Report of the committee of American concrete institute on treatment of concrete surfaces. Am Arch 116:57-9 Jl 9 '19

- Use of hydrated lime in concrete. Ry R 62:100-1 Ja 19 '18

- Why materials of construction should be tested prior to their use. E. Mavant. Munic Eng 56:184-6 My '19

- See also Cement; Concrete, Reinforced; Concrete construction; Concrete products; Grouting; Gunite; Pavements, Concrete; Pipes, Concrete; Roads, Concrete; Sewers, Concrete; Waterproofing

**Aggregate**

- Abrasion test for mineral aggregates; suggested modification of the Deval test. H. H. Scofield. Good Roads n s 16:108+ S 21 '18

- Absorption tests of slag, stone and gravel concrete. O. R. Smith. Concrete 14:144; 15:169 Ap, O '19

- Aggregate for concrete ships. F. Whipperman. Concrete 13:21 Jl '18

- Aggregate is critical element in fire resistance of concrete columns; abstracts. W. A. Hull. Eng N 81:49 Jl 4 '18; Concrete 13:51-2 Ag '18

- Aggregate producers form war service committee. Concrete 13:sup29 S '18

- Aggregates too coarse in Bureau of standards tests. D. A. Abrams. Eng N 82:1147-9 Je 12 '19

- Blast furnace slag concrete. J. E. Stead. Iron Age 103:750 Mr 20 '19

- Colorimetric test to avoid organic impurities. Concrete 12:161 My '18

- Compact portable outfit for testing aggregates in the field. F. H. Jackson. *Il Eng & Contr* 52:380-2 O 1 '19

**Concrete—Aggregate—Continued**

- Conclusions and recommendations of American concrete institute committee on fire resistive concrete. W. A. Hull. Eng & Contr 52:105 JI 23 '19; Same. Eng N 83:76-7 JI 10 '19
- Concrete aggregate of burnt clay. Am Arch 113:165-6 F 6 '18
- Concrete in road construction, culverts and bridges. H. E. Breed. II Good Roads n s 17: 261-3 Je 21 '19; Same. Munic Eng 56:223-5 Je '19; Excerpts. Eng N 82:1102-3 Je 5 '19; Excerpt, with table. Eng & Contr 52:24 JI 2 '19
- Defends aggregate grading theories. L. N. Edwards. Eng N 83:191-3 JI 24 '19
- Detecting organic impurities in sands. D. A. Abrams and O. E. Hardner. Sci Am S 85: 365-6 Je 8 '18; Same abr. Eng & Contr 49: 440 My 1 '18
- Geology of concrete aggregates. Eng & Contr 52:454-5 O 29 '19
- Geology of concrete aggregates with special reference to texture. P. G. H. Boswell. Eng & Contr 52:494-6 O 29 '19
- Heavy weight concrete for ship ballast. Concrete 13:161 N '18
- History and properties of light-weight aggregates; burnt clay or shale. II Eng N 82: 802-5 Ap 24 '19
- How one contractor provided aggregates. E. A. Gast. II Concrete 15:180-1 N '19
- How to use pit-run gravel safely. R. W. Crum. Concrete 15:8-10 JI '19
- Light aggregate alters ship design. Concrete 13:113 O '18
- Light weight concrete for ships from special aggregate. J. P. Nash. II Eng N 81:186-7 JI 18 '18
- Limestone screenings as concrete aggregate. W. M. Kinney. Concrete 13:84 Ag '18
- Mixing sand and gravel before they go to the mixer. II Eng N 79:1120-1 D 13 '17
- More against mortar test for concrete. J. O. Jones. Eng N 83:581 S 18 '19
- Mortar test does not insure good concrete aggregate. C. C. Williams. Eng N 82:1006 My 22 '19
- Notes on sand and gravel plant operation. Concrete 12:sup60 My '18
- Pit-run gravel—yes or no? when and how? Concrete 15:85-6 Ag '19
- Porous rock makes good concrete of light weight. C. E. Bargebaugh. Eng N 80:402 F 23 '18
- Producing good concrete aggregates: description of the new plant of the California building material company. E. M. Porter. II diags Concrete 12:sup13-16 F '18
- Proportioning pit-run gravel for concrete. R. W. Crum. Concrete 15:3-8 JI '19; Same cond. Eng & Contr 52:18-20 JI 2 '19
- Requirements of slag for aggregate in concrete. Eng & Contr 51:320 Mr 26 '19
- Slag aggregate in concrete and mortar. E. Mavant. Concrete 14:239-40 Je '19
- Slag as an aggregate for concrete ships. C. C. Myers II Iron Age 102:152-4 JI 18 '18; Same. Engineer 126:443 N 22 '18; Conclusions. Eng N 80:956 My 16 '18
- Suggestions for inspectors on county road and bridge construction. C. R. Weymouth. Eng & Contr 51:247-8 Mr 5 '19
- Surface area and fineness modulus methods of grading concrete aggregates. D. A. Abrams. Eng & Contr 51:673-6 Je 25 '19; Same cond. Eng N 82:1203-7 Je 19 '19
- Tests of slag concrete. Ry Age 64:165-6 Ja 18 '18; Abstract. Am Soc M E J 40:271 Mr '18
- Tests of the influence of grading on the value of fine aggregates for concrete road work. F. H. Jackson. Good Roads n s 14:329-31+ D 29 '17
- Wear-resisting values of various aggregates for concrete roads indicated. H. S. Mattimore. II Eng N 80:861-3 My 2 '18
- What about aggregates? Concrete 13:77 S '18
- See also Concrete mixing; Gravel

**Bibliography**

Structural service department; stone masonry, broken stone, sand, and gravel. Am Inst Arch J 6:98-9 F '18

**Bibliography**

Concrete & cement; a list of books in the Brooklyn Public Library. 12p Mr '18 Brooklyn Public Library, Brooklyn, N.Y.

Structural service department; cement and concrete, and treatment of concrete surfaces. Am Inst Arch J 6:92-7 F '18

**Curing**

Curing concrete. II Munic J 47:34-5 JI 19 '19

Curing concrete pipe. Concrete 14:93-4 Mr '19

Effect of curing condition on the wear and strength of concrete. D. A. Abrams. Concrete 15:147-53 O '19; Excerpts. Eng & Contr 51:309-12 Mr 26 '19

Hooded curing cars to do away with curing rooms. diags Concrete 13:203 D '18

**Finishing**

American heavy duty floor surfacer. II Concrete 11:195-6 D '17

Artistic possibilities of concrete. Sci Am S 85:85 F 9 '18

Artistic treatment of concrete surfaces. H. V. Walsh. II Arch Rec 46:237-42 S '19

Beltting and rolling methods for concrete roads in Illinois. H. E. Bilger. Eng N 80:461 Mr 7 '18

Cement floor finishes. Am Arch 114:182-3 Ag 7 '18

Concrete surface finish. Concrete 13:66-7 Ag '18

Concrete surfaces: consistency of concrete and tooling, and their relation to hair checking. E. M. Lurie. Concrete 12:171-3 My '18

Device for finishing concrete pavements said to save labor. J. C. Hills. diag plan Eng N 81:418 Ag 29 '18

Finish 3325 sq. ft. of concrete floor for 58c. per 100 sq. ft. J: T. Sullivan. diag Eng N 80:677 Ap 4 '18

Finishing concrete floors. Concrete 12:178 My '18

Finishing stone—tools used. Concrete 13:121 O '18

How can a smooth surface on concrete be secured? Bldg Age 40:358-9 JI '18

How to get good results when coating concrete with cement. A. M. Wolf. Bldg Age 40:352 JI '18

Illinois specifications for roller and belt method of finishing concrete roads. Concrete 12:161-2 My '18; Same. Eng & Contr 50:330 O 2 '18

Light canvas strips for floating concrete pavement. C: T. Fisher. II Munic Eng 54:74 F '18

Pavement planer method of finishing concrete roads. E. E. Glass. II Eng & Contr 50:318-19 O 2 '18

Portable electric driven tool for surfacing concrete work. II Eng & Contr 49:115 Ja 30 '18

Roller and belt finish better and more economical. Concrete 12:161-2 My '18

Roller and belt road finish. Concrete 12:186 My '18

Roller weighing 74 pounds finishes walks. W. M. Kinney. II Eng N 80:1196-7 Je 20 '18

Rolling concrete longitudinally gives good roadway. G: Yavroumis. diag Eng N 80:1123 Je 13 '18

Rotary concrete surfacing machine. Munic Eng 54:120 Mr '18

Solving the crazing problem. Concrete 11:99-102, 167-8 O, D '17

Some pointers on how to finish a concrete floor. W: McGinnis. Eng N 82:477-8 Mr 6 '19

Surface finish for bridges and buildings. Concrete 13:23 JI '18

Surface finish of column and beam faces. II Concrete 12:56-7 F '18

Surface treatment for monolithic concrete walls; symposium. Concrete 13:18-20 JI '18

Templet with saw teeth cuts off and finishes concrete surface. II Eng N 83:333-4 O 30 '19

See also Concrete, Ornamental; Concrete stone

**Concrete—Continued****Freezing**

Alternate freezing and thawing affect concrete. A. H. McDaniel. Eng N 80:458-9 Mr 7 '18; Same cond. Concrete 13:84 S '18  
Frozen concrete thawed by putting warm concrete on surface. A. E. Parker. Eng N 82:964 My 15 '19

See also Concrete construction in winter

**Mixing**

See Concrete mixers; Concrete mixing

**Protection**

Acid-proofing concrete. K. E. Hildreth. Concrete 12:205-6 Je '18  
Concrete as a chemical engineering material. M. Toch. Chem & Met Eng 20:222-3 Mr 1 '19; Excerpt. Sci Am S 87:339 My 31 '19  
Concrete in sea water. J. L. Harrison. Il Concrete 15:198-200 N '19  
Protecting newly placed concrete from extreme heat or extreme cold. Bldg Age 40:451 S '18

See also Waterproofing

**Setting**

Cements producing quick hardening concrete. P. H. Bates. Concrete 15:sup9-12 Jl '19; Same cond. Eng & Contr 52:100-2 Jl 23 '19; Excerpts. Ry Age 67:17 Jl 4 '19  
Concrete hardening accelerated by calcium chloride. Concrete 15:125-6 S '19  
Tests of New York state department in use of calcium chloride in hastening setting of concrete. H. E. Breed. Eng & Contr 51:601 Je 4 '19; Same. Eng N 82:1258 Ja 26 '19; Same. Munic Eng 56:208 Je '19

See also Cement—Setting

**Temperature**

Concrete-frame factory building has wooden roof. W. E. Turner. Il diags Eng N 82:926-8 My 8 '19  
Temperature records of cold weather concrete. L. J. Towne. diag Eng & Contr 51:55-6 Ja 15 '19  
Temperature variations in concrete of a retaining wall. F. R. Wiederholdt. Eng & Contr 51:36 Ja 8 '19

**Testing**

Absorption tests of slag, stone and gravel concrete. O. R. Smith. Concrete 14:144; 15:169 Ap, O '19  
Aggregate is critical element in fire resistance of concrete columns; abstracts. W. A. Hull. Eng N 81:49 Jl 4 '18; Concrete 13:51-2 Ag '18  
Alternate freezing and thawing affect concrete. A. H. McDaniel. Eng N 80:458-9 Mr 7 '18; Same cond. Concrete 13:84 S '18  
Causes of failure concrete test cubes. Eng & Contr 50:521 D 4 '18  
Cement and concrete testing for subway and elevated lines in New York city. Eng & Contr 51:582 My 28 '19  
Compressing concrete increases its strength. F. P. McKibben. Il diag Eng N 81:1031-3 D 5 '18  
Concrete base improved by scientific sampling and testing. G. F. Fisk. Eng N 81:665-6 O 10 '18  
Determining quality of concrete. Concrete 14:242 Je '19  
Eccentric loading tests result contrary to theory; with concrete blocks under compression adding material off center of load does not decrease strength. J. C. Prior. diag Eng N 80:303-4 Ap 25 '18; Discussion. 80:1241-2 Je 27 '18  
Effect of age and storage on concrete strength. Eng N 81:53 Jl 4 '18  
Effect of curing condition on the wear and strength of concrete. D. A. Abrams. Concrete 15:147-53 O '19  
Effect of fineness of cement on quality of concrete. D. A. Abrams. Il diag Concrete 15:189-96 N '19

Effect of rate of application of load on compressive strength of concrete; abstract. D. A. Abrams. diag Am Soc M E J 40:272 Mr '18

Effect of time of mixing on the strength of concrete. D. A. Abrams. Il Am Arch 114:711-17, 745-50, 775-81; 115:85-7 D 11-25 '18, Ja 8 '19

Effect of vibration, pressure and jiggling on concrete. D. A. Abrams. Concrete 15:107-11 S '19; Same. Eng & Contr 52:352-4 S 24 '19; Abstract. Eng N 83:16 Jl 8 '19

Effect on concrete of consistency and mixing time. D. A. Abrams. Il Concrete 13:122-7 O '18

Escaping water important in concrete tests. G. A. Parkinson; D. A. Abrams; J. C. Pearson. Eng N 83:192-3 Jl 24 '19

Hydrated lime in concrete roads. G. W. Hutchinson. Munic J 45:230 S 21 '18; Am Arch 114:414-15 O 2 '18; Concrete 13:133 O '18; Eng & Contr 50:329-30 O 2 '18

Improving concrete by rodding. F. E. Glesecke. Eng N 82:957-8 My 15 '19; Discussion. 83:528-9, 895-6 S 11, N 13 '19

Making concrete tell its story. C. H. Claudy. Il Sci Am 117:493 D 29 '17

New compressometer devised to measure elasticity modulus. H. A. Davis. Il diags plan Eng N 81:710 O 17 '18

Paper cylinders used for molds for concrete test pieces. W. Davis. Il Eng N 83:473 S 4 '19

Porous molds give better concrete tests than iron molds. Concrete 14:sup69 Je '19

Porous rock makes good concrete of light weight. C. E. Bargebaugh. Eng N 80:402 F 28 '18

Saturation of concrete reduces strength and elasticity. M. B. Lagaard. Eng N 81:908-10 N 14 '18

Some compression tests of Portland cement mortars and concrete containing various percentages of silt. A. C. Alvarez and J. R. Shields. Univ of Cal Pub in Engineering v 2, no 3:119-30 '18

Tests of concrete. Mech Eng 41:390 Ap '19  
Tests of lava rock concrete. Eng & Contr 49:505 My 22 '18

Tests of rodded concrete. F. E. Glesecke. Concrete 14:196-7; 15:196-7 My, N '19; Same (pt. 1). Eng & Contr 51:543-4 My 21 '19; Same (pt. 2). Am Arch 116:467-9 O 1 '19

Tests of slag concrete. Ry Age 64:165-6 Ja 18 '18; Abstract. Am Soc M E J 40:271 Mr '18  
Tests on time of mixing concrete. Eng N 82:200-1, 486-7 Ja 23, Mr 6 '19

Water content and concrete strength. chart Eng & Min J 106:998 D 7 '18

Wear-resisting values of various aggregates for concrete roads indicated. H. S. Mattimore. Il Eng N 80:861-3 My 2 '18

See also Concrete, Reinforced—Testing; Concrete slabs—Testing; Floors, Concrete—Testing

**Waterproofing****See Waterproofing**

Concrete, Effect of age on  
Effect of age on strength of concrete. R. W. Scherer. Concrete 13:162 N '18

Concrete, Effect of alkalies on  
Conclusions on causes of concrete disintegration. A. Blackie. Eng & Contr 50:503-5 N 27 '18

Durability of cement drain tile and concrete in alkali soils. R. J. Wig and others. Il diags plans U S Bur Stand Tech Pa 95:1-94 '17; Excerpts. Eng & Contr 49:170-2 F 13 '18

Effect of alkali soils on concrete. J. F. Greene. Eng & Contr 49:465-6 My 8 '18

Concrete, Effect of salt on  
Effect of salt in warm climate on reinforced concrete. J. C. Foss, jr. Il Concrete 13:149-50 N '18

Effect of salt on concrete sidewalks. Concrete 11:186 D '17

Concrete, Effect of sea water on  
Are spirally wound concrete piles safe in sea water? A. C. Chenoweth. Eng N 80:926 My 9 '18



- Concrete, Effect of sea water on—Continued**  
 Comment on the behavior of sea-water concrete; a discussion of the articles on concrete in sea water by R. J. Wig and L. R. Ferguson. Eng N 80:264-7, 575-7 F 7, Mr 21 '18  
 Concrete in sea water. J. L. Harrison. II Concrete 15:198-200 N '19  
 Corrosion of steel wharves at Kowloon and method of encasing members in concrete. S. H. Ellis. diag plan Eng & Contr 50:104-5 JI 31 '18  
 Effect of salt in warm climate on reinforced concrete. J. C. Foss, Jr. II Concrete 13:149-50 N '18  
 Effect of sea water on concrete. Concrete 13:35 JI '18  
 Ignorance of civil engineers about the action of sea water on concrete. Eng & Contr 49:400-1 Ap 24 '18  
 Reinforced concrete versus salt, brine and sea-water. H: J. M. Creighton. II Chem & Met Eng 19:618-23 O 15 '18; Discussion. W. M. Kinney. Chem & Met Eng 19:701 N 15 '18  
 Selection of materials for sea-water concrete. R. J. Wig and L. R. Ferguson. II Eng N 79:737-41 O 18 '17; Discussion. 79:1212-13 D 27 '17
- Concrete, Ornamental**  
 Artistic possibilities of concrete. Sci Am S 85:85 F 9 '18  
 Artistic treatment of concrete surfaces. H. V. Walsh. II Arch Rec 46:237-42 S '19  
 Bridge trim of concrete stone. II diag Concrete 12:141 Ap '18  
 Building decoration in the Philippines. J. L. Harrison. II Concrete 12:52-4 F '18  
 Concrete as a medium of artistic expression. H. C. Campbell. II Am Arch 114:217-23 Ag 21 '18  
 Concrete features of S. B. Newberry residence, Cleveland, O. II Concrete 12:211 Je '18  
 Ornamental concrete for national market. II Concrete 11:178-9 D '17  
 Out-of-door furnishings. P. D. Otter. II Bldg Age 40:33-7 F '18  
 Sundial designs for products men. H. V. Walsh. II diag Concrete 14:64-6 F '19
- Concrete, Reinforced**  
 Bar sizes and bond stresses charted. C: W. Martin. Concrete 14:60-1 F '19  
 Bond between steel and concrete. M. O. Fuller. Concrete 15:201-3 N '19  
 Calculating diagrams for reinforced concrete. J. Williamson. Engineer 128:149-51 Ag 15 '19  
 Core type of reinforced concrete floor construction. diags Eng & Contr 50:84-5 JI 24 '18  
 Corrosion of iron and steel with special reference to reinforced concrete; abstracts. J. N. Friend. Iron Age 101:444 F 14 '18; Eng & Contr 50:599 D 25 '18  
 Demolition of reinforced concrete buildings; the Western newspaper union building, Chicago. II Am Arch 113:98-9 Ja 23 '18  
 Designing wall beams in concrete flat-slab buildings. A. M. Wolf. diags Eng N 80:1124-6 Je 13 '18  
 Distribution of internal work in beams and slabs. H: T. Eddy. diag Eng N 81:460-2 S 5 '18  
 Distribution of the energy stored in reinforced concrete beams and column-supported, flat-slab floors. H: T. Eddy. J Fr Inst 186:439-48 O '18  
 Electrolysis in reinforced concrete. Sci Am 120:158 F 15 '19  
 Equivalent uniform loads for reinforced concrete beams. A. J. Becker. diags Eng & Contr 49:633-5 Je 26 '18  
 Extension to Superior ore dock built of concrete. II diags plan Eng N 80:1213-14 Je 27 '18  
 Formulas for calculating thickness and reinforcement for concrete conduit. L. R. de la Mahotiere. diags Eng & Contr 49:591-3 Je 13 '18  
 Huge planer for rush war job has concrete bed and housing. II Iron Tr R 62:852-4 Ap 4 '18  
 Is the reinforced concrete freight car an economic possibility? Eng & Contr 50:184 Ag 21 '18  
 Joint committee report. Concrete 10:148-9, 202-3, 236-7; 11:29-30, 60-1, 93-4, 118-19, 158; 12:64-6, 143-5 Ap-N '17, F, Ap '18  
 Keeping reinforcing bars in position while concreting. A. M. Wolf. II Bldg Age 40:256-7 My '18  
 Machine tools of concrete. R. H. Moulton. II Sci Am 118:565 Je 22 '18  
 Making concrete metal-planing machines. E. Viall. II diags plans Am Mach 48:603-8 Ap 11 '18; Abstract. J Fr Inst 186:288 S '18; Discussion. W. T. Sears. Am Mach 48:943-4 Je 6 '18  
 Maximum steel used in concrete. S. E. Thompson. Concrete 12:176 My '18  
 Metal planing machines of concrete. C: Lundberg. II Iron Age 101:865-9 Ap 4 '18; Abstract. Concrete 12:214 Je '18  
 Methods in concreting a grand stand. II diags Concrete 13:194 D '18  
 New form of reinforcing metal for concrete. C: Rabut. Eng & Contr 51:455-6 Ap 30 '19  
 Placing 52-ton pre-cast beams on North Toronto bridges of C. P. Ry. II diag Eng & Contr 50:86-8 JI 24 '18  
 Preservation of steel in concrete. Sci Am 118:272 Mr 30 '18  
 Pressure pipe of reinforced concrete. C. Meriwether. II diag Concrete 13:89-91 S '18  
 Reinforced concrete panorama for zoological gardens. A. Lakeman. II Eng & Contr 50:130 JI 31 '18  
 Reinforced concrete versus salt, brine and sea-water. H: J. M. Creighton. II Chem & Met Eng 19:618-23 O 15 '18; Discussion. W. M. Kinney. Chem & Met Eng 19:701 N 15 '18  
 Reinforcing circular structures. chart Concrete 12:166 My '18  
 Reinforcing viaduct floors with rib metal. II Ry R 65:73-4 JI 12 '19  
 Revised code of Bureau of yards and docks for design of reinforced concrete structures. Eng & Contr 49:498-500 My 22 '18  
 Rusting steel chimneys coated with concrete by cement gun. II diags Eng N 81:596-7 S 26 '18  
 600 ft. reinforced concrete extension of N. P. Ry. ore dock at Superior, Wis. W. D. Engelke. II diags Eng & Contr 50:52-4 JI 17 '18  
 Spalling of reinforced concrete in moist location. F. E. Turneure. II Eng N 80:46-7 Ja 3 '18  
 Storage tanks made of reinforced concrete. F. W. Frerichs. II diags plan Chem & Met Eng 20:234-6 Mr 1 '19  
 Strengthening columns of reinforced concrete. Concrete 13:128-9 O '18  
 Table aids spacing of stirrups. R. G. Young. Eng N 80:1182 Je 20 '18  
 Theatre des Champs Elysees a notable example of reinforced concrete construction. II Eng & Contr 50:128 JI 31 '18  
 Types of reinforced concrete construction. B. S. Brown. diags Arch Forum 31:157-8 N '19  
 Wood as reinforcement for concrete. diags Eng & Contr 52:505 O 29 '19  
 Wrecking a reinforced concrete building; 1,200 lb. iron ball used to demolish Western newspaper union building. R. H. Moulton. II Concrete 11:194-5 D '17; Same. Bldg Age 40:97-8 F '18  
 Wright concrete planing machines. II Am Mach 49:363-4 Ag 22 '18; Iron Age 102:449 Ag 22 '18; Iron Tr R 63:558-9 S 5 '18  
 See also Concrete; Concrete bricks; Concrete construction; Concrete slabs; Retaining walls, Concrete; Steel reinforcing bars
- Patents**  
 Expiration of the Norcross flat-slab patent. Eng N 82:801 Ap 24 '19

**Concrete, Reinforced—Continued****Testing**

- Analysis and tests of rigidly connected reinforced concrete frames. M. Abe. *Il diags* Ill U Eng Exp Sta Bul 107:1-102 '19; Abstract. Eng & Contr 52:91-3 J1 '23 '19; Conclusions. Mech Eng 41:547-8 Je '19
- On the strength of concrete in shear. E. Godfrey; W. A. Slater. Eng N 82:783-4 Ap 17 '19
- Some tests on the properties of reinforced concrete. W. A. Slater. *diags* Eng N 83:217-20 J1 31 '19
- Tests of circumferentially reinforced floor. E. Smulski. *Il Concrete* 13:85 S '18
- Tests of eighteen concrete columns reinforced with cast iron. J Fr Inst 188:403-4 S '19; Same. Eng N 83:521 S 11 '19; Same. Concrete 15:138 O '19
- Tests show high shears in deep reinforced-concrete beams. W. A. Slater. *Il diag* Eng N 82:430-3 F 27 '19
- Concrete barges.** See Barges, Concrete
- Concrete benches.** See Benches, Concrete
- Concrete bins.** See Bins, Concrete
- Concrete blocks**
- Block yard cheaply improvised from old equipment. *Il diags* plan Eng N 83:356-7 Ag 21 '19
- Brandell automatic concrete block machine. *Il Eng & Contr* 49:118 Ja 30 '18
- Chalk concrete building blocks. Eng & Contr 51:453 Ap 30 '19
- Concrete block river mattresses prove economical. B. Okasaki. *Il Eng N* 81:713-14 O 17 '18
- Efficient plant for casting concrete blocks for Miami river revetment. *Il plans* Eng & Contr 52:214-15 Ag 20 '19
- How city building inspectors help the concrete block industry. Concrete 14:171-2 My '19
- Making glazed silo block by new process. *Il Concrete* 13:134 O '18
- Manufacturing block for Halifax houses. *Il diags* plans Concrete 14:52 74-8 F '19
- Miniature blockyard furnishes reinforcing supports. *Il Eng N* 81:98-9 J1 11 '18
- Proposed type of concrete block for N.Y. tunnel. *diags* Concrete 15:18 J1 '19
- Putting the concrete block on the building map. E. S. Hanson. Concrete 15:88-9 Ag '19
- Rough textured block made in tamp machine. *Il Concrete* 11:179-80 D '17
- Success ideas that worked for a block maker. E. S. Hanson. Concrete 14:216-17 Je '19
- Time-saver for block manufacturers' draftsman. H. Boyd. *diags* Concrete 12:208 Je '18
- See also Concrete bricks
- Concrete boats.** See Boats, Concrete
- Concrete bricks**
- Concrete brick for high-tension cells. E. B. Meyer. *Il Elec W* 72:977-8 N 23 '18
- New form of block work for building construction. *Il plans* Eng & Contr 52:149 J1 30 '19
- Concrete bridges.** See Bridges, Concrete
- Concrete buildings**
- Concrete building for Sprague electric works, Watessing, N.J. *Il Arch & Bldg* 50:16-18 F '18
- Concrete building units in Maine. *Il Concrete* 15:168 O '19
- Concrete comes into its own. S. M. Fecheimer. *Il Am Arch* 113:299-304 Mr 6 '18
- Concrete may replace steel in power-house construction. Elec W 72:496 S 14 '18
- Largest reinforced concrete building. Eng & Contr 49:401 Ap 24 '18
- Moving reinforced concrete building to a new site. J. L. Schnitz. *Il diag* Concrete 15:60-2 Ag '19
- Notable example of reinforced concrete construction; Arcade building, St Louis. *Il plan* Am Arch 113:729-32 My 29 '18
- Produce terminal for Los Angeles, Cal. L. A. Waterbury. *Il diags* plan Eng N 80:167-8 Ja 24 '18

Steel-frame hall forms top story of concrete building. *Il diags* plan Eng N 79:1103-6 D 13 '17

Whooping 'er up on war work; reinforced concrete office building group for War and Navy departments. H. Whipple. *Il Concrete* 13:39-41 Ag '18

Why we use concrete buildings; symposium. *Il Concrete* 15:14-17 J1 '19

See also Concrete houses; Garages, Concrete; Silos, Concrete; Warehouses, Concrete

Concrete chimneys. See Chimneys, Concrete

Concrete columns. See Columns, Concrete

**Concrete construction**

Aesthetic aspect of concrete construction. C. F. A. Voysey. Concrete 14:120 Mr '19

Anchor bolts held in correct position while concreting footings. A. P. Roscoe. *diag* plan Eng N 82:588-9 Mr 20 '19

Army's biggest building job done at double quick. L. I. Smoyer. *Il Concrete* 13:172-6 D 18 '18

Balloon framing with concrete. *diags* plans Coal Age 13:681-2 Ap 13 '18

Being a small concrete contractor and making it pay. Concrete 14:133-4 Ap '19

Bonding new cement mortar and concrete to old concrete. Eng & Contr 52:106 J1 23 '19

Brooklyn army base is largest port terminal. *Il diags* plans Eng N 82:317-23 F 13 '19

Building concrete foundations: how to make them waterproof. E. I. Freese. *diags* plan Bldg Age 41:250-1 Ag '19

Building in record time under difficulties. C. F. Dingman. *Il Concrete* 14:227-9 Je '19

Building them good and fast; speed on New Jersey factory job. R. A. Wilson. *Il diag* plans Concrete 15:182-4 N '19

Cement staves used in farm building construction. W. F. Kaiser. *Il Bldg Age* 41:30-1 Ja '19

Columns set back of walls give large window area. *Il Eng N* 80:809 Ap 25 '18; Same. Textile World 55:2091+ Ap 5 '19

Concrete army warehouses built in record time. E. H. Mosher. *Il diags* plan Eng N 80:312-14 F 14 '18

Concrete boards used in building construction. Bldg Age 40:401 Ag '18

Concrete channel for stream over fractured mine outcrop. H. A. Coy. *Il diag* plan map Eng N 83:327-8 Ag 14 '19

Concrete coal bunker built at Youngstown (O.) coke ovens holds 1800 tons, finished in 60 days. *Il diags* Eng N 79:1161-3 D 20 '17

Concrete construction on the Mississippi sands. R. Gotthold. *Il Sci Am* 121:532-3+ N 29 '19

Concrete displaces wood and paper in Japan. H. Sibley. *Il Concrete* 13:163-4 N '18

Concrete factory. E. W. McMullen. Arch Forum 31:7-9 J1 '19

Concrete-frame factory building has wooden roof. W. E. Turner. *Il diags* plan Eng N 82:926-8 My 8 '19

Concrete frame of building carries wood floor. *Il diags* Eng N 79:1055-6 D 6 '17

Concrete in marine terminals. H. C. Campbell. *Il Int Marine Eng* 23:220-4 Ap '18

Concrete in theatre construction. E. E. Seelye. *diags* plans Arch & Bldg 50:5-6, pl 22, 27 Ja '18

Concrete in water works construction. A. C. Irwin. *Il Munic Eng* 57:226-8+ N '19

Concrete lined pit built without shifting bracing for heat treatment furnace of the Polak steel co., Carthage, O. H. D. Loring. *diags* plan Eng N 81:497-9 S 12 '18

Concrete mat and columns reduce cost of building. *Il diags* Eng N 82:959-60 My 15 '19

Concrete material for army base hauled by motor trucks. *Il Eng N* 82:366-8 F 20 '19

Concrete materials and design of the new buildings of the Massachusetts Institute of technology, Cambridge, Mass. S. E. Thompson. *diags* plan Boston Soc C E J 5:39-52 Ja '18

Concrete molds. *Il Concrete* 15:167 O '19

Concrete moulding plant, Pennsylvania. R. R. *Il diags* plans Ry R 64:425-32 Mr 22 '19

**Concrete construction—Continued**

- Concrete shell built around tall steel water tanks. *Il* diags Eng N 79:305-7 Ag 16 '17; Abstract. Eng & Contr 48:389 N 14 '17; Abstract. Munic Eng 53:240-1 D '17; Abstract. Sci Am 119:128 Ag 17 '18
- Concrete trunking in signal work. B. A. Lundy. diags plan Ry R 64:549-50 Ap 12 '19
- Concrete used in boiler-house structure and fittings. G. S. Nobles. *Il* Eng N 83:262-3 Ag 7 '19
- Concrete used in building dust precipitation plant. W. E. North. *Il* diags plan Concrete 14:sup13-19 F '19
- Concrete walled houses on Long Island sound. M. D. Morrill. *Il* plans Concrete 12:18-22 Ja '18; Excerpt. Eng & Contr 50:304 S 25 '18
- Concreting procedure on Miami flood-control dams. *Il* Eng N 83:640-3 O 2 '19
- Confining mill creek in a concrete tube. *Il* Concrete 12:187 My '18
- Construction methods used on the Junction dam. *Il* Eng N 81:495-7 S 12 '18
- Construction of concrete feeding floors. W. G. Kalrer. *Il* diags Bldg Age 40:208-9 An '18
- Construction of new arch section of Galveston causeway. *Il* diags plan Eng N 82:1190-2 Je 19 '19
- Cooperative elevator of concrete at low cost. *Il* plan Concrete 12:195 Je '18
- Cutting concrete for installation of equipment. Concrete 12:215-16 Je '18
- Erecting 130-ft. concrete dome of Hippodrome, Copenhagen, Denmark. *Il* diags Concrete 11:165-7 D '17
- Featherweight concrete units for houses. *Il* plan Concrete 12:29 Ja '18
- Fire-resisting building construction; use of guncrete. *Il* diags plans Am Arch 113:573-5 My 8 '18
- Foundation construction for range lights on Delaware river. T. J. Rout. diags plan Eng & Contr 49:618-19 Je 19 '18
- French airship sheds built of framed concrete. diags Eng N 83:702-3 O 9 '19
- Hahn system of concrete lumber. F. R. Hahn. *Il* diags plans Concrete 14:70-1 F '19
- Heathcote system of concrete construction. *Il* diags Engineer 126:551-2 D 27 '18; Same cond. Eng & Contr 51:460 Ap 30 '19
- High multiple-arch concrete dam for Salt Lake City water-supply. *Il* diags plan Eng N 80:455-7 Mr 7 '18
- Hot weather concreting. Concrete 13:102 S '18
- Kinks in using concrete. J. Upton. Bldg Age 40:395 Ag '18
- Low first cost for concrete factory. *Il* diags Concrete 15:31-2 Jl '19
- Method of combining metal lath and concrete. *Il* Eng & Contr 49:126 Ja 30 '18
- Methods and cost of constructing reinforced concrete pier shells for Balboa docks. R. Z. Kirkpatrick. diags plan Eng & Contr 49:66-7 Ja 16 '18
- Monolithic concrete school buildings in Florida. *Il* diags plans Concrete 12:157-9 My '18
- Movable towers concrete deck of Philadelphia Elevated. *Il* Eng N 82:50-2 Ja 2 '19
- My own house—how it was built. C. D. Gilbert. *Il* plans Concrete 12:10-15 Ja '18
- New English system unit construction. *Il* diags Concrete 14:249-50 Je '19
- New form of block work for building construction. *Il* plans Eng & Contr 52:149 Jl 30 '19
- Night work on concrete flour mill. D. Baxter. *Il* plan Concrete 13:119 O '18
- One set of wood forms used three times completes concrete foundry. J. M. Villadsen. *Il* Eng N 81:950-1 N 21 '18
- Ordnance factory 710 x 140 feet built in three months at East Moline, Ill. H. Greenleaf. *Il* Eng N 80:317-18 F 14 '18
- Porto Rican earthquake fails to disturb reinforced concrete. *Il* Concrete 13:204 D '18
- Practical points in the design and construction of partitions. H. L. Barraclough. Eng & Contr 50:222-3 Ag 28 '18
- Precast and field-cast concrete houses built by Lehigh coal and navigation co. at Lansford, Pa. J. B. Warriner. *Il* diags plans Coal Age 13:228-30 F 2 '18
- Precast units for sea wall construction at Avon, N.J. diags Concrete 11:182 D '17
- Public buildings of concrete in Philippines. *Il* plan Concrete 15:112-13 S '19
- Rapid concreting a feature of big Portsmouth dry dock. *Il* Eng N 83:494-6 S 11 '19
- Rapid house construction with concrete studs; fire-resistive walls of cement stucco on metal lath. diags plans Eng N 80:604-6 Mr 28 '18; Eng & Contr 49:504-5 My 22 '18
- Rectangular reinforced concrete enginehouse. *Il* diags plan Ry Age 66:891-2 Ap 4 '19
- Reinforced concrete building stands extreme overload. *Il* Am Arch 115:768-70 My 28 '19
- Reinforced concrete dome at Hippodrome, Copenhagen. *Il* Eng & Contr 51:445 Ap 30 '19
- Reinforced concrete saves steel in power plant. Elec W 72:975-6 N 23 '18; Same. Power 48:846-7 D 10 '18
- Results from concrete subgrade construction. diags Rv Age 67:219-21 Ag 1 '19
- Save money by utilizing waste in concrete—how to do it. H. H. See. diags Bldg Age 40:352-3 Jl '18
- Simple design marks cold storage building for apples. S. T. Smith. *Il* diags plans Eng N 80:1175-7 Je 20 '18
- Southern mills and manufacturing conditions. G. Wrigley. *Il* Textile World 55:504-5+ Ja 11 '19
- Speeding a mammoth naval base. G. S. Nobles. *Il* diags plan Concrete 13:176-9 D '18
- Station detailed for cut stone is built of concrete. *Il* Concrete 13:82 S '18
- 10 fireproof houses of field and pre-cast concrete. Simpsoncraft system. *Il* diags plans Concrete 13:68-71 Ag '18
- 20,000 bu. concrete grain elevator for \$7,500. *Il* diags plans Concrete 12:194 Je '18
- Two new designs of houses of concrete throughout. Alcho and Schaeffer systems. *Il* diags plans Eng N 80:947-8 My 16 '18
- Uniformity of structural features in concrete apartment buildings. H. J. Schlachs. Eng & Contr 52:479 O 22 '19
- Unit concrete building. H. C. Campbell. *Il* diags plans Bldg Age 40:452-4 S '18
- Unusual concrete construction in Cleveland plant. *Il* diags Am Arch 115:563-4 Ap 16 '19
- Unusual concrete roundhouse at Proctor, Minn. W. E. Hawley. *Il* diags plan Ry Age 66:428-30 F 21 '19
- Use of reinforced concrete in marine works. A. F. Dyer. Eng & Contr 50:483-5, 492 N 20 '18
- Use plain concrete and save steel. B. L. Brown. Concrete 13:99 S '18
- Useless waste in concrete construction due to legal requirements. W. S. Tait. Am Arch 114:717-18, 750-2; 115:79-84, 147-9, 187-9, 211-12, 254-6 D 11-18 '18, Ja 8, 22-F 12 '19
- Using concrete to best advantage for foundation walls. E. I. Freese. *Il* diags Bldg Age 41:317-19 O '19
- Using permanent concrete covering to prolong life of steel pipe. *Il* Munic Eng 53:195 N '17
- Walls of concrete elevator made without forms. *Il* diags Eng N 80:819-20 Ap 25 '18
- Wood-concrete for houses. Eng & Contr 51:445 Ap 30 '19
- Wooden trestle replaced piecemeal by concrete structure. *Il* diags Eng N 80:869-70 My 2 '18

*See also* Barges, Concrete; Bridges, Concrete; Chimneys, Concrete; Columns, Concrete; Concrete—Finishing; Concrete, Reinforced; Concrete blocks; Concrete bricks; Concrete houses; Concrete lining; Concrete placing; Concrete plants; Concrete slabs; Concrete stone; Concreting; Cribs, Concrete; Curbs; Dams, Concrete; Domes; Fireproof construction; Floors, Concrete; Freight cars, Concrete; Garages, Concrete; Poles, Concrete; Reservoirs, Concrete; Retaining walls, Concrete; Roofs, Concrete; Sewers, Concrete; Ships, Concrete; Silos, Concrete; Stairways, Concrete; Tanks, Concrete; Trestles, Concrete; Walls, Concrete; Warehouses, Concrete; Water tanks, Concrete; Water towers, Concrete

## Concrete construction—Continued

## Cost

- Cement tile machinery co. aids in estimating concrete costs. Eng & Min J 103:387 Mr 3 '17
- Concrete building addition made at reasonable cost. *il* diag Eng N 83:75-6 J1 10 '19
- Concrete buildings cost less than steel. Concrete 11:173-4 D '17
- Detailed cost figures on forms and concrete for floors. F. R. Walker. *il* Concrete 12:199-203 Je '18
- Economy in the design of concrete buildings. C. W. Mayers. diags Boston Soc C E J 5: 53-79 F '18; Same cond. Concrete 12:115-20 Ap '18; Discussion. F. S. Bailey and others. Boston Soc C E J 5:307-20 Je '18
- Economy of concrete over steel. diags Concrete 14:145 Ap '19
- Fire-resisting and wood offices built at same time. Eng N 81:898 N 14 '18
- Labor costs on a gravity type quay wall. E. W. Robinson. *il* diags Concrete 12:49-51 F '18
- Labor efficiency good on percentage contracts. H. C. Turner. Eng N 82:815-18 Ap 24 '19
- Pouring 75 all-concrete houses at Phillipsburg, N. J. *il* diags plans Concrete 14:9-14 Ja '19
- Six-room fireproof houses sell for \$3,250. *il* diags plans Concrete 15:57-60 Ag '19
- Use minimum steel for economy in concrete design. A. M. Wolf. Concrete 14:139-41 Ap '19
- What will your building cost? Concrete 12: 226 Je '18

## Design

- Analysis and tests of rigidly connected reinforced concrete frames. M. Abe. *il* diags *il* U Eng Exp Sta Bul 107:1-102 '19; Abstract. Eng & Contr 52:91-3 J1 23 '19; Conclusions. Mech Eng 41:547-8 Je '19
- Calculating diagrams for reinforced concrete. J. Williamson. Engineer 128:149-51 Ag 15 '19
- Cantilever concrete trestle bents carry steel spans. *il* diags Eng N 79:1107-8 D 13 '17
- Cantilevers carry concrete floors over loading platforms. *il* diags plan Eng N 80:411-12 F 28 '18
- Concrete box flume carried across gulch on trestle. A. W. Collins. *il* diags Eng N 82: 463-4 Mr 6 '19
- Concrete snow sheds on the Union Pacific. *il* diags map Ry Age 63:1159-64 D 28 '17; Excerpts. Eng & Contr 49:294-5 Mr 20 '18
- Concrete stair design. A. M. Wolf. *il* diags Concrete 13:6-9 J1 '18
- Condensers with seventy-foot water level variation. F. R. Borsius. *il* diags plans Power 47:142-4 Ja 29 '18
- Conditions for economy in reinforced concrete wall design. G. Paaswell. diags Eng & Contr 51:226-7 F 26 '19
- Design of reinforced concrete beams and slabs. L. Goodman. diags Bldg Age 41:259-61, 292-3, 337-9 Ag-O '19
- Designing wall beams in concrete flat-slab buildings. A. M. Wolf. diags Eng N 80: 1124-6 Je 13 '18
- Diagram for facilitating design of reinforced concrete T-beams. F. W. Powelson. Eng & Contr 49:88-9 Ja 23 '18
- Diagram for locating stirrups in concrete beams. M. J. Lorente. diags Eng N 83: 310-11 Ag 14 '19
- Dipping vat for a Texas ranch. diags Concrete 12:198 Je '18
- Economical proportion of concrete slabs and simple concrete beams. El. Davis. Am Arch 113:779-80 Je 5 '18
- Economies of reinforced concrete walls for uncovered reservoirs. H. E. Babbitt. diags Eng & Contr 51:618-20 Je 11 '19
- Economy in the design of concrete buildings. C. W. Mayers. diags Boston Soc C E J 5:53-79 F '18; Same cond. Concrete 12:115-20 Ap '18; Discussion. F. S. Bailey and others. Boston Soc C E J 5:307-20 Je '18
- Formulas for design of wedge-shape reinforced concrete footings. R. F. Davis. diags Eng & Contr 50:593-4 D 25 '18

- Freight station and warehouse in Chicago has 23 acres of floor. *il* diags plans Eng N 80: 405-8 F 28 '18
- Helping Hoover with concrete—storage cellars. *il* diag plan Concrete 12:191-3 Je '18
- How to proportion unsymmetrical concrete arches. J. P. Schwada. diags Eng N 80:415-16 F 28 '18
- Joint committee report. Concrete 11:60-1, 93-4, 118-19, 168; 12:64-6 Ag-N '17, F '18
- Main beams in concrete garage are forty-nine feet long. *il* diags plans Eng N 80:1051-4 My 30 '18
- New features in heavy machine shop design in manufacturing building of International harvester corporation. W. S. Tait. *il* diags Eng & Contr 49:403-5 Ap 24 '18
- New freight house of the Pennsylvania lines in Chicago. *il* diags plans Ry R 62:365-71 Mr 16 '18; Ry Age 65:215-19 Ag 2 '18
- Notes on European design units and practice. W. W. Hay. Concrete 15:25-6 J1 '19
- Notes on flat slab design: thickness of slab, column heads and bending in columns. A. M. Wolf. diags Eng & Contr 49:210-13 F 27 '18
- Problems of designing the reinforced-concrete ship. R. J. Wig and S. C. Hollister. diags Eng N 81:167-71 J1 25 '18
- Reinforced-concrete building has 2000-pound floor load. diags plan Eng N 79:1065-6 D 6 '17
- Reinforced-concrete flumes poured in 100-foot lengths. *il* diags plans Eng N 80:567-8 Mr 21 '18
- Reinforced concrete supports for horizontal tubular boilers. H. E. Dart. diags Locomotive 32:130-42 Ja '19
- Revised code of Bureau of yards and docks for design of reinforced concrete structures. Eng & Contr 49:498-500 My 22 '18
- Short cuts to accurate calculations. El. A. Kunze. diag Am Arch 115:865-7 Je 18 '19
- Simple method for designing concrete beams reinforced for compression. A. Raymond. diags Eng & Contr 51:410 Ap 23 '19; Discussion. 51:560 My 28 '19
- Stairs, crane girders, towers, etc. Concrete 12:215 Je '18
- Undercrossing wing wall designed to limit base pressure. diags plan Eng N 79:1054-5 D 6 '17
- U.S. shipping board's work with concrete. J. Glaettli. Concrete 15:69-72 Ag '19; Excerpt. Eng N 83:273-4 Ag 7 '19
- War time economy in design. Am Arch 114: 138 J1 31 '18
- See also Concrete construction—Tables, calculations, etc.

## Estimates

- Comparative cost estimating for designers of reinforced concrete buildings. C. W. Mayers. diags Eng & Contr 49:313-18 Mr 27 '18
- Short cut for estimating materials in concrete. R. McLane. Bldg Age 41:31 Ja '19; Discussion. G. Hamilton. 41:90 Mr '19

## Expansion joints

- Construction joints. Concrete 12:142 Ap '18
- Expansion joints found necessary in concrete revetment. Eng N 80:755 Ap 18 '18
- Expansion joints in masonry. F. H. Carter. diags Arch Forum 31:98 S '19
- Great concrete reservoir built with portable mixers. El. J. Lieber. *il* diags Eng N 80:702-4 Ap 11 '18
- Hub and spigot expansion joints for reinforced concrete irrigation flumes. diags plan Eng & Contr 49:594 Je 12 '18
- Watertight expansion joint designed for concrete retaining wall. diags Eng N 80:354 F 21 '18

## Failures

- Concrete in sea water. J. L. Harrison. *il* Concrete 15:198-200 N '19
- Concrete in waterworks structures, with special reference to its resistance to weathering and methods of repairing it. R. J. Wig. Am Water Works Assn J 4:447-56; Discussion. 456-64 D '17
- Significance of cracks in reinforced concrete construction. Eng & Contr 52:479 O 22 '19

**Concrete construction—Failures—Continued**

Spalling of reinforced concrete in moist location. F. E. Turneaure. *Eng N* 80:46-7 Ja '18

See also Pipes, Concrete—Failures

**Fire resistance**

Effect of fire on the flat slab building of the Quaker oats co., Peterboro, Ont., Dec. 11, 1916. T. D. Mylrea. *Eng N* 3 pls W Soc E J 22: 509-39; Discussion. 539-45 O '17

**Forms**

Building forms and centering. Concrete 12:63 F '18  
 Building stair forms. J. A. Muller; C. C. Alley. *diag Concrete* 13:129-30 O '18  
 Charts show size and span of sheeting at a glance. S. M. Cotten. *Eng N* 81:376 Ag 22 '18  
 Concrete barge built with precast frames. *Eng N* 81:201-2 D '18  
 Concrete dwellings in France. H. J. Harms, Jr. *Eng N* 81:16-17, 41-6 Ja-F '18  
 Concrete fireplace forms. *diag Concrete* 13: 116 O '18  
 Concrete wall construction at Youngstown, O., with new type of traveling form. *Eng & Contr* 51:104-5 Ja 29 '19  
 Construction of substantial form for concrete curb and gutter. E. Drah. *diag Bldg Age* 40:254 My '18  
 Cutting costs in concrete forms. C. F. Cramer. *Bldg Age* 41:72 F '19  
 Detailed cost figures on forms and concrete for floors. F. R. Walker. *Eng N* 81:199-203 Je '18  
 Edison house idea outdone; C. H. Ingersoll produces 4-room dwellings all in one piece. *Eng N* 81:42-6 Ag '18  
 Efficiency methods in form work. A. B. McDaniel. *diag plan Concrete* 13:10-14, 61-4 Ji-Ag '18  
 Efficient floor form system. H. L. Conrad. *diag plan Concrete* 12:223 Je '18  
 Flat slab form detail. *diag Concrete* 12:214 Je '18  
 Form for a concrete stairway. E. V. Laughlin. *diag Bldg Age* 40:401 Ag '18  
 Form for concrete fence posts. A. H. Sawyer. *diag Eng & Min J* 107:796 My 3 '19  
 Form work and timbering details in concrete barge construction. *Eng N* 81:142-5 Je '19  
 Form work for a small concrete through girder bridge. *diag Concrete* 12:146 Ap '18  
 Form work for warehouse, Boston army supply base. W. F. Kearns. *Eng & Contr* 51: 430-1 Ap 23 '19  
 Forms for a through girder bridge. J. H. Mayer and J. F. Bliss. *diag Concrete* 13: 98 S '18  
 Forms for circular concrete surfaces. H. C. Campbell. *diag Bldg Age* 41:167-8 My '19  
 Forms for concrete building construction. A. Graham. *Eng & Contr* 50:136 Ji 31 '18  
 Forms for concrete floor made up of wood frame sections. *Eng N* 82:1280 Je 26 '19  
 Forms for concrete footings and foundation walls. E. I. Freese. *diag Bldg Age* 41: 202-3, 208 Je '19  
 Framing plans simplify fieldwork on Cincinnati high school. J. T. Sullivan. *diag plans Eng N* 81:355-7 Ag 22 '18  
 Handy step form detail. S. Healy. *diag Concrete* 12:154 My '18  
 Model of complicated form makes considerable saving in cost. T. M. Lauridsen. *Eng N* 80:731-2 Ap 11 '18; Same abr. *Concrete* 13:94 S '18; Same abr. *Eng & Contr* 50:380 O 23 '18  
 New device holds form panels. *Eng N* 81:106 S '18  
 New type of traveling Blawform has no tie rods. *Eng & Contr* 49:626-6 Je 19 '18; *Iron Age* 101:1597 Je 20 '18  
 One hundred concrete dwellings built as one contract job. *Eng N* 79:442-5 S 6 '17; Same. *Coal Age* 12:662-5 O 20 '17; Same cond. *Eng & Contr* 48:333-4 O 24 '17; Abstract. *Bldg Age* 40:19-21 Ja '18

One-man collapsible culvert form of wide utility. *Eng N* 80:872 N 10 '17; *Eng N* 79:905 N 8 '17; *Munic J* 43:573-4 D 6 '17; *Eng & Contr* 49:99-100 Ja 30 '18

One-man collapsible culvert form proves successful in actual use. *Munic Eng* 56:196 My '19

Record in making panel floor forms. J. D. Gurvin. *Eng N* 81:162 O '19

Removing bolthole forms. L. V. Lauther. *diag Coal Age* 13:954 My 25 '18

Sewer invert forms hung from tunnel sets by T-square rig. R. W. Stewart. *diag Eng N* 81:332-3 Ag 15 '18

Sliding forms for small buildings. J. N. Snyder. *diag Concrete* 12:222 Je '18

Some factors in economical form work. G. W. Maker. *Concrete* 11:189-90 D '17

Tables of form lumber and wire ties. *Concrete* 12:185 My '18

Time saving clamp for concrete forms. *diag Bldg Age* 40:578 D '18

Tunnel lining on the Pittsburgh & Shawmut R. R. *diag Ry R* 64:378-80 Mr 15 '19

Uni-form system of floor and roof construction. *Eng N* 81:256 D '17

Unit form permits building concrete wall on pier edge. A. R. Moxter. *diag Eng N* 82:1879 Je 26 '19

Unit forms for flat slab floors. A. M. Wolf. *diag Concrete* 13:161-2 N '18

Unit forms speed up house foundations. *Eng N* 81:142-3 F '19

**Repair**

Concrete in waterworks structures, with special reference to its resistance to weathering and methods of repairing it. R. J. Wig. *Am Water Works Assn J* 4:454-6; Discussion. 456-64 D '17

**Study and teaching**

Training Sammys to make good concrete. *Eng N* 81:111-12 O '18

**Tables, calculations, etc.**

Computation diagram for reinforced concrete work. *diag Eng & Contr* 52:111 Ji 23 '19

Concrete computations simplified by standard blanks. W. W. Clifford. *Eng N* 81:590-1 S 26 '18

How to quickly figure amount of materials for concrete work. *Bldg Age* 40:311 Je '18

Time saving diagram for concrete computation. M. W. Serby. *Eng & Contr* 51:560 My 28 '19

**See also Concrete construction—Design****Concrete construction, Military**

Concrete along and behind the battle lines. F. Whipperman. *Eng N* 81:172-3 My '19

Concrete defenses in Hindenburg line. G. B. Pillsbury. *diag plans Concrete* 15:33-5 Ji '19

Concrete structures in German defenses. J. E. Cassidy and A. H. Bond. *Eng N* 81:115-16 S '19

**Concrete construction, Subaqueous**

Sinking a concrete pumping station in a river. K. O. Guthrie. *Eng N* 82:1013-16 My 22 '19

**Concrete construction in mines**

Apparatus for mixing soap and alum waterproofing with concrete. H. V. Knouse. *diag chart Eng & Min J* 103:388 Mr 3 '17

Cement gun in mining work. G. S. Rice. *Eng N* 81:495-8, 540-3 Mr 16-23 '18; Same. *Eng & Min J* 105:584-7, 623-6 Mr 30-Ap 6 '18; Excerpts. *Eng & Contr* 49:488-9 My 15 '18

Concrete foot blocks for station posts. C. T. Rice. *diag plan Eng & Min J* 106:538 S 21 '18

Concrete foundations, drift linings and reservoirs. J. F. Springer. *Eng N* 81:204-10 Ag 1 '18

Concrete in coal mine service. J. F. Springer. *diag plan Coal Age* 13:916-19 My 18 '18

Hollow concrete posts packed with sand. *diag Eng N* 83:269 Ag 7 '19

Notes on shaft relining with concrete. G. G. Stonemark. *Eng & Min J* 106:8-10 Ji 6 '18

**Concrete construction in mines—Continued**

- Reinforced concrete in and about the coal mines of Great Britain. M. Meredith. *Coal Age* 16:113 JI 17 '19
- Reinforced-concrete pit props. M. Meredith. *Coal Age* 14:362 Ag 22 '18
- Relined mine shaft of the Oliver iron mining co. with cement gun. *diag plan Coal Age* 14:400-1 Ag 29 '18; Same. *Eng N* 81:333-4 Ag 15 '18
- Results obtained from the use of the cement gun at the Cadogan mine. F. Norman. *il Coal Age* 16:269-70 Ag 14 '19
- Sinking and concreting mine shaft 926 feet deep. R. L. Russell. *diags plan Eng N* 82:1259-62 Ja 26 '19; Same. *Eng & Min J* 108:56-9 JI 12 '19
- Use of concrete in underground works. *diags plans Eng & Min J* 107:1071-3 Ja 21 '19
- Use of the cement gun in a bituminous coal mine. M. S. Sloman. *il Coal Age* 14:1158-9 D 26 '18; Same. *Eng & Contr* 51:64-5 Ja 15 '19
- Use of the cement gun in the Coeur d'Alene mining district. *il Eng & Min J* 105:787-9 Ap 27 '18

**Concrete construction in winter**

- Arrangement for heating water for winter concreting. *diag Eng & Contr* 51:63 Ja 15 '19
- Calcium chloride in concrete in cold weather. *Concrete* 11:184-5 D 17
- Cement mortars and magnesium chloride. J. Ind & *Eng Chem* 10:746 S '18
- Cold weather concreting. J. Hammersley-Heenan. *Eng & Contr* 50:133 JI 31 '18
- Cold-weather construction of concrete roads. D. A. Abrams. *Munic J* 44:96 F 2 '18
- Cold weather road job with slag concrete. *Concrete* 12:180 My '18
- Cold weather silo job. E. K. Conklin. *il Concrete* 15:141 O '19
- Concrete road construction during freezing temperatures. C. L. Brown. *Eng & Contr* 50:147-8 Ag 7 '18
- Concreting, bricklaying, etc., in cold weather. *Eng & Contr* 49:403 Ap 24 '18
- Concreting in cold weather. *Munic J* 46:7-8 Ja 4 '19
- Concreting in cold weather and temperature records of concrete. *Eng & Contr* 51:202 F 19 '19
- Concreting in winter adds \$1.25 per cu. yd. to cost of bridge job at Ames, Iowa. *Concrete* 11:183 D 17
- Heating concrete materials. J. A. Hedlund. *diags Concrete* 12:54 F '18; Same. *Eng & Contr* 49:387 Ap 17 '18
- Heating water for winter concrete road work. *Eng & Contr* 49:433 My 1 '18
- Hints on concreting in cold weather. *Munic Eng* 53:228 D 17
- Laying concrete pavement in freezing weather. A. B. Dunning. *Munic J* 44:281-2 Ap 6 '18
- Lukewarm concrete enough precaution for zero weather dam work. *il Eng N* 81:260-2 Ag 8 '18
- Meeting the time penalty clause in building construction during low winter temperature. *il Eng & Contr* 49:90 Ja 23 '18
- Methods of cold weather concreting at Troy lock. D. A. Watt. *Eng & Contr* 50:594 D 25 '18
- Precautions necessary to successful winter work. *il Concrete* 15:139-41 O '19
- Protecting concrete in cold weather. *Am Arch* 113:170 F 6 '18
- Temperature records of cold weather concrete. L. J. Towne. *diag Eng & Contr* 51:55-6 Ja 15 '19
- Winter concrete work. *Concrete* 13:131 O '18
- Winter concreting offers advantages to owners. A. E. Wells. *Concrete* 15:205 N '19; Same. *Eng & Contr* 52:471-2 O 22 '19; Same. *Heat & Ven* 16:33-4 N '19

See also Concrete—Freezing

Concrete cribs. See Cribs, Concrete

Concrete dams. See Dams, Concrete

Concrete failures. See Concrete construction—Failures

Concrete fence posts. See Fence posts, Concrete

Concrete floors. See Floors, Concrete

Concrete forms. See Concrete construction—Forms

Concrete freight cars. See Freight cars, Concrete

**Concrete handling**

- Auto engines in home-made dinkeys saved money on a rush job. *il Eng N* 79:1120 D 13 '17
- Concrete is handled in several ways on bridge abutment job. *plan Eng N* 82:533-4 Mr 13 '19
- Concrete machinery on the William Penn highway. *il Munic J* 45:266-7 O 5 '18
- Delivering aggregate to concrete mixers. *Munic J* 45:412 N 23 '18
- Direct charging of concrete mixers. *Munic J* 45:392 N 16 '18; Same. *Eng & Contr* 50:462 N 6 '18
- Distribution of concrete by inclined chutes. *il diags Engineer* 128:245-7, 256, 284-6, 300-1, 306 S 12-26 '19
- Handling materials in construction of New York hotels. *il diag plan Eng N* 83:222-3 JI 31 '19
- Labor-saving equipment for handling concrete materials. *il Eng & Contr* 51:496 My 7 '19
- Motor trucks deliver mixed concrete three-fourths of a mile. *il plan Eng N* 81:1000-1 N 28 '18
- Road contractor successfully employs portable charging bins to eliminate dumping and wheeling on subgrade in concrete road construction. G. A. Burley. *il Munic Eng* 56:11-12 Ja '19
- Twin mixers on traveling tower charged alternately by forked chute. *diag Eng N* 81:866 N 7 '18
- Concrete houses**
- Advantages and disadvantages of the concrete house. J. E. Conzelman. *Concrete* 13:56-7 Ag '18
- Block, monolithic and stucco cottages. *il diags plans Concrete* 14:88 F '19
- Build 20 all-concrete houses; plan 20 bungalows. *il diags plans Concrete* 14:20-3 Ja '19
- Concrete and cobblestone bungalow. W. D. Lewis. *il plan Concrete* 12:32 Ja '18
- Concrete dwellings in France. H. J. Harms, Jr. *il Concrete* 12:16-17, 41-6, 78-81 Ja-Mr '18
- Concrete for industrial housing—a review. *il Concrete* 12:30-1 Ja '18
- Concrete house at Glen Ridge, N. J. *il diags plans Concrete* 14:104-6 Mr '19
- Concrete house for \$1,000. *il diags plans Bldg Age* 40:302-4 Je '18
- Concrete house interior. M. D. Morrill. *Concrete* 13:57 Ag '18
- Concrete houses at San Juan, P. R. *il Concrete* 13:96 S '18
- Concrete houses of standard units. *plans Concrete* 15:40-1 JI '19
- Concrete houses—suggestions for their design. H. Whipple and C. D. Gilbert. *il Concrete* 12:1-4 Ja '18
- Concrete in industrial housing; report of committee of American concrete institute. *Concrete* 13:55-7 Ag '18
- Concrete walled house cheaper than frame. *il plans Concrete* 12:27-8 Ja '18
- Concrete walled houses on Long Island sound. M. D. Morrill. *il plans Concrete* 12:18-22 Ja '18; Excerpt. *Eng & Contr* 50:304 S 25 '18
- Construction of concrete houses in Porto Rico. *il diag plans Bldg Age* 40:396-400 Ag '18
- Edison house idea outdone; C. H. Ingersoll produces 4-room dwellings all in one piece. *il diags plans Concrete* 13:42-6 Ag '18
- Erect 66 sea shore cottages of concrete. *il diags plans Concrete* 15:51-4 Ag '19
- 50 double wall houses for Carnegie employees. *il diags plans Concrete* 14:24-7 Ja '19
- Fireproof house of concrete at Fort Washington, N.Y. *il diags plans Concrete* 15:95-7 S '19
- Guncrute cottages at Cornwells, Pa. A. M. Wolf. *diags plans Concrete* 14:107-8 Mr '19
- House frame and covering of concrete. *diags plans Concrete* 12:138 Ap '18
- Investigation of concrete houses. M. D. Morrill. *Concrete* 13:97 S '18; Same. *Coal Age* 14:779-80 O 24 '18

**Concrete houses—Continued**

- Let concrete replace wood in houses. R. A. Ayers. Concrete 13:100 S '18
- My own house—how it was built. C. D. Gilbert. II plans Concrete 12:10-15 Ja '18
- One hundred concrete dwellings built as one contract job. II plans Eng N 79:442-5 S 6 '17; Same. Coal Age 12:662-5 O 20 '17; Same cond. Eng & Contr 48:333-4 O 24 '17; Abstract. Bldg Age 40:19-21 Ja '18
- 146 unit-built concrete dwellings at Youngstown. H. Whipple. II plans Concrete 12:5-9 Ja '18; Same. Coal Age 13:862-5 My 11 '18
- One-piece house. B. Hall. II Sci Am 119:474-5 D 14 '18
- Permanent, fireproof homes. H. Whipple. Concrete 14:1 Ja '19
- Philippine Island concrete house. II diag plans Concrete 14:146-9 Ap '19
- Pouring 75 all-concrete houses at Phillipsburg, N. J. II diag plans Concrete 14:9-14 Ja '19
- Precast and field-cast concrete houses built by Lehigh coal and navigation co. at Lansford, Pa. J. B. Warriner. II diag plans Coal Age 13:228-30 F 2 '18
- Pre-cast concrete industrial houses. II Eng & Contr 50:214-15 Ag 28 '18
- Re-housing in Halifax with concrete block. II diag plans map Concrete 14:44-52 F '19
- Reinforced-concrete house built without forms. II diag plan Eng N 81:1043-4 D 5 '18
- 75 dwellings of monolithic concrete at Claymont, Del. II diag plans Concrete 14:15-19 Ja '19
- Simple details for concrete houses. diag Concrete 12:35 Ja '18
- Six-room fireproof houses sell for \$3,250. II diag plans Concrete 15:57-60 Ag '19
- 10 fireproof houses of field and pre-cast concrete, Simpsoncraft system. II diag plans Concrete 13:68-71 Ag '18
- Two all-concrete house designs. diag plans Coal Age 13:1193-4 Je 29 '18
- 281 fireproof dwellings built of large precast concrete units. H. Whipple. II diag plans Concrete 14:3-8 Ja '19
- Two new designs of houses of concrete throughout; Alcho and Schaeffer systems. II diag plans Eng N 80:947-8 My 16 '18
- Unit-built concrete cottages to house foreign labor of Youngstown steel and tube co. II diag plans map Eng N 80:696-8 Ap 11 '18
- See also Concrete construction; Floors, Concrete; Roofs, Concrete
- Concrete Institute, American. See American concrete institute
- Concrete lining**
- Concrete foundations, drift linings and reservoirs. J. F. Springer. diag Coal Age 14:208-9 Ag 1 '18
- Concrete launder linings. F. Wartenweiler. Eng & Min J 107:890-1 My 17 '19
- Concrete tunnel lining by steam jet. II Ry R 64:818-20 Je 7 '19
- Fireproofing mine shafts of the Anaconda copper mining co. E. M. Norris. diag Am Inst Min E Bul 135:657-9 Mr '18; Same. Eng & Min J 105:1126-7 Je 22 '18; Same abr. Eng & Contr 49:287 Mr 20 '18
- New pneumatic process of mixing and placing concrete. II diag Munic Eng 54:39-41 Ja '18
- Notes on shaft relining with concrete. G. G. Stonemark. Eng & Min J 106:8-10 Jl 6 '18; Same. Eng & Contr 51:295-6 Mr 19 '19
- Pneumatic mixer train on Mount Royal tunnel. F. C. K. Stuart. II diag plan Eng N 80:155-9 Ja 24 '18
- Reline and waterproof mine shaft of the Oliver Iron mining co. with cement gun. diag plan Eng N 81:333-4 Ag 15 '18; Same. Coal Age 14:400-1 Ag 29 '18
- Reline mine shaft on steep slope with concrete. Eng N 82:1152 Je 12 '19
- Special car plant with pneumatic mixer outfit for lining railroad tunnel. H. B. Kirkland. diag plans Eng & Contr 49:482-4 My 15 '18
- Use of concrete in underground works. diag plans Eng & Min J 107:1071-3 Je 21 '19
- See also Cement gun; Concrete construction in mines; Concrete placing; Guniting

**Concrete mixers**

- Boas high drum non-tip paver. II Munic J 44:519 Je 23 '18
- Carburetor on concrete mixer. II Munic J 44:157 F 16 '18
- Concrete mixer suited for manhole and conduit work. Elec R 72:1055-6 Je 22 '18
- Concrete mixer uses either gasoline or kerosene as fuel. II Eng & Contr 49:443 My 1 '18
- Ideal Cincinnati mixers. II Munic J 43:572-3 D 6 '17
- Knife-edge grit shield on top of hopper gate prevents trouble. J. H. Sawkins. diag plan Eng N 80:281 F 7 '18
- Koehring portable mixer loader that cuts out loading delays and reduces labor costs. II Eng & Contr 49:443 My 1 '18; Concrete 13:188 My '18; Munic Eng 54:254-5 Je '18
- Large paving mixer puts in 180-yard slab every hour. II Eng N 83:658-9 O 2 '19
- Low loading mixer with four-motion mix. II Munic Eng 54:161-2 Ap '18
- Mixer association standardizes mixer rating. G. B. Arthur. Eng N 82:79-81 Ja 9 '19
- Mixer drum cut into quarters to go through tunnel. diag Eng N 81:642 O 3 '18
- Mixer loader saves time in products plant. J. W. Gilbert. diag Concrete 12:155 My '18
- New barrel concrete mixer for small jobs. J. Brinker. II Sci Am 118:15 Ja 5 '18
- New concrete mixer suggested. Am Arch 114:445 O 9 '18
- No. 10 Lansing paver. II Eng & Contr 51:95 Ja 29 '19
- Rex high drum paving mixer. II Eng & Contr 49:120 Ja 30 '18
- See-saw concrete mixer. II Sci Am 121:279+S 20 '19
- 7-S Smith-Chicago mixer with underslung chain drive. II Eng & Contr 48:262 S 26 '17; Bldg Age 39:600 O '17; Elec Ry J 50:1086 D 15 '17; Good Roads N 14:315-16 D 15 '17
- Shelf for cement bag on mixer. Concrete 18:47 Ag '18
- Stamp mixer loader. II Concrete 12:188 My '18
- Concrete mixing**
- Automatic device for regulating mixing of concrete. II Eng & Contr 49:349 Ap 3 '18
- Automatic device for regulating mixing of concrete. II Eng & Contr 51:110 Ja 29 '19
- Bettering concrete by a new mixing method. N. C. Johnson. II chart Eng N 82:1266-70 Je 26 '19
- Bulking effect of moisture in sand. L. N. Edwards. Eng & Contr 52:99-100 Jl 23 '19
- Concrete consistency measured by new device. H. A. Davis. II Eng N 82:603-5 Mr 27 '19
- Concrete in waterworks structures, with special reference to its resistance to weathering and methods of repairing it. R. J. Wig. Am Water Works Assn J 4:447-56; Discussion. 456-64 D '17
- Consistency test for concrete used in laboratory practice. D. A. Abrams. Eng N 82:836 Ap 24 '19
- Conveying concrete through pipes by compressed air. diag Eng & Contr 49:106-7 Ja 30 '18
- Correct proportioning of concrete mixes. diag Am Arch 115:721-33 My 21 '19
- Defends aggregate grading theories. L. N. Edwards. Eng N 83:191-2 Jl 24 '19
- Design of concrete mixtures. D. A. Abrams. diag Eng & Contr 51:421-6 Ap 23 '19; Same cond. Eng N 82:758-63 Ap 17 '19; Same cond. Concrete 14:191-5 My '19
- Effect of curing condition on the wear and strength of concrete. D. A. Abrams. Concrete 15:147-53 O '19; Excerpts. Eng & Contr 51:309-12 Mr 26 '19
- Effect of fineness of cement on quality of concrete. D. A. Abrams. II diag Concrete 15:189-96 N '19
- Effect of heating concrete materials in the mixer. H. E. Sawtell. Boston Soc C E J 5:131-3 Mr '18; Abstract. Concrete 12:195 Je '18
- Effect of time of mixing on the strength of concrete. D. A. Abrams. II Am Arch 114:711-17, 745-50, 775-81; 115:85-7 D 11-25 '18, Ja 8 '19

**Concrete mixing—Continued**

- Effect on concrete of consistency and mixing time. D. A. Abrams. Concrete 13:78-82, 122-7 S-O '18
- Eliminating waste in measuring materials for concrete. B. A. Williamson. diag Bldg Age 41:288-9 S '19
- Fundamentals in the make-up of a concrete mixture. A. N. Talbot. Eng N 82:869-70 My 1 '19
- Good concrete—right materials and mixtures. R. Borhek. Concrete 15:98-100 S '19
- Gravitation and two men operate side-hill mixing plant. J. T. Sullivan. diag plan Eng N 81:285-6 Ag 8 '18
- How to use pit-run gravel safely. R. W. Crum. Concrete 15:8-10 JI '19
- Large proportioning plant and mixer speed up road work. II Concrete 15:124-5 S '19
- Minute concrete mix subject to some doubt. H. A. Davis. Eng N 82:300 F 6 '19
- Mixing and placing concrete. E. I. Freese. diag Bldg Age 41:237-8 JI '19
- New ideas in concrete. D. A. Abrams. Munic J 44:148 F 16 '18
- Novel method of reducing labor cost of concrete mixing. II Eng & Contr 49:436 My 1 '18
- Pit-run gravel—yes or no?; when and how? Concrete 15:85-6 Ag '19
- Pneumatic method of concreting. H. B. Kirkland. II diag plans W Soc E J 23:319-49 My '18; Excerpts. Ry R 62:714-18 My 18 '18; Ry Age 64:1223-5 My 17 '18; Eng & Contr 49:478-9 My 15 '18; Eng & Min J 106:1069-70 D 21 '18; Discussion. W Soc E J 23:349-55 My '18
- Properly proportioned batches hauled to mixer by trucks. II Eng N 82:1032-3 My 22 '19
- Proportioning concrete by surface areas of aggregates; abstracts. L. N. Edwards. Eng N 81:317-19 Ag 15 '18; Eng & Contr 50:305-7 S 25 '18; Engineer 127:141 F 7 '19; Discussion. Eng N 81:637-40 O 3 '18
- Proportioning pit-run gravel for concrete. R. W. Crum. Concrete 15:3-8 JI '19; Same cond. Eng & Contr 52:18-20 JI 2 '19; Abstract. Eng N 83:92 JI 10 '19
- Reducing concrete mixer gang in Seattle. Wash. Munic J 44:73-4 Ja 26 '18
- Resource of contractor saves labor. W. F. Reichardt. II Eng N 83:712-13 O 9 '19
- Revolutionary results obtained by proportioning water in concrete tests. D. A. Abrams. Eng N 80:878-4 My 2 '18; Same. Eng & Contr 50:77-8 JI 24 '18
- Sand streaks on concrete caused by boiling up of excess water; abstracts. D. A. Watt. Eng N 81:534 S 19 '18; Am Arch 114:415 O 2 '18
- Selection of materials for sea-water concrete. R. J. Wig and L. R. Ferguson. II Eng N 79:737-41 O 18 '17; Discussion. 79:1212-13 D 27 '17
- Some new ideas in concrete proportioning. Eng N 82:752 Ap 17 '19
- Surface area and fineness modulus methods of grading concrete aggregates. D. A. Abrams. Eng & Contr 51:673-6 Je 25 '19; Same cond. Eng N 82:1203-7 Je 19 '19
- Surface area method for proportioning aggregates. L. N. Edwards. Eng & Contr 51:559-60 My 28 '19; Same cond. Eng N 82:1203 Je 19 '19
- Tests of two recent theories for proportioning concrete. G. M. Williams and W. Davis. II Eng N 82:1142-7 Je 12 '19; Discussion. 83:334-6 Ag 14 '19
- Tests on time of mixing concrete. Eng N 82:200-1, 486-7 Ja 23, Mr 6 '19
- Three-stage concrete mixing in single-barrel mixer. C. Meriwether. Eng N 81:772 O 24 '18
- Weight of counterweight concrete varied by changing mix. Eng N 80:32 Ja 3 '18
- Why not a three-stage concrete mixer? F. B. Walker. Eng N 81:595 S 26 '18
- See also Concrete—Aggregate; Concrete mixers
- Concrete pavements. See Pavements, Concrete

**Concrete piling**

- Cast pickup bars for handling in concrete piles on Java contract. A. S. Buisman. II Eng N 81:377 Ag 22 '18
- Chaining the Missouri; tubular concrete pile used to check the river's inroads on its banks. H. T. Dobbins. II Sci Am 121:306+ S 27 '19
- Cleaning concrete sheet piling grooves with the steam jet. diag Eng N 79:1076 D 6 '17
- Comparison of wood and of concrete piling. A. C. Titcomb. II Arch Forum 31:126-8 O '19
- Compressed concrete piles in England. II Concrete 13:86 S '18
- Driving concrete piles by well drilling method. J. L. Harrison. II Eng & Contr 49:52 Ja 16 '18
- Find cushion of two-inch rope best for driving concrete piles. Eng N 80:186 Ja 24 '18
- Mechanical handling the feature of concrete pile yard. II diag plan Eng N 82:1155-8 Je 12 '19
- Method of cutting off reinforced concrete piles. K. Smith. Eng & Contr 48:525 D 26 '17
- Method of extending cast in place concrete piles. II Eng & Contr 49:627 Je 19 '18
- New giant pile. diag Concrete 14:253-4 Je '19
- Piling of concrete pipes. Sci Am 120:487 My 10 '19
- Self-sinking concrete pile. II diag Sci Am 121:283 S 20 '19; Engineer 128:498-9 N 14 '19
- Special foundation work for a railroad bridge; new Burlington structure over the Platte river is supported entirely on concrete piles. J. H. Merriam. II diag Ry Age 65:951-3 N 29 '18
- Steel saved in the design of concrete piles. II diag Eng N 80:658-9 Ap 4 '18
- Use of reinforced concrete in marine works. A. F. Dyer. Eng & Contr 50:483-5, 492 N 20 '18
- Concrete pipes. See Pipes, Concrete
- Concrete placing**
- Air placed concrete for ships and barges—Torcrete shipbuilding co. diag Concrete 11:170+ D '17
- Backfilling tunnel through holes bored from surface. J. Armstrong. diag Eng N 83:174-5 JI 24 '19; Same cond. Concrete 15:130-1 S '19
- Bottom-dump bucket concretes cave in drilled well. diag Eng N 81:286-7 Ag 8 '18
- Compacting concrete by tamping plums with pneumatic hammers. II Eng N 81:731-2 O 17 '18
- Concreting the East St Louis & Interurban water company's reservoir. C. S. Wagner. II Munic Eng 55:78-9 Ag '18
- Conveying concrete through pipes by compressed air. diag Eng & Contr 49:106-7 Ja 30 '18
- Distribution of concrete by inclined chutes. II diag Engineer 128:246-7, 256, 284-6, 300-1, 306 S 12-26 '19
- How concrete barges are built by ingenious methods. H. Whipple. II diag Concrete 13:180-4 D '18
- Hudson river shipyard layout to build concrete car floats. H. W. Eldridge. II diag Eng N 82:732-4 Ap 10 '19
- Insley plant for chuting concrete from a tower. II Eng & Contr 49:117 Ja 30 '18
- Methods of depositing concrete under water. Eng & Contr 51:307-8 Mr 26 '19
- New pneumatic process of mixing and placing concrete. II diag Munic Eng 54:39-41 Ja '18
- Pneumatic method of concreting. H. B. Kirkland. II diag plans W Soc E J 23:319-49 My '18; Excerpts. Ry R 62:714-18 My 18 '18; Ry Age 64:1223-5 My 17 '18; Eng & Contr 49:478-9 My 15 '18; Eng & Min J 106:1069-70 D 21 '18; Discussion. W Soc E J 23:349-55 My '18
- Pneumatic mixer train on Mount Royal tunnel. F. C. K. Stuart. II diag plan Eng N 80:156-9 Ja 24 '18
- Saves 5 men in placing concrete. A. W. Schauer. diag Concrete 12:154 My '18
- Traveling concrete tower flanked by two derricks builds spillway. L. G. Arnold. II diag plan Eng N 80:187 Ja 24 '18



**Concrete placing—Continued**

Traveling towers place 92,000 yards of concrete. *il* diags Eng N 80:73-6 Ja 10 '18

*See also* Concrete lining; Concrete plants

**Concrete plants**

Arch bridge is concreted from cars on elevated track. *il* diags Eng N 80:771-3 Ap 18 '18

Cast half a mile of concrete pipe per day at Fresno, Calif. *il* Eng N 80:400-1 F 28 '18

Cement bags tobogganed down roller chutes. Eng N 81:145-6 J1 18 '18

Compact concreting plant builds St Paul station. *il* diags Eng N 80:1221-3 Je 27 '18

Concrete-arch railway bridge costs less than steel. *il* diags Eng N 80:342-5 F 21 '18

Concrete mixing and handling plant on Nashua mills job. G. W. Maker. *il* diags plan Concrete 15:134-8 O '19

Concrete moulding plant, Pennsylvania R. R. *il* diags plans Ry R 64:425-32 Mr 22 '19

Concrete plant on Boston dry dock almost automatic. E. M. Blake. *il* diag Eng N 80:200-5 Ja 31 '18

Concreting plant for Boston dry dock. *il* Eng & Contr 51:385 Ap 16 '19

Concreting plant for small yardage jobs; Insley manufacturing co., Indianapolis, Ind. *il* Eng & Contr 51:693 Je 25 '19

Concreting plants standardized for five Miami valley dams. *il* diag map Eng N 81:680-2 O 10 '18

Concreting train in which cement and aggregate are carried in small ore cars. W. L. Whitlock. *il* diag Eng & Contr 49:382 Ap 17 '18

Construction plant and methods employed in building concrete roads in Wayne county, Mich. *il* Munic Eng 54:134-7 Ap '18

Construction speeded up by doing three jobs at one time; increasing height of three dams on Huntington lake. *il* plan Eng N 79:1044-7 D 6 '17

Co-ordination saves six weeks' construction time on big building. *il* diags Eng N 81:300-4 Ag 15 '18

Cost of highway concrete delivered wet by trucks. *il* plan Eng N 82:870-2 My 1 '19

Direct method of handling concrete aggregates with trucks. Eng & Contr 50:234 S 4 '18

Five mile road job served by central mixing plant. *il* Concrete 13:46-7 Ag '18

Floating concrete plant builds highway on crown of river levee. *il* Eng N 81:146-7 J1 18 '18

Floating mixer plant for construction of concrete wall at Oregon City locks, Oregon. E. B. Thomson. *il* Eng & Contr 49:290-1 Mr 20 '18

Good handling equipment speeds ore dock construction. *il* Eng N 80:1214-16 Je 27 '18

Horse-drawn derrick loads concrete mixer. *il* diags Eng N 82:445 F 27 '19

Long trestle controls concreting on big office. *il* plans Eng N 81:21-3 J1 4 '18

Mechanical handling the feature of concrete pile yard. *il* diags plan Eng N 82:1156-8 Je 12 '19

Mechanical loading at concreting plant eliminates laborers. diags Eng N 79:1112-13 D 13 '17

Mixer train. *il* Concrete 12:225 Je '18

New bridge concreted from track of parallel old bridge. diag Eng N 80:970 My 16 '18

Pneumatic method of concreting. H. B. Kirkland. *il* diags plans W Soc E J 23:319-49 My '18; Excerpts. Eng & Contr 49:482-4 My 15 '18; Eng & Min J 106:1069-70 D 21 '18; Discussion. W Soc E J 23:349-55 My '18

Pneumatic mixer train on Mount Royal tunnel. F. C. K. Stuart. *il* diags plan Eng N 80:155-9 Ja 24 '18

Portable concrete plant builds freight station platforms in Chicago. *il* Eng N 79:1076-7 D 8 '17

Portable gravity plant for constructing concrete paving on river banks. *il* Eng & Contr 50:278 S 13 '18

Sinking 50' concrete rings for pump pit. W. W. Hay. *il* Concrete 13:25-6 J1 '18

Traveler carries concreting chute and forms for conduit. *il* Eng N 82:588 Mr 20 '19

Two sewer construction plants. *il* Munic J 46:89-90 F 1 '19

Use of electric motors and belt conveyors in building 223 concrete tanks 105 ft. high. Eng & Contr 49:229 F 27 '18

War wage increase met by revising construction plan. *il* diags Eng N 82:96-9 Ja 9 '19

Washing and screening plant for aggregates for concrete road. *il* Eng & Contr 50:447 N 6 '18

Weighing concrete materials saved cement on three big dams. H. H. Hunt. *il* diags plan Eng N 81:393-6 Ag 29 '18

*See also* Concrete construction; Concrete mixers; Concrete placing

Concrete poles. *See* Poles, Concrete

Concrete posts. *See* Fence posts, Concrete; Posts, Concrete

**Concrete products**

Clay and concrete products industries on reduced fuel schedule. H. A. Garfield. Concrete 12:181-2 My '18

Glue molds and waste molds of plaster. Concrete 12:179 My '18

Railroad concrete products plants. R. P. Crawford. *il* Concrete 12:129-30 Ap '18

*See also* Concrete blocks; Concrete staves; Concrete stone; Concrete tile

Concrete railroad ties. *See* Railroad ties, Concrete

Concrete reservoirs. *See* Reservoirs, Concrete

Concrete retaining walls. *See* Retaining walls, Concrete

Concrete roads. *See* Roads, Concrete

Concrete roofs. *See* Roofs, Concrete

Concrete sewers. *See* Sewers, Concrete

Concrete ship association, International. *See* International concrete ship association

Concrete ships. *See* Ships, Concrete

Concrete sidewalks. *See* Sidewalks, Concrete

Concrete silos. *See* Silos, Concrete

**Concrete slabs**

Beam and slab floors. Concrete 12:142-3 Ap '18

Building a dam of concrete slabs. J. F. Springer. *il* Sci Am 118:164 F 23 '18

Cast-iron columns carry concrete flat-slab floor. W. J. Knight. *il* diags Eng N 80:83 Ja 10 '18

Chicago reinforced-concrete flat-slab ruling amended. Eng N 79:1153-5 D 20 '17; Same. Eng & Contr 49:79-81 Ja 23 '18

Concrete-base track on North Pacific railway. *il* diags Elec Ry J 53:239-40 F 1 '19; Eng N 81:1071-4 D 12 '18

Concrete for railway soft spots. J. T. Bowser. Concrete 14:144 Ap '19

Concrete in railway track construction. Eng & Contr 51:403-4 Ap 16 '19

Concrete railroad crossings proving successful. *il* diags plans Eng N 80:1048-9 My 30 '18

Concrete track supports cut railway maintenance costs. A. C. Irwin. *il* diags Concrete 15:63-8 Ag '19; Same. Ry R 65:93-9 J1 19 '19

Design of reinforced concrete beams and slabs. L. Goodman. diags Bldg Age 41:259-61, 292-3, 337-9 Ag-O '19

Drive inclined precast concrete slabs for sea wall. *il* diags Eng N 81:837-8 N 14 '18

Economical proportions of concrete slabs and simple concrete beams. E. Davis. Am Arch 113:779-80 Je 5 '18

Flat slab floors. Concrete 12:178-9 My '18

Flat slab substituted for groined roof of reservoir. H. C. Wight. *il* diags plans Eng N 82:1016-17 My 22 '19

Flat-slab system—a topical discussion. *il* diags Eng Soc W Pa 34:72-109 F '18

Improve railroads and save money with concrete roadbed. diags Concrete 14:59 F '19

Joint committee report. Concrete 12:64-6 F '18

Light concrete floor slabs for truss bridges. C. E. Nagel. *il* Eng & Contr 49:642-3 Je 26 '18

Load assumption in the design of concrete floor slabs. G. H. Tinker. Ry Age 65:932-3 N 22 '18

**Concrete slabs—Continued**

- Manhole construction; use of previously molded reinforced-concrete slabs. *Il Elec W 70:1196 D 22 '17*
- Notes on flat slab design: bending moments, exterior panels, spandrels, arrangement of reinforcement. A. M. Wolf. *diags Eng & Contr 49:307-10 Mr 27 '18*
- Notes on flat slab design: thickness of slab, column heads and bending in columns. A. M. Wolf. *diags Eng & Contr 49:210-13 F 27 '18*
- 146 unit-built concrete dwellings at Youngstown. H. Whipple. *Il plans Concrete 12:5-9 Ja '18*; Same. *Coal Age 13:862-5 My 11 '18*
- Precast bridge slabs of concrete incased I-beams used for overcrossings by Chicago & North Western railway. *Il diags Eng N 80:611-13 Mr 14 '18*
- Precast concrete slabs make durable flume. S. L. Stovall. *Il Eng N 81:131-2 Jl 18 '18*
- Precast slabs for railway crossings. *Il diags Concrete 14:114 Mr '19*
- Reinforced-concrete flat-slab railway bridges; abstracts. A. B. Cohen. *Il diags plans Ry Age 65:17-20 Jl 5 '18*; *Eng & Contr 50:211-14 Ag 28 '18*
- Simple formulas for rapid design and estimates of flat slab based on the last joint committee report on concrete and reinforced concrete. M. W. Serby. *Eng & Contr 49:82-3 Ja 23 '18*; Same. *Concrete 12:136-7 Ap '18*
- Strength of reinforced concrete floor slabs. A. P. Hoover. 3 charts *Arch & Bldg 49:103-6 N '17*
- Thickness of concrete slabs for highway surfaces. A. T. Goldbeck and F. H. Jackson. *diag Eng N 83:234-6 Jl 31 '19*
- Traveling spouting hopper and derrick minimize work in slab-casting yard. *Il diag Eng N 81:774-5 O 24 '18*
- Types of reinforced concrete construction; flat slab construction. B. S. Brown. *diags Arch Forum 31:157-8 N '19*
- Unit-built concrete cottages to house foreign labor of Youngstown steel and tube co. *Il diags plans map Eng N 80:695-8 Ap 11 '18*
- Use concrete bases and cantilever side forms in casting house slabs. *Il Eng N 80:732-3 Ap 11 '18*
- Warped concrete surface built by unit construction method. *Il Eng N 80:869-60 My 2 '18*
- When shear controls load distribution on a concrete slab. S. M. Cotten. *Eng N 80:925 My 9 '18*
- Why the Chicago flat-slab ruling was revised. J. Krippner. *diags Eng N 79:1155-7 D 20 '17*
- Testing**
- Canadian tests on flat-slab construction. *diags Eng & Contr 50:218-19 Ag 28 '18*
- Eight-year-old concrete flat slab tested in building. *Eng N 81:121 Jl 18 '18*
- Reinforced concrete slab bridge design based on tests of full size slabs. A. T. Goldbeck. *Eng & Contr 50:499-500 N 27 '18*
- Slab computations in textile mill design. *Concrete 13:148 N '18*
- Test of a flat slab floor of the Western newspaper union building, Chicago. A. N. Talbot and H. F. Gonnerman. *Il diags Ill U Eng Exp Sta Bul 106:1-48 '18*; *Excerpts. Eng & Contr 51:416-18 Ap 23 '19*
- Concrete stairways.** See **Stairways, Concrete**
- Concrete staves**
- Cement staves used in farm building construction. W. F. Kalsar. *Il Bldg Age 41:30-1 Ja '19*
- Gas producer of concrete staves. *Il Iron Age 102:745 S 26 '18*
- Operation of a silo stave factory. *Il Concrete 12:165-6 My '18*
- Silo staves for farm buildings. *Concrete 12:51 F '18*
- Stave silo builders talk shop. *Concrete 14: 115-16 Mr '19*
- 258 stave silos in a season. *Il Concrete 14:72-3 F '19*
- Concrete stone**
- Concrete stone patches. H. Whipple. *Concrete 12:132 Ap '18*

- Concrete stone trim—California churches. *Il Concrete 13:120-1 O '18*
- Consistency in stone manufacture. *Concrete 12:163-9 My '18*
- House of concrete stone at Yonkers. H. V. Walsh. *Il plans Concrete 12:23-6 Ja '18*
- Notes on making concrete stone. H. Whipple. *Il Concrete 12:167-8 My '18*
- Stone manufacture—some first lessons. P. H. Beatty. *diags Concrete 12:131-2, 170-1, 209-10; 13:17 Ap-Jl '18*
- Wet cast building unit factory in Bangor, Me. *Il Concrete 11:174-6 D '17*
- See also Concrete blocks*
- Concrete surfaces.** See **Concrete—Finishing**
- Concrete tanks.** See **Tanks, Concrete**
- Concrete testing.** See **Concrete—Testing; Concrete slabs—Testing**
- Concrete ties.** See **Railroad ties, Concrete**
- Concrete tile**
- Experience in concrete roof tile manufacture, with costs. D. Helmuth. *Il Concrete 15:160-1 O '19*
- Hansen roof tile machine. *Il Concrete 13:34 Jl '18*
- McIntyre structural tile machine. *Il Concrete 11:195 D '17*
- Making concrete tile for government housing. *Il plan Concrete 14:32-4 Ja '19*
- Manufacture of large concrete roofing tile. *Il diags Concrete 15:157-9 O '19*
- Proposed standard specifications for concrete roof tile. *diags Concrete 15:45 Jl '19*
- Walter concrete roof tile. *Il diag Bldg Age 40:225-6 Ap '18*
- See also Drain tile*
- Concrete tracks**
- Reinforced concrete track for testing motor trucks. *diags Eng & Contr 50:530 D 4 '18*
- Concrete trestles.** See **Trestles, Concrete**
- Concrete walls.** See **Walls, Concrete**
- Concrete warehouses.** See **Warehouses, Concrete**
- Concrete water towers.** See **Water towers, Concrete**
- Concreting**
- Bracing eliminated in sheeting octagonal excavation. W. K. Knauff. *diag plan Eng N 82:541-2 Mr 13 '19*
- Concreting prospect drill holes. R. H. Poston. *diags Eng & Min J 107:309-11 F 15 '19*
- Highway bridge piles concreted to avoid replacing. F. E. Semon. *Il Eng N 82:766-7 Ap 17 '19*
- Planning work expedites casing of pipe line with concrete. *Il diag Eng N 82:725-7 Ap 10 '19*
- See also Concrete placing*
- Condensation**
- Physics of the air. W. J. Humphreys. *J Fr Inst 185:517-38, 611-47 Ap-My '18*
- Condensation, Chemical**
- Condensation of amino compounds with nitromalononic aldehyde. W. J. Hale and E. M. Honan. *Am Chem Soc J 41:770-6 My '19*
- Condensers, Ammonia.** See **Ammonia condensers**
- Condensers (electricity)**
- Condenser rating necessary to improve power factor. H. H. Getter. *chart Elec W 71:379-80 Ap 27 '18*
- Cost of installation of static condensers. R. H. Carlton. *Elec W 74:884 O 25 '19*
- Economic use of static condensers. W. V. Lyon. *diags Elec W 73:724-6, 774, 776-8 Ap 12-19 '19*
- Functions of the condenser in high-tension magnetos. H. F. Geist. *diags Automotive Ind 41:267-72 Ag 7 '19*
- Half-million-volt condenser for testing. *Il Elec W 74:404-5 Ag 23 '19*
- Improving power factor and voltage regulation by using synchronous condensers. J. T. Peyton. *Il Elec W 72:492-3 S 14 '18*
- Improving power-factor by static condenser. *Il diag Elec R 73:317-20, 325 Ag 31 '18*

**Condensers (electricity)—Continued**

- Location for power-factor corrective apparatus. W. Brown. *diags* Elec W 73:125-3 D 14 '18
- Losses reduced one-half by synchronous condensers. *diag* Elec W 73:1039 My 17 '19
- Measurement of small inductances and power losses in condensers; abstract. A. Campbell. Elec W 71:732 Ap 6 '18
- Mica for use in electric condensers. Elec R 74:987 Je 14 '19
- Power-factor correction by use of the static condenser. O. C. Roff. *il diag* Elec R 75:423-7 S 13 '19
- Power-factor improvement in New England stations. A. E. Pope and others. *il* Elec W 73:834-5 Ap 26 '19
- Pre-charged condensers in series and in parallel. V. Karapetoff. *diags* Am Inst E E Pro 37:509-17 My '18
- Predetermination of synchronous phase-modifier performance. H. V. Carpenter. *diags* Am Inst E E Pro 38:997-1003 Ag '19
- Radio instruments and measurements. *il diags* U S Bur Stand Circ 74:109-31 '18
- Static condenser improves power factor. A. Bridgeman. Elec R 72:636 Ap 13 '18
- Static condensers. W. B. Taylor. *il diags* Gen Elec R 21:565-9 Ag '18
- Static condensers for small installations. Elec W 73:1104-5 My 24 '19
- Successful static condenser installation. W. A. Forbush. *il* Elec W 73:1214-15 Je 7 '19
- Synchronous condensers in high-tension system. J. W. Andree. *il chart diags map* Elec W 74:564-7 S 13 '19
- Wet condenser suitable for continuous high-potential service; abstract. Elec W 71:210 Ja 26 '18
- Condensers (gases and vapors)**
- Block condenser improved. *diag* Power 48:803 D 3 '18
- New reflux condenser. J. J. Bajda. *diag* J Ind & Eng Chem 11:52 Ja '19
- Condensers (steam)**
- Air pumps and condensers in steam engineering. *diag* Sci Am S 85:396 Je 22 '18
- Cleaning a condenser with muriatic acid. D. C. McKeehan. Power 47:504 Ap 9 '18; Discussion. W. A. Sperry. 47:811 Je 4 '18
- Cleaning condenser tubes in their place with hydrochloric acid. G. M. Robertson. *diag* Am Soc M E J 40:112 Ja '18
- Cleaning surface condensers. T. M. Sterling. Power 48:644 O 29 '18
- Cleaning turbines and condensers in service. H. E. Wagner. Elec R 71:1114 D 29 '17
- Compartment condenser permits cleaning in service. *il diag* Elec R 75:371 Ag 30 '19
- Condenser cleaning by chemicals. *diags* Engineer 128:142 Ag 8 '19
- Condensers and condenser engineering practice. D. D. Pendleton. Power 48:720-2, 756-7 N 12-19 '18; Abstract. Elec W 72:738-9 O 19 '18
- Condensers with seventy-foot water level variation. F. R. Brosius. *il diags plans* Power 47:142-4 Ja 29 '18
- Corrosion of condenser tubes caused by salt water; abstract. G. Costesèque. Elec W 71:1279 Je 15 '18
- Corrosion of non-ferrous metals. G. D. Bengough and O. F. Hudson. Engineer 127:300-1 Mr 28 '19; Abstracts. Elec R 74:817 My 17 '19; Chem & Met Eng 20:594 Je 1 '19
- Diagnosing and correcting the causes of low vacuum. H. L. Smith. Elec Ry J 52:500-4 S 21 '18
- Elliott-Ehrhart jet condenser. *il* Power 49:160 F 4 '19
- Fifty-thousand kilovolt-ampere Connors Creek turbines. C. F. Hirschfeld. Power 47:255-6 F 19 '18; Same. Engineer 126:303 Ap 5 '18
- Fifty-thousand sq. ft. condenser. *il diags* Power 47:282-5 F 26 '18
- Getting a high vacuum at the turbine exhaust. H. L. Smith. Elec Ry J 52:99-101 J 20 '18
- Griffin condenser-tube cleaner. *diag* Power 47:183 F 5 '18
- Handy tools for surface condenser work. F. M. Sterling. *il* Power 50:115 J 15 '19

- Hints for maintaining high vacuum. Elec R 73:549 O 5 '18
- Ideal barometric condenser conditions. G. T. Keech, Jr. *il* Power 48:881-2 D 17 '18
- Interior surface defects on brass condenser tubes as a cause of corrosion. W. R. Webster. *il* Metal Ind 15:291-3 J 1 '17; Same. Power 47:676 My 7 '18
- Keeping condenser performance up to the mark. H. L. Smith. *diag* Elec Ry J 52:694-7 O 19 '18; Same. Power 48:868-70 D 17 '18
- Life of brass condenser tubes. G. D. Bengough and O. F. Hudson. Sci Am S 88:75-+ Ag 2 '19
- Modern condenser practice. D. D. Pendleton. *il diags* Eng Soc W Pa 33:523-55 N '17; Same. Iron Tr R 62:1361-5 My 30 '18; Discussion. Eng Soc W Pa 33:556-79 N '17
- New type of steam condenser construction. *diag* Elec Ry J 54:578 S 20 '19
- Notes on surface condensing plants, with special reference to the requirements of large power stations. R. J. Kaula. *diags* Inst E E J 57:440-6 Je '19; Abstract. Elec W 73:1333 Je 21 '19; Discussion. Inst E E J 57:447-64 Je '19
- Nozzle for cleaning surface condenser tubes. Elec W 71:204 Ja 26 '18
- Particulars of a 56,000 sq. ft. surface condenser. *il diags* Power 50:90-2 J 15 '19
- Purifying circulating water for surface condensers; abstract. W. Seyffert. Am Soc M E J 40:111-12 Ja '18
- Recent developments in condensers; with discussion. D. W. R. Morgan. *il diags* Power 48:434-6 S 17 '18; Same cond. Elec W 72:204-6 Ag 8 '18
- Report of the committee appointed by the council of the North-east coast institution of engineers and shipbuilders; abstracts. *il diag* Engineer 124:557 D 28 '17; Elec W 71:209 Ja 26 '18; Am Soc M E J 40:283-5 Mr '18; Int Marine Eng 23:113 Mr '18
- Rig for removing a condenser plate. *diag* Power 50:257 Ag 12 '19
- United States nitrate plant, no. 2 at Muscle Shoals, Ala.; condenser equipment. C. H. Bromley. *il diags plan* Power 49:558-61 Ap 15 '19
- Vacuum trouble in turbine condensers. J. Brakes, Jr. *charts* Power 49:287-8 F 25 '19
- War and condenser tubes; how these essential parts of a warship are made at the plant of the Wheeler condenser and engineering company, Carteret, N.J. J. J. Brown. *il Metal Ind* 16:205-8 My '18
- What is the cure for condenser tube corrosion? H. L. Smith. Elec Ry J 52:233-5 Ag 17 '18
- Wheeler sectional surface condenser. *diag* Coal Age 16:655-6 O 16 '19
- See also Cooling towers; Feed water; Steam engines; Steam plants
- Conditional sales.** See Sales, Conditional
- Conductivity, Electric.** See Electric conductivity
- Conductivity water.** See Distillation
- Conductors, Electric.** See Electric conductors
- Conduits**
- From the old to the new in steam pipe conduits. *diags* Heat & Ven 15:27-9 Je '18
- W. E. D. steam pipe conduits. *diags* Heat & Ven 15:65-6 Ap '18
- See also Aqueducts; Electric conduits; Subways (conduits); Water conduits
- Conduits, Electric.** See Electric conduits
- Conduits, Water.** See Water conduits
- Confectionery**
- American confectionery abroad. Sci Am 118:526+ Je 8 '18
- See also Candy
- Conference club**
- Meeting. Asheville, N.C., Jan. 17-19. Elec W 71:212 Ja 26 '18
- Congo.** See Kongo, Belgian
- Congress of civil engineers**
- Plans for post-war activities taking shape. W. F. Bradley. Automotive Ind 33:757-9 Ap 18 '18

**Congress on national service**

Congress on national service held by National security league. G. L. Alexander. Gen Elec R 21:381-3 My '18

**Coniferae**

Miscellaneous conifers of the Rocky Mountain region. G. B. Sudworth. Il maps U S Agric Bul 680:1-44 '18

**Conjoint board of British scientific societies**

Report on the work of the Board for the first year, 1916-1917. Am Soc M E J 40:340 Ap '18

**Connecting rods**

Connecting rod production in a 50-engine-a-day plant. J. E. Schipper. Il Automotive Ind 41:613-19 S 25 '19

Connecting-rods for motor trucks and passenger cars. F. H. Colvin. Il diags Am Mach 51:467-70 S 4 '19

Methods of making connecting rods. F. C. Hudson. Am Mach 50:1002 My 22 '19

See also Locomotives—Rods

**Connectors. See Car couplings****Conservation of resources**

Our wasted resources. G. H. Pegram. Sci Am S 85:246 Ap 20 '18

See also Forests and forestry; Gas, Natural; Reclamation of land; Water power

**Consolidated Arizona smelting company**

Company reports. Eng & Min J 107:1084-5 Je 21 '19

Report for 1917. Met & Chem Eng 18:626 Je 15 '18

**Consolidated gas company of New York**

Increase in cost of gas oil alone adds \$1,800,000 to gas manufacturing cost. Am Gas Eng J 108:87-8+ Ja 26 '18

Largest gas utility company in the world. Il diag Gas Age 43:335-8 Ap 1 '19

**Consolidated mining and smelting company of Canada**

Annual report for the year ended Sept. 30, 1918. Eng & Min J 107:314-16 F 15 '19

**Consolidated statements. S. Walton. J Account**

25:225-37, 303-20, 384-99, 460-76 Mr-Je '18

**Consolidation coal company**

Consolidation coal company. G. W. Harris. Il plans map Coal Age 14:1148-53 D 26 '18

Modern shaft development of the Consolidation coal company. G. W. Harris. Il diag plan Coal Age 15:480-5, 527-31 Mr 13-20 '19

Sociological work accomplished by the company. Il Coal Age 15:54-8 Ja 9 '19

**Constantinople, Turkey****Mosque of Sta Sophia**

Shadows and straws. Am Inst Arch J 7: 239-41 Je '19

**Constellations**

Lyre of the poets; a small summer constellation. J. C. Dean. Il diags Sci Am S 86: 116-17 Ag 24 '18

**Construction. See Architecture; Building; Engineering; Railroads—Construction****Construction camps**

Car camps for road maintenance gangs repay cost each season. Il diags plan Eng N 82:444-5 F 27 '19

Construction camps model towns on Miami flood works. Il plans Eng N 81:575-8 S 26 '18

Construction speeded up by doing three jobs at one time; increasing height of three dams on Huntington lake. Eng N 79:1046 D 6 '17

First aid medicines for construction camps. Eng & Contr 49:490 My 15 '18

Laborers build sectional camp houses. diags plans Eng N 82:1033 My 22 '19

Medical inspection at Miami camps checks influenza. Il plan Eng N 82:197 Ja 23 '19

Men like Y. M. C. A. in Ohio construction camp. G. W. McAlpin. Eng N 80:93 Ja 10 '18

Portable units form buildings for labor camps. Il diags plan Eng N 80:126-7 Ja 17 '18

Road-construction camp rationing when convict labor is used. Eng N 82:1032 My 22 '19

Simple heating and ventilating system for contractor's hospital. J. M. Stadter. Il Eng N 82:788 Ap 17 '19

Wagon camps for housing construction crews. C. L. Raymond. Il Eng & Contr 52:431 O 15 '19

See also Labor camps; Mining camps

**Construction plants**

Electricity cuts construction-plant power costs. Il diags Eng N 83:311-12 Ag 14 '19

Plant department can make large savings on construction equipment. T. A. Brady. Eng N 80:711-12 Ap 11 '18

Rental charges for construction equipment. Eng & Contr 52:93 Jl 23 '19

Storing contractor's plant. Eng & Contr 49: 481-2 My 15 '18

War demands conservation of construction plant by careful winter storage. C. S. Hill. Il Eng N 81:836-8 N 7 '18

Winter protection for contractor equipment. Concrete 15:208-9 N '19

**Consulting engineers**

Advantages gained by the contractor in employing a consulting engineer. R. S. Blinn. Munic Eng 55:80 Ag '18

Consulting engineers in France. E. McCullough. Eng N 83:142-3 Jl 17 '19

Egotism in business a grave error; consulting engineer can help to guide executives along broader lines of progressive thought. J. E. Schipper. Automotive Ind 40:576-7+ Mr 13 '19

**Containers, Magnetic. See Magnetic contactors****Containers**

Better packages and how to know them. Il Sci Am 120:546+ My 24 '19

Fiber containers as a substitute for glass and tin. Sci Am 118:59 Ja 12 '18

Making sanitary containers for milk from waste sawdust. Am Gas Eng J 108:150 F 16 '18

Shipping containers. C. P. Beistle. Il J Ind & Eng Chem 11:674-82 Jl '19

Tea-chest manufacture in India. Sci Am 118:396 Ap 27 '18

Testing—not guessing; how the government is assisting manufacturers to find the best container for their products. Factory 23: 299 Ag '19

See also Boxes; Cans; Fiber board; Packing for shipment; Paper containers

**Continental motors corporation**

Continental plant layout facilitates production. J. E. Schipper. Il diag plan Automotive Ind 40:1122-6, 1168-73 My 22-29 '19

**Continuation schools. See Evening and continuation schools****Continuous trains. See Moving platforms****Contract bonds. See Guaranties and sureties****Contract letting. See Contracts, Letting of****Contractors**

Business methods for the building contractor. G. A. Rutherford. Eng & Contr 51: 415-16 Ap 23 '19

Code of practice for general contractors and subcontractors. Eng & Contr 52:216-17 Ag 20 '19

Contractors and war service. Eng N 81:477 S 12 '18

Contractors' organizations and what they can accomplish. D. A. Garber. Eng & Contr 51:395-6 Ap 16 '19

Contractor's salary as an overhead charge. J. F. Lidral. Eng & Contr 52:256-7 Ag 27 '19

Contractors to organize. Eng N 81:598-9 S 26 '18

Contractors' tool records kept on two form sheets. Eng N 83:675 O 2 '19

Evolution of the building material business; the plan-book system. Bldg Age 40:55-8 Ja '18

How a contractor keeps tab on the job. W. F. Tubising. Il Concrete 11:180-1 D '17

How I almost pinched my business to death. Concrete 15:101-3 S '19

**Contractors—Continued**

How I made contracting pay. Bldg Age 41:157-8 My '19

How laws for relief of New York state contractors operate. D. W. Robbins. Eng N 81:95-6 JI 11 '18

Independent contractors. C. C. Sherlock. Inland Ptr 60:479-80 Ja '18

Is a knowledge of building essential for the contractor of to-day? Am Arch 116:173-4 Ag 6 '19

Lines of organization for contractors' association. Eng N 81:619-21 O 3 '18

New phase of architectural responsibility. T. C. Young. Am Arch 113:713-14 My 29 '18

Objection to lump sum contracting. Am Arch 114:512 O 30 '18

Raison d'être of the tie contractor. W. Poleman. Ry R 64:227-9 F 8 '19

Relations of the engineer to the contractor. S. M. Swaab. Munic Eng 53:178-9 N '17

Removing the risk from estimates. L. B. West. Concrete 13:87-8 S '18

Salesmanship in the contracting business. L. H. Allen. Eng & Contr 51:583 My 28 '19

Selling contracts in the sheet metal line. D. K. Swartwout. Metal Work 88:743-6 D 21 '17

Some aspects of modern contracting. F. E. Davidson. Am Arch 115:236-7 F 12 '19

Standing and compensation of the building contractor. W. A. Klinger. Eng & Contr 49:636-7 Je 26 '18

Subcontractor, apart from mechanic's lien statutes, must look to general contractor and not owner for payment. Dom Eng 85:443-4 D 21 '18

Supreme court fixes responsibility of contracts. Eng N 81:1167-8 D 26 '18

Take steps to create National association. Eng N 81:245 Ag 1 '18

War prices on pending contracts. W. B. King. Eng N 80:727-8 Ap 11 '18

Would rate state highway contractors on past performance. S. E. Fitch. Eng N 81:125-7 JI 18 '18

*See also* Building contracts; Contracts, Letting of; Day labor; Electric contractors

**Accounting**

Accounting as applied to the general contractor. L. A. Weatherwax. Eng & Contr 51:552 My 21 '19; Same. Concrete 15:165-6 O '19

Accounting on cost plus contracts. R. W. Horne. Eng & Contr 52:228-9 Ag 20 '19

Cost-keeping system for plumbing and heating contractors. W. G. Astle. Dom Eng 81:448-51 D 15 '17

Cost keeping under cost-plus-fixed-fee contracts. F. A. Wells. Eng & Contr 52:447-9 O 15 '19

Simple cost forms that help your business pay. G. E. Holloway. Bldg Age 41:270-1 Ag '19

Why some contractors' profits appear to shrink. G. E. Holloway. Bldg Age 41:332-4 O '19

**Advertising**

Making common advertising uncommon. Metal Work 91:119-20 Ja 24 '19

Contractors, National association of general. See National association of general contractors

Contractors' plant. See Construction plants

**Contracts**

Automobile commissions. C. C. Sherlock. Horseless Age 44:40 My 15 '18

Constructing boiler contracts. A. L. H. Street. Power 48:765-6 N 26 '18

Contingent fee covenant not applicable to coal industry. Coal Age 14:406 Ag 29 '18

Contract relations. R. H. Butz. Textile World 53:6043 Je 8 '18

Contract relations in recent litigation. W. S. Newhouse. Textile World 53:3658, 5497+ F 2, My 11 '18

Copyright on the uniform contract upheld by the court. Am Inst Arch J 6:141-2 Mr '18

De-hydrated contracts. A. P. Greensfelder. Am Water Works Assn J 5:404-6 D '18

Director General McAdoo approves compensation contract. Ry Age 65:435-42, 469-70 S 6-13 '18; Same cond. Ry R 63:384-93 S 14 '18; Abstract. Eng N 81:511-12 S 12 '18

Don't sign unread contracts. E. J. Buckley. Metal Work 89:333 Mr 8 '18

Facts about contracts; details about business transactions governing action of both parties. R. H. Butz. Textile World 54:134 JI 6 '18

How to obtain, take hold of and execute contracts. L. Luckhardt. Metal Work 90:62-8 JI 19 '18

Legal phases of bonded city contract. Dom Eng 83:51-2 Ap 13 '18

Liability of contractor who cannot perform his contract because of war regulation as to labor and shipments by federal government. Dom Eng 84:245-6 Ag 17 '18

Passaic valley sewer contract suit settled by agreement. Eng N 81:191-2 JI 25 '18

Plumber who agrees to do work to satisfaction of customer, cannot claim customer unreasonably rejects it. Dom Eng 84:395-6 S 14 '18

Rights of sub-contractor when general contractor is bonded. Dom Eng 83:87-8 Ap 20 '18

Standard clauses for the railroad contracts. Ry R 63:384-90 S 14 '18

(Tentative) form of contract between the government and the railroads. Ry R 62:606-9 Ap 27 '18

Verbal contract not to be performed within one year from date it is made, cannot be sued upon successfully. Dom Eng 83:329-30 Je 1 '18

War as affecting contracts. Gas Age 42:206 S 2 '18

*See also* Agency; Building contracts; Commercial law; Contractors; Guarantees and sureties; Heating contracts; Labor contracts; Master and servant; Partnership; Pavements—Contracts; Plumbing contracts; Refuse disposal—Contracts; Roads—Contracts; Sales; Street lighting—Contracts; Trade agreements

**Contracts, Government**

Adjustment of unofficial contracts. N. B. Williams. Am Ind 19:16-18 Ja '19

Bill introduced to legalize informal contracts. Eng & Min J 107:191 Ja 25 '19

Bond premiums on government contracts. Eng & Contr 52:74 JI 16 '19

Contract adjustment rules issued. Iron Tr R 64:711-12 Mr 13 '19

Contract validating bill signed. Automotive Ind 40:544+ Mr 6 '19; Excerpts. Iron Age 103:682 Mr 13 '19

Delays in government payments. W. D. Cline. Am Mach 48:997 Je 13 '18

Government contract adjustment delayed. Iron Age 102:1380-2 D 5 '18

Government contracts for war materials. Am Ind 19:7 Ag '18

Government specifications should not misplace responsibility. Eng N 83:144, 285 JI 17, Ag 7 '19

Inadequate cost-keeping retarding adjustment. J. E. Schipper. Automotive Ind 40:561-3+ Mr 13 '19

Navy could change site and annul contract but could not collect; suit by the California bridge & construction co. against the United States. Eng N 80:175 Ja 24 '18

Payment for informal contracts. Am Mach 50:179 Ja 23 '19

Senate starts hearings on bill to legalize contracts; text. Automotive Ind 40:274+ Ja 30 '19; Same. Iron Tr R 64:163-4 Ja 9 '19

Settlement of government contracts. Textile World 55:2325-6 Ap 19 '19

Status of government contracts. W. W. Warwick. Textile World 54:2975+ D 14 '18

Status of informal war contracts. G. H. Dorr. Am Mach 50:1257-8 Je 26 '19

Validating bill is passed. Automotive Ind 40:331-2 F 6 '19

*See also* Contracts, Letting of

**Contracts, Letting of**

- Abolishing secrecy in army contracts. Eng N 80:141-2 Ja 17 '18; Same. Am Mach 48:233-4 F 7 '18
- Activities of the Construction division, United States army, and the form of contract adopted. R. C. Marshall, jr. Boston Soc C E J 6:265-78; Discussion. 279-99 S '19; Excerpts. Eng & Contr 52:467-71 O 22 '19
- Advantages and disadvantages of various methods of letting contract work. J. A. L. Waddell. diag Eng & Contr 52:89-90 JI 23 '19; Discussion. A. J. McKenzie. 52:165 Ag 6 '19
- Advantages of cost plus contracts. H. E. Hewitt. Eng & Contr 50:312 S 25 '18
- Advantages of the cost-plus-a-fixed-fee contract for building construction. A. E. Wells. Munic Eng 56:213-14 Je '19; Same. Textile World 56:103 JI 5 '19
- American quantity system. G. A. Wright. Arch & Bldg 50:12-14 F '18
- Awarding school building contracts by group method. Am Arch 115:140-1 Ja 23 '19
- Bidding on public work. J. J. Simpson. Munic J 47:254-6 O 25 '19
- Can construction cost be lowered? H. E. Hewitt. Am Arch 114:345-6 S 18 '18
- Can the contractor assign his contract? J. Simpson. II Munic J 47:105-7 Ag 16 '19
- Causes for disqualification of bidders on Kentucky road work. Eng & Contr 50:141 Ag 7 '18
- Choose Wilmington bridge engineer by competition. II Eng N 83:806-7 O 30 '19
- Commissions on government contracts. Iron Age 102:200-1 JI 25 '18
- Committee approves cost plus a fee contract of quartermaster corps. Eng & Contr 49:508-9 My 22 '18
- Comparing the bids and letting the contract. W. F. Anderson. Am Arch 114:253-5 Ag 28 '18
- Competitive bidding on a cost plus fee basis. Arch Forum 31:142 O '19
- Conditions in contracting for war material. Iron Age 101:1656-7 Je 27 '18
- Construction division's form of contract defended. R. C. Marshall, jr. Eng N 82:177-8 Ja 23 '19
- Contract work; tabulation. Munic J 46:291-2 Ap 19 '19
- Contracts—a comparison of cost plus with other forms. E. W. Clarke. Eng & Contr 52:283-5 S 3 '19
- Cost-plus-a-fee contract for public works letting. Eng & Contr 49:417-18 Ap 24 '18
- Cost-plus basis for war supplies. C. J. Morrison. Am Mach 48:828 My 16 '18
- Cost plus contract. Am Arch 113:320 Mr 13 '18
- Cost-plus contract a success. J. B. Chaffey. Eng N 82:485 Mr 6 '19
- Cost plus contract for municipal work. Eng & Contr 49:178-9 F 13 '18
- Cost-plus contract incentive to close management. Eng N 82:863 My 1 '19
- Cost plus contract with minimum fee guarantee. Eng & Contr 52:465 O 22 '19
- Cost-plus contracts. J Account 26:216-20 S '18
- Cost plus contracts. P. B. Glasco. Eng & Contr 50:210-11 Ag 28 '18
- Cost-plus contracts great lesson of war construction. R. C. Marshall, jr. Eng N 81:1192 D 26 '18
- Cost-plus contracts—or lump sum? A. E. Wells. Concrete 15:121-3 S '19
- Cost plus fee contract for bridge construction. Eng & Contr 51:408-9 Ap 23 '19
- Cost-plus-fee contract with divided risk for Kansas City (Mo.) viaduct. Eng N 80:471 Mr 7 '18
- Cost plus fee system. Am Arch 116:341-2 S 10 '19
- Cost plus fixed sum contract for municipal construction. T. K. Legare. Eng & Contr 49:181 F 13 '18
- Cost-plus-percentage contracts. J Account 25:49-53 Ja '18
- Cost-plus-profit contract is commended by Council of national defense. Iron Age 101:738-9 Mr 21 '18
- Design features and form of contract for constructing a large earthen water supply dam on cost plus fee basis. J. L. Crane, jr., and J. G. Kimmel. diag Munic Eng 57:86-4 Ag '19
- Estimating and the builder's overhead. Am Arch 116:366 S 10 '19
- Evils of unbalanced bids on municipal and county contracts. Munic Eng 55:32-3 JI '18
- Fees to be paid contractors according to contract for emergency work, adopted by the Secretary of war. Metal Work 90:60-1 JI 19 '18
- Fixing of prices for naval contracts discussed in annual report of the secretary of the navy. Iron Age 100:1420-1 D 13 '17
- Hardships of the cost-plus plan. J. P. Brophy. Ind Management 56:320 O '18
- How the cost-plus contract safeguards both the owner and contractor. A. E. Wells. Am Arch 116:309-10 S 3 '19; Same. Bldg Age 41:307 S '19; Same. Dom Eng 89:110-12 O 18 '19; Same. Eng & Contr 52:355 S 24 '19; Same. Heat & Ven 16:27-9 O '19; Same cond. Munic Eng 57:160-1 O '19
- Keep accurate costs on war-time fee contract. F. Gannett and J. D. Carpenter. II Eng N 82:571-3 Mr 20 '19
- Labor efficiency good on percentage contracts. H. C. Turner. Eng N 82:815-18 Ap 24 '19
- Labor shortage made good by station contract system; Winnipeg aqueduct; abstracts. F. P. Kemon. II Eng N 81:542-4 S 19 '18; Eng & Contr 50:342-4 O 9 '18
- Nelson method of paying building contractors for bidding. J. B. Warrack. Eng & Contr 52:87 JI 23 '19
- New contract system which stimulates efficiency gaining favor. H. D. Hammond. Eng N 81:118-20 JI 18 '18
- New method of contract letting based on fairness to both owner and contractor. J. A. L. Waddell. Am Arch 116:484-8 S 24 '19
- Ohio uses cost-plus-lump-sum contract for highway maintenance. Eng N 82:734 Ap 10 '19
- Our newest navy: how its cost is being determined. D. Potter. J Account 27:386-57 My '19
- Overhead distribution for cost-plus contracts. F. E. Seidman. J Account 25:161-75 Mr '18
- Owners backward in matter of contract practice. F. J. Amweg. Eng N 81:330-1 Ag 15 '18
- Payment for estimating. Am Arch 116:427-9 S 24 '19
- Preliminaries to taking bids and letting contracts. F. W. Grant. Am Arch 112:424-6, 471-2; 113:279-82, 313-15 D 12, 26 '17, Mr 6-13 '18
- Protecting the owner under a cost-plus building contract. Arch Forum 31:103-5 S '19
- Question of extra work. Bldg Age 40:190 Ap '18
- Revised schedule of fees on government contracts. Eng & Contr 49:389 Ap 17 '18
- Rules for competitive bidding under the Clayton law. Ry Age 66:1009-10 Ap 18 '19
- Should estimates for work be paid for? Metal Work 91:37-8 Ja 3 '19
- Special committee approves emergency contract form of quartermaster corps. Eng N 80:550-1 Mr 21 '18
- Standardizing contracts. Textile World 54:101 JI 6 '18
- Standards for army work; recommendations for sound industrial conditions. Textile World 53:2663 D 22 '17
- Suggested form of cost-plus contract. G. H. Halley. Eng & Contr 52:327 S 17 '19
- Unit price and cost-plus systems of contracts for public work. A. W. Graham. Eng & Contr 51:344-5 Ap 2 '19
- Unit price contracts vs. percentage contracts. W. L. Darling. Eng & Contr 51:650-1 Je 18 '19; Same. Ry Age 67:64 JI 11 sec 1 '19
- Virginia has new highway bridge contract. W. R. Glidden. Eng N 81:192 JI 25 '18
- What constitutes cost in a cost plus contract? Arch Forum 31:139-41 O '19

**Contracts, Letting of—Continued**

What is a public or a private proposal? Bldg Age 40:238 Je '18

Who shall do it?; selecting a contractor for government emergency construction work. W. A. Starrett. Sci Am 119:296+ O 12 '18

See also Building contracts; Roads—Contracts

**Control boards**

Control board for purchases. N. L. Snow. II Ind Management 57:139-40 F '19

Controlling production at long range. L. V. Fraley. II diags Ind Management 58:195-7 S '19

Graphic production control. C. E. Knoeppel. II diags Ind Management 57:113-18 F '19

How control boards can help manage. B. L. Van Schaick. II Factory 22:1172-6 Je '19

How I know where each job stands. C. E. Fairbanks. Factory 23:1036-8 N '19

Keeping track of production. H. A. Noar. II diags Am Mach 50:745-7 Ap 17 '19

More work from your clerks; route boards. II Factory 19:248+ Ag '17

Posting on the planboard. II Factory 20:634 Ap '18

Production planning system of the Heald machine company. W. S. Pratt. II Am Mach 51:501-8 S 11 '19

Routeing by means of control boards. R. H. Wadsworth. II Am Mach 49:314-15 Ag 15 '18

Schedule board for engineering department. H. E. Wulding. II Elec W 71:1274 Je 15 '18

Talking with tacks. W. E. Dodge. II Factory 22:931-3 My '19

**Controllers, Electric. See Electric controllers****Convection**

Demonstrating convection currents. II Sci Am 117:351 N 10 '17; Same. Metal Work 88:772 D 28 '17

**Convents**

Carmelite convent, Santa Clara, California. II plans Arch Forum 30:115-18, pl 59-64 Ap '19

St Joseph's convent, Roxbury, Mass.; views and plans. Am Arch 113:pl 88-90 Mr 13 '18

**Conversion tables, Metric. See Metric system****Converters**

Converter steel and U. S. specifications. J. Sonnenfeld. Iron Tr R 63:142-3 Jl 18 '18

New converters at Granby plant. W. A. Williams. II Eng & Min J 106:989 D 7 '18

Steel converter process for foundries. G. P. Fisher. Iron Age 103:352 F 6 '19

Suggested improvements on converter wind box. diags Foundry 47:778 N 1 '19

See also Foundry practice; Metallurgy; Ore treatment

**Converters (electricity). See Electric current converters; Rotary converters****Converters, Rotary. See Rotary converters****Converters, Synchronous. See Rotary converters****Convex heads. See Boiler heads****Conveying machinery**

Applications of conveyors for handling of materials. II diags Eng & Contr 50:369 O 16 '18

Automatic shell conveyor. II Engineer 125:274, 284 Mr 29 '18

Battery manufacture; conveyor system used extensively in Willard plant. II Automotive Ind 37:1007-10 D 6 '17

British shell-shop handling devices. G. F. Zimmer. II diags plan Ind Management 55:269-76, 358-66, 473-9 Ap-Je '18

Conveyor equipment at Bancroft finishing plant. H. J. Edsall. II Textile World 54:2103+, 2847-8 N 2, D 7 '18

Conveyor pulley guards. G. H. Douglass. II diags Eng & Min J 106:535 S 21 '18

Conveyors for engineering works. W. H. Atherton. diags Engineer 126:463 N 29 '18

Conveyors replace labor and save handling costs. II diags Gas Age 42:326-7 O 1 '18; Same. Coal Age 14:742-3 O 17 '18

Economical employment of gravity conveyors. J. E. Schlipper. II Automotive Ind 41:466-72 S 4 '19

Hamilton portable stripping conveyor. diags

Coal Age 16:404 S 4 '19

Handling heavy parts rapidly. II Automotive Ind 37:1100+ D 20 '17

Handling parts in the shop and on the assembly floor. J. E. Schlipper. II Automotive Ind 40:1008-12 My 8 '19

How freight-handling machinery is being used abroad. H. Varndell. II Eng N 80:713-15 Ap 11 '18

How to move materials by machinery. H. J. Edsall. II diags Ind Management 56:42-9 Jl '18

How two conveyors keep figs in use. P. F. O'Shea. II Factory 23:1045 N '19

Improved Girtanner ash conveyor. diags Power 50:18-19 Jl 1 '19

Jeffrey carrier. diags Am Inst Min E Bul 141:2+(Ind sec) S '18

Lamson shell conveyor. diags Am Mach 48:389 F 23 '18

Layout of a modern conveying plant. II plan Automotive Ind 38:914-17 My 9 '18

Making the most of your monorail conveyors. II Factory 20:442-3 Mr '18

Management of the power plant. R. June. II Textile World 55:1453+, 2089+, 3711+ Mr 1, Ap 5, Je 14 '19; Excerpt. Elec R 75:481-3 S 20 '19

Money saved by use of steam jet ash conveyor. G. S. Hamilton. II Coal Age 15:807 My 1 '19

My double-duty conveyor. II Factory 21:37 Jl '18

New rivetless conveyor chain. II diags Coal Age 16:448-9 S 11 '19

New type of cinder conveyor at the yards of the Chicago & North Western, Milwaukee. II Ry Age 66:1017 Ap 18 '19

Overhead stock handling system. D. B. Becker. II Textile World 54:1331+ S 21 '18

Packing things even a few steps doesn't pay. Eng N 81:508 S 12 '18

Portable conveyor solves labor problem. II diags Iron Tr R 63:951-2 O 24 '18

Power-driven portable scoop conveyor. II Eng & Contr 51:202+ F 19 '19; Sci Am S 87:264 Ap 26 '19; Textile World 55:2217 Ap 12 '19; Munic Eng 56:186 My '19

Reciprocating underground coal conveyor. J. F. K. Brown. diags Coal Age 14:682-4 O 10 '18

Recovery of Comstock tailings from Carson river. L. H. Eddy. II diags Eng & Min J 104:1124-5 D 29 '17

Using gravity to convey goods at the Sayles bleacheries. II Textile World 53:4035+ Mr 2 '18

See also Ash handling; Cableways; Coal handling; Cranes, derricks, etc.; Electric shovels; Freight handling; Hoisting machinery; Loading and unloading; Mechanical handling; Mine haulage; Mine hoisting; Ore handling; Trucks

Conveyors. See Conveying machinery

Convict labor

Another source of labor supply; prisoners on parole. D. A. Hampson. Ind Management 56:150 Ag '18

Escapes under honor system in working prisoners on public roads. A. C. McKibbin. Eng & Contr 49:147 F 6 '18

Rations for Arizona convict labor camp. Eng & Contr 52:11 Jl 2 '19

Report on experimental convict road camp. Fulton county, Ga. H. S. Fairbank, R. H. Eastham and W. F. Draper. II diags plans U S Agric Bul 583:1-64 '18; Excerpts. Good Roads n s 15:221-3 Ap 27 '18

See also Roads—Convict labor

Convey

Historical sketch of conveying at sea. C. S. Goldingham. Sci Am S 85:126-3 F 23 '18

How the convoy system operated. H. C. Estep. II Marine R 49:132-5 Mr '19

Protective value of conveying. II Sci Am 118:499 Je 1 '18

**Cooking**

Heating, cooking and laundry equipment of the national army cantonments. A. C. Willard. *diags W Soc E J* 22:695-9 D '17; Same. *Metal Work* 89:634-5 My '18

*See also* Bread; Canning and preserving; Electric cooking; Gas cooking; Jelly; Kitchens

**Cooking, Electric.** *See* Electric cooking

**Cooking, Gas.** *See* Gas cooking

**Cooking utensils.** *See* Kitchen utensils

**Coolants.** *See* Lubrication and lubricants (cutting)

**Cooley, Mortimer Elwyn, 1855-**  
Portrait. *Power* 48:885 D '18; *Am Soc M E J* 41: front Ja '19

**Cooling**

Air cooling in a chewing gum plant. *Il Heat & Ven* 14:41-5 D '17

Air cooling schemes for houses. A. G. Bell. *Heat & Ven* 14:36-7 S '17; Same. *Metal Work* 89:575 My '18

Apparatus for cooling, drying and purifying air. W. J. Baldwin. *diags Am Soc M E J* 39:992-3 D '17; Same *abr. Heat & Ven* 15:44-5 Ja '18

Artificial cooling with spray effects economy. *Elec R* 72:526 Mr '18

Cooling rate affects steel casting design. J. G. Fletcher. *Foundry* 46:201-4 My '18

Cooling table for roaster product. C. T. Rice. *diag plan Eng & Min J* 106:944 N 30 '18

Heat transfer from air to pipes; abstract. C. H. Herter. *diag Am Soc M E J* 40:115-16 Ja '18

Refrigerating plant that keeps a house cool. *Bldg Age* 41:294+ S '19

Use of air from Chicago's freight tunnel as a refrigerating agent and fuel conserver. T. R. Wilson. *Il Heat & Ven* 15:42-5 O '18

*See also* Airplane engines—Cooling; Automobile engines—Cooling; Cold storage; Cooling of water; Cooling ponds; Cooling towers; Cooling water; Electric transformers—Cooling; Gas and oil engines—Cooling; Quenching; Refrigeration and refrigerating machinery

**Cooling of water**

Adjustable spray-head for cooling tanks. *diags Elec W* 71:906 Ap 27 '18

Arrangement of system for cooling drinking water. *diags Heat & Ven* 16:41-2 My '19

Circulating cooled drinking water; a simple and inexpensive system for a residence. *diag Metal Work* 89:494, 526, 554, 736-7 Ap 12-26, Je 7 '18

Cooling condensing water helps generating capacity. *Elec W* 74:412 Ag 23 '19

Cooling of water. P. A. Bancel. *Am Soc M E J* 40:313-14 Ap '18

Mechanical water cooling on the Heenan principle; abstract. *diags Am Soc M E J* 40:190 F '18

Modern condenser practice. D. D. Pendleton. *Il diag Eng Soc W Pa* 33:551-5 N '17; Same. *Iron Tr R* 62:1364-5 My 30 '18; Same. *Power* 48:766-7 N 19 '18

Splasher system cools artesian water-supply. *diags Eng N* 80:210 Ja 31 '18

Talks on Diesel engines. L. H. Morrison. *diags Power* 49:724-7 My 13 '19

Youngstown sheet & tube co. cools drinking water for mill workers. *Iron Tr R* 65:421-2 Ag 14 '19

**Cooling ponds**

Auxiliary source of gland-sealing water. C. H. Sonntag. *diags Power* 49:854 Je 3 '19

Cooling of water for power-plant purposes; abstracts. C. C. Thomas. *Il diags Am Soc M E J* 39:977-80 D '17; *Elec R* 71:1111-13 D 29 '17; *Elec Ry J* 51:48-9 Ja 5 '18; Discussion. *Am Soc M E J* 40:137-41 F '18

Neglected cooling towers and cooling ponds. W. Weaver. *Power* 49:906 Je 10 '19

Yarway adjustable spray head. *Il diags Power* 47:910-11 Je 25 '18

**Cooling towers**

Cooling tower for refrigerating plant. A. Giger. *diag Power* 49:891 Je 10 '19

Natural draught cooling towers. H. Nielsen. *diag Engineer* 127:528-7 My 30 '19

Neglected cooling towers and cooling ponds. W. Weaver. *Power* 49:906 Je 10 '19

Talks on Diesel engines. L. H. Morrison. *diags Power* 49:724-7 My 13 '19

Tamarack mills power plant. C. H. Bromley. *Il diags Power* 47:426-30 Mr 26 '18

*See also* Condensers (steam)

**Cooling water**

Circulating jacket water by air lift. *diag Coal Age* 13:8+ My 4 '18

High-temperature alarm. H. B. Brand. *Il Power* 47:769 My 28 '18

Independently driven circulating pumps for jacket water. *Power* 48:238 Ag 13 '18

Outdoor water-cooled transformers. R. Von Fabrice. *plan Power* 48:198-9 Ag 6 '18

**Coonley, Howard**

Vice president, Emergency fleet corporation. *por Iron Tr R* 62:1205 My 9 '18

**Cooperage industries of America, Associated.**  
*See* Associated cooperage industries of America

**Cooperation**

Collective selling is declared necessary; important report on the reconstruction of France. P. C. Williams. *Iron Age* 102:560-2 S 5 '18

Cooperation. C. A. Adams. *Am Inst E E Pro* 38:877-87 Jl '19

Co-operation. W. W. Atterbury. *Ry Age* 67:8 Jl 4 '19

Cooperative organization by-laws. C. E. Bassett and O. B. Jeanness. *U S Agric Bul* 541: 1-23 '18

Realm of the retailer; need of cooperation between farmer and merchant. *Am Lumberman* 2232:46-7 F 23 '18

Restoring French factories. *Sci Am* 119:281 O 5 '18

*See also* Agriculture, Cooperative; Benefit societies; Building and loan associations; Company stores; Industrial management—Employee representation; Industrial relations; Profit sharing; Trade unions

**Cooperative agriculture.** *See* Agriculture, Cooperative

**Cooperative marketing.** *See* Marketing, Cooperative

**Cooperite**

Cooperite—a new high-speed alloy. *Am Mach* 49:1111 D 19 '18

New high speed alloy of nickel-zirconium. *Iron Age* 101:662 Mr 7 '18

**Coopers and cooperage**

Cooperage industry. H. Maxwell. *Il Sci Am S* 88:228-30 O 11 '19

**Copernicus**

Copernicus. A. D. Watson. *Sci Am S* 88:206-8 S 27 '19

**Copper**

Action of reducing gases on hot solid copper. N. B. Pilling. *Il diag Am Inst Min E Bul* 142: 1567-80 O '18; Abstract. *J Fr Inst* 186:373-4 S '18; Discussion. *Am Inst Min E Bul* 145: 103-6; 147:597 Ja, Mr '19

Boronic copper, its production and varied uses. *Eng & Min J* 105:206 Ja 26 '18

Copper for shipbuilding. *Eng & Min J* 105: 394-5 F 23 '18

Copper, properties, statistics, etc. bibliog *Il U S Bur Stand Circ* 73:1-103 '18; Excerpt. *Sci Am S* 86:149 S 7 '18

Copper-schist deposits of Arizona. T. H. M. Crampton. *Eng & Min J* 107:689 Ap 19 '19

Economical use of copper. P. O. Reyneau. *Elec W* 71:1208-10 Je 8 '18

Effect of cold work on copper; with discussion. W. E. Alkins. *Engineer* 126:216-17 S 13 '18; Same cond. *Sci Am S* 87:91 F 8 '19; Abstract. *Am Soc M E J* 40:957-8 N '18

Effect of the presence of a small amount of copper in medium-carbon steel. C. R. Hayward and A. B. Johnston. *Am Inst Min E Bul* 133:159-67 Ja '18; Same *abr. Iron Tr R* 62:820-1 Ja 31 '18; Same cond. *Iron Age* 101: 452-3 F 14 '18; Abstract. *Eng & Min J* 105:



**Copper—Continued**

- 371 F 23 '18; Abstract. Mach 24:965 Je '18;  
Discussion. Am Inst Min E Bul 136:726-7 Ap  
'18
- Gases from copper; abstract. H. M. Ryder.  
J Fr Inst 187:508-9 Ap '19
- Hardness of soft iron and copper compared.  
F. C. Kelley. diags Gen Elec R 21:672-3  
O '18; Same cond. Mach 25:921 Je '19
- How electrolytic and casting copper differ.  
Foundry 46:470 O '18
- Lead-coated copper work. II Am Arch 113:423-  
4 Ap 3 '18
- Metallography and heat treatment of metals  
used in aeroplane construction. F. Grotts.  
Chem & Met Eng 19:315 S 15 '18
- Native copper and silver in the Nonesuch  
formation, Michigan. K. Nishio. II diag  
Econ Geol 14:324-34 Je '19
- Oxidation of copper. Foundry 46:220 My '18
- Physical properties of copper and the factors  
by which they are affected. P. D. Merica. II  
Met & Chem Eng 18:121-7, 192-5, 303-7, 357-  
60 F 1-15, Mr 15-Ap 1 '18
- Production of copper. II Sci Am S 87:72 F 1  
'19
- Properties of electrolytic copper—modulus of  
elasticity. B. Welbourn. Inst E E J 56:53-4  
D '17
- Resistivity of copper. T. H. Nash. Power 47:  
412 Mr 19 '18
- Rolling copper thin. Metal Ind 15:111 Mr '17
- Royal copper. Metal Ind 16:320 Ji '18
- Tempering copper. Sci Am S 85:25 Ja 12 '18
- Training coppermiths for the navy at Dun-  
woody industrial institute, Minneapolis.  
Minn. W. Connely. II Metal Work 89:14-17  
Ja 4 '18
- See also Brass; Bronze; Copper alloys;  
Copper founding; Copper industry and  
trade; Copper metallurgy; Copper mines and  
mining; Copper ores

**Analysis**

- Determination of copper in insecticides. G:  
S. Jamieson. Chem & Met Eng 19:185 Ag  
1 '18
- Determination of zinc and copper in gela-  
tin. G: S. Jamieson. J Ind & Eng Chem 11:  
823-5 Ap '19
- Determining copper minerals in partly oxi-  
dized ores. F. Cremer. Met & Chem Eng 18:  
644-6 Je 15 '18
- Iodide copper method with sodium fluoride.  
A. L. Reese. Eng & Min J 105:1170 Je 29 '18
- Permanganate method for copper. L: F.  
Clark. J Ind & Eng Chem 11:1138-9 D '19
- Spectroscopic determination of lead in copper.  
C. W. Hill and G. P. Luckey. II plan Am  
Inst Min E Bul 142:1581-92 O '18
- Sulphur dioxide method for determining cop-  
per minerals in partly oxidized ores. C: E.  
van Barneveld and E. S. Leaver. diag U S  
Bur Mines Tech Pa 198:1-12 '18; Same  
abr. Met & Chem Eng 18:203-6 F 15 '18
- Titration of copper with cyanide. M. P. Apple-  
bey and K. W. Lane. Eng & Min J 107:242  
F 1 '19

**Bibliography**

- Bibliography on the physical properties of  
copper. P. D. Merica. Met & Chem Eng 18:  
409-13+ Ap 15 '18

**Coloring**

- Coloring copper. Metal Ind 16:510 N '18
- How copper can be colored. Dom Eng 85:48  
O 12 '18

**Specifications**

- Standard specifications; English and Span-  
ish. U S Bur For & Dom Com Industrial  
Standards nos 50-54 '19

**Copper, Substitutes for**

- Substitutes for copper in Germany; abstract.  
Elec W 72:73 Ji 13 '18

**Copper alloys**

- Alloys of copper and phosphorus. J. Scott.  
II Metal Ind 15:386-7 S '17
- Alloys of manganese and copper. J. Scott.  
II Metal Ind 15:518-19 D '17

- Alloys of silicon and copper and their high  
electrical conductivity. J. Scott. II Metal  
Ind 16:464-5 O '18
- Aluminum-copper. J. Scott. II Metal Ind 15:  
340-2 Ag '17
- Brass rolling mill alloys. R. A. Wood. II  
Metal Ind 15:479-82 N '17
- Constitution of the tin bronzes. S: L. Hoyt. II  
Am Inst Min E Bul 144:1721-7 D '18; Dis-  
cussion. 145:101-2 Ja '19
- Copper-base bearing metals. C. H. Clamer. Sci  
Am S 86:406 D 28 '18
- Copper-nickel alloy replaces German silver.  
Elec W 70:1177 D 15 '17
- Cupro-nickel; examination of its physical  
properties and structure. T. H. A. Eastick.  
II diags Metal Ind 17:26-8 Ja '19
- Cupro-nickel; its micro-structure. J. Scott. II  
Metal Ind 15:72-3 F '17
- Gas for cupro-nickel. M. Meredith. Gas Age  
44:265 S 15 '19
- Hardening copper. Foundry 47:124-5 Mr '19
- Improved electro-analysis apparatus; rapid  
determination of the constituents in copper  
alloys. J. L. Jones. II diags Metal Ind 15:  
483-5 N '17
- Manufacture and electrical properties of con-  
stantan. F. E. Bash. II Am Inst Min Bul 153:  
sup2409-30 S '19; Abstract. Chem & Met  
Eng 21:554-5 O 29 '19
- Manufacture and electrical properties of man-  
ganin. F. E. Bash. Am Inst Min Bul 153:  
1717-22 S '19; Discussion. 155:3021-3; 156:  
3149-50 N-D '19
- Melting copper alloys. H. L. Reason. Foun-  
dry 46:236 My '18
- Metallography applied to nonferrous metals.  
E. J. Davis. II diag Foundry 47:263-6,  
438-9 My 1, Ji 1 '19
- Notes on alloys used in British brass-rolling  
mills. A. J. Franklin. II Metal Ind 17:225-  
8 My '19
- Phosphorizing copper. Metal Ind 15:350-1 Ag  
'17
- Pouring temperatures of copper alloys. Foun-  
dry 46:27-8 Ja '18
- Pressure casting of high tensile copper al-  
loys. W. Rosenhain and D. Hanson. Sci  
Am S 88:77 Ag 2 '19
- Properties of some copper alloys. W. Rosen-  
hain and D. Hanson. diag Engineer 128:  
263-4 S 12 '19
- Structural characteristics of rolled sheet  
brass. H. A. Eastick. II diags Metal Ind 17:  
121-4 Mr '19
- See also Brass; Bronze; German silver;  
Gun metal; Muntz metal
- Copper-clad wire**  
Copper-clad wire for use as span wire. G. H.  
McKelway. Elec Ry J 53:332 F 15 '19
- Copper export association**  
Organization. Eng & Min J 106:1092 D 21 '18
- Copper founding**  
Avoiding evils of the cauliflower pouring  
head. R. R. Clarke. Foundry 47:121-3 Mr '19
- Copper castings for electrical purposes. G. F.  
Comstock. II Metal Ind 16:221-2 My '18;  
Same. Iron Age 101:1004-6 Ap 13 '18; Ab-  
stract. J Fr Inst 185:581-2 Ap '18
- Improved copper-casting machine. T. W.  
Cavers. diags plan Eng & Min J 108:234-5  
Ag 9 '19
- Manufacture of copper driving bands. W: J.  
Reardon. II diags Metal Ind 17:63-8 F '19
- Oxygen and sulphur in the melting of copper  
cathodes. S. Skowronski. Am Inst Min E  
Bul 135:645-9 Mr '18
- Porosity troubles make cast copper rise in  
heads. Foundry 46:27 Ja '18
- Copper industry and trade**  
Australian copper production in 1917. Eng &  
Min J 105:952 My 25 '18
- Company reports. Eng & Min J 107:494-6, 582-  
3, 711-12, 797-9, 968-9, 1084-5; 108:408-9 Mr  
15, 29, Ap 19, My 8, 31, Je 21, S 6 '19
- Copper market. G. Mellen. Metal Ind 17:  
399-401 Ag '19
- Copper market in 1917. Eng & Min J 105:55-6  
Ja 12 '18
- Copper market in 1918. Eng & Min J 107:48-9  
Ja 11 '19

**Copper industry and trade—Continued**

- Copper output for 1918 larger than for 1917. E. S. Butler. Iron Age 103:184 Ja 18 '19
- Copper producers and price-fixing committee agree. Eng & Min J 106:312 Ag 17 '18
- Copper production for 1917. Iron Tr R 62:326 Ja 21 '18
- Copper production for 1918 shows slight increase. Elec R 74:33 Ja 4 '19
- Copper situation as reported by Bureau of mines. Elec R 74:992 Je 14 '19
- Copper-smelting and refining works of North America. Eng & Min J 107:46-7 Ja 11 '19
- Copper statistics in 1917. Eng & Min J 105:53-4 Ja 12 '18
- Cost of Australian copper. R. Slessor. Eng & Min J 105:1100-1 Je 15 '18
- Developments in copper. Eng & Min J 107:331-2 F 15 '19
- Drive for higher copper prices. W. T. Partidge. Metal Ind 16:220 My '18
- E. and M. J. quotations recognized by court. Eng & Min J 108:686-7 O 25 '19
- Export of copper from Australia. Eng & Min J 106:718-19 O 19 '18
- Foreign trade in copper. Eng & Min J 107:240 F 1 '19
- Foreign trade in copper for the first nine months of 1917. Eng & Min J 104:1002 D 8 '17
- Jackling porphyries. Chem & Met Eng 21:166-7 Ag 15 '19
- Kennecott copper corporation; 3d annual report, 1917. Eng & Min J 106:167 Jl 27 '18
- Lake Superior copper industry in 1918. J. MacNaughton. Eng & Min J 107:50-1 Ja 11 '19
- Latest copper statistics show smaller production for 1917. Elec R 72:947 Je 8 '18
- Miami copper company; annual report, 1917. Eng & Min J 106:110 Jl 20 '18
- Monthly copper production for 1918. Eng & Min J 106:717 O 19 '18
- Monthly copper production for 1919. Eng & Min J 107:917, 1092; 108:111 My 24, Je 21, Jl 19 '19
- Porphyry coppers; mine and equipment investment. L. H. Goodwin. Eng & Min J 106:905-6 N 23 '18
- Porphyry coppers summary. Chem & Met Eng 19:606-7 O 15 '18
- Price for copper in 1917. Eng & Min J 106:190-1 Jl 27 '18
- Principal statistics for 1918. Eng & Min J 107:46 Ja 11 '19
- Report of copper production, August to November, 1917. Eng & Min J 104:1045 D 15 '17
- Report of copper production for 1917. Eng & Min J 105:252 F 2 '18
- Selling Australian copper. Eng & Min J 105:58-9 Ja 12 '18
- Tennessee copper and chemical corporation; report for 1917. Eng & Min J 106:104 Jl 20 '18
- What about copper? Eng & Min J 107:164 Ja 18 '19
- Where will Germany get copper? Metal Ind 16:178 Ap '18
- Copper metallurgy**
- Ampere efficiency in copper refining. M. H. Merriess. chart Eng & Min J 107:742-3 Ap 26 '19
- Arizona Hercules copper company's plant. flow sheets il Eng & Min J 107:1117-20 Je 28 '19
- Chemical and electrochemical problems involved in New Cornelia copper co.'s leaching process. H. S. Mackay. Am Inst Min E Bul 153:1929-44 S '19; Discussion. 155:3056-7 N '19
- Construction and operation of an electrolytic copper refinery. J. E. McAllister. plan Eng & Min J 106:337-41 Ag 24 '18
- Copper in converter slags. Met & Chem Eng 18:385-6; 19:62, 700-1 Ap 15, Jl 15, N 15 '18
- Copper metallurgy in 1917. Met & Chem Eng 18:4-5 Ja 1 '18
- Copper-smeltery slag from the microscopic and chemical point of view. C. G. Maier and G. D. Van Arsdale. il Eng & Min J 107:815-24 My 10 '19; Abstract. Chem & Met Eng 21:46-7 Jl 1 '19
- Copper-smelting and refining works of North America. Eng & Min J 105:54 Ja 12 '18
- Crushing practice, New Cornelia copper co. W. L. Dumoulin. Am Inst Min Bul 152:1203-6 Ag '19; Same abr. Eng & Min J 108:465 S 13 '19
- Developments in Lake Superior milling. C. H. Benedict. il Eng & Min J 108:5-10 Jl 5 '19
- Disadvantages of chrome brick in copper reverberatory furnaces. Eng & Min J 105:1083 Je 15 '18
- Experiments in fettling reverberatory furnaces. F. Rutherford. Eng & Min J 106:109-10 Jl 20 '18
- Experiments in heap-leaching copper ores. G. D. Van Arsdale. il diags Eng & Min J 105:225-33 F 2 '18; Discussion. 105:339, 430-1, 882 F 16, Mr 2, My 11 '18
- First year of leaching by the New Cornelia copper co. H. A. Tobelmann and J. A. Potter. flow sheet il diags plan Am Inst Min E Bul 146:449-95 F '19; Discussion. 148:684-90; 149:777-8 Ap-May '19
- Flotation of mixed copper ores. flow sheets Eng & Min J 107:840 My 10 '19
- Free acid determination in presence of metallic salts. L. F. Clark. Eng & Min J 106:1066-8 D 21 '18
- Hydrometallurgy of copper; patent. flow sheet Chem & Met Eng 20:432 Ap 15 '19
- Leaching copper. il diag Sci Am 118:145 F 16 '18
- Losses in furnace slags. E. H. Robie. Eng & Min J 108:265-7 Ag 16 '19
- Maintenance of high ampere efficiency in electrolytic copper refining. M. H. Merriess and M. A. Mosher. diags Eng & Min J 106:95-9 Jl 20 '18
- Metal conservation; the electrolytic recovery of copper and sulphuric acid from copper mill pickling solutions. J. L. Jones. il diags Metal Ind 15:433-5 O '17
- Metallurgy of copper. T. H. A. Eastick. il diags Sci Am 87:332-3+ My 24 '19
- Metallurgy of copper. A. L. Walker. Eng & Min J 105:94-6 Ja 12 '18
- Metallurgy of copper in 1918. Chem & Met Eng 20:4-5 Ja 1 '19
- Metallurgy of copper, 1918. A. L. Walker. Eng & Min J 107:90-2 Ja 11 '19
- Mount Elliott copper refinery. Eng & Min J 105:183 Ja 26 '18
- New Cornelia copper co. Eng & Min J 107:398 Mr 1 '19
- Nodulizing flotation concentrates in a rotary kiln with powdered coal. R. M. Draper. Chem & Met Eng 20:621 Je 15 '19
- Oxidized copper ores in Arizona. Chem & Met Eng 20:559-60 Je 1 '19
- Oxygen and sulphur in the melting of copper cathodes. S. Skowronski. Am Inst Min E Bul 135:645-9 Mr '18; Abstract. Eng & Min J 106:15 Jl 6 '18
- Practical considerations in ammonia leaching of copper-bearing ores. L. Eddy. diags Chem & Met Eng 20:328-34 Ap 1 '19; Same. Eng & Min J 107:1162-7 Je 28 '19
- Progress in the metallurgy of copper. H. C. H. Carpenter. Engineer 124:491, 526, 566-7 D 7-14, 28 '17
- Recovery of selenium and tellurium in copper refining. M. H. Merriess and H. T. Binder. Eng & Min J 106:443-5 S 7 '18
- Relation of sulphur to the overpoling of copper. S. Skowronski. il Am Inst Min E Bul 135:651-6 Mr '18; Discussion. 140:1156-8; 143:1637-8 Ag, N '18
- Separation of copper from the concentration of copper matte; abstract. W. Stahl. Met & Chem Eng 18:313 Mr 15 '18
- Slagging of nickel during the poling of copper to a set condition; abstract. W. Stahl. Met & Chem Eng 18:313 Mr 15 '18
- United Verde extension mining company's smeltery and converter plant. F. E. Nichols. flow sheet il diags plan Eng & Min J 106:689-92 O 19 '18
- Use of filtros in centrifugal washers. M. H. Merriess. Eng & Min J 106:336 Ag 24 '18
- Volatilization of cuprous chloride on melting copper containing chlorine. S. Skowronski and K. W. McComas. diag Am Inst Min E Bul 146:169-79 F '19

**Copper metallurgy—Continued**

Water and chlorides in cement copper briquettes. E. Keller. *Am Inst Min Bul* 153: 1773-7 S '19

**Copper mines and mining****Arizona**

Copper production. W. Douglas. *Eng & Min J* 107:49-50 Ja 11 '19

Copper production in Arizona. W. Douglas. *Eng & Min J* 105:58 Ja 12 '18

Keystone copper mining co. *Il Eng & Min J* 107:1073 Je 21 '19

Stripping and drilling methods at the Sacramento Hill copper mines. R. T. Banks. *Il Eng & Contr* 51:389-90 Ap 16 '19; Same. *Eng & Min J* 107:690-1, 700-1 Ap 19 '19

**Chile**

Activity throughout 1918. *Eng & Min J* 107:113-15 Ja 11 '19

Andes copper mining co.'s development at Potrerillos, Chile. J. E. Harding. *Il Eng & Min J* 105:137-9 Ja 19 '18

Method of mining pillars at the Fortuna mine of the Braden copper co., Chile. C. Hollister. *diags Eng & Min J* 106:478-9 S 14 '18

**Idaho**

I. X. L. copper prospect; property in health mining district, in Adams county. R. N. Bell. *Il Eng & Min J* 108:400-2 S 6 '19

**Kongo, Belgian**

Copper in the Belgian Congo. *Eng & Min J* 106:308-9 Ag 17 '18

**Lake Superior region**

Lake Superior copper industry in 1917. J. MacNaughton. *Eng & Min J* 105:57-8 Ja 12 '18

**Mexico**

Geology and mining methods at Pilares mine. W. R. Wade, A. Wandtke and P. De Nacosari. *Il diags plan maps Am Inst Min Bul* 152:1143-69 Ag '19

**Michigan**

Calumet & Hecla mining co.; 1918 report. *Eng & Min J* 108:62 Ji 12 '19

Porphyry intrusions of the Michigan copper district. T. S. Woods. *Il map Eng & Min J* 107:299-302 F 15 '19; Discussion. S. S. Lang. 107:452 Mr 8 '19

**Montana**

Butte district. B. B. Thayer. *Eng & Min J* 105:57 Ja 12 '18

**Nevada**

Branch raise system at the Ruth mine, Nevada consolidated copper co. W. S. Larsh. *diags plan Am Inst Min E Bul* 135:193-8 Ja '18; Same. *Eng & Min J* 105:503-5 Mr 16 '18

**Queensland**

Cloncurry copper district of Queensland. W. H. Corbould. *Eng & Min J* 106:449-50 S 7 '18

**Utah**

As an artist sees Utah copper; reproductions of paintings by Jonas Lie. *Eng & Min J* 105:18-19 Ja 5 '18

Porphyry coppers. L. H. Goodwin. *Eng & Min J* 106:780-2, 865-6 N 2, 16 '18

**Virginia**

Copper deposits of the Blue Ridge mountains. M. Haney. *Eng & Min J* 106:248 Ag 10 '18

**Copper ores**

Copper silver veins of the Telkwa district, British Columbia. *Il diags Econ Geol* 13:349-80 Ji '18

Further remarks on the ores of Engels, California. L. C. Graton and D. H. McLaughlin. *Econ Geol* 13:81-99 Mr '18

Genesis of the Sudbury nickel-copper ores as indicated by recent explorations. H. M. Roberts and R. D. Longyear. *Il diags maps Am Inst Min E Bul* 134:555-84 F '18; Discussion. 136:848-58 Ap '18

Nitric acid and copper ore. G. C. Westby. *Il diags Met & Chem Eng* 18:290-6 Mr 15 '18

Ore deposition and enrichment at the Evergreen mine, Gilpin county, Colorado. D. H. McLaughlin. *Il Econ Geol* 14:465-75; Discussion. 475-9 S '19

Petrographic notes on the ore deposits of Jerome, Ariz. M. Rice. *Il Am Inst Min E Bul* 141:1497-1502 S '18

Wyoming platinum mine. H. H. Taft. *Eng & Min J* 106:900 N 23 '18

See also Copper metallurgy; Copper mines and mining

**Copper oxide**

Sulphur and copper oxide determination. C. G. Maier. *Eng & Min J* 106:372-3 F 23 '18

**Copper plating**

Automatic copper plating. J. W. Richards. *Il Am Inst Min E Bul* 145:27-31 Ja '19; Same. *Metal Ind* 17:18-19 Ja '19; Discussion. *Am Inst Min Bul* 148:683-4 Ap '19

Building a cyanide copper plating solution. R. E. Peters. *Metal Ind* 17:128-9 Mr '19

Development of an alkaline substitute for the copper cyanide solution. C. E. Willmore. *Metal Ind* 15:256-8, 301-2 Je-Ji '17

Electro-plating and its relation to the manufacture of phonographs and phonographic records. S. Herrick. *Metal Ind* 16:173-4 Ap '18

Government specifications for copper and nickel plating. C. H. Proctor. *Metal Ind* 16:407 S '18

Hot bright copper barrel plating. R. F. Clark. *Metal Ind* 16:5 Ja '18

Novel method of making copper plate. *Eng & Min J* 106:521 S 21 '18

Plating iron with copper automatically. *Sci Am* 120:661 Je 21 '19

**Copper selenate**

Selenic acid and copper selenate. L. M. Dennis and J. P. Koller. *Am Chem Soc J* 41:949-70 Je '19

**Copper smelting. See Copper metallurgy****Copper sulfate**

Bluestone. *Textile World* 53:4091 Mr 2 '18

Control of algae in irrigation canals by copper sulphate. R. K. Tiffany. *Eng & Contr* 50:558 D 11 '18

Electrical conductivity and other properties of saturated solutions of copper sulphate in the presence of sulphuric acid. H. M. Goodwin and W. G. Horsch. *Chem & Met Eng* 21:181-2 Ag 15 '19

Electrolysis of foul copper sulphate. *Met & Chem Eng* 18:423-4 Ap 15 '18

**Copper sulfide**

Copper sulphides in syenite and pegmatite dikes; with discussion. D. H. McLaughlin. *Econ Geol* 14:403-10 Ag '19

Effect of boiling sulphur on copper. C. R. Hayward. *Met & Chem Eng* 18:650-1 Je 15 '18

**Coral reefs and islands**

Coral-reef problem and the evidence of the Funafuti borings. E. W. Skeats. *Sci Am S* 85:382-3 Je 15 '18

Fringing reefs of the Philippine Islands. W. M. Davis. *Sci Am S* 87:58-9 Ja 25 '19

**Cordage**

New sources of cordage fiber supply. F. A. G. Pape. *Il Textile World* 53:2965+ Ja 12 '18

See also Fibers; Knots and splices

**Cordery, A. H.**

50 years of steel service. *por Iron Tr R* 64: 1568 Je 12 '19

**Corduroy**

Finishing of cotton moles and corduroys. A. Field. *Color Tr J* 4:100-1 Ap '19

**Core boxes. See Foundry practice****Cores. See Foundry practice****Cork**

Bedding wool made out of cork. *Sci Am* 118: 156 F 16 '18

Cork slabs from cork waste. *Sci Am S* 86:311, 327 N 16-23 '18

Electricity in the manufacture of corks. W. H. Easton. *Il Elec R* 72:462-3 Mr 16 '18

Preparing cork for shipment. *Il Sci Am S* 88: 200 S 27 '19

**Corliss, George Henry**

One hundredth anniversary of the birth of George Henry Corliss. H. F. Mueller. *por il diags Power* 47:682-7 My 14 '18

Corliss engines. See Steam engines

**Corn**

Corn is king; will it become the base food?

*Sci Am S* 86:106-7 Ag 17 '18

Eat corn. *Sci Am* 118:590 Je 29 '18

Enough corn meal for the nation. *Sci Am* 118:421 My 4 '18

Getting real food out of corn. *il Sci Am* 119:298 O 12 '18

Much wheat—little corn? *Sci Am* 120:600+ Je 7 '19

Simple directions for testing seed corn to eliminate kernels that won't grow. *Am Lumberman* 2235:35 Mr 16 '18

Soft corn—its chemical composition and nitrogen distribution. G. Spitzer, R. H. Carr and W. F. Epple. *diags Am Chem Soc J* 41:1212-21 Ag '19

Wheat and corn grinder for home use. F. Telford. *il Sci Am* 118:136 F 9 '18

**Corn as fuel**

Coal shortage in Argentina results in use of corn as fuel. *Ry Age* 67:854 O 24 '19

**Corn cobs**

Cooking corn cobs. *Sci Am* 119:273+ O 5 '18

Preparation of several useful substances from corn cobs. F. B. LaForge and C. S. Hudson. *J Ind & Eng Chem* 10:925-7 N '18

Preparation of xylol from corn cobs. C. S. Hudson and T. S. Harding. *Am Chem Soc J* 40:1601-2 O '18; Same. *Sci Am S* 86:400 D 21 '18

Preparation of xylol from corn cobs. K. P. Monroe. *Am Chem Soc J* 41:1002-3 Je '19

Products derived from corn cobs; abstract. F. B. La Forge. *Am Soc M E J* 40:496-7 Je '18

**Corn cribs. See Corncribs****Corn husks**

Corn husks and garbage utilization. *Munic J* 45:189 S 7 '18

**Corn starch**

Corn starch in the textile industry. W. R. Cathcart. *Textile World* 54:401+ J1 27 '18

**Corncribs**

Old-fashioned corn crib. *diags plan Am Lumberman* 2260:46 S 7 '18

Rat-proof corn crib saves money. F. T. Feller. *il diags plan Bldg Age* 40:385-7 Ag '18

Silo corn crib. *diags Am Lumberman* 2261:42 S 14 '18

Twin corn cribs; round corn crib. *diags plans Am Lumberman* 2259:46 Ag 31 '18

**Cornices**

Better cornice design and workmanship. W. H. Gruening. *il diags plans Metal Work* 91:24-6 Ja 3 '19

Bring metal cornices into demand again. *il Metal Work* 91:241-2 F 21 '19

Country house details. A. B. Greenberg. *diags Bldg Age* 41:53-5 F '19

Is the superiority of the metal cornice known? *il Metal Work* 89:598-9 My 10 '18

Patterns for a circular gable cornice. W. Neubecker. *diags plan Metal Work* 91:111-14, 171-3 Ja 24, F 7 '19

Rehabilitation of the sheet metal cornice, coping and metal trim. F. Romberger. *il Metal Work* 91:461-2 Ap 11 '19

**Corona**

Chemical reactions in the corona; ozone formation. F. O. Anderegg. *diag Am Chem Soc J* 39:2581-95 D '17

Electrical characteristics of transmission circuits; corona effect. W. Nesbit. *Elec J* 16:485-9 N '19

Pressure increase in the corona; abstract. E. H. Warner. *Elec W* 70:1156 D 15 '17

**Corporation law**

Advantages of incorporating an association of master plumbers—liability of the members of both kinds of organizations. *Dom Eng* 88:11-12 J1 5 '19

Liability of stockholder of corporation for debts of corporation is limited—but stockholder has some responsibility in that respect. *Dom Eng* 86:171-2 Ja 25 '19

Supreme court decision in Mitchell case; not necessary that increase in value of timberlands be entered on books. *Am Lumberman* 2245:57 My 25 '18

See also Commercial law; Income tax; Public utilities—Law; Railroad law; Trusts, Industrial

**Corporation schools**

Educational methods at the Copper Queen. C. F. Willis. *il Am Inst Min Bul* 151:1099-1106 J1 '19; Discussion. 156:3190-2 D '19

Flint Industrial fellowship league has automotive school. J. E. Schipper. *Automotive Ind* 37:834-5 N 8 '17

Life in a large manufacturing plant; departmental schools and general educational facilities of General electric company. C. M. Ripley. *Gen Elec R* 21:202-15 Mr '18

Mobilizing intelligence—the need of corporation schools. N. Collyer. *Ry R* 62:316-19 Mr 2 '18; Same cond. *Ry Age* 64:419-21 F 22 '18

Successful apprentice toolmakers' school of the Savage arms corporation. Utica, N. Y. F. L. Glynn. *Am Mach* 50:347-9 F 20 '19

Training of workmen for positions of higher responsibility. F. C. Stanford. *Am Inst Min E Bul* 134:309-15 F '18; Excerpt. *Iron Tr R* 62:382-3 F 7 '18; Discussion. *Am Inst Min E Bul* 134:315-20; 136:888-91 F, Ap '18

See also Trade schools

**Corporations**

Advantages and disadvantages of incorporating the plumbing business. *Dom Eng* 84:162-3 Ag 3 '18

See also Building and loan associations; Corporation law; Electric utilities; Gas companies; Government ownership; Government regulation of industry; Holding companies; Marketing, Cooperative; Mining companies; Public utilities; Railroads; Securities; Trusts, Industrial

**Accounting**

Consolidated statements. S. Walton. *J Account* 25:225-37, 303-20, 384-99, 460-76 Mr-Je '18

Corporation organization and accounting. W. H. Bell. *J Account* 26:98-107, 169-90 Ag-S '18

Some phases of capital stock. W. A. Paton. *J Account* 27:321-35 My '19

**Taxation**

Depreciation and federal income tax. C. W. McKay. *Ind Management* 58:148-52 Ag '19

Federal taxes in relation to business. H. N. Sweet. *J Account* 28:121-5 Ag '19

New corporation taxes explained. *Iron Tr R* 64:340-1 Ja 30 '19

See also Excess profits tax; Income tax; Mine taxation

**Corporations, International**

New factor in world commerce; should commercial corporations receive international charters? R. S. Harvey. *Textile World* 56:225+ Ja 11 '19

**Corporations, Public service. See Public utilities****Correspondence filing. See Files and filing (documents)****Correspondence schools and courses**

Correspondence schools. *Engineer* 124:488, 9 D 7 '17

**Corrosion, Electrolytic. See Electrolytic corrosion****Corrosion and anti-corrosives**

Abatement of corrosion in central heating systems. F. N. Speller. *diags U S Bur Mines Tech Pa* 236:1-11 '19

Acid-proof alloys. R. Irmann. *Sci Am S* 85:45 Ja 19 '18; Same. *Met & Chem Eng* 18:261 Mr 1 '18; Same. *Elec W* 71:1328 Je 22 '18

Causes of iron rust in domestic water supply. *Metal Work* 88:712-13 D 14 '17

**Corrosion and anti-corrosives—Continued**

- Conservation of engineering materials by the prevention of corrosion. Heat & Ven 16: 31-3 N '19
- Copper bearing sheets. Iron Age 104:44 J1 3 '19
- Corrodibility of cast iron. Sci Am S 85:333 My 25 '18
- Corrosion of brass in sea water. P. T. Bruhl. Chem & Met Eng 20:239 Mr 1 '19; Same. Sci Am S 87:211 Ap 5 '19
- Corrosion of coke-oven walls. H. Schwenke. Iron Age 102:868 O 3 '18
- Corrosion of iron and steel with special reference to reinforced concrete; abstracts. J. N. Friend. Iron Age 101:444 F 14 '18; Engineer 124:550 D 21 '17; Eng & Contr 50: 599 D 25 '18
- Corrosion of metals by acids. O. P. Watts and N. D. Whipple. J Fr Inst 185:387-8 Mr '18
- Corrosion of non-ferrous metals. G. D. Bengough and O. F. Hudson. Engineer 127:300-1 Mr 28 '19; Same. Power 50:274-6 Ag 12 '19; Abstracts. Elec R 74:817 My 17 '19; Chem & Met Eng 20:594 Je 1 '19; Sci Am S 88:75-4 Ag 2 '19
- Corrosion of service pipes. Il Munic J 44:273-4 Ap 6 '18
- Corrosion-proof steels; recent progress in the development of iron alloys that resist rust. F. Rowlinson. Sci Am 121:156 Ag 16 '19
- Corrosion tests of steel alloys. R. Hadfield. Iron Tr R 62:656-8 Mr 14 '18
- Corrosion tests on commercial calcium chloride used in automobile anti-freeze solutions. P. Rudnick. J Ind & Eng Chem 11:668-70 J1 '19
- Corrosive action of mine water. Coal Age 13: 214 Ja 26 '18
- Deactivator system for elimination of corrosion in hot water supply pipes. F. N. Speller. Eng & Contr 61:221-2 F 26 '19; Same. Eng & Min J 107:480 Mr 15 '19
- Durability of materials conveying steam, air and water. A. K. Ohmes. Il diags Am Soc Heat & V E 23:109-20; Discussion. 121-4 '17
- Effect of corrosion on wrought manganese bronze under tensile stress. P. D. Merica and R. W. Woodward. Il diag Am Mach 51:217-20 J1 31 '19; Abstract. Mech Eng 41: 765-6 S '19
- Effect of rolling on rusting of iron and steel. H. Y. Carson. diag Eng & Contr 51:225 F 26 '19
- Emergency preventives against corrosion of outdoor material. A. Newman. Elec R 73: 23-4 J1 6 '18
- Exposure tests of sheeting material. S: L. Hoyt. Chem & Met Eng 21:142-4 Ag 1 '19; Abstract. Eng N 83:521 S 11 '19
- Fence wire corrosion and its causes. O. W. Storey. Iron Age 100:1449-51 D 13 '17
- Further data on effect of copper in reducing corrosion of steel. Eng N 83:14 J1 3 '19
- How many engineers know the chemical theory of rusting? Eng & Contr 51:207 F 26 '19
- Hydrolysis of organic halides and the corrosion of metals. H. W. Doughty. Am Chem Soc J 39:2685-92 D '17
- Industrial processes and appliances using gas. E: F. Davis. Il Gas Age 41:70-3, 168-71, 209-12, 265-6 Ja 15, F 15-Mr 15 '18
- Interior surface defects on brass condenser tubes as a cause of corrosion. W. R. Webster. Il Metal Ind 15:291-3 J1 '17; Same. Power 47:676 My 7 '18
- Investigations into the causes of corrosion or erosion of propellers. C: A. Parsons and S. S. Cook. Engineer 127:427-8 My 2 '19
- Investigations of pipe corrosion in Chicago buildings, with special reference to durability of pipe materials. T: J. Claffy. Munic Eng 55:208-10 D '18; Abstract. Eng N 82: 469-71 Mr 6 '19
- Lime as a protection for steel. M. Meigs. Power 47:483 Ap 2 '18
- Mechanical properties and resistance to corrosion of rolled light alloys of aluminum and magnesium with copper, nickel, and manganese. F. D. Merica, R. G. Waltenberg and A. N. Finn. Il Am Inst Min Bul 151:1051-62 J1 '19
- Metallic coatings for rust-proofing iron and steel. H: S. Rawdon, M. A. Grossman and A. N. Finn. diags Chem & Met Eng 20: 458-64, 530-7 My 1-15 '19
- Method for practical elimination of corrosion in hot water supply pipe. F. N. Speller. Il diags plan Am Soc Heat & V E 23:125-36; Discussion. 137-40 '17
- Old patent covering the rust proofing of iron and steel. C: H. Proctor. Metal Ind 16:269-60 Je '18
- Parker rust-proofing process. Met & Chem Eng 18:264-5 Mr 1 '18
- Parker rustproofing process. E: K. Hammond. Il Mach 25:851-4 My '19
- Pipe corrosion in buildings. Eng & Min J 105:287-8 F 9 '18
- Pipe corrosion in domestic service. T. F. Payne. J Fr Inst 185:419 Mr '18
- Preservation of hot water supply pipe in theory and practice. F. N. Speller and R. G. Knowland. Il diags Am Soc Heat & V E 24: 217-34 '18; Excerpts. Eng & Contr 50:297-9 S 25 '18; Eng & Min J 106:950 N 30 '18; Iron Tr R 64:324-5 Ja 30 '19; Discussion. Am Soc Heat & V E 24:235-40 '18
- Prevention of corrosion in hot water service lines. Il diags Am Arch 114:207-12 Ag 14 '18
- Protecting the Panama lock valves against electrolysis. R. H. Whitehead. diag Eng N 80:1219-21 Je 27 '18; Abstract. Chem & Met Eng 19:684 N 1 '18
- Pure water corrodes nonferrous castings. Foundry 47:296 My 15 '19
- Relative corrosion of alloys. R. B. Fehr. Am Soc M E J 40:829-33 O '18; Same. Iron Tr R 63:1296-8 D 5 '18
- Relative corrosion of cast-iron, wrought-iron and steel pipe in house drainage systems. W: P. Gerhard. Il Am Soc M E J 40:945-7 N '18; Same. Arch & Bldg 51: 10-12 F '19; Discussion. Mech Eng 41: 455-60 My '19
- Removing iron plate rust. M. Meredith. Mach 24:155 O '17; Discussion. A. Schleimer. 24: 645 Mr '18
- Rusting of boiler tubes and its prevention; abstract. B. Zschokke. Elec W 71:835 Ap 20 '18
- Rustproofing cast-iron parts. Il Mach 25: 919-21 Je '19
- Rust-proofing of iron and steel. E. S. Whittier. Metal Ind 17:79-82 F '19
- Rusty water trouble. Metal Work 88:725, 783; 89:114-15 D 14, 28 '17, Ja 18 '18
- Some practical observations on corrosion of condenser tubes. Elec R 74:817 My 17 '19
- Typical cases of the deterioration of Munts metal (60:40 brass) by selective corrosion. H: S. Rawdon. Il diags U S Bur Stand Tech Pa 103:1-28 '17; Abstracts. J Fr Inst 184:569 O '17; Metal Ind 16:122-5 Mr '18
- See also Electrolytic corrosion; Galvanizing; Metal protection; Paint; Waterproofing

**Bibliography**

- Metallic coatings for rust-proofing iron and steel; bibliography. H: S. Rawdon, M. A. Grossman and A. N. Finn. Chem & Met Eng 20:591-2 Je 1 '19
- Corrugated Iron, Substitutes for  
Substitute for corrugated iron. Elec R 73: 262 Ag 17 '18
- Corrugated ships. See Ships, Iron and steel
- Corrugated steel  
Sheet corrugating and curving machines. Il Iron Age 102:501 Ag 29 '18
- Corrugation of rails. See Rails—Corrugation
- Corrugations  
Forming deep corrugations. diags Mach 25:1181 Ag '19
- Corsets  
Finishing of corset cloths. A. Field. Color Tr J 4:112-13 My '19
- Cortelyou, George B., 1862-  
Elected president of the new American gas association. por Am Gas Eng J 108:551 Je 8 '18

**Corundum**

Production of corundum and emery in 1918.  
Eng & Min J 107:911 My 24 '19

See also Abrasives

**Cost**

Evolutionary business principles lay the basis for determining the proper cost of a commodity with reference to the rights of the public. L. P. Alford. Ind Management 56:8-9 JI '18

See also Prices; also subdivision Cost of construction, Cost of operation, Costs, under various subjects

**Cost accounting**

Accounting for cost of naval vessels under cost-plus-profit contracts. F. P. Farquhar. J Account 25:180-9 S '19

Accounting on cost plus contracts. R. W. Horne. Eng & Contr 52:228-9 Ag 20 '19

Airplane cost finding. C. H. Hart. Ind Management 56:208 S '18

Applying the principles of cost engineering. R. S. Denham. Foundry 46:309+ JI '18

Arranging industrial cost factors. M. H. Potter. Iron Tr R 65:508-10 Ag 21 '19

Bookkeeping and cost finding for the plumber. W. A. Fink. Dom Eng 79:326-7, 493-4; 80:7-8+, 132-4, 211-12, 368-9, 411+, 445-6; 81:11+, 176-7, 221-2+; 82:5+ Je 2, 30-JI 7, 28, Ag 11, S 8-22, O 6, N 3-10 '17, Ja 5 '18

By-products of cost figures. F. E. Gooding. Factory 22:46-7 Ja '19

Charging materials to get true manufacturing costs. W. R. Basset. Factory 20:644-7 Ap '18

Checking of maintenance costs. F. T. Clapham. Engineer 125:343 Ap 19 '18

Classifying indirect expenses. M. H. Potter. diags Iron Tr R 65:361-2 Ag 7 '19

Comparing department sales with actual department costs. W. H. Hyde. Inland Ptr 62:633-5 Mr '19

Cost accounting as applied to sand and stone production. T. P. McGrath. Eng & Contr 51:553 My 21 '19

Cost accounting as applied to selling gas. R. L. Ellis. Gas Age 44:184, 186+ Ag 15 '19

Cost accounting at coal mines. J. B. Dilworth. Coal Age 13:874-6 My 11 '18

Cost accounting for oil producers. C. G. Smith. U S Bur Mines Bul 158:1-123 '17

Cost accounting system for sand and gravel producers. Eng & Contr 51:61 Ja 15 '19

Cost accounting system of Construction division, U. S. army. C. W. Pinkerton. Eng & Contr 51:548-51 My 21 '19

Cost accounting to aid production. G. C. Harrison. diags Ind Management 56:273-82, 391-8, 456-63; 57:49-55, 131-9, 218-24, 314-18, 400-4, 483-7 O '18-Je '19

Cost department of the future. Am Mach 50:1025-6 My 29 '19

Cost estimates and estimated costs. H. A. Russell. Ind Management 55:284-8 Ap '18

Cost figures as an index of efficiency. D. T. Farnham. Ind Management 57:232-3 Mr '19

Cost finding; some practical methods for brass, bronze and aluminum foundries. Metal Ind 15:112-14 Mr '17

Cost keeping and construction accounting. G. E. Ross. Eng & Contr 49:197-200 F 20 '18

Cost keeping for highway contractors. H. P. Gillette. Eng & Contr 51:234-5 Mr 5 '19; Same. Munic J 46:286-8 Mr 29 '19; Same.

Good Roads n s 17:169-71 Ap 19 '19

Cost keeping for sand and gravel producers. H. P. Gillette. Eng & Contr 49:185-6 F 20 '18

Cost keeping for small metal mines. J. C. Pickering. U S Bur Mines Tech Pa 223:1-46 '19

Cost-keeping system for plumbing and heating contractors. W. G. Astle. Il Dom Eng 81:448-51 D 15 '17

Cost keeping under cost-plus-fixed-fee contracts. F. A. Wells. Eng & Contr 52:447-9 O 15 '19

Cost of manufacturing ships. F. T. Warner. charts Int Marine Eng 24:489-90 JI '19

Cost-plus-percentage contracts. J Account 25:49-53 Ja '18

Cost survey plan; report of National retail lumber dealers' association committee. Am Lumberman 2262:47-8 S 21 '18

Cost system for a medium size foundry. D. O. Barrett. Iron Age 102:810-13 O 3 '18

Cost system for shipyards. C. Churchill. Int Marine Eng 24:486-8, 545-8, 641-3 JI-S '19

Costs keeping prevents poor bidding. Concrete 15:163-4 O '19

Developing a cost-keeping system. J. A. Piepkorn. Elec R 72:886 My 25 '18

Duties of a factory cost accountant. J. Gill. J Account 28:441-9 D '18

Duties of a factory cost accountant. L. H. White. J Account 28:190-6 S '19

Equipment and maintenance factors in cost accounting during transition period. L. W. Alwyn-Schmidt. Am Mach 50:366-8 F 20 '19

Expenditure chart for executives. F. J. Schlink. Ind Management 55:192 Mr '18

Expenses and costs. H. L. Gantt. Am Soc M E J 39:991-2 D '17; Same. Am Mach 47:1100-1 D 20 '17; Same. Iron Tr R 61:1323 D 20 '17; Discussion. Am Soc M E J 40:150-2 F '18

Factory management in garment trades; predetermined costs. M. Gordon. Ind Management 58:321-4 O '19

Factory production cost. F. O. Vance. Metal Ind 16:77-8 F '18

Finding costs of manufacture. C. E. Lynn. Iron Tr R 65:23-5 JI 3 '19

Finding organization expense. M. H. Potter. Iron Tr R 65:232 JI 24 '19

Fixing building factors in costs. M. H. Potter. Iron Tr R 65:97-8 JI 10 '19

Fixing indirect production charges. M. H. Potter. Il chart Iron Tr R 64:1148-9 My 1 '19

Fixing land factors in production. M. H. Potter. Iron Tr R 64:1558-9 Je 12 '19

Foundry cost and accounting system. W. W. Bird. Am Soc M E J 40:870-3 My '18; Same.

Foundry 46:256-8 Je '18; Discussion. Am Soc M E J 40:681-4 Ag '18

Fundamentals of accounting for industrial waste. F. J. Knoepfel. J Account 25:351-9 My '18

Gathering cost figures electrically. Il Factory 20:637 Ap '18

Getting figures on costs before they're cold. D. R. Stevens. Factory 20:427-8 Mr '18

Graphical analysis of manufacturing costs. E. L. Ackerman and L. F. Merritt. Am Ind 19:20-1 JI '19

Handling costs in a steel foundry. C. E. Lynn. Iron Tr R 65:1179-80 O 30 '19

Handling costs of Winchester plant. W. E. Freeland. Il (supp) Iron Age 101:253-5 Ja 24 '18

Handling factory costs. Factory 21:180+, 942+; 22:138+, 323+, 550+, 1068+, 1252+; 23:618+, 1390+ JI, N '18, Ja-Mr, My-Je, S, D '19

Handling factory costs; how a foundry gathers them. Factory 20:1202+ Je '18

Handling machine shop costs. Factory 20:652+ Ap '18

Handling special job costs. Factory 21:264+ Ag '18

Hardwood men get standard cost system. Am Lumberman 2269:38-9 N 9 '18

Highway cost keeping. J. J. Tobin and A. R. Losh. U S Agric Bul 660:1-52 '18

How shall I charge off that war equipment? Factory 23:1034-6 N '19

How to determine production costs of southern pine. C. S. Keith. Am Lumberman 2236:44-5 Mr 23 '18

How to fan out your space charges. G. K. Barrett. Factory 22:51-3 Ja '19

How to find and use barometric costs. C. W. Starker. Ind Management 56:137-9 Ag '18

How to obtain the accurate cost in manufacturing brass goods. P. W. Blair. Metal Ind n s 15:10-11 Ja '17

If the cost system does not produce more income than its cost it is incomplete and improper. F. E. Seeley. Am Gas Eng J 111:354-6 O 18 '19

Inadequate cost-keeping retarding adjustment. J. E. Schipper. Automotive Ind 40:561-3+ Mr 13 '19

**Cost accounting—Continued**

- Installing a cost system in a brass manufacturing plant. P. W. Blair. *Metal Ind* 16: 67-8 F '18
- Insurance expense accounting. W. H. Draughon. *J Account* 28:16-24 JI '19
- Is interest on invested capital a cost? W. B. Castenholz. *J Account* 25:248-54 Ap '18
- Keeping costs on work in process. *Factory* 23:74+ JI '19
- Keeping the costs of building the government houses. J. C. Prior and H. P. Green. *diag charts Eng N* 83:252-61 Ag '19
- Lot cost system in making Winchester guns. W. E. Freeland. *II Iron Age* 102:8-10 JI 4 '18
- Making payrolls check with costs. E. C. Fremont. *Factory* 20:639-40 Ap '18
- Making the time ticket a job history. *Factory* 20:674 Ap '18
- Manufacturing cost systems. M. H. Potter. *Metal Ind* 17:366-8 Ag '19
- Manufacturing expense. R. H. Butz. *Metal Ind* 15:511-12 D '17
- Mastering power production; principle of essential cost and use of standard cost. W. N. Polakov. *Ind Management* 56:321-9 O '18
- Monthly reports that show you how you stand. W. S. Lord. *Factory* 21:240-3 Ag '18
- Necessity for uniform cost accounting system. *Am Lumberman* 2260:47 S 7 '18
- Necessity of knowing manufacturing costs. R. H. Zinn. *Am Ind* 20:20-1 S '19
- Necessity of proper factory cost accounting methods. J. Mack. *Inland Ptr* 62:49-51 O '18; Same cond. *Am Ind* 19:17-18 S '18
- Need for complete and accurate cost data. P. W. Pinkerton. *Eng & Contr* 52:230 Ag 20 '19
- Outline of a cost accounting system for a wooden ship yard. F. W. Davis. *chart J Account* 27:33-47 Ja '19
- Philosophy of costs. C. E. Knoepfel. *Ind Management* 58:179-83 S '19
- Plea for the cost accountant. G. W. Hamilton. *Ind Management* 55:446 Je '18
- Power and service costs. F. W. Kilduff. *J Account* 27:427-36 Je '19
- Production costs in a silk mill; discussion of the basic principles of a workable system. A. L. Walter. *Textile World* 54:184-5 JI 13 '18
- Proposed general accounting and cost system for the Michigan society of architects. *Arch Forum* 30:13-21 Ja '19
- Realm of the retailer; finding the cost of doing business. *Am Lumberman* 2242:48-9 My 4 '18
- Relating expenses with factors of production. M. J. House. *Foundry* 46:308-9 JI '18
- Relation between interest and manufacturing costs. E. C. Gause. *J Account* 25:187-90 Mr '18
- Relation of statistics and accounts in industrial management. M. B. Ignatius. *Ind Management* 56:312-15 O '18
- Separation of costs in a combined steam-heating and electric plant. H. W. Meyer. *charts Power* 50:391-2 S 2 '19
- Shipbuilding costs and estimates. J. M. Robertson. *Int Marine Eng* 23:634-6, 671-2 N-D '18
- Short cut to factory costs. J. O'Brien. *Factory* 23:1308-10 D '19
- Simple cost forms that help your business pay. G. E. Holloway. *Bldg Age* 41:270-1 Ag '19
- Simple flexible cost system. G. W. Greenwood. *Ind Management* 56:139-40 Ag '18
- Some reflections on cost accounting. J. P. Suter. *J Account* 28:95-103 Ag '19
- Spillage, the fourth factor of cost. F. W. Kilduff. *J Account* 25:191-5 Mr '18
- Standardization and net costings. J. A. Hunter. *Textile World* 55:665+ Ja 18 '19
- Standardization of accounting procedure; report of committee on interest and cost. *J Account* 26:292-5 O '18
- Standardized accounting systems recommended. W. B. Colver. *Foundry* 47:85-6 F '19
- Summarizing all cost factors. M. H. Potter. *chart Iron Tr R* 65:630-1 S 4 '19
- Systematizing production accounts. R. E. Butz. *Iron Tr R* 64:757-9 Mr 20 '19
- Textile cost accounting. G. Whiting. *Textile World* 55:236+ Ja 11 '19
- Textile mill organization and costs. E. Szepest. *Textile World* 52:1403+, 1490, 1697, 1872+, 2071, 2274+, 2569, 3009, 3109, 3531: 53: 521+, 1738+, 2787+, 3369+, 3809+; 54:53 F 17-24, Mr 10, Ap 7, 21, My 5, 26-Je 2, 30, Ag 4, O 27 '17, Ja 5, 19, F 16, JI 6 '18
- True cost finding—what it can do for the railroads. M. L. Cooke. *Ind Management* 57:40-2 Ja '19
- Uniform cost accounting. J. H. Dunn. *Automotive Ind* 38:854 Mv 2 '18; *Abstract. Iron Age* 101:1082-3 Ap 25 '18
- Uniform cost accounting in shipbuilding. J. L. Jacobs. *Int Marine Eng* 24:639-43, 638-40 Ag-S '19
- Uniform cost sheet. *Coal Age* 14:545-7 S 19 '18
- Use and aim of cost accounts. J. H. Guy. *Engineer* 125:373 Ap 26 '18
- Value of manufacturing property. C. W. McKay. *Mach* 24:532-3 F '18
- What is cost? W. Compton. *Am Lumberman* 2235:32-3 Mr 16 '18
- What kind of a cost system do you need? *Metal Work* 89:78-9 Ja 11 '18
- What the cost system has done for one newspaper. M. J. McGowan. *Inland Ptr* 63:395-8 JI '19
- Where do the pennies in your dollar go? *Am Gas Eng J* 109:343-6 O 12 '18
- Why some cost systems fail to produce desired results. A. S. Burton. *J Account* 27: 249-58 Ap '19
- See also Accounting; Depreciation; Overhead expense; Public utilities—Accounting
- Cost inspection boards. See United States—Navy—Compensation board
- Cost of living**
- Analysis of the high cost of living problem. G. B. Clarkson. *Gas Age* 44:240-4 S 15 '19
- Changed dollar and the engineer. *Eng N* 83: 182 JI 24 '19
- Changes in cost of living, 1914-1919; a summary of existing data. 55p '19 Bureau of applied economics, Washington, D.C.; *Excerpt. Coal Age* 16:370-2 Ag 28 '19
- Commodity prices and public utility rates. W. J. Hagenah. *Elec W* 71:1024-6 My 18 '18; *Abstract. Elec Ry J* 51:970-1 My 18 '18
- Cost of electric light and the high cost of living. *Elec R* 73:375 S 7 '18
- Cost of living in an industrial community. R. M. Hudson. *Ind Management* 56:185-91 S '18
- Cost of living off only 2.8 per cent since signing of armistice. *Elec Ry J* 53:863 My 3 '19
- Cost of living, with per cent of increase from 1914 to 1917. *Gas Age* 41:441 My 15 '18
- Council of national defense report on high cost of living. *Eng & Contr* 52:281-3 S 3 '19
- Data presented by the Kansas City railways to the War labor board show 81 per cent rise in the cost of living since 1900 but 146 per cent advance in wages. *Elec Ry J* 52: 740-2 O 26 '18
- Expense of distribution as the main factor in the high cost of living. W. H. Ingersoll. *chart Heat & Ven* 16:52-3 Ag '19
- General relation of wages to cost of living; translated from an article in the *Neue zeit.* A. Ellinger. *Gas Age* 41:451-2 My 15 '18
- High costs; figures on index prices and cost of living. H. S. Hanna. *Gas Age* 44:400-1 N 1 '19
- Inflation, expansion, and the high cost of living. R. H. Tingley. *Am Ind* 18:34-5 D '17
- Living cost increased 50 to 55 per cent since 1914, conference board reports. *Iron Tr R* 63:517 Ag 29 '18
- Living costs up 64 per cent since 1914. *Elec R* 73:590 O 12 '18
- Making the workman's dollar bigger. E. P. Harris. *Ind Management* 58:111-12 Ag '19
- President Wilson on living costs and labor. *Ry R* 65:242-3 Ag 16 '19
- Public service says living wage is \$1.115. *Elec Ry J* 52:197-9 Ag 3 '18

**Cost of living—Continued**

- Raising wages with cost of living. L. K. Comstock. Elec W 71:552-3, 615-16 Mr 16-23 '18  
 Retail food prices up 39 per cent since 1907. Elec Ry J 51:464 Mr 9 '18  
 Scientific marketing and transportation. T. C. Powell. Ry Age 64:134-5 Ja 11 '18  
 Standards of living; a compilation of budgetary studies. 49p '19 Bureau of applied economics, Washington, D.C.  
 Sweeping changes in the cost of living. Elec W 74:579 S 13 '19  
 Wages increase more than living cost; investigation in Bridgeport metalworkers' strike. Iron Age 102:146-7 J1 18 '18

**Cost of service plan. See Public utilities—Regulation**

- Cost-plus contracts.** See Contracts, Letting of  
**Costume.** See Clothing; Hosiery

**Cottages**

- Attractive architecture of a colonial cottage. II diag plans Bldg Age 40:210-13 Ap '18  
 Cottage competition of the Royal Institute of British architects; designs and plans. Am Inst Arch J 6:352-8 J1 '18  
 English cottage with garage underneath. II Bldg Age 41:279 S '19  
 Erect 66 sea shore cottages of concrete. II diag plans Concrete 15:51-4 Ag '19  
 Experience in cottage building. O. Kellar. II diag plans Bldg Age 40:136-9 Mr '18  
 Five-room brick and stucco cottage with interesting floor plan. II plans Bldg Age 40:417-18 S '18  
 Five-room frame cottage that compels attention. II diag plans Bldg Age 41:2-3 Ja '19  
 Good design in a colonial cottage. II plans Bldg Age 41:181-2 Je '19  
 Housing question taking definite shape in Great Britain. S. Brinton. II plans Am Arch 115:739-43 My 28 '19  
 Stucco coated cottage. II plans Bldg Age 40:91-2 F '18  
 Two small cottages; views and plans. Bldg Age 41:309 S '19  
 Unusual use of wall board in construction of \$1700 cottage. II diag plans Bldg Age 40:296-9 Je '18  
 Up-to-date colonial cottage. plans Bldg Age 41:294 S '19

See also Architecture, Domestic; Bungalows; Country houses

**Cotton**

- American-grown Egyptian cotton. Automotive Ind 37:1105 D 20 '17  
 Better cotton bales. II Sci Am 118:74 Ja 19 '18  
 Cotton baling and sampling. II diag Engineer 124:448-9 N 23 '17  
 Economics of high density cotton compression. R. H. Tingley. Textile World 55:229-4 Ja 11 '19  
 Growing cotton for tires. II Sci Am 120:13 Ja 4 '19  
 High density cotton baling recommendations. diag Textile World 53:5884-4 Je 1 '18  
 Increased cotton acreage indicated. Textile World 53:3901-2 F 23 '18  
 King cotton has come into his kingdom; a bumper crop. II Sci Am S 86:292-3 N 9 '18  
 New sources of cotton supply. E. C. de Segundo. Textile World 56:227-4 J1 12 '19  
 Rejected cotton and its utilization. S. Wakefield. Textile World 53:3699-4, 3815, 3909-4, 4141, 4233-4, 4333, 4433, 4575, 4701-4, 4805, 4943-4, 5476-7, 6107-4 F 9-23, Mr 9-Apr 27, My 11, Je 15 '18  
 Unique means for the removal of a single bale of cotton from a pile. R. Gotthold. II Sci Am 119:94 Ag 3 '18

See also Cotton fabrics; Cotton mills; Cotton trade; Cotton yarn; Dyes and dyeing—Cotton; Fibers; Flax; Khaki; Yarn

**Diseases and pests**

See Bollworm

**Dyeing**

See Dyes and dyeing—Cotton

**Standards**

- Cotton standards adopted by U. S. II Textile World 55:1279 F 22 '19

**Testing**

- Manufacturing tests of the official cotton standards for grade. W. S. Dean and F. Taylor. map U S Agric Bul 591:1-27 '17  
 Tests for cotton and linen. Textile World 53:4703 Ap 13 '18  
 Tests of official cotton standards; report of U.S. Bureau of markets. Textile World 53:4226 Mr 16 '18  
 Wool and cotton testing. Textile World 53:4566 Ap 6 '18

**Cotton, Absorbent**

- Chemical tests of absorbent cotton. Color Tr J 4:129 My '19  
 Laundering soiled cotton for French military hospitals. II Sci Am 118:92 Ja 26 '18  
 Wood pulp for cotton. Textile World 53:4241 Mr 16 '18

**Cotton, Substitutes for**

- Cat tail plant in industry. Sci Am S 85:155 Mr 9 '18  
 Fabrics from nettle and hemp. II Textile World 55:1441-4 Mr 1 '19

**Cotton carding**

- Combed vs. double carded yarns. Textile World 54:3101 D 21 '18  
 Cotton carding. Textile World 54:747 Ag 17 '18

See also Cotton machinery

**Cotton combing**

- Combed vs. double carded yarns. Textile World 54:3101 D 21 '18

See also Cotton machinery

**Cotton dyeing. See Dyes and dyeing—Cotton****Cotton fabrics**

- Cotton airplane fabric. S. Wakefield. diag Textile World 54:741-4 Ag 17 '18; Discussion. E. D. Walen. 54:1207-4 S 14 '18  
 Cotton airplane fabrics. E. D. Walen. U S Nat Advisory Com for Aeronautics 1917:435-58 '18  
 Cotton fabrics for showy top clothing. II Textile World 53:4231 Mr 16 '18  
 Cotton goods products well sold for year. Textile World 53:2971-4 Ja 12 '18  
 Defects in finished cotton goods. L. J. Matos. Textile World 55:1287-4 F 22 '19  
 Details of narrow webbings for leather substitutes. Textile World 53:4239 Mr 16 '18  
 Enough cotton fabric for planes. Automotive Ind 39:344-5 Ag 22 '18  
 Fine goods mills on coarser fabrics. Textile World 55:264 Ja 11 '19  
 History of cotton airplane fabric. E. D. Walen. Automotive Ind 39:1013 D 12 '18  
 Manufacture of cotton cloths for military uses. J. Reynolds. II Textile World 53:2987-4 Ja 12 '18  
 Manufacture of cotton Venetians. II Textile World 54:1207 S 14 '18  
 Men's and boy's suiting fabric. E. Tompkins. II Textile World 54:1077-4 S 7 '18  
 Military webbing suitable for weaving on light weight looms. II Textile World 54:1601 O 5 '18  
 Production of transparency on cotton fibre. Color Tr J 5:49 Ag '19  
 Properties of airplane fabrics. E. D. Walen. II diag Am Soc M E J 40:933-7 N '18  
 Shrinking cotton glove fabric. Textile World 53:4579 Ap 6 '18  
 Transparency effects on cotton. Textile World 54:1205-4, 1443 S 14, 28 '18  
 Treatment to produce transparency in cotton; patent. Color Tr J 4:118 My '19  
 See also Balloon fabric; Crepe; Khaki; Plush; Voile

**Stains**

- Iron stain on cotton goods. Textile World 55:1570 Mr 8 '19  
 Kier stains on cotton cloth. Textile World 55:1051 F 8 '19  
 Pink stains in finishing cotton goods. Textile World 54:3215; 55:763-4 D 28 '18, Ja 25 '19  
 Pink stains on bleached goods. L. J. Matos. Textile World 56:2197 O 11 '19



**Cotton fabrics—Stains—Continued**

Stains and discolorations on cotton piece goods. O. H. Forsdale. Color Tr J 4:77-8 Ap '19  
Streaks in cotton fabrics. Textile World 53:6355 Je 29 '18

**Cotton finishing**

Back filled finish on cotton fabric. diag Textile World 54:2689 N 30 '18  
Back-filling process for sheetings. diag Textile World 55:1899+ Mr 29 '19  
Cutting down seconds in cotton piece goods. O. H. Forsdale. Color Tr J 5:144-6 N '19  
Employing women in cotton finishing. diag Textile World 54:2685+ N 30 '18  
Finishing cotton goods. Textile World 54:3223 N 28 '18  
Loss of weight in dyeing and bleaching cotton. Textile World 54:185 JI 13 '18  
Napping an all-cotton fabric. Textile World 53:2369 D 8 '17  
Napping cotton goods. Textile World 53:2619 D 22 '17  
Sticky finish on cotton cloth. Textile World 55:2215 Ap 12 '19  
Testing finish on cotton goods. Textile World 55:2339 Ap 19 '19; Same abr. Color Tr J 5:139 N '19

**Cotton machinery**

Adequate air service to pickers. C: Mills. Textile World 54:2557 N 23 '18  
Chapman electric neutralizer. II diag Textile World 53:3705 F 9 '18  
Gordon cleaning machine. II Textile World 53:3273 Ja 12 '18  
Improved cotton card. II Textile World 56:935 Ag 16 '19  
Large motor-driven cotton bale press. Elec R 72:102 Ja 19 '18  
Overhauling the carding department; schedule for picking, carding, combing and drawing machines. Textile World 55:1683+ Mr 15 '19  
Pneumatic cotton ginning and cleaning. C. L. Saunders. diag Textile World 54:1857+ O 19 '18  
Production, machine speeds and settings. Textile World 55:27 Ja 4 '19  
*See also* Textile machinery

**Cotton manufacture**

Average counts of yarn. S. Wakefield. Textile World 53:4437 Mr 30 '18  
Beating cotton in the picker. Textile World 53:4041 Mr 2 '18  
Calculation of colored cotton mixtures. C. J. Brickett. Textile World 54:1855+ O 19 '18  
Cotton goods in British India. R. M. Odell. U S Bur For & Dom Com 157:31-57 '18  
Government may control textile starches. Textile World 53:4427 Mr 30 '18  
Relaxing labor laws favored in report of labor committee of cotton manufacturers. Textile World 54:1593 O 5 '18  
Status of cotton wastes and by-products. Textile World 53:3173 Ja 12 '18  
*See also* Cotton carding; Cotton finishing; Cotton mills; Cotton spinning; Cotton waste

**Cotton manufacturers' association, American.**  
*See* American cotton manufacturers' association

**Cotton manufacturers' association of North Carolina**  
12th summer session, Asheville, July 5-6. Textile World 54:174-9+ JI 13 '18  
13th convention, Asheville, July 4-5. Textile World 56:222-4 JI 12 '19

**Cotton manufacturers' association of South Carolina**

Adopts rules on labor at adjourned meeting, Spartanburg, June 28. Textile World 54:197 JI 13 '18

15th annual convention, Asheville, N.C., June 13-14. Textile World 53:6206-9 Je 22 '18

**Cotton mills**

California cotton mills company increases. II Textile World 53:3241+ Ja 12 '18  
Canadian textile mill operated by central-station service. V. K. Stafford. II Elec R 75:135-7 JI 26 '19

Cherokee spinning co., Knoxville, Tenn. II Textile World 53:3239+ Ja 12 '18

Commercial and manufacturing aspects of humidification. S. P. Munroe. Textile World 53:3161+ Ja 12 '18

Conveyor equipment at Bancroft finishing plant. H: J. Edsall. II Textile World 54:2103+, 2847-8 N 2, D 7 '18

Cotton spindles in the United States. Textile World 54:639 Ag 10 '18

Interesting new cotton mill. II diag Textile World 56:1377+ S 6 '19

Progress in Southern mill village improvements. E. S. Draper. II Textile World 55:541+ Ja 11 '19

Progressive cotton-mill community at La Grange, Ga. Power 49:444-5 Mr 25 '19

Prosperity for New Bedford mills. Textile World 55:247-8 Ja 11 '19

Rapid mill equipment; Atlantic plant revamped for government work in record time. II Textile World 53:6164 Je 15 '18

Rehabilitation of New York cotton mill. II diag Elec W 73:1263-6 Je 14 '19

Southern cotton mill progress. Textile World 53:2977+ Ja 12 '18

Southern mills and manufacturing conditions. G: Wrigley. II Textile World 55:504-5+ Ja 11 '19

Textile mill organization and costs. E. Szepesi. Textile World 53:2358 D 8 '17

**Employees**

**Educational facilities for mill communities.**  
P. P. Claxton. Textile World 54:179+ JI 13 '18

Mill workers and the war. F: B. Gordon. Textile World 54:2561+ N 23 '18

New home for mill girls, Danville, Va. II Textile World 54:773 Ag 17 '18

**Cotton picking machines**

Successful cotton picker. E: C. Crossman. II Sci Am 119:315+ O 19 '18

Successful (?) cotton picker. G: W. Colles. Sci Am 119:411 N 23 '18

**Cotton plush. See Plush****Cotton seed. See Cottonseed****Cotton sizing**

Sizing for sewing thread. Textile World 53:6021 Je 8 '18

**Cotton spinning**

Breakage of ends on spinning frames. Textile World 56:1513+ S 13 '19

Notes on cotton spinning. Textile World 55:3313 My 31 '19

**Cotton stains. See Cotton fabrics—Stains****Cotton trade**

Acceptances and the northern cotton spinners. Am Ind 18:9-10 My '18

Address of president, American cotton manufacturers association. F. E. Callaway. Textile World 53:5167+ My 4 '18

Address of president, National association of cotton manufacturers. A. F. Bemis. Textile World 53:5167-8+ My 4 '18

Advantages of the acceptance for cotton financing. R. N. Durfee. Textile World 53:6011 Je 8 '18

Aims and objects of international federation. A. S. Pearse. Textile World 53:5195+ My 4 '18

Basic prices on cottons. Textile World 54:49 JI 6 '18

Comparative prices of cotton goods; report of Research committee. Textile World 56:1981-2 O 4 '19

Concrete construction on the Mississippi sands. R. Gotthold. II Sci Am 121:532-3+ N 29 '19

Cost of producing cotton. Textile World 54:1000 Ag 31 '18

Cotton conference favors use of acceptances. Textile World 53:5413-16 My 11 '18

Cotton goods and cotton prices. R. N. Durfee. Textile World 54:2304 N 9 '18

Cotton goods and textile machinery. Sci Am 118:482 My 25 '18

Cotton goods in British India. R. M. Odell. II U S Bur For & Dom Com 157:1-57 '18

**Cotton trade—Continued**

Cotton goods in British India; pt 4, Bombay presidency. R. M. Odell. U S Bur For & Dom Com 149:1-132 '17

Cotton industry status; relation of manufacturers to the government's requirements. E. F. Greene. Textile World 53:3807 F 16 '18

Cotton production and distribution, season of 1916-17. diags maps U S Bur Census Bul 135:1-144 '18

Cotton warehousing and financing. R. N. Durfee. Textile World 55:230+ Ja 11 '19

Cotton yarn prices. Textile World 54:1200 S 14 '18

Egyptian cotton; conditions of sale through the control commission of Egypt. Textile World 54:1680 O 5 '18

European cotton commission successful. Textile World 56:469-70 Jl 26 '19

Extension of acceptances favored by cotton men. Textile World 53:6103 Je 15 '18

Financing cotton shipments. O. M. W. Sprague. Textile World 53:4928 Ap 27 '18

Foreign markets for cotton lint, batting, and waste. U S Sp Cons Rep 80:1-84 '18

Freedom in yarn prices curtailed by government. Textile World 55:279 Ja 11 '19

General prosperity in cotton market. Textile World 53:2981+ Ja 12 '18

Grower and spinner—their common cause. R. R. Wilson. Textile World 55:1556-7 Mr 8 '19

Important position of cotton during war. Textile World 55:251+ Ja 11 '19

Japanese cotton goods in Greece. Textile World 55:282+ Ja 11 '19

Labor conditions in cotton industry. Textile World 53:4328 Mr 23 '18

Lancashire cotton industry in 1917. F. W. Tattersall. Textile World 53:2979+ Ja 12 '18

Lancashire cotton industry in 1918. F. W. Tattersall. Textile World 55:248+ Ja 11 '19

Low grade cotton; some details of distributing committee's plans made public. Textile World 54:1724 O 12 '18

New era between the sections. W. B. Thompson. Textile World 55:2535+ Ap 26 '19

Our cotton goods export. C. B. Hayward. Textile World 53:2354 D 8 '17

Plea for cotton bank acceptance. Textile World 53:6320 Je 29 '18

Prices of raw cotton and cotton yarns from 1909 to 1918, inclusive; chart. Textile World 55:281 Ja 11 '19

Regulations for cotton warehouses. U S Agric Circ 94:1-43 '18

Relation of South's cotton to nation's welfare. R. H. Edmonds. Textile World 55:3291+ My 31 '19

Report of research committee. Textile World 55:2505+ Ap 26 '19

Reports of permanent committees on industry. Textile World 54:2309+ N 9 '18

Reports of traffic and export committees. G. W. Forrester; D. Y. Cooper. Textile World 55:3305+ My 31 '19

Stabilizing cotton values. R. N. Durfee. Textile World 54:628 Ag 10 '18

This year's outlook on five important raw materials, cotton, lumber, iron, steel and copper. A. W. Douglas. Factory 20:240-1 F 18

Unprecedented experiences in cotton goods. Textile World 55:241-3 Ja 11 '19

Wages and hours of labor in cotton goods manufacturing and finishing, 1916. U S Bur Labor Statistics Bul 239:1-258 '18

Wartime exports of cottons. Textile World 54:898 Ag 24 '18

World cotton conference arrangements. Textile World 56:1984-5+ O 4 '19

Year's review of cotton manufacturing. C. Mills. Textile World 55:257+ Ja 11 '19

**Cotton waste**

Facts about waste. Il Mach 24:887 Je '18

Oakite waste cleaner. diags Power 48:424 S 17 '18; Textile World 54:1603 O 5 '18

Reclaim wiping waste. Il Textile World 55:923 F 1 '19

Rejected cotton and its utilization. S. Wakefield. Textile World 53:3699+, 3815, 3909+, 4141, 4233+, 4333+, 4433, 4575, 4701+, 4805, 4943+, 5476-7, 6107+ F 9-23, Mr 9-Ap 27, My 11, Je 15 '18

Royal family of waste. Il Power 47:543-4 Ap 16 '18

Standardizing cotton waste; Royal mfg. co. Il Iron Age 101:1674-5 Je 27 '18

Status of cotton wastes and by-products. Textile World 53:3173 Ja 12 '18

Waste cleaning plant. Il Iron Age 102:1257 N 21 '18

Waste cleansing apparatus. diag Textile World 53:5779 My 25 '18

**Cotton yarn**

Causes of weak cotton yarns. Textile World 53:3706 F 9 '18

Eventful year for all grades of cotton yarns. Textile World 53:3006 Ja 12 '18

Fine and combed cotton yarns. Textile World 55:282 Ja 11 '19

Gassing of cotton yarns. R. Sansone. diags Textile World 55:2333+, 3111+ Ap 19, My 24 '19

Glazing of cotton yarn. Textile World 55:921 F 1 '19

Manufacture of combed yarns. J. W. Long. Textile World 53:2605-6 D 22 '17

Results in varying mercerizing conditions. E. R. Clark. Textile World 56:1779+ S 27 '19

Slashing of cotton warps. E. H. Hinckley. Il charts Textile World 55:2543, 2544-5, 2867+ Ap 26, My 10 '19

Slashing of cotton yarns. E. H. Hinckley. Il Textile World 55:1681+ Mr 15 '19

Tensile strength tables. Textile World 55:2725 My 3 '19

Testing fastness of colors on cotton yarn. Textile World 55:29 Ja 4 '19

See also Cotton spinning

**Cottonseed**

Concerning cotton seed. Sci Am 119:498+; 120:225 D 21 '18, Mr 8 '19

Contribution to the chemistry of gossypol, the toxic principle of cottonseed. F. E. Carruth. Am Chem Soc J 40:647-63 Ap '18

Cotton as a food plant. L. Johnson. Sci Am 118:55, 167 Ja 12, F 23 '18

Cotton production and distribution, season of 1916-17. U S Bur Census Bul 135:93-105 '18

De-fibrating cotton seed. Il diag Engineer 127:516 My 23 '19

Some cotton seed products. E. C. De Segundo. Sci Am S 86:382-3 D 14 '18

Uniform nitrogen determination in cottonseed meal. J. S. McHargue. J Ind & Eng Chem 10:533-5 Jl '18

**Cottonseed oil**

Color standards for cottonseed oil. H. V. Arny, C. Kish and F. Newmark. J Ind & Eng Chem 11:950-3 O '19

Cotton oil industry in the war. D. Wesson. J Ind & Eng Chem 10:930-1 N '18

Cotton seed oil as a lubricant for wool fibers. Textile World 54:639 Ag 10 '18

Cotton seed products and the chemical industries. E. W. Thompson. Sci Am S 86:153 S 7 '18

**Cottonseed oil mills**

Friction and the coal pile. E. S. Morrison. Power 48:129 Jl 23 '18

**Cottrell, Frederick Gardner, 1877-**

Perkin medal presented to Frederick G. Cottrell. por Chem & Met Eng 30:102-14 F 1 '19; J Ind & Eng Chem 11:147-54 F '19

**Cottrell process. See Electric precipitation****Coucy-le-Château, France**

Coucy-le-Château; a victim of the war. R. F. Bach. Il plans Arch Rec 42:551-7 D '17

**Coulter, John Merle, 1854-**

New president of the American association for the advancement of science. M. Benjamin. por Sci Am 119:517 D 28 '18

**Coumaranes**

Syntheses of chromanes and coumaranes. R. E. Rindfus. Am Chem Soc J 41:665-70 Ap '19

**Coumarin**

Detection and determination of coumarin in factitious vanilla extracts. H. J. Wichmann. *J Ind & Eng Chem* 10:535-7 *Jl* '18

**Council Grove, Kansas****Water supply**

Some experiences gained in the private ownership of the public water supply works at Council Grove. L. L. Tribus. *Il Munic Eng* 57:38, 40+ *Jl* '19  
Water treatment at Council Grove. L. L. Tribus. *diag Am Water Works Assn J* 5:423-47 *D* '18

**Council of national defense**

Building the American war machine. C. M. Pepper. *Iron Age* 101:1-10 *Ja* 3 '18  
Business machine at Washington. H. E. Coffin. *Ind Management* 55:10-14 *Ja* '18  
Council of national defense; its purpose, its significance, and its contribution to the great war. G. B. Clarkson. *Sci Am* 118:306+ *Ap* 6 '18  
Council reorganized. *Met & Chem Eng* 18:12 *Ja* 1 '18  
Functions of Council of national defense. *Textile World* 53:2958+ *Ja* 12 '18  
New plan of trade co-operation with Council of national defense. *Textile World* 53:2477+ *D* 15 '17  
Original trade committees dissolved. *Iron Age* 100:1437 *D* 13 '17  
Price fixing committee. *Textile World* 53:4325 *Mr* 23 '18  
Report of joint woolen goods committee; relations of this body to Council of national defense. *Textile World* 53:3289-90 *Ja* 12 '18  
Report transmitted to Congress by the President. *Am Mach* 48:84-6 *Ja* 10 '18; Excerpt (Several fields covered by the council's work). *Elec Ry J* 51:92 *Ja* 12 '18; Excerpts (Patriotic work). *Elec W* 71:115-16 *Ja* 12 '18  
2d annual report of work. *Iron Age* 102:1387 *D* 5 '18; Same cond. *Elec R* 73:894 *D* 7 '18  
Statement concerning the work of the divisional committee of the Illuminating engineering society on lighting. *Illum Eng Soc* 13:528-9 no 9 '18  
Summary of activities affecting electrical and allied industries. *Elec R* 72:40-1 *Ja* 5 '18

**Aircraft production board**

Aircraft investigation needed to clarify situation. *Automotive Ind* 38:893-6+ *My* 9 '18  
Aircraft work grossly mismanaged; report of investigating committee of Aeronautical society of America. *Iron Tr R* 62:932-3 *Ap* 11 '18  
Coffin protests to Congress; declares civilian men on Aircraft production board had no executive powers. *chart Automotive Ind* 39:359-60+ *Ag* 29 '18  
Delay in airplane production. *Sci Am* 118:404 *My* 4 '18  
Rumors exaggerate airplane delay. *Automotive Ind* 38:651+ *Mr* 28 '18  
*See also* United States—Aircraft production, Bureau of

**Chemical committee**

Chemical alliance succeeds chemical committee of Council of national defense. *Met & Chem Eng* 18:95 *Ja* 15 '18

**Emergency employment committee**

Emergency employment committee for soldiers and sailors. D. M. Reynolds. *Il Sci Am* 120:428 *Ap* 26 '19

**Field division**

Federal and state coöperation for post-bellum reconstruction. *Sci Am* 119:238 *O* 12 '18

**General medical board**

With scalpel and drug; work of the General medical board of the Council of national defense. C. H. Claudy. *Sci Am* 119:355+ *N* 2 '18

**Highways transport committee**

Highways to relieve railroads—plans worked out by the quartermaster department and the Highways transport committee. *Munic J* 43:610 *D* 22 '17

Highways transport committee in peace. *J: S. Gravens. Good Roads n s* 18:40, 61-2 *Jl* 23 '19

Highways transport committee in war. R. D. Chapin. *map Good Roads n s* 18:37-40 *Jl* 23 '19

Motor truck transportation growing rapidly. *Il map Ry R* 63:768-9 *N* 30 '18

Organization of highways transport committee. *map Good Roads n s* 16:153 *O* 19 '18

Policies stated by Highways transport committee. *Eng N* 83:339-40 *Ag* 14 '19

Regional highway transport directors meet. *Eng N* 81:599-600 *S* 26 '18

Relation to the work of the Highways transport committee. W. S. Gifford. *Good Roads n s* 16:12 *Jl* 13 '18

Store door delivery plan for terminal relief; plan proposed by the Highways transport committee to relieve freight congestion. *Good Roads n s* 15:33-4 *Ja* 19 '18

Work of highways transport committee in developing effective use of roads. *Eng & Contr* 50:239 *S* 4 '18; Same. *Good Roads n s* 16:82 *Ag* 31 '18

**Industrial service section**

Employers, let the industrial training section aid you. *Automotive Ind* 38:1143 *Je* 13 '18  
Section to consider adjustment of labor supply to the war needs. *Met & Chem Eng* 18:13 *Ja* 1 '18

**Priority committee**

How the Priority board works. *Am Mach* 48:7-8 *Ja* 3 '18

**Railroads' war board**

Accomplishments of the Railroads' war board. *Ry Age* 64:84-6 *Ja* 4 '18; Excerpts. *Ry R* 62:69 *Ja* 12 '18

Chairman Fairfax Harrison gives War board's views to Senator Newlands. *Ry R* 61:733-4 *D* 15 '17

Freight operations under the Railroads' war board. *Ry Age* 64:906-6 *Ap* 5 sec 1 '18

Railroads' war board. *Ry R* 62:21-2 *Ja* 5 '18  
Suggestions for fire protection of railroad properties. *Ry Age* 63:1093 *D* 14 '17

**Reconstruction research division**

Reconstruction in the United States. *Sci Am* 120:540+ *My* 24 '19

**State councils of defense**

Plans of New York defense council. *Good Roads n s* 16:57 *Ag* 17 '18  
State activities of the Council of national defense. *Sci Am* 118:71 *Ja* 19 '18

**War industries board**

Baruch heads War industries board. *Eng & Min J* 105:517-18 *Mr* 16 '18

Centralize authority in War board. *Iron Tr R* 62:678-9 *Mr* 14 '18  
Changes in board. *Iron Tr R* 62:1818-19 *My* 23 '18

Conference held between the War industries board and a large delegation of steel manufacturers. *May* 17. *Iron Age* 101:1324-5 *My* 23 '18

Great economic mistake to restrict the third manufacturing industry in the country without sufficient facts upon which to base conclusions. H. E. Coffin. *Automotive Ind* 37:814-15+ *N* 8 '17

Manufacturing restriction because of alleged steel shortage now less imminent. *Automotive Ind* 37:857-9 *N* 15 '17

Method of procedure. *Elec W* 70:1206 *D* 22 '17

Need for storage facilities. F. L. Stuart. *Ry Age* 63:1181-2 *D* 28 '17; Same abr. *Eng N* 79:1175-6 *D* 20 '17

New plan adopted by War industries board. *Iron Age* 101:944-5 *Ap* 11 '18

Organization of the General war service committee of the electrical manufacturing industry. *diag Elec W* 71:109 *Ja* 12 '18

Organization of the requirements division of the War industries board; diagram. *Elec W* 71:945 *My* 4 '18; Same. *Eng N* 80:934 *My* 9 '18

Organization of the War industries board. *diag Elec R* 72:159 *Ja* 26 '18

### Council of national defense—War industries board—Continued

Raw material board reorganized. Iron Tr R 61:1283 D 13 '17

To coordinate work of industries. Textile World 53:4693, 4929 Ap 13, 27 '18

War industries board to be central agency for mobilizing nation's resources. charts Eng N 80:164-6 Ja 24 '18; Same. Am Mach 48:165-7 Ja 24 '18; Same (charts). Eng & Min J 105:288-9 F 9 '18; Same cond. Elec W 71:162-4 Ja 19 '18

Work of the machine-tool section of the War industries board. Am Mach 48:425-7 Mr 7 '18

For later material see United States—War industries board

### Counterbores

Economical counterbore. M. W. Bossmann. diags Am Mach 47:1086 D 20 '17

Economical high-speed steel counterbores. W. Nemo. diags Am Mach 48:463-4 Mr 14 '18

Interchangeable counterbores. W. P. Lotz. diags Am Mach 50:353 F 20 '19

### Countershafts

Better countershafts for machine tools. O. E. Britten. Am Mach 49:170 Jl 25 '18

Foster friction-clutch countershafts. Il Am Mach 48:553-4 Mr 28 '18

Roller bearing countershaft. diag Ry Mech Eng 93:162 Mr '19

### Counting

Durant productimeter. Il Am Mach 48:304 F 14 '18

### Country houses

American country house. F. Kimball. Il diags plans Arch Rec 46:291-400 O '19

American country house, with particular reference to types developed or improved during the war. A. D. F. Hamlin. Il diag plans Arch Rec 44:274-379 O '18

Country house details. A. B. Greenberg. diags Bldg Age 40:490-1, 538-9, 570-1; 41:24-5, 53-5, 101-2, 126-7, 168-9, 206-7, 240-1+ O '18-Jl '19

Country house of Francis L. Hine, esq., Glen Cove, L.I. C. O. Cornelius. Il plan Arch Rec 44:2-20 Jl '18

Country house of J. W. Harriman, esq., Brookville, L.I. J. T. Boyd, Jr. Il plans Arch Rec 43:2-21 Ja '18

Country houses. Arch & Bldg 51:Dwelling house series 12-13 Ag '19

Domestic engineering in a country home. Il plans Metal Work 92:303-5 S 12 '19

Examples of the country house work of William Adams. C. P. Warren. Il plans Arch Rec 43:505-25 Je '18

Group of buildings at Geneva, N. Y., for Edward McMaster Mills. Il Am Arch 114:429-30, pl 109-11 O 9 '18

Group of Long Island country houses. Il plans Arch Forum 30:47-50, pl 17-32 F '19

Pembroke; estate of the late Captain J. R. de Lamar, Glen Cove, L.I., New York. Il Am Arch 116:866-73, pl 104-10 S 17 '19

Pneumatic water systems for country houses and estates. J. A. Deyo. Il plan Am Arch 112:480-5 D 26 '17

Recent country house work of Howard Shaw. P. B. Wight. Il plans Arch Rec 42:498-527 D '17

Recent country houses from the designs of Murphy & Dana, architects. Il plans Arch Forum 30:143-6, pl 78-80 My '19

Small country house at Rockford, Ill.; views and plans. Arch Forum 31:131-2 O '19

Summer home of George C. Nimmons at Flossmoor, Illinois. Il plans Arch Rec 46:290-302 Ap '19

See also Architecture, Domestic; Bungalows; Cottages; Farm buildings; Farm-houses

### County engineers

Status of public-works engineers should be changed. F. A. Churchill. Eng N 83:37-8 Jl 3 '19

### County manager plan

Change the title of county surveyor to managing engineer or county manager. Eng & Contr 50:137 Ag 7 '18

County roads. See Roads, County

Couplers. See Car couplings; Couplings

### Couplings

Carlton coupler for tractors and trailers. Il Iron Age 103:955 Ap 10 '19

Elastic coupling of prime movers and generators; abstract. O. Ohnesorge. Am Soc M E J 40:718 Ag '18

Fittings for magneto, pump and generator couplings. Il diags Automotive Ind 38:1083 Je 6 '18

Flexible coupling between engine and fan eliminates trouble with bearings. diags Coal Age 16:2 Jl 3 '19

Flexible universals gaining favor. C. A. Schell. Il diag Automobile 37:626-3 O 11 '17

Ford expansion coupling. Il Eng & Contr 50:268 S 11 '18; Munic J 45:258 S 28 '18; Munic Eng 55:158 O '18

Karge cushion and flexible couplings. diag Am Mach 50:464-5 Mr 6 '19; Power 49:599 Ap 22 '19; Eng & Min J 108:406 S 6 '19

Sykes flexible reversible coupling; abstract. Mech Eng 41:547 Je '19

See also Car couplings; Hose couplings

### Court houses

Addition to Kings county court house, Brooklyn, N.Y.; views. Arch & Bldg 50:pl 147-50 Ag '18

New Haven post office and court house. G. Nichols. Il Arch Forum 31:85-90, pl 33-7 S '19

Richmond county court house, St George, Staten Island, N.Y. Arch & Bldg 51:69-70, pl 128-30 S '19

### Courtesy

Curses and courtesy. Ry Age 64:152 Ja 18 '18

### Coverlets

Bleaching and finishing bedspreads. diags Textile World 56:479+ Jl 26 '19

### Crab grass

Composition of the ash of crab grass (*Digitaria sanguinalis*) as affected by the soil in which it is grown. G. D. Buckner. Am Chem Soc J 41:1384-5 S '19

### Crafts, James Mason, 1839-1917

Sketch. H. P. Talbot. Am Chem Soc J 39:sup 171-3 D '17

### Crafts. See Arts and crafts

### Cranes, derricks, etc.

Atlas storage battery locomotive crane. Il Iron Age 102:449 Ag 22 '18

Attachment for floor cranes. W. H. Westbrook. Il Am Mach 47:1093-4 D 20 '17

Auto-crane for yard. Il Textile World 53:4043 Mr 2 '18

British standard crane developed during war by the government; abstract. diags Mech Eng 41:837-8 O '19

Brown locomotive gantry crane for shipyard. Il Iron Age 101:693 Mr 14 '18

Calculations for 3-ton revolving hand crane. diag Int Marine Eng 23:310-11 My '18

Crane car built in Denver shops. W. H. McAloney. Il Elec Ry J 51:772 Ap 20 '18

Crane demand parallels ship need. B. K. Price. Il Iron Tr R 62:603-5 Mr 7 '18

Crane for gun jacket shrinking shop. diag Iron Age 101:1133 My 2 '18

Crane hoist on motor truck. Il Automotive Ind 39:759 O 31 '18

Crane hoist type of industrial truck. Il Iron Age 102:575 S 5 '18

Crane information for the office file. G. W. Childs. diag Foundry 47:839 N 15 '19

Crane lighter no. 4. Il diags (supp) Engineer 128:225-6 S 5 '19

Crane was charged. E. C. Farham. Power 46:839 D 18 '17

Cranes for flexible loads. Il diags Iron Age 100:1471 D 20 '17

Cross travel dock crane. plan Marine R 49:490-1 O '19

Derrick car places deck slabs of concrete bridges. Il Eng N 81:307-8 Ag 15 '18

Designs massive pontoon cranes. Il Marine R 49:372-3 Ag '19

Developments in the electrical industry during 1918. J. Liston. Il diags Gen Elec R 22:21-3 Ja '19

**Cranes, derricks, etc.—Continued**

- Dravo tower whirler. *Il Ind Management* 55: 507 Je '18; *Int Marine Eng* 23:373 Je '18
- Ederer 10-ton electric traveling crane. *Il Elec R* 73:633 O 19 '18
- Electric freight-handling cranes prove economical for railroad. *Il Elec R* 74:993-4 Je 14 '19
- Electric semi-portal hoist cranes at Boston army supply base. *Il Elec R* 75:458-9 S 13 '19; Same. *Marine R* 49:479-80 O '19; Same *abr. Eng N* 83:516-17 S 11 '19
- Electrical vehicle crane tractor. *Il Elec R* 73: 426 S 14 '18
- Electrically operated dock cranes. *Il J Elec* 43:385-6 O 15 '19
- Emergency shipbuilding on lakes handled by erection cranes of many types. *Il diags Eng N* 82:86-93 Ja 9 '19
- Enclosed crane. *Il Ind Management* 56:69 JI '18
- Enginehouse cranes. *diags Ry Mech Eng* 93: 205-6 Ap '19
- Federal ships erected by derrick travelers built for long service. *Il diags Eng N* 80: 1129-32 Je 13 '18
- Fox portable shop crane. *Il Mach* 24:1056 JI '18; *Iron Age* 102:213 JI 25 '18; *Am Mach* 49: 221 Ag 1 '18
- Gantry portal crane for yard work; manufactured by Heyl & Patterson, Inc. *Il Iron Age* 103:1496 Je 5 '19; *Int Marine Eng* 24: 493-4 JI '19
- Giant crane for United States navy; two hundred-ton floating crane built by Wellman-Seaver-Morgan company. *Il Int Marine Eng* 22:486-8 N '17; *Iron Age* 100:734-5 S 27 '17; *Iron Tr R* 61:662-3 S 27 '17; *Am Mach* 48: 107-9 Ja 17 '18
- Guy derrick places 75-foot truss in Chicago theater. *Il Eng N* 81:553-4 S 19 '18
- Heavy double trestle for shipbuilding cranes over Newport News battle-cruiser berths. R. W. Burpee. *Il diags plan Eng N* 83:723-8 O 16 '19
- Heavy fitting-out cranes; cantilever and jib travelers at Newark bay and Bristol. *Il diags Eng N* 81:937-41 N 21 '18
- Heavy fitting-out cranes; fixed cranes at Kearny and Hog Island yards. *diags plans Eng N* 81:885-9 N 14 '18
- Heavy shop framing for 250-ton traveling crane. *Il diags Eng N* 82:1172-3 Je 12 '19
- Hog Island's ship-erection equipment; four hundred tower derricks for fifty ways. *Il diags Eng N* 81:77-80 JI 11 '18
- Hunt crane-type truck. *Il Ind Management* 57: 73-4 Jc '19
- Ingenious crane doorways. *Il Textile World* 56:2013+ O 4 '19
- Jib crane designed for maximum clearance. *diags Eng N* 82:1246 Je 26 '19
- Jib crane for use in an open floor space. *diag Mach* 24:817 My '18
- Large electric crane used by American navy. *Il Elec W* 72:648 O 5 '18
- Light crane for front end work. *diags Ry Mech Eng* 93:326 Je '19
- Locomotive crane for heavy service. *Iron Age* 102:568 S 5 '18
- Locomotive crane indispensable to construction work and industrial plants. J. Shearer. *Il diag Eng N* 79:1050-3 D 6 '17
- McMyler-Interstate co. builds 392 ton crane for shipyard use. *diags Iron Tr R* 62:988-91 Ap 18 '18
- Meeting of crane manufacturers and government representatives charged with the disposal of surplus machinery and materials. *Am Mach* 50:273 F 6 '19
- Monorail crane for boiler house. *Il Iron Tr R* 62:1179 My 9 '18
- Motors and control for traveling cranes. C. E. Clewell. *Il diags Elec W* 71:148-51 Ja 19 '18
- Movable cantilever solves problem. *Il Iron Tr R* 64:1548 Je 12 '19
- New Alliance crane sets world record for size. *Il diag Iron Tr R* 62:1121-4 My 2 '18; *Am Mach* 49:71-2 JI 11 '18
- New capacities attained by G. E. electric cranes. *Il Elec R* 72:440 Mr 9 '18; *Iron Age* 101:691 Mr 14 '18; *Int Marine Eng* 23:236-7 Ap '18
- 150-ton electrically operated pontoon crane in operation at the Boston navy yard. *Il Int Marine Eng* 24:688-9 O '19
- Practical crane installations. *Il diags Marine R* 49:592-3 D '19
- Pulling in conductors with a crane. T. Croft. *diags plans Power* 50:136-7 JI 22 '19
- Revolving steam locomotive crane of port of Astoria, Ore. *Il Eng & Contr* 49:394 Ap 17 '18
- Richborough transportation depot and train ferry terminus. *Il charts diags map Engineer* 127:76-9, 82 Ja 24 '19
- Selecting crane motors and gears. R. H. McLain. *Iron Tr R* 63:1073-4 N 7 '18; Abstracts. *Iron Age* 102:744 S 26 '18; *Am Soc M E J* 40:863-4 O '18
- Shepherd electric crane & hoist co. builds dust-tight crane. G. G. Robbins. *Il Iron Tr R* 62:1251-2 My 16 '18
- Shipyard cranes of concrete. G. L. Bilderbeck. *Il diags Concrete* 12:124 Ap '18
- Small derricks of special pattern used on lock wall construction at Troy. *Il Eng & Contr* 50:198 Ag 21 '18
- Speed control of induction motors on cranes and hoists by means of solenoid load brakes. R. H. McLain and H. H. Vernon. *Il diags Gen Elec R* 22:117-25 F '19
- Timber derrick gantry crane for ship erection. M. J. Welch. *diags plan Eng N* 80: 716-17 Ap 11 '18
- Tower derricks serve twin shipways at submarine boat corporation yard. *Il diags plan Eng N* 80:1073-7 Je 6 '18
- Traveling crane of reinforced concrete. *diags Eng & Contr* 52:137 JI 30 '19
- Traveling transfer machine useful on construction work. *Il Munic Eng* 53:255 D '17
- Turntable mounting extends reach of stiff-leg derricks. *diag plan Eng N* 82:638 Mr 27 '19
- 250-ton floating cranes at Panama. F. A. Stanley. *Il Int Marine Eng* 23:74-6 F '18
- See also Cars (derrick); Hoisting machinery

**Manufacture**

- Huddersfield crane works. *Il (supp) Engineer* 128:27-8+ JI 11 '19
- Metallurgical practice; specifications of metals for cranes; abstract. H. L. Campbell. *Chem & Met Eng* 20:433 Ap 15 '19

**Safety devices**

- Instruction card for crane operation. *Il Iron Tr R* 64:770 Mr 20 '19
- Mechanical safeguarding of traveling cranes. J. C. Smith. *Iron Age* 100:1527 D 27 '17
- Safety brake for overhead traveling cranes. *diags Iron Tr R* 65:1456-7 N 27 '19
- Safety code for electric cranes. *Iron Tr R* 63: 611-12 S 12 '18
- Safety first panels for cranes and their operators. *Il Elec R* 73:555-6 O 5 '18; *Iron Age* 102:897 O 10 '18
- Safety in traveling crane operation. E. Zachau. *Iron Age* 104:880 S 25 '19
- Safety on cranes. *diags Am Ind* 19:supl-4 O '18
- Signal device for overloaded cranes. J. A. Lucas. *diags Power* 48:23 JI 2 '18
- Uniform crane signals. *Il Eng & Min J* 106:741 O 26 '18; Same. *Power* 48:735 N 19 '18

**Crank cases**

- Aluminum crankcases made in England. *Il Foundry* 47:781-3 N 1 '19
- Attaining production on Liberty motor crankcase castings. *Il diags Foundry* 47:126-9 Mr '19
- Crank case trunnion jig. *Il Am Mach* 48:482-4 Mr 21 '18
- Crankcases for sub chaser engines are molded and cast. H. C. Estep. *Il Foundry* 46:244-7 Je '18; Same. *Iron Tr R* 63:139-42 JI 18 '18
- Manufacturing the caterpillar tractor; operations on crankcases. F. A. Stanley. *Il diags Am Mach* 49:801-4 O 31 '18
- Why does a crankcase breathe? *Sci Am* 120: 685 Je 28 '19

**Crankpins**

- Ball bearing crank pin. B. P. Flory. *Il diag Ry Mech Eng* 92:281-2 My '18

**Crankpins—Continued**

- Crank pin repair. A. Lan. diags Int Marine Eng 22:511 N '17; Discussion. C. H. Willey. 23:40 Ja '18
- Crank pin turning machine. II diags Engineer 1:550-2 Ja 18 '18
- Crankpin turning device. diags Mach 25:343 D '18
- Heating caused by cracked crankpin of Diesel engine. D. L. Fagnan. diag Power 49:679 My 6 '19
- Pressure on crank pin and rotative effect. diags Int Marine Eng 23:139 Mr '18
- Removing a tight crankpin. J. A. Lucas. diag Coal Age 14:428 S 5 '18
- Truing up a crankpin by hand. C. Labbe. diags Eng & Min J 105:246 F 2 '18

**Crankshafts**

- Airplane engine crankshaft design. G. D. Angle. diag Aviation 6:525-8 Je 15 '19
- Analysis of crankshaft stresses. O. M. Burkhardt. diags Automotive Ind 37:925-7. 966-84 N 22-29 '17; Same. Am Soc M E J 40:212-19 Mr '18
- Ball bearing crankshaft advantages. W. J. P. Moore. II Automobile 37:457-8 S 13 '17
- Breakage of crankshafts. E. Standiford. Iron Age 102:459 Ag 22 '18
- California jobbing shop. F. A. Stanley. II diags Am Mach 49:121-3 JI 18 '18
- Commercial crankshaft balancing. J. E. Schipper. II diags Automotive Ind 38:21-2 Ja 3 '18
- Cost of making a pair of offset centers for a crankshaft. Am Mach 51:300, 605-6, 767 Ag 14, S 25, O 23 '19
- Crankshaft turning fixture. C. W. Francis. diags Mach 24:643 Mr '18
- Draftsman, the purchasing agent and the forge shop. J. E. Schipper. Automotive Ind 38:597-8 Mr 21 '18
- Drive crankshafts with air blast in balancing. diags Automobile 37:680 O 18 '17
- Failure of ductile materials under fluctuating stresses; abstract. H. A. Webb and W. H. Barling. diag Am Soc M E J 40:pt 1, 584-5 JI '18
- Formulas for offset crankshaft calculations. K. W. Najder. diag Mach 25:1082 JI '19
- Hair-line defects in crankshafts. P. J. Piccirilli. II diags Automotive Ind 39:1041-4, 1104-5+ D 19-26 '18
- Intermittent-oil-feed investigation. II diag Mech Eng 41:392-4 Ap '19
- Making accurate turned forgings. II Iron Tr R 64:815-18 Mr 27 '19
- Modern welding and cutting; thermit welding crankshafts, mill pinions, etc. E. Viall. II diags Am Mach 50:341-4 F 20 '19
- Molding a steel crankshaft. M. E. Duggan. diag Am Mach 49:316 Ag 15 '18
- Putting crankshafts in running balance. F. H. Colvin. II Am Mach 51:519-20 S 11 '19
- Record-smashing crankshaft lathe. E. Viall. II diags Am Mach 51:395-9 Ag 28 '19; Abstract. Mech Eng 41:838-9 O '19
- Removal of Diesel crankshaft. E. E. Snow. II Power 50:567 O 7 '19
- Repairing a broken crankshaft. C. R. Courtenay. diags Am Mach 49:540-1 S 19 '18
- Repairing a crankshaft. Iron Tr R 63:1069-70 N 7 '18
- Ridgway crankshaft balance system. diag Automotive Ind 38:39 Ja 3 '18
- Short-cut machining of crankshafts. II Automotive Ind 41:225 JI 31 '19
- Six-throw crankshaft made from steel billets by thermit process. II Iron Age 103:812-13 Mr 27 '19
- Stresses in crankshafts. V. M. Summa. diags Mach 26:240-1 N '19
- Turning a marine engine crankshaft. II Mach 26:131-2 O '19
- Turning a two-throw 90-degree engine crankshaft. A. J. Cahen. diag Mach 25:461 Ja '19
- Welding broken crankshafts. J. H. Deppeler. II Iron Age 103:1217 My 8 '19

**Creamery machinery**

- Operations in a creamery machinery plant. F. A. Stanley. II diags Am Mach 48:177-81 Ja 31 '18

**Creamery waste**

- Treatment and disposal of creamery wastes. E. B. Phelps. diag Munic J 46:68-70 Ja 25 '19

**Creatine**

- Supposed occurrence of methylguanidine in meat, with observations on the oxidation of creatine by mercuric acetate. I. Greenwald. Am Chem Soc J 41:1109-15 JI '19

**Credit**

- Cash system is coming. Bldg Age 40:58 Ja '18
- Changing to a cash basis. Horseless Age 43:56 Ja 1 '18
- Code of credit ethics approved by Eastern supply association. Dom Eng 88:20-1 JI 5 '19; Same. Metal Work 92:48-9 JI 11 '19
- Credit and collection prospects for 1918. M. A. Curran. Elec W 71:97-8 Ja 12 '18
- Credit problems now and after war. A. R. Marsh. Textile World 53:5181+ My 4 '18
- Effect of credit tension on trade. C. H. Fast. Metal Work 88:752 D 21 '17
- Essential features in a report for credit purposes. R. H. Leamy. J Account 26:161-8 S '18
- Good credit more desirable than cash assets. W. D. Isham. Horseless Age 42:20-1 D 15 '17
- Government and foreign credits. E. E. Pratt. Am Mach 51:233-4 JI 31 '19
- Helping dealers become better credit risks; prize essays. Horseless Age 43:39-41+ Ap 1 '18
- Important question—will he pay? Metal Work 88:692-3 D 7 '17
- Manufacturing and banking. F. C. Schwedtmann. Am Ind 19:28-9 Ja '19
- Mathematics of credit extension. F. Thulin. J Account 27:259-67 Ap '19
- Matter of credit in export trade. W. E. Tarlton. Automotive Ind 39:49 JI 11 '18
- Proper basis for a prosperous foreign trade. J. L. Harrison. Ry Age 65:183-5 JI 26 '18
- Providing credit facilities for foreign trade. G. A. O'Reilly. Textile World 53:5193+ My 4 '18
- Safeguarding sales. Am Mach 48:100, 439 Ja 17, Mr 14 '18
- Satisfied customer spreads Bill's gospel of cash. Motor Age 35:20-1 Mr 13 '19
- Side-stepping the pitfalls in credits and collections. J. M. Ward. Dom Eng 85:449-50 D 21 '18
- Small shop and government work. D. A. Baker. Am Mach 48:24 Ja 8 '18
- See also Acceptances; Banks and banking; Billing; Blacklisting; Collecting of accounts; Loans; Negotiable instruments; Promissory notes
- Credit Foncier de France**
- Credit Foncier de France. F. R. Howe. Arch Forum 30:137-8 My '19
- Crenothrix**
- Chloramine and crenothrix. W. F. Monfort and O. A. Barnes. Am Water Works Assn J 6:196-201 Je '19
- Methods of removing crenothrix from public water supplies—chlorine treatment is successful. W. F. Monfort. Munic Eng 56:182-4 My '19
- Treatment of water to prevent the growth of crenothrix. F. C. Amsbary. Am Water Works Assn J 6:194-5 Je '19
- Creosote**
- Burning of pitch and creosote mixtures. diag Engineer 125:332-3 Ap 19 '18; Abstract. Am Soc M E J 40:503 Je '18
- Creosote piles still sound after 29-year service. II Eng N 83:378 Ag 21 '19; Same cond. Elec Ry J 53:1233 Je 21 '19
- Creosoted piling makes great record. W. H. Kirkbride and E. M. Blake. II Am Lumberman 2308:60 Ag 9 '19
- Relative resistance of various hardwoods to injection with creosote. C. H. Teesdale and J. D. MacLean. bibliog II diags U S Agric Bul 606:1-36 '18; Same, without appendix. Ry R 63:79-86 JI 20 '18
- Results of long-time tests of creosote-treated fence posts; comparison between coal-tar creosote and water-gas-tar creosote as wood preservatives. C. H. Teesdale. Eng N 82:1254 Je 26 '19

**Cresote—Continued**

Study of creosoted piling from Oakland wharf. W. H. Kirkbride. Ry R 65:202-3 Ag 9 '19

Substitute for pine oil. P. Leininger. Am Lumberman 2283:81 F 15 '19

Tests of the absorption and penetration of coal tar and creosote in longleaf pine. C. H. Teesdale and J. D. MacLean. U S Agric Bul 607:1-42 '18

See also Wood preservation

**Creosoted wood.** See Wood preservation

**Crepes**

Bleaching and finishing crepes. Textile World 54:1862 O 19 '18

**Cresol**

Compounds of phenol and the cresols with pyridine. F. W. Skirrow and T. V. Blinmore. Am Chem Soc J 40:1431-42 S '18

Preparation of a preservative from cresol. M. Nevin and B. Mann. Am Chem Soc J 39:2752-6 D '17

**Crest meters.** See Voltmeters

**Cribs**

Chicago water-works intake crib tilted level with screw jacks. U diags Eng N 82:248-50 Ja 30 '19

**Cribs, Concrete**

Caissons and cribs for lighthouse foundations. U diags plans Eng N 80:84-6 Ja 10 '18

Concrete I-beams used to make crib retaining wall. U diags Eng N 83:651-2 O 2 '19

Precast concrete lumber forms cribs to retain fill. U diags plan Eng N 81:763 O 24 '18

Reinforced concrete lumber for cribs. diags Ry R 63:775 N 30 '18

See also Retaining walls, Concrete

**Crime and criminals**

Science and crime. U Sci Am 118:546 Je 15 '18

See also Convict labor

**United States**

Naughtiness of nations. Sci Am 120:596 Je 7 '19

**Crimea**

Russian engineers make intensive hydro-metric survey in Crimean upland. D. Kotcherin. U diag Eng N 80:657-8 Ap 4 '18

**Cripples**

Engineer, the cripple and the new education. F. B. Gilbreth and L. M. Gilbreth. Am Soc M E J 40:51-4 Ja '18; Excerpt. Am Mach 47:1124-6 D 27 '17; Excerpt. Iron Tr R 62:268-9 Ja 24 '18; Discussion. Am Soc M E J 40:54-61 Ja '18

Maimed man in industry. C. L. Edholm. U Am Mach 47:1026 D 13 '17

See also Artificial limbs; Disabled; Disabled, Occupations for; Soldiers, Disabled

**Criticism, Architectural.** See Architectural criticism

**Crockery.** See Pottery

**Crookes, William, 1832-1919**

An appreciation of a heart physicist and chemist. J. W. N. Sullivan. por Sci Am 120:396 Ap 19 '19

Sketch. J. E. Reynolds. Sci Am S 88:63-4 Jl 26 '19

**Crosby, Oscar T., 1861-**

Elected president Inter-allied war council. por Elec R 72:133 Ja 19 '18

**Cross ties.** See Railroad ties

**Crosshead pins.** See Locomotives—Crosshead pins

**Crossings, Grade.** See Grade crossings

**Crossings, Railroad.** See Grade Crossings; Railroads—Crossings

**Crowell, Benedict, 1869-**

Assistant secretary of war. por Iron Tr R 62:1327 My 23 '18

Assistant secretary of war cuts red tape. A. W. Fox. por Eng & Min J 106:237-8 F 2 '18

**Croydon, England****Rapid transit**

Zone fare in practice. W. Jackson. U map Elec Ry J 54:466-74 S 6 '19

**Crucibles**

American clay for graphite crucibles. Met & Chem Eng 18:265 Mr 1 '18

Applying a clay wash to crucibles. Foundry 46:82 F '18

Australian steel foundry practice. A. M. Henderson. Iron Tr R 62:212-13 Ja 17 '18

Crucible situation. M. McNaughton. Metal Ind 15:431-2 O '17

Crystalline graphite for making crucibles. Eng & Min J 106:485 S 14 '18

Lever-operated crucible shank. diags Foundry 46:438 S '18

Manufacture and handling of crucibles. J. Bartley. U Metal Ind 17:414-16 S '19

Modern welding and cutting. E. Viall. U diags Am Mach 50:233-5 F 13 '19

New Chicago crucible company. U Metal Ind 15:449-52 O '17

Notes on the crucible situation. A. V. Bleininger. Metal Ind 16:15-16, 79-81 Ja-F '18;

Excerpts. Foundry 46:274-5 Je '18

Use and abuse of crucibles. A. C. Bowles. U Metal Ind 17:237-8 My '19; Same. Foundry 47:288 My 15 '19

Use of nickel crucibles for the J. Lawrence Smith fusion in determining soil potassium. S. S. Walker. J Ind & Eng Chem 11:1139-40 D '19

See also Foundry practice; Steel metallurgy

**Crushed stone.** See Stone, Crushed

**Crushing**

Bypassing fine ore from stamp-mill feed chute. E. H. Johnson. diags Eng & Min J 106:834 N 9 '18

Crushing practice, New Cornelia copper co. W. L. Dumoulin. Am Inst Min Bul 152:1203-6 Ag '19; Same abr. Eng & Min J 108:465 S 13 '19

Crushing resistance of various ores. L. W. Lennox. diags Am Inst Min E Bul 140:1255-64 Ag '18; Excerpts. Chem & Met Eng 19:284-5 S 15 '18; Discussion. Am Inst Min E Bul 142:1564-6 O '18

Electrically operated quarry and rock-crushing plant in Chicago. U Elec R 72:1067-9 Je 29 '18

Fine crushing in ball-mills. E. W. Davis. flow sheet U diags Am Inst Min E Bul 146:111-56 F '19; Excerpts. Chem & Met Eng 20:210-11 Mr 1 '19

See also Crushing machinery; Gold milling; Tube milling

**Crushing machinery**

Air hoist removes lodged spalls from crusher bowl. diags Eng N 80:971 My 16 '18

Ball milling and flotation. A. P. Watt. Eng & Min J 107:453 Mr 8 '19

Chilean-mill practice at Portland mill. L. W. Lennox. diags Am Inst Min Bul 153:sup2847-68 S '19; Discussion. 156:3165-8 D '19

Electric motors in the cement industry. R. B. Williamson. diags Am Inst E E Pro 37:1237-73 N '18; Same cond. Elec R 73:770-1, 813-14 N 16-23 '18

Electrically driven laboratory grinder. U Elec R 72:1016 Je 15 '18

Fine crushing in ball-mills. E. W. Davis. flow sheet U diags Am Inst Min E Bul 146:111-56 F '19

Grinding of ore in ball-mills. A. Del Mar. diags Eng & Min J 106:14-15 Jl 6 '18; Discussion. 106:311, 319, 451-2, 582-3, 672 Ag 17, S 7, 28, O 12 '18

K-B pulverizer; a portable crusher. U Munic Eng 54:80 F '18

Mill operations at United Eastern during 1917 and 1918. W. O. North. diags Am Inst Min Bul 152:1182-4 Ag '19; Discussion. 156:3175-6 D '19

New method of adding water to conical mills. C. W. Dowsett. Eng & Min J 108:185 Ag 2 '19

New 60-in. gyratory crusher. U Eng & Min J 107:908 My 24 '19

**Crushing machinery—Continued**

- Pillar-shaft gyratories vs. lever type. R. L. Sites. Eng & Min J 108:322-3 Ag 23 '19  
Recent tests of ball-mill crushing. C. T. Van Winkle. Am Inst Min E Bul 133:175-82 Ja '18; Excerpts. Met & Chem Eng 18:207 F 15 '18; Discussion. Am Inst Min E Bul 136:796-807 Ap '18  
Roll type of pulverizing machine. Il Iron Age 101:317 Ja 31 '18  
Stone crushing plant of Woodville lime products co. C. D. Gilbert. Il diag Concrete 12: sup53-5 Je '18  
Telsmith reduction crusher. Il Eng & Contr 49:118 Ja 30 '18  
Tests on the Hardinge conical mill. A. F. Taggart. Il diags Am Inst Min E Bul 124: 719-48 Ap '17; Discussion. 128:1195-1203; 130: 1850-6; 133:119-24 Ag, O '17, Ja '18  
Theory and practice of ball-milling, particularly peripheral discharge mills. P. R. Hines. diags Am Inst Min E Bul 134:251-64 F '18; Same. Eng & Min J 105:669-73 Ap 13 '18  
Trouble with rock-breaker pitmans. C. Labbe. Eng & Min J 108:25 Jl 5 '19  
*See also* Clinker grinders; Tube mills

**Crystallization**

- Differential crystallization in a cast-steel runner. F. B. Foley. Il Am Inst Min Bul 151:1117-21 Jl '19; Same. Iron Tr R 65:30 Jl 3 '19; Discussion. Am Inst Min Bul 154: 2934-5 O '19  
Effect of crystallization on castings. Foundry 46:360 Ag '18  
Effect of dissolved substances on the velocity of crystallization of formamide. A. Brann. Am Chem Soc J 40:1184-7 Ag '18  
Effect of dissolved substances on the velocity of crystallization of water. A. Brann. diags Am Chem Soc J 40:1168-84 Ag '18  
Effecting and controlling crystallization of ammonium nitrate. J. E. Bolling. Il diag plan Chem & Met Eng 20:401-5 Ap 15 '19  
Experiments in rhythmic banding. H. N. Holmes. Il Am Chem Soc J 40:1187-95 Ag '18  
Prevention of columnar crystallization by rotation during solidification. H. M. Howe and E. C. Groesbeck. Il diags Am Inst Min E Bul 146:361-5 F '19; Discussion. 149:790-1 My '19  
Rapid recrystallization in deformed non-ferrous metals; abstract. D. Hanson. diag plan Am Soc M E J 41:50-1 Ja '19  
Recrystallization of niter cake. B. Saxton. J Ind & Eng Chem 10:897-901 N '18  
Separation of the chlorides and sulfates of sodium and potassium by fractional crystallization. W. C. Bladale. diags J Ind & Eng Chem 10:347-53 My '18

**Crystallography**

- Apparatus for growing crystals under control. J. C. Hostetter. diag plan Sci Am S 87: 264-5 Ap 26 '19  
Application of optical methods of identification to alkaloids and other organic compounds. E. T. Wherry. U S Agric Bul 679: 1-9 '18; Abstract. J Fr Inst 185:561-2 Ap '18  
Atomic structure of carborundum determined by X-rays. C. L. Burdick and E. A. Owen. diags Am Chem Soc J 40:1749-59 D '18  
Certain relations between crystalline form, chemical constitution and optical properties in organic compounds. E. T. Wherry. J Fr Inst 187:230-1 F '19  
Crystal growth and solubility. Sci Am S 85: 408 Je 29 '18  
Crystal structure of chalcopyrite determined by X-rays. C. L. Burdick and J. H. Ellis. diags Am Chem Soc J 39:2518-25 D '17  
Crystallography and optical properties of three aldopentoses. E. T. Wherry. diags Am Chem Soc J 40:1852-8 D '18  
Dispersoidology and the theory of von Weimarn. S. C. Bradford. Sci Am S 87:182-3 Mr 22 '19  
Focusing X-rays; single wave length intensity increased a thousand fold. L. E. Dodd. Il diags Sci Am S 85:156-7 Mr 9 '18  
Growth of crystals; abstract. diags Chem & Met Eng 20:595-6 Je 1 '19

- Ice forming in clay soils will lift surface weights. S. Taber. diags Eng N 80:262-3 F 7 '18; Discussion. L. B. Wyckoff 80:627-8 Mr 28 '18  
Identification of the cinchona alkaloids by optical-crystallographic measurements. E. T. Wherry and E. Yanovsky. Am Chem Soc J 40:1063-74 Jl '18  
Method of growing large perfect crystals from solution. R. W. Moore. Il diag Am Chem Soc J 41:1060-6 Jl '19  
Molecular orientations in physics and in crystallography. A. Perrier. diag Sci Am S 87: 18-19, 46-8 Ja 11-18 '19  
Phototropy; the action of light on crystals. Sci Am S 87:80 F 1 '19  
Piezo electric effect in the composite Rochelle salt crystal. A. McL. Nicolson. Il diags Am Inst E E Pro 38:1315-33 N '19  
Piezo-electricity and its application. J. J. Thomson. diags Sci Am S 87:412-13 Je 28 '19  
Size of metallic crystals. G. H. Guilliver. Met & Chem Eng 18:546 My 15 '18  
Some mix-crystals of calcium ferrite and aluminate. E. D. Campbell. Il J Ind & Eng Chem 11:116-20 F '19; Same. Concrete 14: sup41-5 Ap '19  
*See also* Crystallization; Liquid crystals

**Crystalloluminescence.** *See* Luminescence  
**Crystals, Liquid.** *See* Liquid crystals  
**Cuba**

**Commerce**

- Advertising methods in Cuba. J. W. Sanger. Il U S Bur For & Dom Ccm 178:1-47 '19; Abstract. Automotive Ind 40:1452-4 Je 26 '19  
Chemical markets of the West Indies. O. P. Hopkins. J Ind & Eng Chem 11:19-22 Ja '19

**Industries and resources**

- Prosperity in Cuba. Il Sci Am 119:66 Jl 27 '18  
Sugar making in Cuba. Il Sci Am S 86:120-1 Ag 24 '18

*See also* Manganese; Mines and mineral resources—Cuba

**Culm**

- Anthracite silt as a locomotive fuel. Il Ry R 62:857-60 Je 15 '18  
Briquets from anthracite slush. Coal Age 13: 1054 Je 8 '18  
Culm and bituminous coal as fuel. W. P. Frey. Power 47:347 Mr 5 '18  
Fuel mixing plant at Hazleton, Penn. diags Coal Age 13:791-2 Ap 27 '18  
Raising steam with the waste products of yesterday. Il diag Coal Age 14:676-81 O 10 '18  
Reclaiming the culm pile. G. D. Evans. Il Coal Age 13:244-6 F 2 '18  
Successful burning of anthracite slush. Il Coal Age 13:1006-8 Je 1 '18  
Use of culm and other waste materials from coal-washing plant for power purposes. J. B. C. Kershaw. Met & Chem Eng 18:25-8 Ja 1 '18  
Utilization of anthracite culm. M. S. Hachita. Il Coal Age 13:446-9 Mr 9 '18  
Utilization of coal slack as fuel. Eng & Contr 50:105 Jl 31 '18  
What are the possibilities in the direction of the utilization of anthracite wastes; symposium. Am Soc M E J 40:pt 2, 622-9 Jl '18; Excerpts. Power 48:143-6 Jl 23 '18

**Culverts**

- Considerations affecting the choice of highway culvert materials in Oklahoma. M. L. Cunningham. Munic Eng 57:157-8 O '19  
Drop inlet culvert reclaims adjacent farm land. diags Eng & Contr 50:245-6 S 4 '18  
Forcing culverts under roads with hydraulic jacks. Il Eng N 80:1236-7 Je 27 '18  
Highway culvert pipe. Il diags Munic J 44:291 Ap 6 '18  
How a county engineer builds small culverts and bridges. S. C. Knight. Munic Eng 55: 37-8 Jl '18  
Notes on road foundations, drainage and culverts. U. W. Christie. Munic Eng 57: 17-18 Jl '19



**Culverts—Continued**

- Railway practice in design of concrete floor slabs and flat top culverts. G. H. Tinker. Eng & Contr 50:511-12 N 27 '18
- Road culvert checks destructive storm-water flow. II diag Eng N 81:613-14 O 3 '18
- Special culvert for roads built in rolling country. F. M. Balsley. diag Eng N 80:1138 Je 13 '18
- Table of actual lengths of culvert pipe for various heights of fill and skew. diag Eng & Contr 52:286 S 3 '19

**Specifications**

- Pennsylvania specifications for culverts and short-span concrete bridges. Munic Eng 53: 203-4 N '17

**Culverts, Concrete**

- Concrete lumber culvert. diag Concrete 15:153 O '19
- Drainage culvert built through high railway fill. II Eng N 83:645 O 2 '19
- Machine made railway culverts. Concrete 13: 102 S '18
- One-man collapsible culvert form of wide utility. II Elec Ry J 50:872 N 10 '17; Eng N 79:905 N 8 '17; Munic J 43:573-4 D 6 '17; Eng & Contr 49:99-100 Ja 30 '18
- One-man collapsible culvert form proves successful in actual use. Munic Eng 56:196 My '19
- Reinforced-concrete culverts under irrigation canal. D. C. Willett. II diag Eng N 82:919 My 8 '19
- Undercrossing wing wall designed to limit base pressure. diag plan Eng N 79:1054-5 D 6 '17

**Cumarin. See Coumarin****Cummins bill. See Railroads and state—United States—Cummins bill****Cupellation**

- Absorption of gold in bone-ash cupels. F. P. Dewey. Met & Chem Eng 18:260 Mr 1 '18
- Bone-ash economy. C. R. Corey. Eng & Min J 108:410 S 6 '19

**Cupferron**

- Organic chemical reagents;  $\beta$ -phenyl-hydroxylamine and cupferron. C. S. Marvel and O. Kamm. Am Chem Soc J 41:276-82 F '19

**Bibliography**

- Bibliography on the use of cupferron as a quantitative reagent. S. A. Braley. J Ind & Eng Chem 11:1144-5 D '19

**Cupola furnaces**

- Advantages offered by the oil-fired cupola. W. S. Dickson. diag plan chart Foundry 46:381-2 Ag '18
- Building a cupola of small capacity. W. J. Keep. Foundry 46:382 Ag '18
- Burning oil in cupolas. J. H. Hall. Iron Age 102:1142-3 N 7 '18; Same. Foundry 46:558 D '18; Same. Iron Tr R 64:326-7 Ja 30 '19
- Centrifugal compressor for cupola blowing. J. A. Shorey. Iron Age 101:1201 My 9 '18
- Cupola lining burns out and the iron is dull. W. J. Keep. diag Foundry 46:237 My '18
- Cupola not suitable for melting bronze. J. Pearson. diag Foundry 47:520-1 Ag 1 '19
- Design of Tuyeres for a small cupola. diag Foundry 47:544 Ag 15 '19
- Fluidity of molten cast iron. M. Riddell. Foundry 46:408-11 S '18; Abstract. Am Soc M E J 40:860 O '18
- Foundry cupola and chilled iron. R. Jenkins. Engineer 125:311-12 Ap 12 '18
- Melting an all-scrap charge in the cupola. H. E. Diller. Foundry 47:653 S 15 '19
- Overcoming troubles in cupola operation. P. R. Ramp. Iron Age 101:946-8 Ap 11 '18
- Preventing the cupola bottom from cutting through. W. J. Keep. Foundry 46:22 Ja '18
- Sulphur reduced in malleable iron. A. W. Merri-ck. II Foundry 47:685-7 O 1 '19

See also Foundry practice

**Cuprodesclowitzite**

- Treatment of cuprodesclowitzite for extraction and recovery of vanadium, lead and copper. J. E. Conley. Chem & Met Eng 20: 465-9 My 1 '19

**Cuprous chloride**

- Action of cuprous chloride with compounds containing the trichloromethyl group. H. W. Doughty. Am Chem Soc J 41:1129-31 J1 '19
- Cuprous chloride-iodine method for reducing sugars simplified. F. M. Scales. J Ind & Eng Chem 11:747-50 Ag '19
- Volatilization of cuprous chloride on melting copper containing chlorine. S. Skowronski and K. W. McComas. diag Am Inst Min E Bul 146:169-79 F '19

**Curbs**

- Concrete curb and gutter; how it is built in various cities. diag Concrete 15:143-6 O '19
- Curb rests on reinforced slab. diag Concrete 13:143 N '18
- Design of concrete sidewalks and concrete curb and gutter at street intersections. W. R. Paige. diag plan Munic Eng 56: 183-9 My '19
- Experience of various cities with street curbing materials. II diag Munic Eng 53:231-3 D '17
- Form for integral curb construction. diag Eng & Contr 50:153 Ag 7 '18
- Rapid concrete curb construction. II Munic J 45:7-9 J1 6 '18

**Currency. See Money****Currents, Alternating. See Electric currents, Alternating****Currents, Electric. See Electric currents****Curtains**

- Weaver's art in architectural design. W: L. Harris. II Am Arch 114:127-36 J1 31 '18

**Curtis, Fayette Samuel, 1843-**

- President of American society of civil engineers. por Eng N 82:160-1 Ja 16 '19

**Curtiss, Glenn Hammond, 1878-**

- Romance of invention; Curtiss—holder of the air records. C. H. Claudy. II Sci Am 121: 442-3+ N 1 '19

**Curtiss aeroplane and motor corporation, Buffalo, N.Y.**

- Employment department routine of the Curtiss aeroplane & motor corp. C: E. Fouhy. II plan Ind Management 56:412-16 N '18
- How to start training in a factory. F. L. Glynn. II Am Ind 19:22-5 S '18
- Installing a training department in the Buffalo factory. J. W. Russell. II Ind Management 57:177-82 Mr '19
- Intensive training in an aircraft plant. F. L. Glynn. II Automotive Ind 39:362-5 Ag 29 '18

**Curve plotting**

- Compound harmonic motion machine. W: F. Rigge. II diag Sci Am S 85:88-91, 108-10 F 9-16 '18
- Effect of grades and curves in plotting speed-time graphs. C. W. Squier. Elec Ry J 52: 96-8 J1 20 '18
- Mechanical differentiation. A. Elmendorf. II diag J Fr Inst 185:119-30 Ja '18
- Plotting blower-test curves. A. H. Anderson. II Am Soc M E J 39:902-4 N '17; Discussion. 40:147-8 F '18

**Curves**

- Adapting railway curves to mines. F: Mac-Coy. Eng & Min J 107:539 Mr 22 '19
- Chart for laying out curves by tangent offset. P. R. Keller. Eng & Contr 49:341 Ap 3 '18
- Curve chart for railway resurvey. J. G. Wetherell. chart Eng N 83:506 S 11 '19; Discussion. H. P. Boardman. 83:898 N 13 '19
- Laying out short-radius curves. J: F. Hanst. diag Eng & Min J 108:105-6 J1 19 '19
- Same. Coal Age 16:219 Ag 7 '19
- To save time in laying out mine curves. R. D. Hall. Coal Age 15:782 My 1 '19

See also Railroads—Curves and turnouts; Roads—Curves

**Cuspidors**

- Making cuspidors easy to clean. Factory 20: 564+ Mr '18

**Custom houses**

- Construction problems; rebuilding the Custom house at Boston, Mass. N. A. Richards. II diag plan Arch Forum 30:87-9 Mr '19

**Cut outs. See Electric protective apparatus****Cutters. See Coal cutters; Cutting machines; Milling cutters**

**Cutting compounds.** See Lubrication and lubricants (cutting)

#### Cutting machines

Gorton cutting-off machine. *Il* Am Mach 47: 874 N 15 '17; Iron Age 100:1113 N 8 '17; Iron Tr R 61:1002 N 8 '17; Ind Management 55:77 Ja '18

Hadden tube and rod cutter. *Il* Mach 24:1050-1 J1 '18; Am Mach 49:269 Ag 8 '18

Jiffy cutter for cutting holes in cabinets. *Il* Elec R 73:831 N 23 '18

Routing machine for powder grooves. *Il* Iron Age 101:1393 My 30 '18

Routing machine of special design. *Il* diags Am Mach 50:491-3 Mr 13 '19

Shaving machine for fuse caps. D. A. Baker. diags Am Mach 48:73-4 Ja 10 '18

Shearing tool for cutting off tubing. F. A. Stoye. diag plan Mach 25:1121 Ag '19

See also Drilling and boring machinery; Gear cutting machines; Grinding wheels; Machine tools; Metal cutting; Milling cutters; Milling machines; Shears; Slotting machines; Thread cutting machines

**Cutting of glass.** See Glass cutting

**Cutting of metals.** See Metal cutting

**Cuyuna range.** See Iron mines and mining—Minnesota

#### Cyanamide

Pure cyanamide. *J* Ind & Eng Chem 10:487 Je '18

#### Cyanates

Oxidizing power of cyanates and the free energy of formation of cyanides. G. N. Lewis and T. B. Brighton. diag Am Chem Soc J 40:482-9 Mr '18

#### Cyanide plants

Fine-grinding cyanide plant of Barnes-King development co. J. H. McCormick. flow sheet *Il* diag Am Inst Min E Bul 140:1283-91 Ag '18

#### Cyaniding process

Cyaniding a small gold-tailings dump. A. W. Allen. diags Eng & Min J 104:1032-9 D 15 '17

Cyaniding concentrates vs. smelting. A. E. Drucker. Eng & Min J 105:454 Mr 9 '18

Cyaniding graphitic ores. P. T. Bruhl. Eng & Min J 105:197 Ja 26 '18

Data on crushing and cyaniding in a West African mill. P. T. Bruhl. flow sheet *Il* Eng & Min J 106:54-7, 62-3 J1 13 '18

Effect of air in cyanidation. N. S. Keith. Eng & Min J 107:522-3 Mr 22 '19

Effect of oxygen on precipitation of cyanide solutions. G. H. Clevenger. Chem & Met Eng 19:604 O 15 '18

Effect of oxygen on the precipitation of metals from cyanide solutions. O. P. Watts. Chem & Met Eng 19:652-3 N 1 '18

Effect of oxygen upon the precipitation of metals from cyanide solutions. T. B. Crowe. Am Inst Min E Bul 140:1279-82 Ag '18; Excerpta. Chem & Met Eng 19:283-5 15 '18; Abstract. Eng & Min J 106:413 Ag 31 '18; Discussion. Am Inst Min E Bul 143:1667-8; 145: 107-9 N '18, Ja '19

Electro-cyanidation of gold and silver ores. R. T. Sill and H. A. Sill. Eng & Min J 106:988-9 D 7 '18

Electrodeposition of gold and silver from cyanide solutions. S. E. Christy. *Il* diags U S Bur Mines Bul 150:1-162 '19

Electrolytic precipitation of gold, silver and copper; abstract. Elec W 71:315 F 9 '18

Flotation vs. cyanidation. G. H. Clevenger. Eng & Min J 105:743-6 Ap 20 '18

Lead acetate substitute in cyaniding. T. B. Stevens. Eng & Min J 106:667 O 12 '18

Lime as a settling agent. P. T. Bruhl. Eng & Min J 107:1089-90 Je 21 '19

Methods for determining the capacities of slime-thickening tanks. R. T. Mishler. Am Inst Min E Bul 122:333-54 Mr '17; Discussion. 133:117-18 Ja '18

Milling in cyanide solution. A. W. Allen. Met & Chem Eng 18:515-19 My 15 '18; Excerpt. Eng & Min J 106:531, 610; 107:22 S 21, O 5 '18, Ja 4 '19

Precipitation of gold with charcoal from cyanide solutions. H. G. Walton. Eng & Min J 106:506 Mr 18 '18

**Roasting for amalgamating and cyaniding**

Cripple Creek sulphotelluride gold ores. A. L. Blomfield and M. J. Trott. *Il* diag Am Inst Min E Bul 140:1265-78 Ag '18; Same. Eng & Min J 106:400-4 Ag 31 '18; Discussion. Am Inst Min E Bul 143:1668-9 N '18

Sodium-sulphide precipitation at Nipissing. Eng & Min J 103:378-9 Mr 3 '17

Theory of the precipitation of gold by charcoal. A. W. Allen. Eng & Min J 107:516-19 Mr 22 '19

Western chemical and metallurgical field. diag Chem & Met Eng 19:796-7 D 15 '18

Zinc-box practice. A. W. Allen. *Il* diags Eng & Min J 106:1017-21 D 14 '18

See also Cyanide plants; Gold metallurgy

#### Cyanides

Detection of iodides in the presence of cyanides. L. J. Curtman and C. Kaufman. Am Chem Soc J 40:914-17 Je '18

Oxidizing power of cyanates and the free energy of formation of cyanides. G. N. Lewis and T. B. Brighton. diag Am Chem Soc J 40:482-9 Mr '18

Solving the cyanide shortage. C. B. Willmore. Metal Ind n s 15:12-14 Ja '17

**Cyanogen chloride**

Preparation of cyanogen chloride. W. L. Jennings and W. B. Scott. Am Chem Soc J 41:1241-8 Ag '19

#### Cyanogen iodide

Equilibria involving cyanogen iodide; the free energy of formation of cyanogen. G. N. Lewis and D. B. Keyes. diag Am Chem Soc J 40:472-8 Mr '18

#### Cyclic compounds

Modified graphic formulas for organic cyclic compounds. A. Lowy. Am Chem Soc J 41:1029-30 Je '19

#### Cyclones

Theory of cyclones and the method of foretelling them. diags Sci Am S 86:300 N 9 '18

#### Cyclopropane derivatives

Absorption spectra of some derivatives of cyclopropane. E. P. Carr and C. P. Burt. Am Chem Soc J 40:1590-1600 O '18

Studies in the cyclopropane series. E. P. Kohler and others. Am Chem Soc J 41:992-1001, 1093-1105, 1249-63, 1379-84, 1644-55, 1697-1704 Je-O '19

#### Cylinders

Cylinder patterns. J. A. Shelly. *Il* diags Mach 26:67-70, 161-4 S-O '19

Mounts for naval anti-aircraft guns; slide and recoil cylinder. F. H. Colvin. *Il* diags Am Mach 51:457-61 S 4 '19

#### Cylinders (engines)

Autogenous welding of cylinders and other parts. J. T. Leach. Ry Age 67:523 S 12 '19; Same. Ry Mech Eng 93:604 O '19

Composition lined cylinders. A. M. Stiles. diags Power 49:460 Mr 25 '19

Cylinder boring and reaming. F. D. Jones. *Il* diags Mach 25:383-94 Ja '19

Cylinder boring and reaming fixtures. F. D. Jones. *Il* diags Mach 25:822-5 My '19

Cylinder boring and reaming tools. F. D. Jones. *Il* diags Mach 25:507-15 F '19

Cylinder grinding. F. D. Jones. *Il* diags Mach 25:615-21, 711-15 Mr-Apr '19

Cylinder valve chamber tools. H. A. Peters. diags Mach 24:444 Ja '18

Determining cylinder-clearance volume. Power 47:813 Je 4 '18

Difficult cylinder weld. D. A. Donaldson. *Il* Ry Mech Eng 92:277-8 My '18

Grinding Liberty airplane engine cylinders. *Il* Automotive Ind 38:1215-16 Je 20 '18

How to lap out scored and rebored cylinders; prize essays. diags Horseless Age 44:31-3+ Ap 15 '18

Lapping scored cylinders. diags Am Mach 48: 506, 782 Mr 21, My 9 '18

Machine for slotting recoil cylinders. C. Runzi. diag Am Mach 50:1095 Je 5 '19

Making a pattern for a gas engine cylinder. F. B. Raebig. diags Foundry 46:383-5 Ag '18

Making cylinders for destroyers. *Il* Am Mach 49:348 Ag 23 '18

**Cylinders (engines)—Continued**

- Manufacturing the Curtiss airplane cylinder. G. D. Ranger. *Il Am Mach* 48:855-8; 49:62-5, 257-60 *My* 23, *Jl* 11, *Ag* 8 '18
- Marine gasoline engine cylinders. R. H. Palmer. *Il Foundry* 47:567-9 *Ag* 15 '19
- Metallurgy of cast iron airplane cylinders. F. W. Adams. *Foundry* 46:128+ *Mr* '18
- Michigan cylinder reborring and burnishing tool. *Il Am Mach* 51:677-8 *O* 2 '19
- Modern methods of making motor cylinders. F. H. Colvin. *Il diags Am Mach* 50:1099-1103 *Je* 5 '19
- Molding a superheater locomotive cylinder. R. H. Palmer. *Il diags Foundry* 46:205-9 *My* '18
- Operations on the Liberty motor cylinders. F. H. Colvin. *Il Am Mach* 50:757-8 *Ap* 17 '19
- Reborring cross-compound air-pump cylinders. *diags Mach* 26:857-8 *My* '19
- Recessing tool for gasoline engine cylinders. C. C. Spreen. *diags Mach* 24:741-2 *Ap* '18
- Ridding engine cylinder of water. H. Bollinckx. *diag Power* 48:314-15 *Ag* 27 '18
- Satisfactory method of finishing welded air compressor cylinders. J. D. Pride. *diag Elec Ry J* 53:788 *Ap* 19 '19
- Special tools for truing worn cylinders; prize essays. *diags Horseless Age* 44:28-9+ *My* 15 '18
- Steam engine cylinder repairs. *diags Mach* 24:647 *Mr* '18
- Welding locomotive cylinders. J. B. Tynan. *Il Ry Mech Eng* 93:540 *S* '19
- Welding of locomotive cylinders. L. A. North. *Ry Age* 67:522-3 *S* 12 '19; *Excerpts. Ry Mech Eng* 93:603-4 *O* '19
- See also* Pistons
- Cymbals**  
Is casting cymbals a lost art? *diag Metal Ind* 17:129-30 *Mr* '19
- Cymene**  
Action of aluminum chloride on cymene. A. W. Schorger. *Am Chem Soc J* 39:2671-9 *D* '17
- Para cymene, nitration, mononitrocymene, I-CH<sub>3</sub>, 2-NO<sub>2</sub>, 4-CH (CH<sub>3</sub>)<sub>2</sub>. C. E. Andrews. *J Ind & Eng Chem* 10:453-6 *Je* '18
- Para cymene: the utilization of cymene for the preparation of photographic developers. H. A. Lubs. *J Ind & Eng Chem* 11:455-6 *My* '19
- Paracymene; preparation of 2-chloro-5,6-dinitrocymene. H. A. Lubs and R. C. Young. *J Ind & Eng Chem* 11:1130-3 *D* '19
- Cyphocrania gigas**  
Giant insect; the cyphocrania gigas of the Island of Amboyna. G. Fouchier. *Il Sci Am S* 87:360-1 *Je* 7 '19
- Cypress**  
Coons cypress silo co. builds silos of the wood eternal. *Il Am Lumberman* 2246:40 *Je* 1 '18
- Cypress to be used for molded houses. *Il Am Lumberman* 2267:45 *O* 26 '18
- Cypress manufacturers' association. Southern. *See* Southern cypress manufacturers' association
- Cytology. See** Cells
- Cytosine aldehyde**  
Researches of pyridines; the synthesis of cytosine aldehyde. T. B. Johnson and L. A. Mikeska. *Am Chem Soc J* 41:810-17 *My* '19

**D**

- Dalkon**  
Dalkon. *Il Sci Am S* 86:277 *N* 2 '18
- Dairying**  
High price of milk; some of the causes, and the remedy. A. J. Lotka. *Il Sci Am* 121:512-13+ *N* 22 '19
- Motors replace steam engine in dairy. J. P. Moore. *Il Elec R* 72:120 *Ja* 19 '18
- Simple sterilizer for farm dairy. *Il diags Metal Work* 92:372-3 *S* 26 '19

Use of electricity on dairy farms to increase production. *Il Elec R* 73:995-7 *D* 28 '18

*See also* Butter; Cheese; Milk

**Dakin's solution**

- Dakin or Carrel-Dakin solution. I. Griffith. *Sci Am S* 85:196 *Mr* 30 '18
- Surgery by mathematical formula. R. G. Skerrett. *Il Sci Am* 118:545+ *Je* 15 '18

**Dallas, Texas****Rapid transit**

- Speeding up traffic in Dallas. J. A. Beeler. *diag Elec Ry J* 52:1000-2 *D* 7 '18

**Sewerage**

- Foaming of Dallas Imhoff tanks. C. Saville and R. H. Gould. *Eng N* 79:1067 *D* 6 '17

**Dalmatia****See** Architecture—Dalmatia**Dam failures**

- Accident and reconstruction of a clay puddled dam. A. Dumas. *Il Eng & Contr* 49:530-1 *My* 29 '18
- Big water supply dam goes out in Calaveras valley. *Munic J* 44:303-4 *Ap* 13 '18
- Calaveras and Necaxa earth dam failures have remarkable similarity. *diags Eng N* 80:704-5 *Ap* 11 '18
- Calaveras dam slide—report on failure of hydraulic fill dam during construction. D. C. Henny and C. H. Swigart. *diags Eng & Contr* 51:39-40 *Ja* 8 '19
- Home-made concrete dam at Hill, New Hampshire, fails. *Il diags plan Eng N* 80:1104-5 *Je* 6 '18
- Lesson taught by the failure of the Calaveras dam. *Eng & Contr* 50:26-7 *Jl* 10 '18
- Middle section of upstream side of Calaveras dam slips into reservoir. A. Hazen and L. Metcalf. *Il Eng N* 80:679-81 *Ap* 4 '18
- Part of Calaveras earth dam slips into reservoir. *Eng N* 80:631 *Mr* 28 '18
- Study of the slip in the Calaveras dam. A. Hazen. *diags map Eng N* 81:1158-64 *D* 26 '18; *Discussion. D. C. Henny. 82:487-8 Mr* 6 '19

**See also** Dams—Repair**Damages**

- Anthracite mine-cave situation. *Coal Age* 14:598-601 *S* 26 '18
- Cleaning streets and removing garbage; liability of municipalities for damage or other torts committed in connection with such service. J. Simpson. *Munic J* 45:126-8 *Ag* 17 '18
- Comply with these stipulations and save money; attention to details will hold public service companies to account when loss is suffered through their negligence. E. J. Buckley. *Metal Work* 90:222-3 *Ag* 23 '18
- Damage suits from street defects. J. Simpson. *Munic J* 45:484-5 *D* 21 '18
- Fixed schedule for injured persons other than employees. L. J. Tynan. *Elec Ry J* 54:721-2 *O* 11 '19
- Liability for trespass in street work. J. Simpson. *Munic J* 45:304-5 *O* 19 '18
- Members of labor union liable to damages to firm whose business they have injured without justifiable cause. *Dom Eng* 85:286-7 *N* 23 '18
- Responsibility for damages caused by mains broken by increased pressures. W. W. Brush. *Am Water Works Assn J* 6:337-9 *S* '19
- Use of defective articles. C. C. Sherlock. *Am Mach* 50:701-2 *Ap* 10 '19
- See also* Employers' liability; Libel and slander; Railroads—Claims; Street railroads—Claims; Workmen's compensation

**Damascus steel**

- Damascene steel. N. T. Belalew. *Sci Am S* 86:275 *N* 2 '18

**Dampers**

- Automatic damper regulation. C. A. Morris. *diag Power* 47:183-4 *F* 5 '18
- Clamp to hold damper in position. J. J. Ramsey. *diag Power* 48:961-2 *D* 31 '18
- Flue outlets and dampers. *diags Heat & Ven* 15:65-6 *F* '18

**Dampers—Continued**

- Hand-damper regulation bonus. Power 49: 182, 328, 793 F 4, Mr 4, My 20 '19  
 Holding damper in position. A. B. Saunders. diags Power 47:519 Ap 9 '18  
 Importance of the superheater damper. Ry R 62:480-1 Mr 30 '18  
 New duct damper regulator and indicator. Il Heat & Ven 16:62-3 S '19  
 Steam-boiler regulation and control. A. A. Straub, charts diag Power 48:442-6 S 24 '18  
 Uptake damper. C: H. Bromley. Power 48: 601 O 22 '18

**Dams**

- Automatic superdam of the Gunpowder river water supply of Baltimore. diags Eng & Contr 50:263-4 S 11 '18  
 Auxiliary outlet gate relieves main gates of dam. R. C. E. Weber. Il Eng N 82:624-5 Mr 27 '19  
 Check dams, novel and economic method of controlling streams. H. P. Gillette. Il diags Eng & Contr 50:389-40 O 9 '18  
 Conditions of stability and suggested design for wooden dam built on sand. A. Surveyor. Eng & Contr 51:261-2 Mr 12 '19  
 Construction features of Grand River roller crest dam. O. T. Reedy. diags plan Eng & Contr 52:289-91 S 10 '19  
 Construction methods used on the Junction dam. Il Eng N 81:496-7 S 12 '18  
 Construction plant and methods employed in building the Nepaug dam of the Hartford (Conn.) water works. H. W. Griswold. Munic Eng 53:191-2 N '17  
 Dam and tunnel construction by the Marin water district. diags Eng & Contr 52:302 S 10 '19  
 Dam supported by bascule bridge closes canal lock. Il diags plan Eng N 83:116-18 Jl 17 '19  
 Derwent and Howden dams. Il diag Eng & Contr 50:396-8 O 30 '18  
 Design features and form of contract for constructing a large earthen water supply dam on cost plus fee basis. J. L. Crane, Jr., and J. G. Kimmel. diag map Munic Eng 57:85-6+ Ag '19  
 Design of a tilting dam and its relation to backwater on the Gunpowder river. V. B. Siems. diags Am Water Works Assn J 6: 297-304 Je '19  
 Earth dam has screened gravel core and pipe drains. L. V. Branch. Il diags plan Eng N 80:366-8 F 21 '18  
 Engineer's story of building Phelps Brook (Conn.) dam. J. F. Shaughnessy. Eng N 80: 357-8 F 21 '18  
 Factors requiring special consideration in hydraulic fill dam construction. C. E. Grunsky. Eng & Contr 51:275-6 Mr 12 '19  
 Five million yards moved to dam three rivers near Bridgewater, N.C. Il diag Eng N 79: 1197-9 D 27 '17  
 Floating-crest gates used on Sherburne Lakes dam. diags Eng N 80:124-6 Ja 17 '18  
 Making a stream build its own check dams. A. Marple. Il diag Eng N 81:368-9 Ag 22 '18  
 Method for pressure grouting of contraction joints of arch dams. L. R. Jorgensen. diags Eng & Contr 50:36-8 Jl 10 '18  
 Methods of constructing hydraulic fill dams of Miami conservancy district. H. S. R. McCurdy. diags plans Eng & Contr 52: 432-5 O 15 '19  
 Move equipment and material for dam through small tunnel. Il Eng N 82:681-2 Ap 3 '19  
 New Brunswick's new dam. Munic J 46:308-9 Ap 26 '19  
 New installation keeps ice away from Keokuk dam. Il Eng N 80:821-3 Ap 25 '18  
 Operation of Grand River roller dam proves satisfactory. S. O. Harper. Il diag Eng N 80:1225-6 Je 27 '18  
 Plans for earth-dam construction involve large use of machinery. F. E. Winsor. Eng N 83: 612 S 25 '19  
 Proposed Sennar dam on the Blue Nile; plan. Engineer 127:499 My 23 '19  
 Recent development of Marin water district. H. M. Bowers. Il diags map J Elec 42: 316-18 Ap 1 '19

Regulating storage reservoir on the upper Murray river. diag map plan Engineer 128: 49-50 Jl 18 '19

Schoharie development of Catskill water supply system for New York city. J. W. Smith. Il diags map plans Am Water Works Assn J 6:639-53 N '19; Same cond. Eng & Contr 52:406-10 O 8 '19; Abstract. Eng N 23: 824-5 O 30 '19

Sixty-one-foot hydraulic-fill dam rests on earth foundation; Junction development of the Consumers' power co., Michigan. W: G. Fargo. Il diags plan Eng N 81:491-5 S 12 '18

Sweetwater dam enlarged for the third time. H. N. Savage. Il diags plans Eng N 82:948-52 My 15 '19

Tests to determine pressures due to hydraulic fills. A. W. Goldbeck. Il diags plan Eng N 80:758-60 Ap 13 '18

236-ft. dam of Murrumbidgee irrigation project. Il Eng & Contr 50:106-7 Jl 31 '18

Up-to-date coal-mine power plant. D. C. Ashmead. Il diags chart plans Coal Age 13:232-6 F 2 '18

Uplift from hydraulic jump neglected in dams on porous foundations. E. W. Lane. diags Eng N 80:831 Ap 25 '18

Use of derrick for removing flashboards. Il Elec R 73:63-4 Jl 13 '18

See also Cofferdams; Dam failures; Embankments; Hydroelectric plants; Irrigation; Reservoirs; Spillways; also names of dams, e.g. Arrowrock dam, Elephant Butte dam

**Foundations**

Dam foundation placed by suspended pneumatic caissons. Il diags plan Eng N 83:108-10 Jl 17 '19

Ironing out a river bottom; a pneumatic caisson contract that brought up some unusual problems. J. F. Springer. Il Sci Am 121:386-7 O 18 '19

Method of grouting rock foundations of dams at Hartford, Conn. J. E. Garratt. Eng & Contr 49:203-4 F 20 '18

Stone-filled sunken barges form basis of temporary dam. Il diag Eng N 81:128 Jl 18 '18

Test of rock foundation for concrete dam. A. C. Harper. Eng & Contr 50:288-9 S 18 '18

**Repair**

Accident and reconstruction of a clay puddled dam. A. Dumas. Il Eng & Contr 49:530-1 My 29 '18

Detecting and remedying leaky rock-filled dams. W. F. Snyder. Elec R 75:283 Ag 16 '19

Facing leaky rock fill dam with creosoted timber planks. G. M. Bull. Il diags Eng N 81:229-31 Ag 1 '18

Method of repairing revetment on Belle Fourche dam. B. E. Hayden. Eng & Contr 49:380-1 Ap 17 '18

Old-fashioned methods reduce cost of dam repairs. C: F. Dingman. Il diag Eng N 82: 517-18 Mr 13 '19

Repair washout under dam by sheet pile cut-off embedded in concrete. diags plans Eng N 81:186-9 Jl 25 '18

Will cost half million to make Austin (Tex.) dam usable. D. W. Mead. diags Eng N 80: 353-4 F 21 '18

**Dams, Concrete**

Arch dam of sharpest radius nears completion in Cimarron river, New Mexico. Il Eng N 79:1066-7 D 6 '17

Building a dam of concrete slabs. J. F. Springer. Il Sci Am 118:164 F 23 '18

Canal over divide raises storage service factor; water supply for the East Park reservoir of the Orland irrigation project. Il diags plan Eng N 80:1186-9 Je 20 '18

Closure of concrete dam completed behind needle dam. diag plan map Eng N 82:129-30 Ja 16 '19

Concrete arch dam 70 ft. high has 62-in. base. Il diags Eng N 80:876 My 2 '18

Concreting plants standardized for five Miami valley dams. Il diag map Eng N 81:680-2 O 10 '18

**Dams, Concrete—Continued**

- Concreting procedure on Miami flood-control dams. *Il Eng N 83:640-3 O 2 '19*
- Construction speeded up by doing three jobs at one time; increasing height of three dams on Huntington lake. *Il plan Eng N 79:1044-7 D 6 '17*
- Delivering mixed concrete by industrial railway. P. Teas. *Il Concrete 14:218-21 Je '19*
- Design and construction features and cost of East Canyon Creek concrete arch dam. A. E. Parker. *diags plan Eng & Contr 51:623-7 Je 11 '19*
- Design and construction of the new municipal dam and hydro-electric power plant at Fort Dodge, Iowa. R. E. McDonnell. *Il Munic Eng 54:187-9 My '18; Same. Munic J 44:385-6 My 11 '18*
- Fort Dodge municipal dam. *Il Elec R 74:380 Mr 8 '19*
- Fundamentals in the design of a multiple-arch dam. R. P. McIntosh. *diags plan Eng N 83:464-8 S 4 '19*
- High multiple-arch concrete dam for Salt Lake City water-supply. *Il diags plan Eng N 80:455-7 Mr 7 '18; Eng & Contr 50:165 Ag 14 '18*
- Home-made concrete dam at Hill, New Hampshire, fails. *Il diags plan Eng N 80:1104-5 Je 6 '18*
- Lukewarm concrete enough precaution for zero weather dam work. *Il Eng N 81:260-2 Ag 8 '18*
- Mammoth derricks build concrete outlet for Lockington dam. *Il plan Eng N 82:326-8 F 13 '19*
- Medlow dam, a 65 ft. concrete structure with 9 ft. base width. *plans Eng & Contr 50:113 J1 31 '18*
- Method of keying and joining sections of government concrete dam at Troy, N. Y. F. P. Fifer. *diags plan Eng & Contr 50:188 Ag 21 '18*
- Multiple arch dam built on Rush Creek. L. Jorgensen. *Il diags Concrete 13:29-30 J1 '18*
- Municipal dam that serves a dual purpose. *Il Eng & Contr 49:585-6 Je 12 '18*
- Recent multiple arch dams. J. S. Eastwood. *Il J Elec 42:263-6 Mr 15 '19*
- Record height concrete multiple-arch dam completed. *Il diags plan Eng N 82:720-1 Ap 10 '19*
- Tennessee's big dam. *Il Sci Am 120:632 Je 14 '19*
- Upward pressure test pipes constructed in concrete dam. *diags Eng N 82:954 My 15 '19*
- Weighing concrete materials saved cement on three big dams. H. H. Hunt. *Il diags plan Eng N 81:393-6 Ag 29 '18*
- Repair**
- Mode of sealing-up blow-out in Elwha river concrete dam. *diag Elec R 75:918-19 N 29 '19*
- Repairing disintegrated concrete on dam with cement gun. *Il Eng & Contr 49:187 F 20 '18*
- Dams, Movable**
- Panels of movable weir collapse automatically. *Il diags Eng N 82:818-20 Ap 24 '19*
- Danger signs. See Signs, Danger**
- Dangerous occupations. See Occupations, Dangerous**
- Danielson, Connecticut**
- Housing development. W. H. Cox. *Il plans Am Arch 113:677-85 My 22 '18*
- Danish West Indies. See Virgin Islands**
- Dates**
- Best Deglet nur grown in America. W. F. A. McIntyre. *Sci Am S 85:215 Ap 6 '18*
- Deglet-knour, fruit of the desert. *Il Sci Am S 85:137 Mr 2 '18*
- Davenport, Iowa**
- City planning for Davenport. R. E. Lawistowsky. *Il diags Munic J 44:523-6 Je 29 '18*
- Davis, Joseph Phineas, 1837-1917**
- Sketch. por Boston Soc C E J 4:437-42 D '17
- Davits**
- Shipping, engineering, and machinery exhibition. *Engineer 128:403-4 O 24 '19*

**Day, Frank Miles, 1861-1918**

- Appreciation. W. P. Laird. *Il Am Arch 114:15-16 J1 8 '18*
- Remembrance. A. F. West. *Il Am Inst Arch J 6:383-94 Ag '18*
- Day labor**
- Day labor, force account work and bonuses. C. M. Upham. *Good Roads n s 16:239-41 D 21 '18; Same. Munic Eng 56:31-3 Ja '19; Same. Eng & Contr 51:341-2 Ap 2 '19*
- Performing municipal construction work by day labor in Flint, Michigan; abstracts. E. C. Shoecraft. *Munic Eng 56:86-7 F '19; Eng N 82:524 Mr 13 '19*
- Daylight**
- All-glass front; Hallidie building, San Francisco, Cal. *Il diags plan Am Arch 113:393-4 Mr 27 '18*
- Daylight vs. sunlight in sawtooth-roof construction. W. S. Brown. *diags Am Arch 115:33-40 Ja 1 '19; Same cond. Am Soc M E J 40:1025-9 D '18; Same cond. Eng & Contr 51:82-5 Ja 22 '19*
- Daylighting the factory. *diags Am Arch 113:215-18, 325-30 F 20, Mr 13 '18*
- Instrument for recording intensity of daylight. *Il charts Elec W 78:897 My 2 '19*
- Light value of a window. L. B. Marks and J. E. Woodell. *Metal Work 89:13 Ja 4 '18*
- Making daylight your ally. J. Heywood. *Il Factory 20:233-5 F '18*
- Natural lighting for work spaces in shops. C. E. Clewell. *Il diags plans Metal Work 89:9-13, 100-3, 162-6 Ja 4, 18, F 1 '18*
- Practical daylight measurements in modern factory buildings. E. G. Perrot and F. C. Vogan. *diags Illum Eng Soc 14:267-77 no 6 '19*
- See also Sunlight*
- Daylight, Artificial**
- Applications of artificial daylight. *Il Illum Engr 11:58-9 F '18*
- Artificial daylight in the industries. M. Luckiesh. *Elec W 72:596-8 S 28 '18*
- Daylight saving**
- Benjamin Franklin as a daylight-saving advocate. *Elec W 78:688 Ap 5 '19*
- Burn ashes and use daylight. *Sci Am 118:82 Ja 26 '18*
- Changing standard time. *Ry Age 64:784 Mr 29 '18*
- Daylight saving. *Am Arch 113:118 Ja 30 '18*
- Daylight saving. *Am Gas Eng J 109:391-2 O 26 '18*
- Daylight saving. *Sci Am 121:389 O 18 '19*
- Daylight saving advocated by United States Chamber of commerce. *Power 47:418 Mr 19 '18*
- Daylight saving and the central-station. R. S. Hale. *Elec W 71:524 Mr 9 '18*
- Daylight saving and the farmer. *Sci Am 120:220 Mr 8 '19*
- Daylight saving approved. *Iron Age 101:753 Mr 21 '18*
- Daylight saving bill amended by House. *Iron Age 101:502 F 21 '18*
- Daylight-saving bill before the House. *Iron Age 101:351 Ja 31 '18*
- Daylight saving closes up noon valley in load. J. E. Mellett. *Elec W 72:18 J1 6 '18*
- Daylight saving economies. *Gas Age 41:278 Mr 15 '18*
- Daylight saving in the United States. *Ry R 62:413 Mr 23 '18*
- Daylight saving may lead to higher rates. C. L. Edgar. *Elec W 71:733 Ap 6 '18*
- Daylight-saving plan. H. L. Wittstein. *Am Mach 50:364 F 20 '19*
- Daylight saving plan for entire year receiving more favor. *Elec R 72:236-7 F 9 '18*
- Effect of daylight saving on central-station income. *Elec W 72:939 N 16 '18*
- Effect of daylight saving on load. *Elec W 71:872-4 My 11 '18*
- Effect of the change to daylight saving. W. H. Winslow. *Elec W 71:893 Ap 27 '18*
- Making the most of daylight saving. *Elec R 74:388 Mr 8 '19*
- New plan for daylight saving. H. W. Wilson. *Sci Am 120:315 Mr 29 '19*

**Daylight saving—Continued**

- Results of daylight saving at Aurora, Ill. Elec W 73:134 Ja 18 '19  
 Saving daylight law; text. Ry R 62:117 Ja 26 '18  
 Simple plan for unifying time in the United States. J. G. Porter. Sci Am S 86:263 O 26 '18  
 Think nationally. Sci Am 120:648 Je 21 '19  
 Thrift and sunlight. Sci Am 121:128 Ag 9 '19

**Days**

- Commencement of the astronomical day. Sci Am S 86:204 S 28 '18

**Dayton, Ohio****Churches**

- Holy Rosary church. L. V. Solon. II plan Arch Rec 45:2-11 Ja '19

**Clubs**

- Engineers' club of Dayton; new club house. H. D. Smith. II plans Arch Rec 45:490-505 Je '19

**Water supply**

- Features of the well system of the Dayton water works. H. C. Wight. Munic Eng 56:233+ Je '19  
 Daytona, Florida

**Water supply**

- Fine screens and chlorine meet Daytona conditions. G. W. Simons, Jr. Eng N 82:99-101 Ja 9 '19  
 Water softening at Daytona. G. A. Main. II Munic J 44:463-6 Je 8 '18

**Dead sea**

- Dead sea not dead. E. W. G. Masterman. Sci Am S 85:275 My 4 '18

**Deaf and dumb**

- Talking glove for the blind-deaf. II Sci Am 120:342 Ap 5 '19

**Deafness**

- Doctor vs. malingerer. II Sci Am 120:115 F 8 '19

**Deafness, instruments for**

- Aids for the deaf. F. Womack. diags Sci Am S 88:157-8 S 6 '19

**Death rate. See Mortality****Death Valley, California**

- Sink of the Amargosa. G. J. Young. II Eng & Min J 105:985-6 Je 1 '18

**Debt**

- Outlawed debts. E. J. Buckley. Metal Work 88:697-8 D 7 '17

See also Credit; Debts, Public

**Debts, Public**

- Gold and national debts. R. H. Tingley. Am Ind 19:19 Ji '19  
 Monetary cost of the war. Sci Am 120:647+ Je 21 '19  
 Pooling national war debts. Am Ind 19:10-11 F '19

See also European war—Finance; Sinking funds; War loans

**Decimal classification. See Classification, Decimal****Decimal system**

- Cause for the adoption of the metric system (and decimal coinage) by Great Britain. A. J. Stubbs. Inst E E J 56:129-35 F '18  
 Decimal coinage. G. Lowthian. Engineer 125:412 My 10 '18

- Decimal system vs. binary. K. Kapeto. Sci Am 121:205 Ag 30 '19

- Pros and cons of the metric system. L. B. Atkinson. Inst E E J 56:121-8 F '18

See also Metric system

**Decimals**

- Decimal-equivalent table useful in gear work. T. S. Armandroff. Am Mach 48:339 F 21 '18  
 Decimal equivalents and metric conversions. Motor Age 34:44 N 7 '18  
 Easy method for calculating decimal equivalents. H. Mead. Am Mach 50:786 Ap 24 '19

**Decolorization**

- Preparation of an active decolorizing carbon from kelp. F. W. Zerban and E. C. Free-land. J Ind & Eng Chem 10:812-14 O '18  
 See also Bleaching

**Decomposition points**

- Gas dilatometer for ascertaining decomposition points. W. C. Moore and J. B. Davies. diags Met & Chem Eng 18:301-2 Mr 15 '18

**Decoration and ornament**

- Color in decoration. E. Jordan. II Am Arch 114:111-12 Ji 24 '18

- Design and decoration of the public rooms in Hotel Pennsylvania. G. A. Holmes. II Arch Forum 30:105-8 Ap '19

- Design value of decorative motifs. A. F. Saunders. II Metal Ind 15:15-16, 390-1, 513-14; 16:163-5, 349-51, 504-6 Ja, S, D '17, Ap, Ag, N '18

- English architectural decoration. A. E. Bullock. II Arch Rec 41:105-25, 210-23, 325-35; 43:160-75, 335-43, 426-34; 44:31-47, 237-51; 46:133-52, 220-36 F-Ap '17, F, Ap-My, Ji, S '18, Ag-S '19

- Greek system of architectural polychrome decoration. L. V. Solon. II Arch Rec 43:322-34 Ap '18

- Principles of polychrome in sculpture based on Greek practice. L. V. Solon. II Arch Rec 43:526-33 Je '18

- Profiles and materials. W. L. Mowll. Arch Rec 45:142-7 F '19

- Recent developments in the industrial and decorative arts. C. O. Cornelius. Arch Rec 45:92-3 Ja '19

See also Architecture—Details; Concrete, Ornamental; Design, Decorative; Electric lighting, Decorative; Furniture; Graftito decoration; House decoration; Ironwork, Architectural; Library decoration; Metal work, Artistic; Mural painting and decoration; Plaster work, Decorative; Pottery; Show windows; Stained glass; Stucco; Tapestry; Textile design; Wood carving

**Decorations of honor**

- Military decorations of our fighting men. A. A. Hopkins. II Sci Am 117:456 D 15 '17  
 New army decorations and medals. II Sci Am 118:481 My 25 '18

**Decorative design. See Design, Decorative****Decorative lighting. See Electric lighting, Decorative****Dee, River**

- Electrical energy from the River Dee. map Engineer 127:524-6 My 30 '19

**Deglet-knour. See Dates****Degras. See Wool grease****Dehydration**

- Preparation of aromatic nitriles by catalytic dehydration. A. Mailhe. Met & Chem Eng 18:545 My 15 '18

- Preparation of dimethylaniline by catalytic dehydration. A. Mailhe and F. de Godon. Met & Chem Eng 18:545-6 My 15 '18

See also Drying

**Dehydration, Electric**

- Electrical dehydration of crude oils successful. II Elec R 75:710-11 O 25 '19

- Electrical dehydration of oil. H. N. Sessions. II J Elec 43:316-18 O 1 '19

**Dehydration of vegetables. See Drying (fruit and vegetables)****De Lamar, Joseph Raphael, 1843-1918**

- Pembroke; estate of the late Captain J. R. De Lamar. Glen Cove, L.I., New York. II Am Arch 116:366-73, pl 104-10 S 17 '19  
 Sketch. por Eng & Min J 106:1037-8 D 14 '18

**Delamater iron works**

- Delamater iron works—cradle of the modern navy; abstract. H. F. J. Porter. Int Marine Eng 23:706-7 D '18

**Delaware and Hudson railroad**

- Annual report for the year 1918. Ry Age 66:1178-82 My 9 '19  
 Financial statistics. Ry Age 67:91-2 Ji 18 '19  
 Report for 1917. map Ry Age 65:246-7 Ag 9 '18

**Delhi****Architecture**

Secretariat buildings, Delhi. *Il Am Arch* 115: 744-6 My 28 '19

**Demagnetizers**

Demagnetizer made from old regulating reactor. *Il Elec W* 73:1273 Je 14 '19

**Demand factor. See Electric plants—Demand factor****Demobilization**

British demobilization. *Iron Age* 102:1401 D 5 '18

Hard work needed in placing men released. *Iron Age* 102:1395-7 D 5 '18

Reconstruction in Europe. C. H. Claudy. *Il Sci Am* 120:223-4 Mr 9 '19

Rehearsal of demobilizing plan in Britain. *Am Soc M E J* 40:729 Ag '18

**Democracy**

Democracy after the war. H. Garfield. *Am Mach* 48:526 Mr 28 '18

Engineer as a social force in the new democracy. G. C. Whipple. *Boston Soc C E J* 5:143-62 Ap '18; Same cond. *Eng N* 80:599-601, 648-50 Mr 28-Apr 4 '18

New democracy. F. K. Lane. *Eng N* 80:751-2 Ap 18 '18

Small industry in a democracy; abstracts. G. H. Haynes. *Am Soc M E J* 40:pt 1, 533-3 JI '18; *Iron Tr R* 62:1607-10 Je 27 '18; *Excerpta. Iron Age* 102:77 JI 11 '18

**Democracy, Industrial. See Industrial management—Employee representation****Demolition work. See Wrecking****Demurrage**

Car demurrage rules. *Ry R* 63:549-50 O 12 '18

Demurrage charges; Delaware river steel co. loses in complaint against railroad company. *Iron Age* 101:1262 My 16 '18

How to prevent freight car demurrage. D. T. Farnham. *Il charts Ind Management* 55: 331-4 My '18; Discussion. H. Ballou. 56:41 JI '18

Interstate commerce commission allows changes in demurrage rules. *Coal Age* 13: 293 F 9 '18

Liability for demurrage charges. A. L. H. Street. *Eng & Min J* 103:379 Mr 3 '17

New demurrage rules issued by Director General McAdoo. *Iron Age* 101:180 Ja 10 '18

**Denmark****Commerce**

Exports to Denmark. *Iron Age* 102:757 S 26 '18

**Denseness**

Using metal denseness and molds. E. H. Broughall. *Il Foundry* 47:514-18 Ag 1 '19

**Dental instruments and apparatus**

Our growing trade in dental and surgical instruments. *Sci Am* 119:34 JI 13 '18

**Dental service, industrial**

Dentistry for factory workers. A. A. Crocker. *Ind Management* 56:246 S '18

Keeping workers well; the part the factory dentist plays. R. W. Elliott. *Il Factory* 22:924-5 My '19

Our shop dental dispensary. S. De Hart. *Il Ind Management* 58:52-3 JI '19

Preventive dentistry in industrial plants. *Iron Tr R* 63:269 Ag 1 '18

**Dentistry**

Chemistry of silicates with reference to their use in dental operations. C. C. Vogt. *Sci Am S* 86:14-15 JI 6 '18

*See also* Dental service, Industrial

**Denver, Colorado****Rapid transit**

Denver situation clearing; city to re-grant temporary 6-cent fare. *Elec Ry J* 54:129-31 JI 19 '19

Union station loop operation. *Il map Elec Ry J* 52:1132-3 D 23 '18

**Water supply**

Denver union water co. furnishes free water for irrigation of vacant lot gardens. *Eng & Contr* 49:455-6 My 8 '18

Denver votes for municipal ownership of waterworks. *Munic J* 45:153 Ag 24 '18

Permanent plants for chloramine installed at Denver. *Il Grand Eng N* 83:608-9 S 25 '19

**Denver & Rio Grande railroad**

Statistics for 1917. *map Ry Age* 65:420 S 6 '18

**Deodar**

Tie logging in the Himalayas. T. S. Woolsey, jr. *Il Am Lumberman* 2273:56 D 7 '18

**Department stores**

Accounting for the import division of a department store. H. C. Magee. *J Account* 25: 433-43 Je '18

Department store architecture. H. G. Selfridge. *Am Inst Arch J* 7:331-2 JI '19

Department store for the La Salle & Koch co., Toledo, O.; views and plans. *Am Arch* 114:pl 112-20 O 16 '18

Store of G. Fox & co., Hartford, Connecticut. *Arch & Bldg* 50:18-19, pl 95-7 My '18

Telephone system of credit checks. C. Grunsky. *Il J Elec* 42:152-3 F 15 '19

*See also* Mail order business

**Electric equipment**

Electricity in a large department store. *Il J Elec* 42:305-6 Ap 1 '19

**Dependents**

Allens as dependents. C. C. Sherlock. *Mach* 25:56 S '18

Riddle of dependency. C. C. Sherlock. *Am Mach* 50:1174-6, 1226-8; 51:10-12, 70-2 Je 19-JI 10 '19

**Depletion**

Depletion of mineral deposits and the federal income tax. P. Armitage. *Eng & Min J* 107:750-2 Ap 26 '19

Depreciation and depletion in relation to income tax returns. G. Nelson. *J Account* 27: 111-19 F '19

**Depolarization**

Depolarization by sulphur dioxide. M. De K. Thompson and A. P. Sullivan. *Met & Chem Eng* 18:178-9 F 15 '18

**Depots. See Railroads—Stations****Depreciation**

Accounting for depreciation. J. Jirgal. *Elec Ry J* 54:799-800 O 25 '19

Actuary theory of depreciation of physical property values. E. J. Kates. *Ry Age* 64:1133-5 My 3 '18

Adequate depreciation rates should be established. *Ry Age* 66:427 F 21 '19

Depletion and depreciation of coal-mining properties. D. C. Burdick. *Coal Age* 16: 185-7 JI 31 '19

Depreciation. *Engineer* 125:360 Ap 26 '18

Depreciation and depletion in relation to income tax returns. G. Nelson. *J Account* 27: 111-19 F '19

Depreciation and depletion in tax returns. W. Cairns. *J Account* 28:204-11 S '19

Depreciation and federal income tax. C. W. McKay. *Ind Management* 58:148-52 Ag '19

Depreciation and its relation to industrial appraisalment. C. W. McKay. *Ind Management* 55:281-3 Ap '18

Depreciation and measurement of expired outlay on plant. E. A. Erickson. *Eng & Min J* 103:370-2, 447-9 Mr 3, 17 '17

Depreciation and obsolescence as governed by federal income tax regulations. H. B. Fernald. *J Account* 25:241-7 Ap '18; Same. *Eng & Min J* 105:631-3 Ap 6 '18

Depreciation and rate making. L. R. Nash. *Elec Ry J* 52:511-13 S 21 '18

Depreciation in telephone utilities. W. Kurtz. *J Account* 27:81-95 F '19

Depreciation in the valuation of public service property. A. S. B. Little; L. G. Benedict. *Gas Age* 40:203-7, 502-6, 557-9 S 1, D 1-15 '17

Depreciation of machinery. *Engineer* 125:311 Mr 8 '18

Depreciation of railroad property. G. C. Hand. *Ry Age* 63:1035-8 D 7 '17; Discussion. 63: 1116; 64:150-2, 695-6 D 21 '17, Ja 18, Mr 22 '18

**Depreciation—Continued**

- Depreciation of railroad property and its relation to valuation. F. S. Schwinn. Ry R 64:645-7 My 3 '19
- Discussion of the theory of depreciation; abstract of brief filed with Interstate commerce commission in Texas Midland railroad case. W: A. Glasgow, Jr., and L: L. G. Benedict. Gas Age 41:458-62 My 15 '18; Discussion. 41:543-4; 42:69-70 Je 15, JI 15 '18
- Estimation of depreciation on stripping equipment. B. H. Stockett; H. B. Miller. Coal Age 13:34 Ja 5 '18
- Final report of the committee on depreciation; Dissenting opinion, by J. N. Hazlehurst. Am Water Works Assn J 6:85-121; Discussion. 121-35 Mr '19
- Governmental sinking funds, serial bonds and depreciation reserves. H. S. Chase. J Account 26:243-68 O '18
- How to find what your factory is worth. W. R. Basset. Factory 20:850-1 My '18
- Inadequacy of present depreciation accounts. O. Ely. Ry Age 65:553-6 S 20 '18; Discussion. D. J. Kerr. 65:764 N 1 '18
- Indiana commission adopts definite policy as to depreciation funds. Am Gas Eng J 109: 103-4 Ag 3 '18
- Keeping track of depreciation. Factory 19:244 Ag '17
- Methods of handling depreciation and investment in lumber accounting. W. Compton. diags Am Lumberman 2254:48-9 JI 27 '18
- Not depreciation but retirement; electric railway representatives suggest change of terms. Elec Ry J 52:170 JI 27 '18
- Pitfalls in regulating depreciation. J: Bauer. Elec Ry J 52:326-8 Ag 24 '18; Discussion. L: L. G. Benedict. 52:465-6 S 14 '18
- Rates for annual depreciation. A. F. Brewer. Ind Management 55:268 Ap '18
- Relation of depreciation to investment. W. C. Hawley. Am Water Works Assn J 6:305-19 Je '19
- Specific depreciation as applied to mechanical deterioration. W. W. Pollock. Am Mach 51:761-2 O 23 '19
- Theoretical depreciation a menace alike to public and the inventor. G: N. Webster. Am Gas Eng J 111:112-18, 121-2 Ag 9 '19; Abstract. Elec W 74:308 Ag 9 '19
- See also Depletion; Valuation
- Depth bombs.** See Bombs, Depth
- Derails**  
Derails and where they should be used. II diags Ry Age 66:1361-7 Je 6 '19
- Derrick cars.** See Cars (derrick)
- Derricks.** See Cranes, derricks, etc.
- Desert flora**  
Agricultural possibilities of the Sahara. Sci Am S 87:297 My 10 '19
- Deserts**  
Desert sign post. H. C. Hardy. II Sci Am 121: 307+ S 27 '19
- Design**  
Home furnishings production a part of America's reconstruction job. R: F. Bach. Arch & Bldg 51:39-40 My '19
- See also Architecture—Designs and plans; Bridge design; Concrete construction—Design; Machinery—Design; Pattern making; Textile design
- Study and teaching**  
National apprentice schools of design. H. V. Magonigle. Am Inst Arch J 7:78-9 F '19
- Design, Decorative**  
Design value of decorative motifs. A. F. Saunders. II Metal Ind n s 15:15-16, 390-1, 513-14; 17:10-12, 214-16 Ja, S, D '17, Ja, My '19
- Exhibition of ornament at the Metropolitan museum of art. W. Ivins, Jr. II Am Arch 116:4-6 JI 2 '19
- Japanese stencil. I. D. Little. II Color Tr J 4:135-8 Je '19
- Mathematics as a source of decorative design. C. Bragdon. II diags Am Arch 112:465-70 D 26 '17

Museum as a laboratory. Sci Am S 87:117 F 22 '19

Museum of decorative design at Cooper Union. Am Inst Arch J 7:124 Mr '19

Ornament in old prints and drawings. W: M. Ivins, Jr. Sci Am 120:673+ Je 21 '19

Seventeenth and eighteenth century design books; exhibition at the Metropolitan museum of art. New York. C: O. Cornelius. Arch Rec 45:573-4 Je '19

See also Decoration and ornament; Textile design

**Desks**

New bank desk. C. Wilson. II Sci Am 120: 634 Je 14 '19

See also School desks

**Des Moines, Iowa****Water supply**

Gallery collecting system of the Des Moines (Ia.) water co. A. T. Luce. diags plan Am Water Works Assn J 6:475-85 S '19; Same. Eng & Contr 52:32-4 JI 9 '19; Same. Munic Eng 57:75-7 Ag '19

**Destroyers.** See Submarine chasers; Torpedo boat destroyers

**Detectors, Ground**

Ground detector for elevator circuits. diag Elec W 71:466 Mr 2 '18

**Detention homes**

Santa Barbara county detention home; view and plans. Arch Rec 46:86-9 JI '19

**Detinning**

How Germany utilized England's tin plate scrap. Sci Am 119:142 Ag 17 '18

**Detonations**

Physiological sensations produced by detonations. M. E. Esclancon. Sci Am S 88: 11 JI 5 '19

**Detonators**

Manufacturing detonators for blasting. Eng & Min J 107:666 Ap 12 '19

New detonators made without fulminate of mercury. Sci Am 119:284 O 5 '18

**Detonators, Electric**

Advantages of electrical method of setting off blasts. J. B. Stoneking. diags Eng & Contr 52:217-19 Ag 20 '19; Same. Concrete 15:sup 41-3 S '19

Blasting with electricity. A. S. Anderson. Eng & Contr 51:67 Ja 15 '19

Electric blasting equipment. L. D. Rowell. diag Eng & Min J 108:45-6 JI 12 '19; Same cond. Eng & Contr 52:220-1 Ag 20 '19

Handling electric detonators. Coal Age 14: 80 JI 13 '18

**Detroit, Michigan**

Metal plating and finishing shops. F. J. Huntley. II Metal Ind 16:251-3 Je '18

**Rapid transit**

Report on rapid transit system for Detroit. Elec Ry J 51:420-1+ Mr 2 '18

Skip stops and rerouting withdrawn in Detroit. Elec Ry J 50:1069 D 15 '17

See also Detroit United railway

**Streets**

Detroit plans comprehensive scheme for grade crossing removal. II plan Eng N 82: 511-13 Mr 18 '19

**Water supply**

Meters measure half of Detroit water supply. Eng N 80:646 Ap 4 '18

Report on Detroit waterworks. R. W. Pratt. II Munic J 46:334-7 My 10 '19

Water consumption. G: H. Fenkell. Munic J 46:218-20 Mr 22 '19

**Detroit Institute of technology**

Detroit Institute of technology. A. R. Davis. II Am Mach 50:1220 Je 26 '19

**Detroit news**

Modern newspaper plant—the new home of the Detroit news. A. G. Brenton. II Inland Ptr 60:525-8 Ja '18



- Detroit United railway**  
Detroit refuses to pay the price. Elec Ry J 53:739-40 Ap 13 '19  
Railway builds large stone crusher plant. Il plan Elec Ry J 53:726-7 Ap 12 '19  
Supreme court decides Detroit United railway case. Elec Ry J 53:149-50 Ja 18 '19
- Dew measurement.** See Drosometer
- Dewar, James**  
Presentation of the Franklin medal to Sir James Dewar and Major General George Owen Squier. por J Fr Inst 188:100, 104-12 Jl '19
- Dew-ponds**  
Construction of a dew-pond: water without springs, river or rain. G: Hubbard. Eng & Contr 51:451 Ap 30 '19
- Dextrine**  
Specially designed roaster for starch. S. E. Wardell. Il Am Gas Eng J 107:561-3 D 22 '17
- Diaminophenols**  
Oxidation of diaminophenols. J. Piccard and L. M. Larsen. Am Chem Soc J 40:1079-92 Jl '18
- Diamond chain company, Indianapolis, Indiana**  
Features of the buildings and equipment. Il Ind Management 56:22-5 Jl '18
- Diamond drilling.** See Drilling and boring (earth and rocks)
- Diamond drills.** See Rock drills
- Diamond tools**  
Making diamond wire-drawing dies. E: K. Hammond. Il diags Mach 26:264-6 N '19  
Setting diamonds for wheel dressing. G. E. Woodley. diags Am Mach 51:407-8 Ag 28 '19; Correction. 51:702 O 9 '19  
Use of diamond tools in the shop. F. A. Stanley. diags Am Mach 48:49-51, 94-6 Ja 10-17 '18
- Diamonds**  
Diamond cutting for disabled men. B. Oppenheimer. Eng & Min J 106:951 N 30 '18  
Diamond fields of Dutch Borneo. Sci Am 118:233 Mr 16 '18  
Diamonds in the United States. Eng & Min J 107:910-11 My 24 '19  
Notes on the geology of the diamond region of Bahia, Brazil. R. Crandall. diags map Econ Geol 14:220-44 My '19  
South African diamonds. J Ind & Eng Chem 10:395 My '18
- Diamonds, Artificial**  
Formation of diamond. C: Parsons. diags Engineer 135:386-7, 410-11 My 3-19 '18; Same cond. Sci Am S 86:124-6 Ag 24 '18
- Diatase**  
Improving war bread with lime-water. Sci Am 118:131 F 9 '18  
Influence of hydrogen-ion concentration upon enzymic activity of three typical amylases. H. C. Sherman, A. W. Thomas and M. E. Baldwin. Am Chem Soc J 41:231-5 F '19  
Nitrogenous auxoamylases. E. W. Rockwood. Am Chem Soc J 39:2745-52 D '17  
Proteolytic activity of pancreatic amylase preparations. H. C. Sherman and D. E. Neun. Am Chem Soc J 41:1855-62 N '19  
Salivary amylase; a preliminary experimental study of its stability in saliva. R. C. Myers and L. C. Scott. Am Chem Soc J 40:1713-16 N '18  
See also Enzymes
- Diathermy.** See Electrotherapeutics
- Dichloramine T.**  
Dichloramine T. and chlorinated eucalyptol 1,2. R. B. Kraus and E: Crede. Am Chem Soc J 39:2720-2 D '17
- Dichlorobenzene**  
Dinitro derivatives of *p*-dichlorobenzene: 2,5-dichloro-1,4-dinitrobenzene. E. H. Nason. Am Chem Soc J 40:1602-5 O '18
- Dichloro-ether**  
Preparation of 1, 2-dichloro-ether. E. A. Wildman and H. Gray. Am Chem Soc J 41:1122-3 Jl '19
- Dichloroethylsulfide.** See Mustard gas
- Dickie, George William, 1844-1918**  
Tribute. C. E. Grunsky. por Am Soc M E J 40:881-2 O '18
- Dicyanin**  
Application of dicyanin to the photography of stellar spectra. P. W. Merrill. Il diags U S Bur Stand Bul 14:487-505 Jl 12 '19
- Dicyanodiamide**  
Constitution of dicyanodiamide. W: J. Hale and F. C. Vibrans. Am Chem Soc J 40:1046-63 Jl '18
- Die.** See Dies
- Die balls**  
Electromagnetic die ball. diags Am Mach 50: 548-50 Mr 20 '19
- Die casting**  
Aluminum: its use in the motor industry in England. E. C. Hill. Metal Ind 17:125-7 Mr '19  
Brass die castings. A. Bregman. Metal Ind 15:306 Jl '17  
Design of die castings. M. Stern. diags Am Mach 49:549-51 S 26 '18  
Die casting. D: Leaser. Metal Ind 15:252 Je '17  
Die-casting and die-casting metals. E. Oberg. Il plan Mach 26:155-60 O '19  
Die-casting bearing metals in place. Mach 26:38 S '19  
Die-casting dies made by Marf machine co. Il Mach 24:450 Ja '18  
Die-casting of aluminum-bronze. H. Rix and H. Whitaker. Il Engineer 125:281 Mr 29 '18; Same. Foundry 46:272-4 Je '18; Same. Metal Ind 16:361-3 Ag '18; Same. Sci Am S 86:314-15 N 16 '18; Same cond. Mach 25:308-9 D '18; Abstract. Chem & Met Eng 20:135 F 1 '19  
Die castings and their application to the war program. C: Pack. diags Am Inst Min E Bul 146:239-48 F '19; Same. Metal Ind 17:75-8 F '19; Same. Iron Age 103:679-81 Mr 13 '19; Discussion. Am Inst Min Bul 148:682 Ap '19  
Die castings in munitions. C: Pack. Il Ind Management 55:157-8 F '18  
Manufacture and use of die-castings; with discussion. C: Pack. Il diags Eng Soc W Pa 33:668-92 Ja '18; Same cond. Sci Am S 86:26-7 Jl 13 '18  
Modern developments in die casting. A. Bregman. Il diags Metal Ind 17:327-30 Jl '19  
Molds made by centrifugal method. J. E. Hurst. Foundry 47:596 S 1 '19  
Nickel and brass plating of die castings. R. J. Hasucha. Metal Ind 16:83 F '18  
Successful production of brass and bronze die-castings. C: Pack. Il Metal Ind n 5:133-9 Ja '17  
Swelling of zinc base die castings. H. M. Williams. Metal Ind 15:470-1 N '17; Abstract. Mach 24:438 Ja '18  
Wartime production methods; manufacture and finishing of die cast metal parts. C: Pack. Metal Ind 16:120-1 Mr '18
- Die-sinking machines**  
Becker die-sinking machine. Il diags Mach 26:277-8 N '19  
Die-sinking, milling and cherrying machine. Il Iron Age 104:868 S 25 '19  
Jackson duplex die-sinker. Il Mach 24:755-6 Ap '18; Am Mach 48:1122-3 Je 27 '18
- Dielectrics**  
Apparent dielectric strength of varnished cambric. A. E. Kennelly and R. J. Wiseman. diags plans Elec W 70:1138-41 D 15 '17; Abstract. J Fr Inst 185:143-5 Ja '18  
Characteristics of dielectrics. C. A. Butman. Elec W 71:812-15 Ap 20 '18  
Conduction in liquid dielectrics. J. E. Shrader. diags Elec J 16:334-8 Ag '19  
Dielectric field in an electric power cable. R. W. Atkinson. diags Am Inst E E Pro 38:815-56 Je '19  
Dielectrics in electric fields. G. L. Addenbrooke. Elec R 74:474 Mr 22 '19  
Effect of transient voltages on dielectrics. F. W. Peek, jr. diags Am Inst E E Pro 38:717-44 Je '19  
Electrical insulating materials. R. P. Jackson. Elec J 16:326-33 Ag '19

**Dielectrics—Continued**

- Epitome of Mr G. L. Addenbrooke's lectures on dielectrics in electric fields. *Inst E E J* 57: sup13-14 Ja '19
- Flexible and accurate method for dielectric tests. C. A. Butman. *diags Elec W* 71:503-6 Mr 9 '18; Discussion. G. Thompson. 71:1382 Je 29 '18
- Measurement of power loss in dielectrics of three-conductor high-tension cables. F. M. Farmer. *diags Am Inst E E Pro* 37:125-45 F '18; Discussion. *Elec W* 71:413 F 23 '18
- Null ballistic method for comparing capacities. P. Thomas. *diag J Fr Inst* 186:377-81 S '18

*See also* Insulation; Mica

**Dies**

- Adjustable die and method of relieving chasers. H. Daut. *diags Mach* 24:1093 Ag '18
- Adjustable punch and die. A. E. Holaday. *diag Am Mach* 49:314 Ag 15 '18; Discussion. 49:812 O 31 '18
- Arrangement for a large combination die. A. Hanschild. *diags Am Mach* 48:35 Ja 3 '18
- Automatic double-acting stripper for drawing operations. B. Menkin. *il diags Mach* 25:192 N '18
- Blanking dies. H. H. Hardinge. *diags Mach* 25:65-6 S '18
- Bulldozer operations with one- and two-motion dies. J. V. Hunter. *diags Am Mach* 49: 465-70 S 12 '18
- Chilled cast-iron dies for forging and nosing shells. A. F. White. *diags Am Mach* 49:747-8 O 24 '18
- Claw bar dies. F. B. Nielsen. *diags Ry Mech Eng* 92:116 F '18
- Combination blanking and shaving die. *il diag Mach* 25:1162 Ag '19
- Combination die. E. A. Walters. *diags Mach* 25:974-5 Je '19
- Construction and operation of temporary dies. H. F. Pusep. *diags Am Mach* 49:488-9 S 12 '18
- Container for shell-bottling dies. *diag Engineer* 125:282 Mr 29 '18
- Correcting dies that failed to draw. A. C. Lindholm. *diags Am Mach* 48:5-7 Ja 3 '18
- Designing and making dies with provision for heating with steam. E. K. Hammond. *il diags Mach* 25:187-91 N '18
- Die-casting dies made by Marf machine co. *il Mach* 24:450 Ja '18
- Die cost as a factor in selling forgings. R. T. Herdegen. *Am Mach* 51:87-8 Jl 10 '19
- Die for forming small blanks. J. Teckeer. *diags Am Mach* 50:221 Ja 30 '19
- Die for forming thimble. *diags Mach* 25:71 S '18
- Dies and plugs for drawing brass tubing. R. Schafer. *diags Am Mach* 50:1150-2 Je 12 '19
- Dies for drawing a difficult shape. J. Bingham. *diags Mach* 26:72-4 S '19
- Dies for snap fasteners. *il Am Mach* 51:551-2 S 18 '19
- Dies for stamp cover. C. Hardy. *diags Mach* 24:546 F '18
- Dies for tape-measure winder. *il diag Mach* 25:46-8 S '18
- Double blanking and drawing die. G. R. Smith. *diags Am Mach* 50:220 Ja 30 '19
- Double-movement dies for bulldozer work. J. V. Hunter. *il diags Am Mach* 49:508-10 S 19 '18
- Drawing and trimming shallow shells. W. C. Winkelman. *il diags Am Mach* 48:33-5 Ja 3 '18
- Drawing square and rectangular metal boxes. G. F. Kuhne. *diags Am Mach* 49:130-1 Jl 18 '18
- Economical diemaking. P. L. Hatfield. *diags Mach* 24:988-9 Je '18
- Economical die-making. G. F. Kuhne. *diags Mach* 24:444-5 Ja '18
- Experience with U.S.S. and Whitworth taps and dies. C. K. Chapin. *Am Mach* 48:242 F 7 '18
- Forming and drawing dies for sheet-steel shells. J. Bingham. *diags Mach* 26:165-6 O '19

- Forming and piercing dies for pronged collets. B. Menkin. *diags Mach* 25:1147-8 Ag '19
- Forming die. A. T. Bower. *diags Mach* 25: 1137 Ag '19
- Forming dies for special steel pinions. F. A. Gross. *il diags Mach* 25:751 Ap '19
- Improved double-acting punch and die for button collets. W. C. Winkelman. *diags Am Mach* 49:129-30 Jl 18 '18
- Instructions for making cold-rolled steel blanking dies. *diags Mach* 25:65 S '18
- Interesting shop devices at Transcona. S. Lewis. *diags Ry Mech Eng* 93:150-1 Mr '19
- Locating small holes accurately in die work. H. F. Pusep. *diags Am Mach* 48:26-6 Ja 3 '18
- Lock knob dies. W. B. Greenleaf. *il Mach* 24:394-5 Ja '18
- Making diamond wire-drawing dies. E. K. Hammond. *il diags Mach* 26:264-6 N '19
- Making dies for cutting rubber, leather, paper, cloth, etc. S. A. Hand. *il diags Am Mach* 50:52-4 Ja 9 '19
- Making of kinite dies. *il diag Mach* 25:1080-1 Jl '19
- Making typewriter parts. M. E. Hoag. *il diags Am Mach* 48:284-6, 366-9 F 14, 23 '18
- Manufacture of caps for threading dies. F. E. Merriam. *il diags Am Mach* 51:827-30 N 6 '19
- Manufacturing a shorthand machine. M. E. Hoag. *il Am Mach* 49:946-7 N 21 '18
- Manufacturing operations on jewelry settings. J. V. Hunter. *il diags Am Mach* 49:47-52 Jl 11 '18
- Notching and assembling punch and die for shell fuse socket. D. A. Baker. *diags Mach* 24:1022 Jl '18
- Novel method of making dies. *il Mach* 25:216 N '18
- Progressive die for rubber washers. H. F. Pusep. *diags Am Mach* 48:245 F 7 '18
- Punch and die for experimental work. J. Calcaterra. *diags Am Mach* 48:127 Ja 17 '18
- Quenching machine for hardening small drawing dies. *il diag Am Mach* 49:1045-6 D 5 '18
- Relation of press stroke to the life of a die. E. F. Creager. *il diag Am Mach* 47:485-7 S 20 '17; Abstract. *Am Soc M E J* 39:959 N '17; Discussion. *Am Mach* 47:1131-2; 48:466 D 27 '17, Mr 14 '18
- Screw machine tool equipment. D. T. Hamilton. *il diags Mach* 24:436-8 Ja '18
- Shaping the front axle forging on the Nash motor car. J. Ledin. *diags Am Mach* 49: 679-80 O 10 '18
- Shell base-cover assembling die and press. P. H. White. *diags Mach* 25:109 O '18
- Sizing operations for increasing production. A. F. Owen. *diags Mach* 25:68 S '18
- Standards for the design of small dies. C. V. Lovell. *diags Am Mach* 48:879-80 My 23 '18
- Straight or angular notching die. F. A. Tibbals. *diags Am Mach* 48:847 My 16 '18
- Sundstrom Rex die testing press. *il Mach* 24: 461 Ja '18
- Tandem or multiple drop-forge dies. F. R. Zimmerman. *diags Mach* 25:252 N '18
- Taps and dies for production work. G. Doorakkers. *diag Engineer* 126:151-2, 186-7 Ag 23-30 '18
- Tube forming dies. G. R. Smith. *diags Mach* 25:204-5 N '18
- Unusual forming die. M. E. Hoag. *il Am Mach* 47:1050 D 13 '17
- Use of standard dies in making ground glass joints. S. F. Acree. *diags J Ind & Eng Chem* 11:338-9 Ap '19
- Washer punching dies. *diags Ry Mech Eng* 93:612 O '19
- Wright dieing machine. *il Mach* 25:73-5 S '18

*See also* Forging

**Diesel engines**

- Advantages of an oil engine. *Factory* 30:784-47 Ap '18
- British stationary Diesel engines of to-day. *il diags Engineer* 128:349-51 O 10 '19
- Buckeye-Barrett oil engine. *il Power* 48:239-40 Ag 13 '18

**Diesel engines—Continued**

Conserving our natural resources by the more extended use of the Diesel engine. P. L. Scott. *Sibley J* 32:178-80 S '18

Curious explosions in a 750-horsepower Diesel engine. P. P. Talaty. *diags Power* 49:865 Je 3 '19

Diesel and similar engines. H. B. Willson. *diag Automotive Ind* 39:754 O 31 '18

Diesel engine as related to the 6,200,000,000 horse-power hours wasted in 1917 in bee-hive coke ovens. P. L. Scott. *Sibley J* 33:10-11 O '18

Diesel engine blast pressure control. A. McMillan. *J Ind & Eng Chem* 10:228 Mr '18

Diesel engine in the Southwest. B. V. E. Nordberg. *Il Eng & Min J* 108:497-500 S 20 '19

Diesel engine; its fuels and its uses. bibliog H. Haas. *Il diags U S Bur Mines Bul* 156:1-127 '18

Diesel engines for automobile work. *diags Automotive Ind* 40:1159 My 29 '19

Diesel engines for motor vehicles; abstract. *Am Soc M E J* 40:958-9 N '18

Diesel engines prove economical at Lincoln. O. J. Shaw. *Il Elec Ry J* 53:902-5 My 10 '19; Same cond. *Power* 49:734-6 My 13 '19

Diesel motor injection valve; abstract. W. Stremme. *Am Soc M E J* 40:864 O '18

Electric generation by Diesel engine. E. J. Richards. *J J Elec* 42:167-9 F 15 '19

Failure of Diesel-driven alternators to parallel. D. L. Fagnan. *diags Power* 50:390-1 S 2 '19

Four-cycle versus two-cycle Diesel engines. *Sci Am S* 86:307 N 16 '18; Abstract. *Am Soc M E J* 40:776-7 S '18

Fuel-injection valves in constant-pressure engines; abstract. W. Stremme. *diags Am Soc M E J* 41:52-3 Ja '19

Growth of gray cast iron by repeated heating. J. E. Hurst. *Il Foundry* 46:227-9 My '18; Abstracts. *Mach* 24:435 Ja '18; *Iron Age* 101:587 F 28 '18; *Int Marine Eng* 23:116 Mr '18

Heating caused by cracked crankpin of Diesel engine. D. L. Fagnan. *diag Power* 49:679 My 6 '19

Heavy oil engine. C. E. Lucka. *Sci Am S* 86:50-1, 78-80 JI 27-Ag 8 '18; Same. *Int Marine Eng* 23:579-83, 625-9 O-N '18; Excerpts. *Engineer* 126:80-3 JI 26 '18

High-speed internal-combustion engines. H. R. Ricardo. *Sci Am S* 86:270-1 O 26 '18; Same. *Int Marine Eng* 23:650-1 N '18

Light Diesel engine possible. C. Newman. *Automotive Ind* 37:1134-5 D 27 '17; Abstract. *Am Soc M E J* 40:194 F '18

Liners for Diesel engines. *Foundry* 46:321 JI '18

Making Diesel operators from steam engineers. *Power* 48:816 D 3 '18

Making Diesel operators from steam engineers. G. J. Trosper. *Power* 50:312-13 Ag 19 '19

Method of checking the alignment of Diesel-engine shafts. G. E. Windeler. *Power* 50:598-9 N 22 '19

Oil and fuel troubles in a Diesel engine. D. L. Fagnan. *Power* 49:782 My 20 '19

Operating conditions in Diesel engine plants. E. E. Snow. *diags Power* 50:228 Ag 5 '19

Outlook for the heavy-oil engine. *Power* 49:766-9 My 20 '19

Pounding and heating in a Diesel engine. D. L. Fagnan. *diags Power* 50:216-17 Ag 5 '19

Scavenging in two-stroke-cycle Diesel engines. N. M. Trapnell. *diags Power* 49:977-9 Je 24 '19

Seattle plant for producing semi-Diesel engines. *Elec R* 74:139 Ja 25 '19

Seized piston in a Diesel engine. D. L. Fagnan. *diags Power* 50:138 JI 22 '19

Seizures of Diesel-engine pistons. E. Ingham. *Power* 49:836-7 My 27 '19

Semi-Diesel engine. H. F. Shepherd. *Power* 50:171-3 JI 29 '19; Same. *Sci Am S* 88:142 Ag 30 '19

Semi-Diesel oil engine. L. H. Morrison. *diags Power* 48:47-9 JI 9 '18

Some cards from a Diesel engine. G. Ure-Reid. *diags Engineer* 128:497 N 14 '19

Starting Diesel engines under difficulties. F. C. Williams. *Power* 47:375 Mr 12 '18

Talks on Diesel engines. L. H. Morrison. *Power* 49:15-16, 45-7, 82-3, 123-5, 161-3, 199-201, 238-40, 280-2, 313-15, 355-7, 398-401, 492-4, 566-9, 608-10, 640-3, 685-8, 724-7, 818-19, 857-9, 898-900 Ja 7-Mr 18, Ap 1, 15-May 13, 27-Je 10 '19; Excerpt. *Eng & Min J* 108:133-41 JI 26 '19

Tar oil in Diesel engines. *Sci Am S* 86:406 D 28 '18

Trouble with scored fuel-valve seat. D. L. Fagnan. *Power* 49:564 Ap 15 '19

Use of raw tars as fuel for Diesel engines. H. Moore. *Sci Am S* 88:270-1 N 8 '19

Use of tar oil in internal combustion engines. A. W. H. Griep. *Il diags Gas Age* 41:348-50 Ap 15 '18

Winton Diesel oil engine. *Il diag plan Power* 50:453-5 S 16 '19

**Cooling**

See Gas and oil engines—Cooling

**Diesel engines, Marine**

Beardmore marine semi-Diesel engine. *diags Int Marine Eng* 23:66-9 F '18

Design of governors, with special reference to small Diesel engines. A. B. Lakey. *diags Eng Soc W Pa* 34:461-81; Discussion. 482-8 JI '18

Development of the Diesel type marine heavy oil engine in the United States. G. A. Colley. *Int Marine Eng* 23:199-200 Ap '18

Diesel engine on shipboard. E. Lloyd. *Il J Elec* 42:116-19 F 1 '18

Diesel engines and the merchant marine. *Mech Eng* 41:377-8 Ap '19; Same. *Int Marine Eng* 24:549-51 Ag '19

Diesel engines in monitors. *Engineer* 128:184 Ag 22 '19

Diesel engines prove successful. *Il Marine R* 49:298-9 Je '19

Diesel-motor ship Trefoil and her propelling engines. *Il diags Engineer* 128:198-200 Ag 29 '19

Internal combustion engine on the Pacific coast. G. Dow. *Il J Elec* 43:27-9 JI 1 '19

McIntosh & Seymour marine Diesel engine. *Il diags Power* 49:528-31 Ap 8 '19

McIntosh & Seymour marine Diesel engines. *Il Int Marine Eng* 23:22-3 Ja '18; Same cond. *Power* 47:114 Ja 22 '18

Marine Diesel oil engine problems. J. W. Anderson. *diags Int Marine Eng* 24:77-9, 165-3 F-Mr '19; Same cond. *Am Soc M E J* 40:941-5 N '18; Same cond. *Sci Am S* 87:230-1 Ap 12 '19; Excerpts. *Power* 48:966-7 D 31 '18

M.S. Ansaldo San Giorgio; 1100 B.H.P. two-cycle Diesel marine engine. *Il Engineer* 127:586-7 Je 13 '19

Notes on the operation of submarine Diesel engines. F. C. Sherman. *Power* 47:708-10 My 14 '18

Operation of a large Diesel engine. *Int Marine Eng* 24:364-5 My '19

Peanut oil as fuel for motorships; abstract. *Am Soc M E J* 40:192 F '18

Some aspects of large Diesel cargo ships. H. R. Setz. *Il diags plan Int Marine Eng* 24:212-19+ Ap '19

Tosi Diesel engines for submarines. *diags Mech Eng* 41:699-700 Ag '19

Vickers Diesel engine; abstract. *diags Mech Eng* 41:895-6 N '19

Winton marine Diesel oil engine. *Il diag plan Int Marine Eng* 24:419-24 Je '19; *Automotive Ind* 40:1055-8 My 15 '19

**Testing**

Tests of merchant-ship-type Diesel engines. *Mech Eng* 41:392 Ap '19

**Diesel ships. See Motor ships**

**Diet**

Edible fats, in war and law. D. Wesson. *J Ind & Eng Chem* 10:71-3 Ja '18

Putting on weight. G. Lusk. *Sci Am* 118:70 Ja 19 '18

**Diet—Continued**

War time diet and health. P. G. Stiles. Sci Am S 85:206 Mr 30 '18

See also Dietaries; Food; Nutrition; Vitamins

**Dietaries**

Statistical studies of dietaries. Sci Am S 86: 414 D 28 '18

See also Food

**Differentiation, Mechanical**

Automobile performance analyzed by mechanical differentiation. A. Elmendorf. II Automotive Ind 40:11-16 Ja 2 '19

Mechanical differentiation. A. Elmendorf. II diags J Fr Inst 185:119-30 Ja '18

**Diffraction**

Optics of the air; diffraction phenomena. W. J. Humphreys. diags J Fr Inst 188:646-56 N '19

**Diffusion**

Blue of the sky. C. Fabry. Sci Am S 86:174-6 S 14 '18

Principles of diffusion and their analogues. H. T. Brown. Sci Am S 87:31-2 Ja 11 '19

Retardation by sugars of diffusion of acids in gels. E. A. Graham and H. T. Graham. Am Chem Soc J 40:1900-17 D '18

See also Colloids

**Digestion**

Digestibility of bread; erythrodextrin in starch hydrolysis. J. C. Blake. Am Chem Soc J 40:623-36 Ap '18

See also Diet; Enzymes; Nutrition

**Digitalis**

Digitalis leaves: effect on activity of temperature in drying. H. C. Hamilton. Am Chem Soc J 41:125-9 Ja '19

**Disopropyl cyclohexane**

Synthesis of some homologs of the terpenes, derivatives of 1,4-disopropyl cyclohexane. M. T. Bogert and C. P. Harris. diag Am Chem Soc J 41:1676-90 O '19

**Dikes**

How Holland will dispose of the Zuyder Zee. R. G. Skerrett. diag plan Sci Am 119:245, 251+ S 28 '18

See also Embankments; Levees

**Diketohydrindene**

Diketohydrindene. A. K. Das and B. N. Ghosh. Am Chem Soc J 41:1221-5 Ag '19

**Dilatometer**

Dilatometer method of investigating heat-treating of carbon steel; abstract. diags Mech Eng 41:540-2 Je '19

**Dilution, Heat of**

Heats of dilution and their variations with temperature. F. R. Pratt. II diags J Fr Inst 185:663-96 My '18

**Dimethoxy-acetophenide monohydrate**

Unique case of a liquid that exhibits a minimum solubility in an unstable region. M. T. Bogert and J. Ehrlich. Am Chem Soc J 41:741-5 My '19

**Dimethylaniline**

Organic mercury compounds derived from *p*-bromo-dimethylaniline. F. C. Whitmore. Am Chem Soc J 41:1841-54 N '19

Preparation of dimethylaniline by catalytic dehydration. A. Mailhe and F. de Godon. Met & Chem Eng 18:545-6 My 15 '18

**Dimethylquinoline**

Intermediates used in the preparation of photosensitizing dyes; quinoline bases. L. A. Mikeška, J. K. Stewart and L. E. Wise. J Ind & Eng Chem 11:456-8 My '19

**Dining cars**

Ventilation of dining cars. II diag Metal Work 90:688+ D 20 '18

**Dinitrobenzene**

Dinitro derivatives of *p*-dichlorobenzene; 2, 5-dichloro-1,4-dinitrobenzene. E. H. Nason. Am Chem Soc J 40:1602-5 O '18

**Dinitrotoluene**

Binary systems of the components *p*-nitrotoluene, 1,2,4-dinitrotoluene, 1,2,4,6-trinitrotoluene. J. M. Bell and C. H. Herty, jr. diags J Ind & Eng Chem 11:1124-8 D '19

Three-component system: *p*-nitrotoluene, 1,2,4-dinitrotoluene, 1,2,4,6-trinitrotoluene. J. M. Bell and C. H. Herty, jr. diags J Ind & Eng Chem 11:1128-30 D '19

Dip needle surveying. See Magnetic surveying

**Diphenyl-4-naphthylmethyl**

Triphenylmethyl; a study of the properties of diphenyl-4-naphthylmethyl. M. Gomberg and C. S. Schoepfle. Am Chem Soc J 41:1655-76 O '19

**Dipping vats**

Dipping vat for a Texas ranch. diags Concrete 12:198 Je '18

**Direction-finding apparatus**

Direction finding by wireless telegraphy. R. Sankey. II diags map Engineer 128:388-91 O 17 '19

Theory and practical attainments in the design and use of radio direction finding apparatus using closed coil antennas. A. S. Blatterman. II diags J Fr Inst 188:289-362 S '19

Wireless telephony and direction finding. II Engineer 127:563 Je 6 '19

See also Compass; Range finders

**Dirigibles. See Airships****Disabled****Rehabilitation**

Crippled employees are able to make good. D. A. Hampson. Am Soc M E J 40:790 S '18

How to deal with crippled workers. T. N. Dean. Am Mach 49:1115-16 D 19 '18

Putting injured men back to work. E. B. Morgan. Am Ind 18:18-19 Ja '18

Reducing the cost of disability. D. C. McMurtrie. Iron Age 103:362-3 F 6 '19; Same. Iron Tr R 64:445-6 F 13 '19; Same. Elec R 74:261-2 F 15 '19; Same. Dom Eng 86:311-12 F 15 '19; Same. Arch & Bldg 51:13-14 F '19; Same. Mach 25:649-50 Mr '19; Same. Concrete 14:sup33-4 Mr '19; Same. Eng & Min J 107:474-5 Mr 15 '19; Same. Chem & Met Eng 20:415-16 Ap 15 '19; Same. Textile World 56:1048+ Ag 23 '19

Rehabilitating cripples at Ford plant. J. E. Mead. II Iron Age 102:739-42 S 26 '18

Training and placing the disabled. W. A. Sawyer. Ind Management 57:494-5 Je '19

Training of disabled men for electrical work. F. H. Taylor. Elec R 74:948-9 Je 7 '19

See also Hands, Mechanical

**Disabled, Occupations for**

Crippled workers in the machine industry. A. J. Westmayr. II Am Mach 50:81-3 Ja 9 '19

Cripple's ability as a metal worker. D. C. McMurtrie. II Iron Age 102:278-80 Ag 1 '18

Disabled men in productive work; illustrations taken from a Ford motor co. educational motion picture. Am Ind 19:24-5 Ag '18

Experiment in employing the blind. D. Wolf. Ind Management 57:105-7 F '19

Gas companies to use disabled men as result of investigation made by Empire state gas & electric association. Am Gas Eng J 110: 53 Ja 18 '19

Human reconstruction reclaims war's disabled for industry. W. H. Lloyd. II Iron Tr R 64: 80-6 Ja 2 '19

Industrial surveys for physical readjustment. A. B. Segur. charts Ind Management 57:63-5 Ja '19

See also Occupational therapy

**Disabled soldiers. See Soldiers, Disabled****Discount**

Cash discounts. J. H. Schackmann. J Account 25:43-6 Ja '18

**Diseases**

Causes of disease. E. S. Reynolds. Sci Am S 85:106-7, 118-19 F 16-23 '18

See also Dropsy; Influenza; Lead poisoning; Malaria; Nervous system—Diseases; Typhoid fever

**Diseases, Industrial**

Diseases and infections. C. C. Sherlock. Am Mach 50:28-30 Ja 2 '19

**Diseases, Industrial—Continued**

- Effect of pneumatic reciprocating tools on the nervous system; abstracts. F. M. Barnes, Jr. *Coal Age* 14:510 S 12 '18; *Iron Tr R* 63:1071-2 N 7 '18
- Effect of the air hammer on the hands of stonecutters. diags U S Bur Labor Statistics Bul 236:1-147 '18
- Occupational diseases. *Sci Am* 118:513 Je 1 '18
- Skin diseases from certain lubricants. *Sci Am* 119:519 D 28 '18; Same cond. *Am Soc M E J* 41:170 F '19
- Skin diseases from certain lubricants. C. Baskerville. *J Ind & Eng Chem* 11:797-8 Ag '19
- T. N. T. poisoning. *Sci Am S* 85:400 Je 22 '18
- See also Lead poisoning; Miners—Diseases and hygiene
- Dishwashing machines**
- Crescent dish-washing machine for camps. *Il Am Lumberman* 2276:61 D 28 '18
- Dishwashing machines, Electric**
- Heavy service electric dishwasher made by Walker brothers. *Il Elec W* 70:1225 D 23 '17
- Disinfectants. See Disinfection and disinfectants**
- Disinfection and disinfectants**
- Disinfection by heat. *Sci Am S* 87:203 Mr 29 '19
- Disinfection with formaldehyde, a substitute for the permanganate-formalin method. C. G. Storm. *J Ind & Eng Chem* 10:123-5 F '18
- Disinfection with formaldehyde; the practical efficiency of some substitutes for the permanganate-formalin method. M. A. Pozen and L. V. Dieter. *J Ind & Eng Chem* 11:448-51 My '19
- Fumigation as a disinfecting agency. C. T. Kingzett and others. *Sci Am S* 85:37 Ja 19 '18
- Fumigation with formaldehyde—a substitute for the permanganate-formalin method. D. W. Horn. *J Ind & Eng Chem* 11:126-9 F '19
- New disinfection process for ships. *Sci Am S* 86:119 Ag 24 '18
- Preparation of a preservative from cresol. M. Nevin and B. Mann. *Am Chem Soc J* 39:2752-6 D '17
- Some common disinfectants. M. Dorset. *U S Agric Farmers' Bul* 926:1-12 '18
- See also Hydrocyanic acid
- Disks**
- Trying to thicken the edges of a disk. H. F. Pusep. diags *Am Mach* 50:171-2 Ja 23 '19
- Dispensaries. See Medical service, Industrial**
- Dispersoidology and the theory of von Weimarn. S. C. Bradford. Sci Am S 87:182-3 Mr 22 '19**
- Dissociation**
- Comparison of the activities of two typical electrolytes. G. A. Linhart. *Am Chem Soc J* 39:2601-5 D '17
- Electrolytic conductivity in non-aqueous solutions; the electrical conductance of trimethyl-para-tolyl-ammonium iodide in water and several organic solvents. H. J. M. Creighton and D. H. Way. diags *J Fr Inst* 186:675-98 D '18
- Thermal dissociation of sulfur dioxide. J. B. Ferguson. *Am Chem Soc J* 41:69-72 Ja '19
- See also Electrolytes; Electrons
- Distillation**
- Apparatus for fractional distillation under diminished pressure. W. A. Noyes and G. S. Skinner. diags *Am Chem Soc J* 39:2718-20 D '17
- Built-in laboratory retort. F. E. Coombs. diags *Chem & Met Eng* 19:655 N 1 '18
- Convenient electric heater for use in the analytical distillation of gasoline. E. W. Dean. diags plan *J Ind & Eng Chem* 10:823-6 O '18
- Distilling liquids by the electrolytic method. *Il Sci Am* 118:172 F 23 '18
- Experimental retort for dry distillation. F. E. Coombs. diags *Met & Chem Eng* 13:425 Ap 15 '18

Improved distillation method for the determination of water in soap. R. Hart. *J Ind & Eng Chem* 10:598-9 Ag '18

New form of distilling bulb. J. S. McHargue. diags *J Ind & Eng Chem* 11:670-1 JI '19

Rapid and convenient method for the preparation of conductivity water. C. B. Clevenger. diags *J Ind & Eng Chem* 11:864-6 O '19

Scrubber for ammonia distillations. B. S. Davison. diags *J Ind & Eng Chem* 11:465-6 My '19

Still for the continuous preparation in quantity of water of high purity. H. W. Moseley and R. G. Myers. diags *Am Chem Soc J* 40:1409-11 S '18

Washing and distillation of liquids. diags *Gas Age* 40:473-5, 524-6, 573-5 N 15-D 15 '17

Work of sheet metal man in new industry; making apparatus for use in distillation of volatile oils from birch and wintergreen. W. B. Metzger. *Il diags Metal Work* 91:302-4 Mr 7 '19

See also Coal distillation; Coal tar; Petroleum—Distillation; Wood distillation

**Distilled water. See Water, Distilled**

**Distilling, Illicit**

Moonshine land where slackers and deserters are finding refuge. *Il Sci Am S* 86:68-9 Ag 3 '18

**District heating. See Heating from central stations**

**District heating association, National. See National district heating association**

**Ditches. See Drainage; Irrigation canals**

**Ditching machines. See Trenching machinery**

**Divers**

Employment of divers in shaft sinking. diags *Eng & Contr* 50:67-8 JI 17 '18

**Dividing**

Exact method of setting dividers. A. L. Conaty. diags *Mach* 25:859 My '19

**Diving apparatus**

Whys and why-nots of deep-water diving. *Il Sci Am* 118:60 Ja 12 '18

**Divining rod**

Divining rod. A. J. Ellis. *Il Sci Am S* 85:124-5, 138-9 F 23-Mr 2 '18

**Division of labor**

Specialisation in industry. *Engineer* 125:397 My 10 '18

**Dixon, Robert Munn, 1860-1918**

Sketch. por *Am Soc M E J* 40:979-80 N '18

**Dock gates. See Gates, Hydraulic**

**Docks**

Alexandra and Hughes' docks, Bombay, India. *Eng & Contr* 50:135 JI 31 '18

American-built docks in France completed by Pacific coast engineers. R. K. Tomlin, jr. *Il diags plan Eng N* 81:208-16 Ag 1 '18

Building a floating dry dock in well laid out yard, Galveston, Texas. *Il plan Eng N* 82:552-4 Mr 20 '19

Champlain dry dock at Quebec. U. Valiquet. *Il diags plan Engineer* 128:82-4, 86 JI 25 '19

Commonwealth drydock at Boston—largest of its type. *Il Sci Am* 121:139+ Ag 9 '19

Completion of the Pearl harbor dry dock. A. R. Bond. *Il Sci Am* 121:202-3 Ag 30 '19

Computation of the time required to fill a graving dock. E. E. Halmos. diags *Eng N* 82:920-1 My 8 '19

Concrete plant on Boston dry dock almost automatic. E. M. Blake. *Il diags Eng N* 80:200-5 Ja 31 '18

Construction of the Pearl Harbor (Hawaii) drydock completed. *Il diags Eng N* 81:173-7 JI 25 '18

Dry dock at Quebec. *Engineer* 126:89 Ag 2 '18

Equipment of the Commonwealth dry dock at Boston, Mass. F. W. Hodgdon. *Il Boston Soc C E J* 6:301-10 O '19

Fleetwood fish dock extension. *Engineer* 127:55 Ja 17 '19

Mare Island dry dock suit decided against contractor. *Eng & Contr* 49:379 Ap 17 '18

**Docks—Continued**

- New 15,000-ton floating dry dock built and operated by Skinner & Eddy corporation, Seattle, Wash. *Il* diags plan *Int Marine Eng* 24:464-6 *Jl* '19
- New floating dry dock for Savannah. *Il* *Int Marine Eng* 24:690-1 *O* '19
- New system of dry docks. *J*: Lake. diags *Int Marine Eng* 24:709 *O* '19
- Our canal-zone dry docks and repair shops. R. D. Gatewood. *Il* *Am Mach* 50:336-9 *F* 20 '19
- Preservation of wood in connection with the building of wharves and docks. H. von Schrenk. *Il* *Int Marine Eng* 23:230-2 *Ap* '18
- Rapid concreting a feature of big Portsmouth dry dock. *Il* *Eng N* 83:494-6 *S* 11 '19
- Setting a dry-dock to work while under construction. *Il* *diag Sci Am* 121:439 *N* 1 '19
- Special features of Carron dry dock. diags *Eng & Contr* 52:129-30 *Jl* 30 '19
- Triple scarf used in dry dock timbering. *Il* *Eng N* 81:377 *Ag* 22 '18
- Twenty-thousand-ton floating dry dock. *Il* diags plans *Int Marine Eng* 24:661-3 *O* '19
- United States port in France. C. H. Claudy. *Il* *Sci Am* 120:598-9+ *Je* 7 '19
- Wood construction feature of Charleston port terminal. H. Abbott. *Il* diags plans *Eng N* 82:702-6 *Ap* 10 '19

*See also* Harbors; Ore docks; Wharves

**Dogs**

- Study of dogs as carriers and draught animals in military and civil service. P. Hachet-Souplet. *Il* *Sci Am S* 86:296-8 *N* 9 '18

**Dogs in war**

- Dogs of war. *Il* *Sci Am* 120:10-11 *Ja* 4 '19
- Quick-lunch dog for those in the trenches. *Sci Am* 118:481 *My* 25 '18
- When the dog goes to war. S. H. Coleman. *Sci Am S* 86:311 *N* 16 '18

**Doherty, Henry L., & company**

- Convention, New York, Dec. 9-12. *Am Gas Eng J* 109:553-5, 575-6, 578-9 *D* 14-21 '18
- Doherty executives discuss reconstruction. *Gas Age* 43:54-7 *Ja* 1 '19

**Dollar savings bank, New York**

- Dollar savings bank, Willis avenue, New York. *Am Arch* 116:pl 74-84 *Ag* 27 '19

**Dollar sign**

- Our almighty dollar sign. H. L. Bullen. *Inland Ptr* 63:645-6 *S* '19

**Dolls**

- Dried-apple sculpture. *Il* *Sci Am* 120:255 *Mr* 15 '19
- Toyland in the films; where dolls, as movie actors, rival living stars. R. H. Moulton. *Il* *Sci Am* 117:496-7 *D* 29 '17

**Domes**

- Cathedral of Saint Louis, Mo. *Il* diags plans *Am Arch* 114:148-55 *Jl* 81 '18
- Covering dome shaped roofs. W. Neubecker. diags *Metal Work* 91:576-7, 642-3, 722-4, 782-3; 92:11-12 *My* 9, 23, *Je* 6, 20, *Jl* 4 '19
- Erecting 130-ft. concrete dome of Hippodrome, Copenhagen, Denmark. *Il* diags *Concrete* 11:165-7 *D* '17
- Reinforced concrete dome at Hippodrome, Copenhagen. *Il* *Eng & Contr* 51:445 *Ap* 30 '19

**Domestic appliances**

- Electricity in household service; motor-driven domestic utilities. T. W. Behan. *Il* *Gen Elec R* 22:174-87 *Mr* '19

*See also* Dishwashing machines; Electric cooking; Electric irons; Gas appliances; Kitchen utensils; Washing machines

**Domestic engineering. See Heating; Plumbing; Sanitary engineering; Ventilation****Donle, H. P.**

- Some startling electrical phenomena obtained with new form of vacuum tube. *Il* *Sci Am* 120:579+ *My* 31 '19

**Doors**

- Covering fire doors and shutters. diags *Metal Work* 91:395-7+, 488-9 *Mr* 28, *Ap* 13 '19
- Door hardware for the modern home. W. R. Hill. *Il* *Bldg Age* 41:253-4 *Ag* '19

**Doors to suit many conditions. *Il* Factory 23: 1313-13 *D* '19**

- How doors should be hung for correct swing. E. J. G. Phillips. diags *Bldg Age* 40:89-90 *F* '18

**How to best construct door and doorways.**

- E. I. Freese. diags *Bldg Age* 41:86-9 *Mr* '19
- How to construct Dutch doors and select the hardware. *Il* diags *Bldg Age* 41:193-4 *Je* '19

**Quick method of setting door grounds. T.**

- Thorson. diags *Bldg Age* 40:565 *D* '18
- Something new in doors. *Il* *Sci Am* 119:216 *S* 14 '18

*See also* Architecture; Car doors; Doorways; Mine doors; Partition doors; Ships—Doors

**Doorways**

- Carved wood doorway. *Am Arch* 113:294, pl 84 *Mr* 6 '18
- Development of the American doorway. C. S. Keefe. *Il* *Am Arch* 113:313-23 *Je* 19 '18
- How to best construct door and doorways. E. I. Freese. diags *Bldg Age* 41:86-9 *Mr* '19
- Ingenious crane doorways. *Il* *Textile World* 56:2013+ *O* 4 '19
- Quaint doorways of old New York. *Am Arch* 116:75 *Jl* 16 '19
- Some doorways of older New York; drawings. J. Di Mariano. *Arch Rec* 45:169-75 *F* '19

**Dope. See Airplane fabric****Dormitories**

- Heating and ventilating dormitory buildings. C. L. Hubbard. diags *Dom Eng* 85:398-40+ *D* 14 '18
- United States housing corporation dormitories; views and plans. *Am Arch* 116:pl 118 *S* 24 '19

**Dorr thickener**

- Dorr thickener in blast-furnace field. *Il* *diag Iron Age* 103:112-15 *Ja* 9 '19
- Use of the Dorr thickener and classifier in coal preparation. J. Griffen. diags *Coal Age* 16:146-8 *Jl* 24 '19

**Double-end cars. See Street cars****Douglas, James, 1837-1918**

- Biographical notice. R. W. Raymond. *Am Inst Min E Bul* 141:1403-9 *S* '18
- Sketch. por *Eng & Min J* 106:18-20 *Jl* 6 '18; *Chem & Met Eng* 19:9 *Jl* 1 '18; *Am Soc M E J* 40:698-9 *Ag* '18; *Am Inst Min E Bul* 142:sup12-18 *O* '18
- Sketch. J. Colquhoun. *Eng & Min J* 107:20 *Ja* 4 '19

**Douglas fir**

- Discussion of the effects of kiln drying on the strength value of Douglas fir. C. A. Plaskett. *Am Lumberman* 2303:50-1 *Jl* 5 '19
- Douglas fir in southern China. *Am Lumberman* 2277:63 *Ja* 4 '19
- Fir as a substitute for cedar poles. *Elec R* 72:1050-1 *Je* 23 '18
- How to distinguish Douglas fir from Sitka spruce lumber. *Am Arch* 116:327 *S* 3 '19
- Logging in the Douglas fir region. W. H. Gibbons. *Il* diags plan *U S Agric Bul* 711:1-256 '18

**Occurrence of melezitose in a manna from the Douglas fir. C. S. Hudson and S. F.**

- Sherwood. *Am Chem Soc J* 40:1456-60 *S* '18

**Strength of nail joints in Douglas fir and western hemlock. H. E. Plummer. diags**

- Eng & Contr* 48:327-8 *O* 24 '17; Same cond. *Eng N* 79:871-2 *N* 8 '17; Discussion, with bibliography. H. D. Dewell. *Eng N* 79: 1211-12 *D* 27 '17

**Tests of Douglas fir after long use. A. C.**

- Alvarez. 13 tables *Univ of Cal Pub in Engineering v* 2, no 2:57-118, pl 1-17 '18; Excerpts. *Eng N* 83:231 *Ag* 7 '19; Conclusions. *Eng & Contr* 52:365 *S* 24 '19

- West coast millmen adopt density rules. *Am Lumberman* 2312:58-9 *S* 6 '19

**Dovetailing**

- Accurate measurement of dovetail ways. V. Brockbank. diags *Mach* 25:356 *D* '18

**Dow metal. See Magnesium alloys****Doxford engine. See Gas and oil engines**

**Draft**

- Back-draft in chimney. *diags plan Heat & Ven* 14:54-6; 15:53-5 D '17, F '18  
 Care of heating and ventilating equipment. H. L. Alt. *diags plans Power* 48:801-3 D 3 '18  
 Chimneys—draft reading. *Heat & Ven* 14:64-5 D '17  
 Draft recording device. *Il Ry Mech Eng* 92:476-7 Ag '18  
 Estimate of chimney draft. *Power* 47:341 Mr 5 '18  
 Management of the power plant. R. June. *Il diag Textile World* 54:1611+ O 5 '18; Same. *Concrete* 13:sup41-3 O '18  
 Notes on the use of draft gages. J. Robertson. *Il diag Eng & Min J* 105:292-3 F 9 '18  
 Sufficiency of chimney draft. *Power* 47:165 Ja 29 '18  
 Testing force of draft. *Il Power* 46:505 O 9 '17; Same. *Metal Work* 88:749 D 21 '17  
 Undeveloped opportunities in the field of draft regulation. *diag Heat & Ven* 16:55-6 S '19  
 Water works operation; pumping plants. *diags Munic J* 45:264-6 O 5 '18

*See also* Chimneys; Combustion; Dampers; Firing; Mechanical draft; Ventilation

**Draft, Mechanical.** *See* Mechanical draft

**Draft gages**

- Device for recording draft made by Precision instrument co. *Il Marine R* 49:605-6 D '19  
 Draft gage in the boiler room. *diags Locomotive* 32:143-7, 150-3 Ja '19  
 Finding chimney temperature by use of draft gage. J. M. Purcell. *diag Power* 48:844 D 10 '18  
 Five-in-one draft gage. *diag Power* 50:190 Jl 29 '19

**Draft gears**

- Anderson friction draft gear. *Il diags Ry R* 62:47 Ja 5 '18  
 Draft gears. C. F. Bauman. *Ry Mech Eng* 93:590-2 O '19  
 Maintaining draft gears. L. A. North. *Ry Age* 67:524 S 12 '19; Same. *Ry Mech Eng* 93:590 O '19  
 Proper draft gear maintenance. L. T. Canfield. *diags Ry R* 63:460-2 S 28 '18; Same. *Ry Mech Eng* 92:565-7 O '18  
 Report of the committee of American railroad association on draft gears. *diags Ry R* 64:982-3 Je 28 '19  
 Satisfactory friction draft gear. J. W. Womble. *Ry Age* 67:523-4 S 12 '19; Same. *Ry Mech Eng* 93:590 O '19  
 Study of friction draft gear capacity. L. E. Endsley. *Il Ry Age* 63:893-6 N 16 '17; Same. *Ry R* 61:602-5 N 17 '17; Same. *Ry Mech Eng* 91:689-92 D '17; Discussion. H. C. Priebe. *Ry R* 61:642-3 N 24 '17; *Ry Age* 63:1068 D 14 '17  
 When freight cars bump. J. H. Smith. *Il diags Sci Am* 120:602+ Je 7 '19

**Testing**

- Draft gear tests by the United States railroad administration. *Il diags Ry R* 64:641-4 My 3 '19  
 Freight car draft gear test demonstrations. *Il diags Ry Age* 66:1097-1100 My 2 '19; Same. *Ry Mech Eng* 93:249-52 My '19

**Draft tubes**

- Draft tubes at the Cedar Rapids plant. *Il Power* 50:104 Jl 15 '19

**Drafting boards and tables**

- Portable drafting table for construction jobs. B. Page. *diags Elec R* 72:387 Mr 2 '18  
 School-shop drawing tables and stool. R. W. Derby. *Il diag Am Mach* 49:131 Jl 18 '18

**Drafting room practice**

- Aid to the chief draftsman. J. S. Carpenter. *Am Mach* 50:338 My 1 '19  
 Business methods in the drafting-room. E. K. Hammond. *Il diags Mach* 24:697-702 Ap '18  
 Character of drawings reflects company standards. J. H. Melville. *Eng N* 81:721-3 O 17 '18  
 Checking jig and fixture drawings. R. Mawson. *Mach* 26:290 N '19

Conservation in the drafting room by simple methods. J. G. Wlahart. *Eng N* 82:921-3 My 8 '19

- Control of hull construction of a 5,000-ton deadweight fabricated steel vessel. *Int Marine Eng* 23:643-4 N '18  
 Cross-section paper and drawings. E. R. Plaisted. *Am Mach* 51:316 Ag 14 '19  
 Drafting-room labor-saving devices. F. T. Harding. *Il diags Mach* 25:61-2 S '18  
 Drawing-room system in the engineering department. G. F. Hamilton. *Am Mach* 49:485-7 S 12 '18  
 Economical method of producing mechanical drawings. L. H. Georger. *Mach* 24:1183 Ag '18  
 Efficiency in the drafting room. W. T. Edwards. *Am Mach* 49:116 Jl 18 '18  
 Eliminating hand-lettering on tracings. *Il Factory* 23:82+ Jl '19  
 Graphic method of generating an involute gear tooth. D. T. Hamilton. *Il diag Mach* 24:606-8 Mr '18  
 Industrial drafting room management. F. D. Hartford. *Ind Management* 58:271-2 O '19  
 Installing efficiency in the drafting room. W. P. Munger. *Ind Management* 57:487-8 Je '19; Excerpts. *Eng & Contr* 51:666 Je 18 '19  
 Keeping down expenses in the drafting department. H. H. Armstrong. *Am Mach* 49:380 Ag 29 '18  
 Meeting the reconstruction period with a depleted staff. J. L. Lane. *Am Mach* 50:1087-8 Je 5 '19  
 New drafting machine. *Il diag Engineer* 128:238 S 5 '19  
 Organization and wage payment for the drafting department. J. B. Conway. *Am Mach* 49:555-8 S 26 '18  
 Principles of drafting practice. R. M. Nelson. *Ind Management* 57:365-6 My '19  
 Radius jig for draftsmen. *diag Mach* 24:714 Ap '18  
 Rules for drafting practice. H. N. Savage. *Eng N* 83:121 Jl 17 '19  
 Rules for insuring failure in the drafting room. S. M. Ransome. *Am Mach* 49:1026 D 5 '18  
 Saving shop time in the drawing room. M. C. Smith. *diag Am Mach* 50:119-20 Ja 16 '19  
 Saving time in the drawing-room. H. W. Davis. *Mach* 24:1039 Jl '18  
 Shop and drafting room kinks. D. A. Baker. *diags Am Mach* 49:445-6 S 5 '18  
 Simple drafting room methods. G. F. Hamilton. *Ind Management* 56:301-4 O '18  
 Simple method of preparing tracings. W. F. Perry. *Elec R* 73:631 O 19 '18  
 Standard methods for dimensioning drawings. *Mach* 24:790 My '18  
 Study of drafting room errors. R. Fleming. *Eng & Contr* 50:378 O 23 '18  
 Time-saver for block manufacturers' draftsmen. H. Boyd. *diags Concrete* 12:208 Je '18  
*See also* Drawing instruments; Machinery—Design

**Drafting rooms**

- Drafting room must be efficient. F. B. Jacobs. *Iron Tr R* 65:233-4 Jl 24 '19  
 Lighting of offices and drafting rooms. W. Harrison. *Il Elec R* 72:825-8, 864-7 My 18-25 '18

**Draftsmen**

- Activities and aims of engineers and draftsmen's union. T. S. Ford. *Eng & Contr* 51:588-9 Je 4 '19; Same. *Eng N* 82:1218-19 Je 19 '19  
 Causes of unrest among draftsmen. R. W. Shelmire. *Eng & Contr* 50:230-1 S 4 '18  
 Classes draftsmen with engineers. A. F. Fowler. *Eng N* 82:1277-8 Je 26 '19  
 Draftsman and the shop. A. F. Guyler. *Am Mach* 49:266 Ag 8 '18  
 Draftsman-machinists and machinist-draftsmen. R. Mawson. *Ind Management* 55:144 F '18  
 Draftsman or engineer. *Am Mach* 49:907-8, 1075; 50:77, 204 N 14, D 12 '18, Ja 9, 30 '19  
 English draftsmen's union. *Eng & Contr* 52:188 Jl 30 '19

**Draftsmen—Continued**

- Growth of the draftsmen's unions. Eng N 82: 1141 Je 12 '19
- Organization and wage payment for the drafting department. J. B. Conway. Am Mach 49:555-8 S 26 '18
- Pay of technical engineers and draftsmen in St Louis. Heat & Ven 16:63 My '19
- Plea for the poor draftsman. H. Kay. Am Mach 47:1119-20 D 27 '17
- Psychological study of draftsmen. F. H. Sommers. Am Mach 48:703-4 Ap 25 '18
- Salary schedule and classification suggested by draftsmen's union. Eng & Contr 51:655-6 Je 18 '19
- Technical vs. practical tool designers. D. A. Baker. Am Mach 47:1037-8 D 13 '17
- Training girls for the drafting room. Il Automotive Ind 39:235 Ag 8 '18
- Training women for the drawing room; methods employed by Norton grinding co. H. W. Dunbar and W. E. Freeland. Il diags Iron Age 102:1-5 Jl 4 '18
- Up-to-date drafting room. R. W. Shelmire. Eng & Contr 51:587-8 Je 4 '19
- Washington society of draftsmen joins the American federation of labor. Eng & Contr 50:227-8 S 4 '18
- Woman in the drafting room. K. Works. Am Mach 49:245 Ag 8 '18

See also Drafting room practice

**Drain tile**

- Cement drain tile. Sci Am 120:30+ Ja 11 '19
- Supporting strength of sewer pipe in trenches. A. Marston, W. J. Schlick and H. F. Clemmer. Eng & Contr 49:176-7 F 13 '18
- Testing
- Durability of cement drain tile and concrete in alkali soils. R. J. Wig and others. Il diags plans U S Bur Stand Tech Pa 95:1-94 '17; Excerpts. Eng & Contr 49:170-2 F 13 '18
- Reinforced drain tile tested. W. J. Schlick. diags Concrete 12:139-40 Ap '18

**Drainage**

- Board mattress for preventing scour in drainage channel. B. F. Burns. Il diags plan. Eng & Contr 52:293 S 10 '19
- Credibility of long-continued experiments. E. J. Russell. Sci Am S 88:106 Ag 16 '19
- Depth the first consideration in drainage ditches. R. L. Longshore. Il Eng N 80:346-7 F 21 '18
- Ditch and road work combined on drainage project. diags plan Eng N 82:623-4 Mr 27 '19
- Drainage of irrigated land. M. R. Lewis. Eng N 82:153-4 Ja 16 '19
- Engineering methods in constructing tile drainage systems. D. P. Dale. Eng & Contr 49:267-8 Mr 13 '18
- Hydraulic efficiency of a drainage ditch for five different channel conditions. C. E. Ramser. Il Eng N 82:522-3 Mr 13 '19
- Inspection of drainage ditch cross-sections after contract dredging. E. S. Blaine. Il diags Eng N 82:1019-22 My 22 '19
- Keeping land drainage channels clear of growth and debris in the South. A. S. Fry. Eng N 81:263-6 Ag 8 '18
- Maintenance of drainage canals. Eng & Contr 50:167-8 Ag 14 '18
- Method of constructing tile drain through sand. L. U. Martin. Eng & Contr 52:42 Jl 9 '19
- Outlook for land drainage for the year 1918. A. H. Beitman. Munic Eng 54:205-6 My '18
- Plane-table surveys advocated for drainage work. L. H. Williams. Eng N 80:416-17 F 28 '18
- Segment blocks have advantages on larger-size drains. D. L. Yarnell. Eng N 82:663-4 Ap 3 '19
- Sinking a long board mattress in narrow channel. Il diags plan Eng N 83:230-1 Jl 31 '19
- Variety of equipment used to move supplies for drainage ditch construction. Il Eng N 81:905-7 N 14 '18

See also Drain tile; Irrigation; Mine drainage; Reclamation of land; Roads—Drainage; Sewerage

**Cost**

- Cost of ditches for reclaiming Idaho lands. D. W. Cole. Eng N 82:678-9 Ap 3 '19
- Drainage works of the Rio Grande irrigation project. J. L. Burkholder. Il map Eng N 83: 543-9 S 18 '19

**California**

- Canal system used alternately to irrigate and drain. Il Eng N 82:928-9 My 8 '19

**Egypt**

- Irrigation schemes in Egypt and the Sudan. Il Engineer 127:556-8 Je 6 '19

**England**

- Land drainage in Cambridgeshire. Il diags maps Engineer 127:174-6 F 21 '19

**Illinois**

- Electric pumping plant for drainage district in Illinois. Elec R 73:957-8 Je 8 '18

**Iowa**

- Clean old ditches to take run-off from bluffs without silting. Il Eng N 80:1083-4 Je 6 '18
- Land drainage procedure in Iowa. G. D. Hart. Il Munic Eng 56:187-8 My '19
- Spacing and depth of laterals in Iowa under-drainage systems and the rate of runoff from them with data from investigations. W. J. Schlick. diags maps Iowa state college Bul 52:1-119 '18

**Kansas**

- Kansas encourages land drainage and irrigation. Eng N 80:88-9 Ja 10 '18

**Louisiana**

- Unique features of unified operation of water, sewerage and drainage facilities at New Orleans, La. G. G. Earl. Il Munic Eng 56:121-9 Ap '19
- Wet lands of southern Louisiana and their drainage. C. W. Okey. Il diags plan maps U S Agric Bul 652:1-67 '18

**Minnesota**

- Minnesota drainage work checked. E. V. Willard. Eng N 80:299 F 14 '18

**New Zealand**

- Governmental drainage operations. Eng & Contr 50:127 Jl 31 '18

**United States**

- Contractors appeal to drainage districts for assistance in uncompleted portions of work on pre-war contracts. Eng & Contr 50:70 Jl 17 '18
- Drainage congress urges laws for federal and state aid. Eng N 83:839 O 30 '19
- Reclamation by drainage of land in the Mississippi valley. E. T. Perkins. Il Munic Eng 57:215-17 N '19
- State and federal control of land drainage needed. A. M. Shaw. Eng N 83:523-4 S 11 '19

**Utah**

- Irrigation made city drainage system necessary. H. S. Kleinschmidt. diag plan Eng N 80:1173-4 Je 20 '18

**Washington**

- Electric pumping successful in diking districts. Il Elec R 73:461 S 21 '18

**Wisconsin**

- Reclamation of swamp lands in Dane county. Wisconsin. W. G. Kirchoffer. Munic Eng 56: 66-6 F '19
- Drainage, House
- Air binding of house drain to septic tank. diags Dom Eng 81:392+ D 8 '17
- Cast-iron pipe or welded pipe for house drainage calked-joint vs. screw-joint, wrought-iron vs. steel pipe. W. P. Gerhard. Il Am Inst Arch J 7:283-8 Je '19



**Drainage, House—Continued**

- Iron or steel for house drainage. Sci Am 121: 123 Ag 2 '19
- Laying house drains to correct grade with spirit levels. R. J. Gordon. diag Dom Eng 85:203-4 N 9 '18
- Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diag plan Dom Eng 89:120-2 O 18 '19
- Plumbing ventilation. R. J. Gordon. diag Dom Eng 86:32-5 Ja 4 '19
- Principles of sanitary plumbing and drainage of buildings. C. A. Holmquist. Metal Work 89:601-4 My 10 '18
- Relative corrosion of cast-iron, wrought-iron and steel pipe in house drainage systems. W. P. Gerhard. II Am Soc M E J 40:945-7 N '18; Same. Arch & Bldg 51:10-12 F '19; Discussion. Mech Eng 41:455-60 My '19
- Relative merits of cast-iron, wrought-iron and steel pipe for house drainage purposes. W. P. Gerhard. II J Fr Inst 187:99-109 Ja '19
- Suggestions for the proper laying of house drains. A. Bateman. diag Dom Eng 88:2-4, 56-8 JI 5-12 '19
- Testing old plumbing and sewer drainage systems. R. J. Gordon. diag Dom Eng 88:586-8+ S 27 '19

See also Plumbing

**Draughting room practice.** See Drafting room practice

**Draughtsmen.** See Draftsmen

**Draw bench.** See Metal working machinery

**Drawbacks**

Drawback movement changed by the war. Iron Age 101:872-3 Ap 4 '18

**Drawbridges**

- Cantilever erection of draw in open position while old draw serves as fixed span. II diag plan Eng N 82:567-9 Mr 20 '19
- Details for draw span bearings. II diag Ry Age 64:558-9 Mr 15 '18
- Drum and track failure endangers important swingbridge. II diag Eng N 80:775-6 Ap 18 '18; Discussion. E. Godfrey. 80:1010 My 23 '18
- Electrical equipments for movable highway and railway bridges. H. H. Vernon. II diag Gen Elec R 22:373-83 My '19
- Extraordinary repairs made to a 1900-ton drawbridge. T. D. Fulton. II diag Eng N 83:366-9 Ag 21 '19
- Modern drawbridges attain great weights and spans. Eng N 80:860 My 2 '18; Same. Sci Am S 86:112 Ag 17 '18
- New chords on drawbridge carrying traffic. diag plan Eng N 82:956 My 15 '19
- Pontoon drawbridge that operates on river kite principle. H. P. Gillette. diag Eng & Contr 50:296-7 S 25 '18
- Radical departure in swing bridge design. diag Ry Age 66:905 Ap 4 '19
- Temporary swing bridge over the Suez canal. diag Engineer 128:174-6 Ag 22 '19
- Use of bronzes in railroad turntables and movable bridges. O. E. Selby. Metal Ind 15: 439-41, 469-70 O-N '17; Same. Foundry 46: 368-71 Ag '18
- Yielding barrier that is fool-proof. II Sci Am 118:22 Ja 5 '18
- Yielding barriers close roads at drawbridges. II diag Eng N 82:1168-70 Je 12 '19
- Yielding gates designed to stop autos at open draws. diag Eng N 80:1008 My 23 '18

See also Bridges, Bascule; Bridges, Lift

**Drawing, Architectural.** See Architectural drawing

**Drawing, Geometrical.** See Geometrical drawing

**Drawing Instruments**

- Compound harmonic motion machine. W. F. Rigge. II diag Sci Am S 85:88-91, 108-10 F 9-16 '18
- Efficiency in drafting room increased by use of symmetrical scale. J. T. Tubby. diag Am Arch 116:398 S 17 '19
- New drafting machine. II diag Engineer 128: 238 S 5 '19
- Simple line-dividing instrument. A. Bursill. diag Sci Am S 85:220 Ap 6 '18

**Drawing room practice.** See Drafting room practice

**Drayer, C. E.**

Elected secretary of American association of engineers. por Eng & Contr 50:182 Ag 14 '18; Eng N 81:337 Ag 15 '18

**Dreadnoughts.** See Warships

**Dreams**

War psycho-neurosis; the psychology of soldiers' dreams. F. W. Mott. Sci Am S 85:162-3, 185 Mr 16-23 '18

**Dredges**

- Bay City walking dredge. II Eng & Contr 49: 101 Ja 30 '18; Same. Munic Eng 54:120 Mr '18
- Bucket dredger for winning platinum bearing soil. II Engineer 128:90-1 JI 25 '19
- Clam dredging sand on Nebraska rivers. II Munic Eng 53:210-11 N '17
- Economics of ladder dredgers and steam hoppers. H. Berridge. Eng & Contr 50:101-3 JI 31 '18
- Electric suction dredge for condenser intake. II Elec W 71:415 F 23 '18
- Electrically operated hydraulic dredge applied to copper-bearing material at Calumet & Hecla plant. II Elec R 73:204 Ag 10 '18
- Features of electrically operated hydraulic dredge. C. W. Geiger. II Elec R 75:263-5 Ag 16 '19
- Home-made dredge reduces cost of canal construction. II Eng N 79:1147-8 D 20 '17
- Large sand digger has main screen on deck. II diag Eng N 80:602-4 Mr 28 '18
- Launching Yuba no. 17 dredge in California. II Eng & Min J 106:374-5 F 23 '18
- Move 180-ton dredge 4½ miles through city streets. II Eng N 81:145 JI 18 '18
- Operating a hydraulic dredge under difficulties. A. S. Fry. II diag Eng N 82:410-14 F 27 '19
- Reclaiming coal from the Susquehanna river by suction dredges. II Eng & Contr 49:611 Ja 19 '18
- Repairing gold dredges by use of arc welders. H. G. Newton. II Elec W 74:26 JI 5 '19
- Yuba all-steel placer dredge. L. H. Eddy. II Eng & Min J 107:752-3 Ap 26 '19
- Yuba no. 17 all-steel dredge. L. H. Eddy. II Eng & Min J 106:299-301 Ag 17 '18

See also Excavating machinery

**Dredging**

- Clamshell bucket digs thirty cubic yards per dip. II Eng N 83:279-80 Ag 7 '19
- Drop shafts sunk through buried tree trunks by dredging; foundation for large Kansas City power station. II Eng N 81:485-8 S 12 '18
- Five and a half million yards dredged by large fleet at Hog Island. Eng N 81:454-5 S 5 '18
- Handling river coal at Harrisburg. H. J. Edsall. II Coal Age 15:564-7 Mr 27 '19
- Material under piers removed by jetting with hydraulic dredge. R. W. Beuttenmuller. II diag Eng N 83:774 O 23 '19
- Modern suction dredging; pumping no longer restricted to liquids. C. E. Fowler. II Sci Am 118:356+ Ap 20 '18
- Operating a hydraulic dredge under difficulties. A. S. Fry. II diag Eng N 82:410-14 F 27 '19
- Sweep boat and drag-line dredge rigged up on canal job. II Eng N 80:92-3 Ja 10 '18
- Using electric power to dredge a relocated river channel. J. H. Walter. Eng N 81:723-5 O 17 '18

See also Excavation; Gold dredging; Tin dredging

**Dress.** See Clothing

**Dress fabric buyers, Jobbers' association of.** See Jobbers' association of dress fabric buyers

**Dress goods**

- Dress goods year 1918 disappointing. Textile World 55:388-9 Ja 11 '19
- Few novelties in London market. J. A. Hunter. II Textile World 56:1651+ S 20 '19

**Dried apples.** See Apples, Dried

**Dried fruit.** See Fruit, Dried

**Drifters.** See Fishing boats

**Drifts (tool)**

Making and using drifts. H. F. Pusep. diag  
Am Mach 51:757-60 O 23 '19

**Drill jigs.** See Jigs

**Drilling and boring (earth and rocks)**

Application of air drills to mine sampling.  
J. H. Eggers. Eng & Min J 108:358-60 Ag  
30 '19

Diamond-drill troubles. M. C. Milton. diag  
Eng & Min J 107:450-1 Mr 8 '19

Diamond drilling near Chemainus, B.C. Coal  
Age 14:856 N 7 '18

Drill mounting for flat hole work. II Eng &  
Contr 49:205 F 20 '18

Experiences with a borehole. A. W. Hesse  
and K. M. Quickel. Coal Age 13:1146-7 Je  
22 '18

Hand drilling with jump-drills. L. D. Daven-  
port. diag Eng & Contr 49:615-16 Je 19 '18

New machine for boring pole holes. II Elec R  
72:779-80 My 4 '18

Oil-well drilling by electricity proves econom-  
ical. J. G. Dickinson. Elec R 75:916-17  
N 29 '19

Old diamond-drill hole as cableway for new  
churn-drill hole. R. H. Poston. diag Eng &  
Min J 108:398 S 6 '19

Rotary method of well drilling. A. G. Wolf.  
I. diag plan Eng & Min J 108:171-5 Ag  
2 '19; Same. Sci Am S 88:248-50 O 25 '19.

Sealing formations by silme-laden fluid. S. S.  
Langley. diag Eng & Min J 108:268-71 Ag  
16 '19

Standardization of mining methods—standard  
machine-drill rounds. C. A. Mitke. diag  
plan Eng & Min J 106:857-61 N 16 '18

Water jack-hammer contest at Tonopah.  
J. A. Carpenter. II Eng & Min J 108:240-1  
Ag 9 '19

Wedging diamond-drill holes. O. Hall and  
V. P. Row. diag Am Inst Min Bul 153:1597-  
1602 S '19; Same abr. Eng & Contr 52:428-9  
O 15 '19; Discussion. Am Inst Min Bul 155:  
3038-9 N '19

See also Artesian wells; Rock drills; Shaft  
sinking; Wells

**Drilling and boring (metal working, etc.)**

Bar for boring a chamber. O. E. Charles.  
diag Am Mach 49:256 Ag 8 '18

Bending and drilling tubes, angles and flat  
sections. F. A. Stanley. II diag plan Am  
Mach 48:697-701 Ap 25 '18

Boring a 4-ft. hole in an 18-ft. ship casting.  
H. G. McLean. II diag Am Mach 48:211 Ja.  
31 '18

Boring a hole around a corner. G. A. Mac-  
Gregor. diag Am Mach 48:328 F 21 '18

Boring and reaming ball bearing housings on  
a turret lathe. P. S. Thomas. diag Mach  
25:66 S '18

Boring and reaming on the drill press. V. T.  
Kropidowski. diag Ry R 62:276-7 F 23 '18

Boring attachment for lathe. C. W. Wilkinson.  
II diag Mach 24:739 Ap '18

Boring spiders for paper mill cylinders.  
R. P. Deane. diag Am Mach 51:304 Ag  
14 '19

Boring taper holes. W. E. Bennett. diag Am  
Mach 48:391 F 23 '18

Boring with an improvised rig. M. E. Hoag. II  
Am Mach 51:583-4 S 18 '19

Centering shell forgings on a drilling ma-  
chine. J. Homewood. diag Mach 25:63-4 S  
'18

Chamfering tool. R. E. Goss. diag Am Mach  
48:675-6 Ap 13 '18

Deep boring operation on a lathe. diag Mach  
25:1175-6 Ag '19

Device to drill a hole from the inside of a  
boiler or tank. J. A. Lucas. diag Coal Age  
14:891 N 14 '18

Drill for square holes. diag Marine R 49:302  
Je '19

Drilling bakelite at high speed. II Mach 24:  
1024 J1 '18

Drilling closely spaced holes. II Mach 24:886  
Je '18

Drilling deep holes of small diameter. W. S.  
Rowell. Mach 26:241 N '19

Drilling, facing, and tapping studs. II Mach  
24:809 My '18

Drilling holes for hub plate studs. diag Ry

Mech Eng 93:259-60 My '19

Drilling metal by hand power. J. Lewis. diag

Power 47:93 Ja 15 '18

Drilling records. Mach 25:1184 Ag '19

Drilling square holes in metal. A. E. Rhodes.  
diag Marine R 49:485 O '19

Dudgeon system of precision boring. II diag  
plan Mach 25:803-5 My '19

Efficiency points in boring fixtures. L. M.  
Curry. diag Mach 24:542 F '18

Experiment in employing the blind. D. Wolf.  
Ind Management 57:105-7 F '19

Intensive production on drilling machines.  
E. K. Hammond. II diag Mach 24:914-21,  
1030-4 Je-J1 '18

Inverted drilling of armature shafts. diag  
Mach 24:630 Mr '18

Machine lap for taper holes. J. G. Rock. diag  
Am Mach 48:760 My 2 '18

Machining a long rectangular hole. F. H.  
Jennings. diag Am Mach 48:249 F 7 '18

Machining tractor wheel hubs on a drilling  
machine. II Am Mach 48:634 Ap 11 '18

Making boring bars for big guns. M. E. Hoag.  
II Am Mach 49:987-8 N 28 '18

Making cylinders for destroyers. II Am Mach  
49:348 Ag 22 '18

Modern drilling practice. E. K. Hammond. II  
diag Mach 24:381-93, 502-8, 619-27 Ja-Mr  
'18

One-way bow drill. J. A. Lucas. diag Am  
Mach 50:19 Ja 2 '19

Portable electric drilling machines used in  
multiple. J. Dougherty. II Am Mach 51:  
788 O 30 '19

Porter-Cable differential-cross centering ma-  
chine. II Am Mach 50:867-8 My 1 '19

Radius-cutting boring bar. A. S. Mill. diag  
Am Mach 48:201 Ja 31 '18

Re-boring a Corliss valve-bonnet. A. M.  
Stiles. II diag Am Mach 50:951-2 My 15  
'19

Recessing tool for gasoline engine cylinders.  
C. C. Spreen. diag Mach 24:741-2 Ap '18

Rig for drilling holes in ceiling. P. P. Fenaux.  
diag Power 48:465-6 S 24 '18

Simple corner drilling device. J. Gardner.  
diag Am Mach 50:952 My 15 '19

Simplifying a button-setting job. H. F. Pusep.  
diag Am Mach 48:382 Mr 1 '17; Discussion.  
47:602-3, 1052 O 4, D 13 '17

Small adjustable boring tool. diag Am Mach  
48:886 My 23 '18

Spacing mechanism for drilled holes. II Iron  
Age 101:133 Ja 10 '18

Speeds and feeds for drilling. E. K. Hammond.  
II diag Mach 24:715-20 Ap '18

Time studies for rate setting on Gisholt bor-  
ing mills. D. V. Merrick. II diag Ind Man-  
agement 56:34-41, 129-33 J1-Ag '18

Utilizing a four-spindle boring mill to rehabili-  
tate 3000 motors. II Elec Ry J 52:424 S 7 '18

Weight of metal removed from machine  
members by drilling. W. Thompson. chart  
Mach 26:35 S '19

Wigglers and their uses. H. F. Pusep. diag  
Am Mach 49:559-60 S 26 '18

See also Broaching; Machine shop practice

**Drilling and boring machinery**

Adjustable bar for boring taper holes. A. Ta-  
densz. diag Am Mach 48:847 My 16 '18

Advantages of electricity for operating port-  
able drills shown. Elec R 75:348 Ag 30 '19

Amalgamated gun-boring machines. II Am  
Mach 48:430-2 Mr 7 '18

American radial drilling machines. II Am  
Mach 50:915-16 My 8 '19

Arch bar drilling machine. II Ry Mech Eng  
92:359-60 Je '18

Arnold electrically driven drills. II Iron Age  
103:696 Mr 13 '19

Aurora tool works vertical drilling machine. II  
Mach 24:851 My '18; Am Mach 48:809 My  
9 '18

Automatic drilling machine feed. E. Ferber.  
II Am Mach 50:1146 Je 12 '19

Automatic feed attachment for drilling ma-  
chines. R. E. Byrd. diag Am Mach 49:359  
Ag 22 '18

Baker horizontal drilling and boring machine.  
II Am Mach 51:483-4 S 4 '19; Iron Age 104:  
569 Ag 28 '19

**Drilling and boring machinery—Continued**

- Baker rod drill. *Il* Ry Mech Eng 92:423-4 J1 '18
- Barnes adjustable-head, gang drilling machine. *Il* Am Mach 50:466 Mr 6 '19
- Black & Decker 1/2-inch electric drill. *Il* Am Mach 50:911 My 8 '19
- Blomquist-Eick horizontal boring mill. *Il* Am Mach 50:37-8 Ja 2 '19; Iron Age 103:185 Ja 14 '19; Iron Tr R 64:156-7 Ja 9 '19; Ry Mech Eng 93:48-9 Ja '19; Mach 25:465-6 Ja '19
- Boring, drilling, and milling machine made by G. and A. Harvey. *Il* diag Engineer 125:292-3 Ap 5 '18
- Boring engine guides. W. A. F. Millinger. *diag* Am Mach 48:74 Ja 10 '18
- Boring machine for journal brasses made from old axle. *Il* diag Elec Ry J 53:745-6 Ap 12 '19
- Buckeye heavy-duty upright drilling machine. *Il* Am Mach 48:767 My 2 '18
- Bullard machine tool co. designs heavy-duty type boring mill. *Il* Iron Tr R 62:1369 My 30 '18; Ry Mech Eng 92:353-9 Je '18; Am Mach 48:973-4 Je 6 '18
- Caukins-Carpenter sensitive drilling machine. *Il* Am Mach 49:334 O 31 '18
- Connecting-rod boring machine. M. E. Hoag. *Il* Am Mach 47:1103 D 20 '17
- Cylinder boring and reaming. F. D. Jones. *Il* diag Mach 35:333-94 Ja '19
- Cylinder boring and reaming tools. F. D. Jones. *Il* diag Mach 25:507-15 F '19
- Cylinder boring jig. M. E. Hoag. *Il* Am Mach 48:464-5 Mr 14 '18
- Dallett boiler shell drill. *Il* Int Marine Eng 23:315-16 My 13 '18
- Dauber-Kratsch radial drilling machines with swinging tables. *Il* Am Mach 49:638 O 3 '18
- Defiance boring machine of heavy design. Iron Tr R 62:1375 My 30 '18
- Defiance cylinder boring machines. *Il* Mach 25:672 Mr '19; Am Mach 50:466-7 Mr 6 '19; Iron Age 103:691 Mr 13 '19
- Defiance gas-engine-cylinder boring machine. *Il* Am Mach 50:362-3 My 1 '19
- Defiance no. 10 multiple-spindle drilling machine. *Il* Am Mach 51:42-3 J1 3 '19
- Defiance no. 23 high power multiple spindle rail drill. *Il* Ry Mech Eng 93:358-9 Je '19; Iron Age 103:1450 My 29 '19
- Defiance self-contained drill for heavy duty. *Il* Iron Tr R 64:831 Mr 27 '19
- Defiance 24-in. drilling machine no. 3. *Il* Am Mach 48:126 Ja 17 '18; Iron Age 101:199 Ja 17 '18
- Dresses simplex radial drilling machine. *Il* Am Mach 51:339-40 N 6 '19
- Drill for boring square and patterned holes. *Il* Sci Am 120:492 My 10 '19
- Drill grinding. E. K. Hammond. *Il* chart diag Mach 24:335-30 My '18
- Easy rule for approximating tap-drill sizes. Am Mach 49:748, 990; 50:51 O 24, N 28 '18, Ja 9 '19
- Economical counterbore. M. W. Bossmann. *diag* Am Mach 47:1086 D 20 '17
- Economical high-speed steel counterbore. W. Nemo. *diag* Am Mach 48:463-4 Mr 14 '18
- Edlund new sensitive drilling machine. *Il* Iron Age 102:745 S 26 '18; Am Mach 49:685-6 O 10 '18
- Edlund sensitive drilling machine. *Il* Am Mach 50:768-9 Ap 17 '19
- Fleming combination-lathe, boring and milling machine. *Il* Am Mach 48:597 Ap 4 '18
- Forged twist drills. *diag* Mach 26:11 S '19
- Fortin turret drill head. *Il* Am Mach 49:1006 N 28 '18
- Fosdick heavy-duty upright drilling machine. *Il* Am Mach 51:485-6 S 4 '19; Automotive Ind 41:567 S 18 '19; Ry Mech Eng 93:617-18 O '19
- Garrison drilling heads and gear holding chuck. *Il* Am Mach 48:514-15 Mr 21 '18
- Giddings & Lewis horizontal boring machine. *Il* Am Mach 48:41 Ja 3 '18; Mach 24:470 Ja '18
- Giddings & Lewis no. 4 boring, milling and drilling machine. *Il* Am Mach 49:777-8 O 24 '18; Iron Age 102:1079 O 31 '18; Mach 25:259-60 N '18
- Giddings & Lewis no. 45 horizontal boring machine. *Il* Am Mach 51:806 O 30 '19; Mach 26:282-3 N '19
- Guide for small drills in an automatic screw machine. D. A. Hampson. *diag* Am Mach 49:986 N 28 '18
- Gun-boring tools and data. F. H. Colvin. *diag* Am Mach 50:997-9 My 22 '19
- Handy offset boring head. A. Swanson. *diag* Am Mach 50:400 F 27 '19
- Harrington multiple-spindle drilling machine. *Il* Iron Age 104:779 S 13 '19; Am Mach 51:675 O 2 '19
- Heinkel gearless multiple-spindle drilling heads. *Il* diag Mach 24:658-9 Mr '18; Am Mach 48:513 Mr 21 '18; Iron Tr R 62:609 Mr 7 '18; Ind Management 55:422-3 My '18
- High-speed ball bearing drilling machine. *Il* Am Mach 48:556-7 Mr 28 '18; Mach 24:747 Ap '18; Iron Age 101:871 Ap 4 '18
- Hill multiple-spindle drilling machine. *Il* Am Mach 50:189-90 Ja 30 '19
- Horizontal boring machine. *Il* diag Engineer 128:162-3 Ag 15 '19
- Ingersoll-Rand air drill for light work. *Il* Ry Mech Eng 92:66 Ja '18
- Inspection limits for taps and drills. Mach 24:551 F '18
- Interchangeable counterbore. W. P. Lotz. *diag* Am Mach 50:353 F 20 '19
- Inverted bench gang drilling machine. *Il* Iron Age 102:1027 O 24 '18
- Investigation of twist drills. B. W. Benedict and W. P. Lukens. *Il* diag plan Ill U Eng Exp Sta Bul 103:1-139 '17; Conclusions and abstract of appendix L Iron Tr R 63:555-6 S 5 '18
- Lambert horizontal boring machine. *Il* Am Mach 49:270 Ag 8 '18
- Landau multiple drilling and tapping machine. *diag* Mach 24:559 F '18; Am Mach 48:472 Mr 14 '18
- Langeller multiple-spindle drilling machine for ignition tubes, with two 6-spindle drilling heads. *Il* Am Mach 48:724 Ap 25 '18
- Langeller turnbuckle drilling machine. *Il* diag Mach 24:559-60 F '18
- Langeller 22-spindle drilling machine for ignition tubes. *Il* Am Mach 48:935 My 30 '18; Mach 24:961-2 Je '18
- Light, electricity and the shop. C. E. Clewell. *Il* diag Am Mach 50:163-7 Ja 23 '19
- Little David drill for light work. *Il* Elec Ry J 51:98 Ja 12 '18
- Little giant compressed-air corner drill. *Il* Am Mach 49:959 N 21 '18
- Lynd-Farquhar radial wall-drilling machine. *Il* Am Mach 48:982 Je 6 '18; Mach 24:951-2 Je '18
- Machine for boring babbitt linings of car-journal brasses. J. V. Hunter. *Il* diag Am Mach 50:403-4 F 27 '19
- Machine for drilling chaser blanks. J. B. Smith. *Il* Am Mach 50:553 Mr 20 '19
- Machine for rapid and accurate drilling operations on marine work. *Il* Marine R 49:360 J1 '19
- Making use of a discarded machine. D. A. Hampson. *Il* Am Mach 49:1020 D 5 '18
- Manufacturing high speed twisted drills by the hammered method. *Il* Iron Tr R 62:606-8 Mr 7 '18
- Mason high-speed drilling machine. *Il* Mach 24:857 My '18; Am Mach 48:1030 Je 13 '18
- Michigan cylinder reborer and burnishing tool. *Il* Am Mach 51:677-8 O 2 '19
- Miscellaneous thread and drill sizes. Motor Age 34:37 N 14 '18
- Moline special milling and drilling machine. *Il* Ind Management 55:333-4 Ap '18
- Morris horizontal boring and drilling machine. *Il* Iron Age 103:1083 Ap 24 '19; Am Mach 50:865-6 My 1 '19; Iron Tr R 64:1295-6 My 15 '19
- Morris plain radial drilling machine. *Il* Am Mach 48:40 Ja 3 '18; Mach 24:466-7 Ja '18; Ry Mech Eng 92:65-6 Ja '18; Iron Tr R 62:276 Ja 24 '18; Ind Management 55:155-6 F '18
- Multi-Au-Matic boring mill that is six machines in one. *Il* Ry Mech Eng 93:394-5 Je '19

**Drilling and boring machinery—Continued**

- Multiple-spindle drill head for lathe. O: Dorthen. diags Mach 25:1081-2 J1 '19
- Multiple-spindle drilling heads; advantages and construction of various types. F. Server. II diags Mach 25:229-34 N '18
- New method of gang drilling. II diag Iron Age 103:489-92 F 20 '19
- New type of center drill. II Iron Age 102:1078 O 31 '18
- Newman turret drilling head. II Am Mach 48:81 Ja 10 '18
- Newton duplex locomotive connecting-rod boring machine. II Am Mach 50:912-13 My 8 '19; Iron Age 103:1222 My 8 '19; Iron Tr R 64:1226-7 My 8 '19
- Newton horizontal boring and drilling machine. II Am Mach 48:1076 Je 20 '18
- Newton rail-drilling machine. II Am Mach 48:933-4 My 30 '18; Iron Age 101:1419 My 30 '18; Iron Tr R 62:1314 My 23 '18; Mach 24:956 Je '18; Ry Mech Eng 92:478 Ag '18
- Niles-Bement-Pond bending rolls. II Am Mach 48:983 Je 6 '18; Iron Age 101:1545 Je 13 '18; Iron Tr R 62:1427 Je 6 '18; Mach 24:955 Je '18; Ind Management 56:68-9 J1 '18
- Pedrick duplex boring machine. II Mach 24:1049-50 J1 '18; Am Mach 49:221 Ag 1 '18
- Portable cylinder-boring machine. M. H. Ball. diags Am Mach 48:1068-9 Je 20 '18
- Reduction head for drilling machine. E. D. Dunning. diag Am Mach 47:1093 D 20 '17
- Reed-Prentice brass drilling machine. II Mach 24:467 Ja '18
- Reed-Prentice special boring, reaming and facing machine. II Automotive Ind 38:639 Mr 28 '18
- Salvaged small-shop boring mill. J. V. Hunter. II Am Mach 49:797 O 31 '18
- Sensitive drilling machine spindle construction. C. E. Bernitt. II diags Mach 24:704-8 Ap '18
- Silver radial drilling machines. II Iron Age 104:869 S 25 '19; Am Mach 51:674-5 O 2 '19; Iron Tr R 65:1119 O 23 '19
- Special horizontal boring machine. J. P. Brophy. II Mach 24:761-2 Ap '18
- Special shell drilling machines. D. A. Baker. diags Mach 24:1131-2 Ag '18
- Springfield gun boring machine. II Mach 24:847-8 My '18
- Tapping and assembling operations in a drilling machine. D. A. Hampson. diags Mach 25:315-16 D '18
- Time studies for rate setting on Gisholt boring mills. D. V. Merrick. diags Ind Management 56:181-4, 289-99, 409-11 S-N '18
- Tire clamp for boring mills. H. L. Lingo. diags Ry Mech Eng 93:547 S '19
- Tools for boring a closed-bottom shell. M. H. Potter. diags Mach 25:427-8 Ja '19
- Turner turret type drilling machine. II Mach 24:561 F '18
- Universal cylinder re boring tool. II Am Mach 48:256-7 F 7 '18
- Unusual boring mill operation. M. E. Hoag. II Am Mach 51:462 S 4 '19
- Unusual operations on drilling machines. E. K. Hammond. II diags Mach 24:1091-3 Ag '18
- Use of the drilling machine for intricate boring operations. II Am Mach 49:519 S 19 '18
- Watts angular-hole drilling tools. diags Mach 24:952 Je '18
- Weigel drilling machine. II Iron Age 101:862 Ap 4 '18; Iron Tr R 62:857 Ap 4 '18
- Weigel vertical drilling machine with wheel and lever feed. II Mach 24:850-1 My '18; Am Mach 48:1123-4 Je 27 '18
- Western universal radial drilling machine. II Am Mach 50:1156-7 Je 12 '19
- Wilt process of twist drill manufacture. F. D. Jones. II diags Mach 24:1007-13 J1 '18
- Wisconsin drilling machine. II Mach 26:84-5 S '19
- Wisconsin high-speed sensitive radial drilling machine. II Am Mach 49:224-5 Ag 1 '18; Mach 24:1153 Ag '18
- Wisconsin type A motor-driven drilling machine. II Am Mach 49:135 J1 '18 '18
- See also Broaching; Chamfering tool; Jigs; Machine tools; Reamers

Drills. See Drilling and boring machinery

Drills, Rock. See Rock drills

**Drinking fountains**

- Apply test to your drinking fountains. A. R. McGonegal. Metal Work 90:531-3 N 8 '18
- Are you developing bubbling fountain business? C. H. Rosemont. II Dom Eng 87:468-70 Je 14 '19
- Bubbling fountain a factory necessity. II diag Metal Work 90:209-10 Ag 23 '18
- Camp drinking fountains improvised from barrels. diags Eng N 82:346 F 13 '19
- Cold drinking water during hot weather. H. L. Alt. diags plan Dom Eng 84:120-1, 160-1 J1 27-Ag 3 '18
- Ebco drinking fountains. II Am Mach 48:555-6 Mr 28 '18
- Progress report of the committee on sanitary drinking fountains. Am Water Works Assn J 5:110-14 Je '18; Abstract. Munic J 45:6 J1 6 '18

**Driveways**

- Garage and entrance turns. A. D. Taylor. II diags Am Arch 115:699-704, 777-82 My 21, Je 4 '19

Driving boxes. See Locomotives—Driving boxes

Driving wheels. See Locomotives—Driving wheels

Drop forge association, American. See American drop forge association

**Drop forge supply association**

- Joint meeting with American drop forge association, June 20-22. Automotive Ind 38:1270-1+ Je 27 '18; Iron Age 101:1650-4 Je 27 '18; Iron Tr R 62:1623-4 Je 27 '18

**Drops**

- Breaking of liquid skins. Sci Am S 87:72 F 1 '19
- Instability of electrified surfaces. Sci Am S 84:414 D 29 '17
- Observations on dropping and on the measurement of the superficial tension of liquids by means of drops. F. L. Perrot. diags Sci Am S 85:268-70 Ap 27 '18

**Dropsy**

- Prisoner's dropsy. Sci Am 119:169 Ag 31 '18

**Drosometer**

- Eredia's new dew-gage (drosometer). diag Sci Am S 87:373 Je 14 '19

**Drug farming**

- Growing medicinal plants in America. A. S. Cushman. II J Fr Inst 186:267-78 S '18

**Drugs**

- Announcement of the Federal trade commission with regard to licenses under German dye and drug patents. J Ind & Eng Chem 10:404 My '18
- Institute for coöperative research as an aid to the American drug industry; symposium. J Ind & Eng Chem 10:969-76; 11:59-69, 157-61 D '18-F '19
- Manganese content of the ash of certain drugs. L. E. Westman and R. M. Rowat. Am Chem Soc J 40:568-62 Mr '18
- Poisons and drugs of animal origin. G. Barger. Sci Am S 86:238-9 O 12 '18
- Relation between chemical constitution and physiological action. F. L. Pyman. Sci Am S 85:267 Ap 27 '18
- Studies in synthetic drug analysis; estimation of theobromine. W. O. Emery and G. C. Spencer. J Ind & Eng Chem 10:605-6 Ag '18
- Studies in synthetic drug analysis—evaluation of hexamethylenetetramine tablets. W. O. Emery and C. D. Wright. J Ind & Eng Chem 10:606-8 Ag '18
- See also Chemistry, Medical and pharmaceutical

Dry cells. See Electric batteries

Dry cleaning. See Cleaning

Dry docks. See Docks

**Dry rot**

- Controlling dry rot in timber. E. J. Goodacre. Sci Am S 85:25 Ja 12 '18
- Decay in mill-roof timber. R. J. Blair. II Textile World 54:2857+ D 7 '18

**Dry rot—Continued**

Dry rot is a misnomer. C. Waterton. *Am Arch* 113:510 Ap 24 '18

Wood in the construction of mill buildings. W. Kynoch and R. J. Blair. *Eng & Contr* 50:225-6 Ag 23 '18

*See also* Wood preservation

**Drying**

Artificial drying, with special reference to the use of gas. G. C. Shadwell. *il diags Am Soc Heat & V E* 23:231-49; Discussion. 249-54 '17

Drying by evaporation; with discussion. F. R. Still. *Am Soc Heat & V E* 23:255-63 '17

Drying in industrial plants; with discussion. J. O. Ross. *Am Soc Heat & V E* 23:265-71 '17

Drying money. H. C. Russell. *diags plans Am Soc Heat & V E* 23:571-6 '17

Drying system for liquids. G. A. Lough. *il Chem & Met Eng* 19:43 Jl 1 '18

Fish cannery calls upon gas for assistance in lowering costs. F. H. Mugg. *il Am Gas Eng* J 108:485-7 My 25 '18

General aspects of evaporation and drying. H. K. Moore. *Met & Chem Eng* 18:128-33, 186-92 F 1-15 '18

High temperature drying. B. S. Harrison. *Am Soc Heat & V E* 24:7-21 '18; Same. *Metal Work* 89:196-8, 260-3 F 8, 22 '18; Discussion. *Am Soc Heat & V E* 24:22-4 '18

How loam molds and cores are dried. E. Schwartz. *diags Foundry* 47:754-5+ O 15 '19

Mechanical curing of alfalfa. E. M. Bassler. *il Am Soc Heat & V E* 23:561-3; Discussion. 563-9 '17

New German drying process. *Sci Am* 119:403 N 16 '18

Temperature of evaporation. W. H. Carrier. *Am Soc Heat & V E* 24:25-46; Discussion. 46-50 '18

*See also* Coal drying; Drying apparatus; Lumber drying; Sand drying

**Drying (food)**

Low temperature-vacuum food dehydration. K. G. Falk, E. M. Frankel and R. H. McKee. *J Ind & Eng Chem* 11:1036-40 N '19

New process for drying food. *il Sci Am* 120:431 Ap 26 '19

Preservation of food products by drying. G. C. Shadwell. *il diags Am Soc Heat & V E* 23:537-44 '17

*See also* Drying (fruit and vegetables)

**Bibliography**

Selective bibliography on dehydrated foods. E. D. Greenman. *Special Libraries* 10:108-18 My '19

**Drying (fruit and vegetables)**

Address on dehydration. H. C. Gore. *diags Am Soc Heat & V E* 24:323-7; Discussion. 327-38 '18

Arsenic in sulfured food products. W. D. Collins. *diag J Ind & Eng Chem* 10:360-4 My '18

Dehydrating fruits and vegetables. F. R. Still. *Am Soc Heat & V E* 23:529-36 '17

Dehydration. *Sci Am* 119:52 Jl 20 '18

Dehydration. H. C. Gore. *Am Soc Heat & V E* 23:511-14; Discussion. 514-28 '17

Dehydration industry in America. E. C. Horst. *il Sci Am* 119:291 O 12 '18

Desiccation of potatoes in Germany. *Sci Am* S 85:115 F 23 '18

Development of vegetable-drying in Germany. *Sci Am* 119:375 N 9 '18

Drying of fruits and vegetables. W. M. Schwartz. *Am Soc Heat & V E* 23:545-8 '17

Drying vegetables a new conservation move. A. L. Dahl. *il Sci Am* S 85:132-3 Mr 2 '18

Farm and home drying of fruits and vegetables. J. S. Caldwell. *il diags U S Agric Farmers' Bul* 984:1-61 '18

Food dryers and the use of schoolhouses for drying. W. L. Fleisher. *bibliog il diags Am Soc Heat & V E* 24:339-54 '18; Abstract. *Heat & Ven* 15:34-5 Jl '18; Discussion. *Am Soc Heat & V E* 24:354-7 '18

Joint discussion of the papers of F. R. Still, G. C. Shadwell and W. M. Schwartz. *Am Soc Heat & V E* 23:549-60 '17

Laundry dries fruit. *Sci Am* S 86:233 O 12 '18

Memorandum concerning fruit and vegetable dryers. A. S. Kellogg. *diags Am Soc Heat & V E* 24:359-63; Discussion. 364-6 '18

Successful community drying plant in Nebraska. C. W. Pugsley. *il diags U S Agric Farmers' Bul* 916:1-12 '17

Work of the Harriman research laboratory, Roosevelt hospital, New York city, in affiliation with the Division of food and nutrition, Medical department, U.S. army. K. G. Falk. *J Ind & Eng Chem* 11:1062-3 N '19

**Drying apparatus**

Air drying for blast furnaces. L. Cammen. *diag Eng Soc W Pa* 33:199-204 Ap '17; Abstract. *Am Soc M E J* 39:566 Je '17; Abstract. *Iron Age* 100:1429 D 13 '17

Apparatus for cooling, drying and purifying air. W. J. Baldwin. *diags Am Soc M E J* 39:992-3 D '17; Same abr. *Heat & Ven* 15:44-5 Ja '18

Electric drying ovens in a rod mill. *il Iron Age* 101:441-2 F 14 '18

Improved method of drying small metal parts without the use of sawdust and the tumbling barrel. H. G. Winne. *il Metal Ind* 16:229 My '18

Portable hot-air machine for drying out purposes. *il Elec R* 74:111 Ja 18 '19

Speeding up the drier. *il Sci Am* 120:206 Mr 1 '19

*See also* Lumber drying; Sand drying

**Laundry**

Canton sanitary clothes dryer uses gas. *il diag Gas Age* 43:220-1 F 15 '19

**Textiles**

Backwasher and dryer. *il Textile World* 54:2453 N 16 '18

Circulating air in dryer; patent. *diag Textile World* 53:4945 Ap 27 '18

Knit cloth dryer. *il Textile World* 55:1181 F 15 '19

Top manufacturing and its problems. A. F. Schumann. *il diags Textile World* 55:2865+ My 10 '19

Dublin, Ireland

**Rapid transit**

Zone fare in practice. W. Jackson. *il map Elec Ry J* 53:1038-43, 1087-92 My 31-Je 7 '19

Dubuque, Iowa

**Water supply**

Typhoid mixed with politics. *Munic J* 44:302-3 Ap 13 '18

**Ductility**

Erichsen tests on aluminum sheets. R. J. Anderson. *Iron Age* 101:950-1 Ap 11 '18

**Ductometer**

Computer for determining gas duct dimensions. *Iron Age* 101:1223 My 9 '18

New form of ductometer. *diag Heat & Ven* 15:64-5 Ja '18; Excerpt. *Munic Eng* 54:160-1 Ap '18

Ducts. *See* Air pipes

**Duluth, Minnesota**

Water and light department. *Munic J* 44:282 Ap 6 '18

**Dumbwaiters**

Dumbwaiter helps bring household efficiency. P. D. Otter. *diags plan Bldg Age* 40:419-20 S '18

**Dummies (printing)**

Giving the dummy its due. D. Kimball. *Inland Ptr* 63:513-14, 638-4 Ag-S '19

**Dump cars**

Automatic air dump car. *il Eng & Contr* 49:132 Ja 30 '18

Automatic car-door opener saves lots of time in dumping cars. R. W. Mayer. *diag Coal Age* 16:479 S 18 '19

Cable incline handles dump cars in building wet fill. *diag Eng N* 83:96-7 Jl 10 '19

Home-made 6-yard dump car. *il Eng N* 79:1076 D 6 '17

Repairing and oiling dump cars. *Eng & Contr* 50:200-1 Ag 21 '18

Small dump car helps railway ditching. *il diags plan Eng N* 81:1094 D 12 '18

**Dumping appliances**

- Automatic car-dumping device. L. H. Goodwin. *diags Eng & Min J* 107:1087-8 Je 21 '19
- Biggest car dumper in the world. *il diag Sci Am* 120:363-4 Ap 12 '19
- Car dumpers. J. A. Jackson. *il diags Gen Elec R* 22:366-72 My '19; Same cond. *Eng & Min J* 107:991-3 Je 7 '19
- Coal-handling plant at Sewalls Point, Virginia. *il Coal Age* 14:1122-4 D 19 '18; Same. *Eng N* 81:1086-8 D 12 '18; Same. *Power* 49:54-6 Ja 14 '19
- Coal handling plant of Virginian railway. E. F. Case. *il diags Ry R* 63:781-5 N 23 '18; Same cond. *Iron Age* 102:1436-8 D 12 '18
- Device for dumping rock cars at the rock bank. R. W. Mayer. *il Coal Age* 16:262-3 Ag 14 '19
- Finding the dump pivot. T. F. Price. *diag Coal Age* 14:202 Ag 1 '18
- Holisting coal in skips. J. A. Garcia. *il diags plan Coal Age* 13:1150-5 Je 22 '18
- Mine car dumping device. *diag Eng & Min J* 105:600 Mr 30 '18
- Rotary dump at shaft bottom. J. W. Gray. *il diags plan Coal Age* 13:384-5 F 23 '18
- Steam shovel mining on the Mesabi range. L. D. Davenport. *il diags Eng & Min J* 105:493-8 Mr 16 '18; Excerpt. *Eng & Contr* 49:388-9 Ap 17 '18

*See also* Dump cars

**Dunwoody Industrial Institute, Minneapolis, Minnesota**

- How the navy trains its machinists ashore. W. Connely. *il Am Mach* 50:397-400 F 27 '19
- New developments in training wartime sailors; U.S. naval training station under the Dunwoody Industrial Institute. W. Connely. *il Sci Am* 117:492-4 D 29 '17
- Training coppersmiths for the navy. W. Connely. *il Metal Work* 89:14-17 Ja 4 '18
- Training power-plant men for the navy. W. Connely. *il Power* 47:396-8 Mr 19 '18

**Du Pont de Nemours & company**

- Expansion of dyestuff plant of the du Pont company. *il Textile World* 55:2708-9+ My 3 '19

**.Library**

- Library service in the chemical department and chemical department laboratories of E. I. DuPont de Nemours & company. F. L. Gallup. *J Ind & Eng Chem* 11:588-9 Je '19

**Duralumin. See Aluminum alloys****Durlron**

- Durlron centrifugal and reciprocating pumps. *il diags Power* 48:879-80 D 17 '18

**Dust**

- Atmospheric pollution and the impurities of rain-water. J. B. C. Kershaw. *Engineer* 124:443-4 N 23 '17
- Dustfall of March, 1918. A. N. Winchell and E. R. Miller. *maps Sci Am S* 87:234-5 Ap 12 '19
- Mortality from respiratory diseases in dusty trades. F. L. Hoffman. *U S Bur Labor Statistics Bul* 231:1-458 '18
- Street dust disseminated the influenza. *Eng & Contr* 50:435-6 N 6 '18
- See also* Aluminum dust; Cement dust; Coal dust; Dust prevention; Dust removal; Grain dust; Mine dust; Street cleaning

**Dust explosions**

- Grain-dust explosions; investigation in the experimental attrition mill at the Pennsylvania state college. B. W. Dedrick, R. B. Fehr and D. J. Price. *bibliog il diags U S Agric Bul* 681:1-54 '18

- Inflammability of carbonaceous dusts in air and in atmospheres of low oxygen content. H. H. Brown. *J Fr Inst* 187:504-6 Ap '19

*See also* Aluminum dust; Coal dust; Mine dust

**Dust prevention**

- Dust prevention in Transvaal mines. A. C. Whitcome and J. H. Veasey. *Eng & Min J* 106:249-53 Ag 10 '18

- Dust problem in cement mills. C. H. Sonntag. *Concrete* 12:sup40-1 Ap '18
- Progress reports of experiments in dust prevention and road preservation, 1916. *U S Agric Bul* 586:1-78 '18
- Wind protection for sand dumps. *Eng & Min J* 106:914 My 18 '18

*See also* Roads—Surface treatment; Roads, Oiled

**Dust removal**

- Cleaning foundry afr electrically. H. D. Egbert. *il diags plan Iron Tr R* 63:956-9 O 24 '18; Same. *Foundry* 47:48-5+ Ja '19
- Concrete used in building dust precipitation plant. W. E. North. *il diags plan Concrete* 14:sup13-19 F '19
- Dust abatement in mines. W. O. Borchardt. *Eng & Min J* 106:783-6, 1084-5 N 2, D 21 '18
- Dust determinations in air and gases. E. R. Knowles. *diags Heat & Ven* 16:45-6 F '19
- Dust; its universality, elimination and conservation. E. R. Knowles. *il diags Am Soc Heat & V E* 24:165-216 '18
- Electrostatic dust precipitation. W. H. Easton. *il Ind Management* 56:473-5 D '18
- Removing dust effectively. *il Factory* 20:372 F '18
- Size of dust separator. *diag Metal Work* 91:346-7 Mr 14 '19

*See also* Air washers; Electric precipitation; Vacuum cleaning; Waste removal

**Dutch East Indies****Commerce**

- Call for American export in the Dutch East Indies. J. W. Evans. *Am Ind* 20:36-7 S '19

**Industries and resources**

- Dutch East Indies offer many construction opportunities. J. W. Evans. *Eng N* 83:497-8 S 11 '19

**Dutchess county, New York**

- Some landmarks. H. M. Hastings. *il Arch Rec* 45:476-80 My '19

**Dye analysis**

- Determination of free sulphur in sulphur dyestuffs. W. Zanker and K. Schnabel. *Color Tr J* 4:69-70 Mr '19
- On the quantitative analysis of dyestuffs. A. H. Halland. *J Ind & Eng Chem* 10:804-5 O '18
- Place of physical chemistry in dyestuff research. E. K. Strachan. *J Ind & Eng Chem* 11:1080-3 N '19
- Some problems in the identification of dyes. E. F. Hitch and I. E. Knapp. *J Ind & Eng Chem* 11:1076-9 N '19

*See also* Logwood

**Dye factories**

- Building a home for an industry. *il diags plans Am Arch* 115:467-75 Mr 28 '19
- Exhaust steam at high back pressures. C. Field. *diags plan Chem & Met Eng* 20:18-24 Ja 1 '19
- Expansion of dyestuff plant of the du Pont company. *il Textile World* 55:2708-9+ My 3 '19

**Safety devices and measures**

- Explosibility and inflammability of dyes. B. Humiston, W. S. Calcott and E. C. Lathrop. *J Ind & Eng Chem* 11:1075-6 N '19

**Dye houses**

- Dyeing and bleaching plant of Woodlawn finishing co. *il Textile World* 53:3259+ Ja 12 '18

**Dye industry**

- Annual meeting of the American chemical society: dye section hears many interesting technical papers. *Textile World* 56:1360-1, 1506-7 S 6-13 '19; *Chem & Met Eng* 21:285-7 S 15 '19
- Dyestuffs and the world at large. P. Nobbe. *Color Tr J* 4:58-9 Mr '19
- Economic basis of the dyestuff industry. J. M. Matthews. *Color Tr J* 4:106-9 My '19
- Future development of the dyestuff industry. L. W. Alwyn-Schmidt. *Color Tr J* 4:51-3 Mr '19

**Dye Industry—Continued**

- Iceberg looms out of the fog. C. H. Herty. *J Ind & Eng Chem* 11:1091-2 N '19  
 Manufacture and development of natural dyestuffs. C. R. Delaney. *Textile World* 54:2399 N 9 '18  
 Relation between explosives and dyestuffs. *Color Tr J* 4:86-7 Ap '19  
 Review of the dye situation with respect to world distribution. J. M. Matthews. *Color Tr J* 5:57-60 S '19  
*See also* Coal-tar products; Dye factories

**France**

- Dyestuff industry in France. *Color Tr J* 4:47 F '19

**Germany**

- Control of German dyes. *Textile World* 56:80+ J1 5 '19  
 German dye industry. *Sci Am* S 87:27 Ja 11 '19  
 German methods and the dye industry. F. P. Garvan. *por Textile World* 55:2513+ Ap 26 '19  
 New after-war preparations in the chemical industry of Germany. R. Petit. *J Ind & Eng Chem* 10:1025-6 D '18  
 Peace treaty provisions regarding German dyes and chemicals. *Chem & Met Eng* 21:121 Ag 1 '19  
 Present condition of the German dyestuff industry. *Color Tr J* 4:63-4 Mr '19  
 Trade danger in German industry. *Color Tr J* 4:9 Ja '19  
 War-time activities of dye plants in Germany. *Chem & Met Eng* 21:224-5 S 1 '19  
*See also* Chemical industries—Germany

**Great Britain**

- British dye industry. *Engineer* 125:489-90 Je 7 '18  
 British dyes limited. J. Falconer. *J Ind & Eng Chem* 10:145-9 F '18  
 British scheme for state aid to dye industry. *Color Tr J* 4:44-6 F '19  
 Dye making in Great Britain. J. A. Hunter. *Textile World* 55:358 Ja 11 '19  
 Dyes in England. *Textile World* 53:6404 Je 29 '18  
 Levenstein limited; progress made by the British dye industry. J. Lonsdale. *J Ind & Eng Chem* 10:149-50 F '18

**India**

- Dye problems of India. *Sci Am* 118:63 Ja 12 '18

**Italy**

- Italian chemicals; progress of industry during war—dyewoods and dyes. *Textile World* 56:1361+ S 6 '19

**Japan**

- Chemistry in Japan. A. Hirsch. *II Met & Chem Eng* 18:414-16 Ap 15 '18

**Switzerland**

- Where do the Swiss dyes come from? E. C. Klipstein; G. H. Wagner. *Color Tr J* 5:35-8 Ag '19

**United States**

- Allen property custodian protecting American industries. J. H. Choate, jr. *Elec R* 74:955 Je 7 '19  
 American dye industry. *Chem & Met Eng* 21:64-5 J1 15 '19  
 American dye industry. *Gas Age* 41:508 Je 1 '18  
 American dyes from a manufacturing standpoint. W. H. Watkins. *Chem & Met Eng* 19:401-3 S 25 '18  
 American dyestuff industry and its prospects. *J Ind & Eng Chem* 10:1026 D '18  
 American rainbow. *Sci Am* 119:394 N 16 '18  
 Americanizing the dyestuff industry. A. M. Palmer. *Textile World* 55:1789+, 1894+, 2064+, 2201+ Mr 22-Ap 13 '19  
 America's progress in dyestuffs manufacturing. L. J. Matos. *J Ind & Eng Chem* 10:790-2 O '18

- Announcement of the Federal trade commission: with regard to licenses under German dye and drug patents. *J Ind & Eng Chem* 10:404 My '18

- Annual meeting of the American dyestuff manufacturers' association. New York. *Textile World* 54:2968+ D 14 '18  
 Arbitration. B. Webster. *Textile World* 53:3453+ Ja 26 '18  
 Brazilian market for aniline dyes. *Color Tr J* 4:36-8 F '19  
 Building up our foreign dyestuff business. L. W. Alwyn-Schmidt. *Color Tr J* 4:131-4 Je '19  
 Census of dyes and coal-tar chemicals, 1918. (Tariff information ser. 11) 103p '19 U.S. Tariff commission, Washington, D.C.  
 Census of dyestuffs; report on industry by Tariff commission to Ways and means committee. *Textile World* 55:3867+ Je 21 '19  
 Chinese market for coal-tar dyes. *Color Tr J* 4:85 Ap '19  
 Color standards in economy of textiles. E. J. Redding. *Textile World* 53:2355-6 D 8 '17  
 Competitive ability of the American dyestuff industry in foreign markets. L. W. Alwyn-Schmidt. *Color Tr J* 5:25-8 Ag '19  
 Contributions from the dye section; introductory remarks. C. L. Reese. *J Ind & Eng Chem* 11:1071-3 N '19  
 Development of an American dyestuff industry; E. I. du Pont de Nemours & co., Wilmington, Del. *Textile World* 55:823 Ja 11 '19  
 Development of the dyestuff industry since 1914. J. F. Schoellkopf, jr. *J Ind & Eng Chem* 10:792-4 O '18  
 Domestic dyestuffs during war. V. L. King. *Textile World* 55:327+ Ja 11 '19  
 Dye license bill before House. *Textile World* 56:1772-4 S 27 '19  
 Dyes and other coal-tar chemicals. U S Tariff Comm 83p '18; Excerpt. *Chem & Met Eng* 20:70-2 Ja 15 '19  
 Dyes and tariff board. G. Jones. *Textile World* 53:3512a Ja 26 '18  
 Dyes from the manufacturers' standpoint. L. J. Matos. *Chem & Met Eng* 19:409-10 S 25 '18  
 Dyestuff bill passed by House. *Textile World* 56:1978 O 4 '19  
 Dyestuff census for 1918. *Color Tr J* 5:19 J1 '19  
 Dyestuff plants and their war activities. T. W. Sill. map *J Ind & Eng Chem* 11:509-12 Je '19  
 Dyestuff situation in the textile industries, 1913 and 1916. *Textile World* 53:3759 F 9 '18  
 Dyestuffs and the tariff. F. W. Taussig. *Color Tr J* 4:1-4 Ja '19  
 Dyestuffs before the Ways and means committee. J. M. Matthews. *Color Tr J* 5:1-5 J1 '19  
 Explanation of licensing plan. J. H. Choate, jr. *Textile World* 55:3830+ Je 21 '19  
 Foreign dye patents; their relation to the development of the American dye industry. R. E. Rose. *J Ind & Eng Chem* 11:1073-5 N '19  
 Future of the American dye industry. W. H. Nichols. *J Ind & Eng Chem* 11:53-5 Ja '19  
 German dye imports to be limited. *Textile World* 55:3104+ My 24 '19  
 German methods and our present situation. J. H. Choate, jr. *J Ind & Eng Chem* 11:403-5 My '19; Same. *Color Tr J* 4:103-5 My '19; Abstract. *Textile World* 55:2205 Ap 12 '19  
 Government tariff aid. J. M. Matthews. *Textile World* 53:3453 Ja 26 '18  
 Growth of U. S. dyestuff industry, with list of new companies. *Textile World* 53:3036-7+ Ja 12 '18  
 Hearings on dyestuff industry; opinions expressed on tariff and proposed licensing plan. *Textile World* 55:3829-30+; 56:360-1 Je 21, J1 '19  
 Importance of the dye industry for the economic life of the American nation. L. W. Alwyn-Schmidt. *Color Tr J* 5:87-90 O '19  
 Imports and exports of various kinds into United States for 1918. *Color Tr J* 4:154 Je '19

**Dye industry—United States—Continued**

- Manufacturers discuss dye question. Textile World 56:791-2 Ag 9 '19
- Our expanding dyestuff industry. Chem & Met Eng 19:10 Jl 1 '18
- Patent situation. A. E. Parker. Textile World 53:3512-3512a Ja 26 '18
- Present status of our dye industry. Sci Am 120:660+ Je 21 '19
- President asks protection for dyestuffs. Gas Age 43:610-11 Je 2 '19
- Price of coal-tar crudes, intermediates and dyes. charts Color Tr J 5:138-40 N '19
- Problems of the dyestuff industry. F. W. Taussig. J Ind & Eng Chem 11:55-7 Ja '19
- Production of American dyes and coal tar chemicals during 1917. G. Jones. Chem & Met Eng 19:546 O 1 '18
- Protecting American dye industry. Textile World 55:2204-5 Ap 12 '19
- Protection of our dye industry. E. W. Pierce. Textile World 54:2889 D 7 '18
- Recommendations of the tariff commission regarding dyestuffs. G. Jones. Color Tr J 4:27-30 F '19
- Report of the alien property custodian on the chemical industry. J Ind & Eng Chem 11:352-65 Ap '19
- Safeguarding the American dyestuff industry. J. M. Matthews. Gas Age 43:181-2 F 15 '19
- Schweitzer report in full. J Ind & Eng Chem 11:618-20 Jl '19
- Standardization of American dyes for China. G. E. Anderson. Color Tr J 5:131 N '19
- Status of dye industry and cotton dyeing. C. R. Delaney. Textile World 53:2493 D 15 '17
- Tariff commission and the dye industry. G. Jones. J Ind & Eng Chem 10:232-3 Mr '18
- Tariff commission dyestuff report. Textile World 55:324-5+ Ja 11 '19
- Technical review of chemical industries exposition. E. W. Pierce. Textile World 54:1969 O 26 '18
- Textile manufacturers oppose dye licensing plan. Textile World 56:654-5 Ag 2 '19
- Two good markets for American dyes. Sci Am 119:154 Ag 24 '18
- See also American dyestuff manufacturers' association
- Dye patents**
- Bluish-green vat dyes; patent. Met & Chem Eng 18:209 F 15 '18
- Brown and black vat dyes. Color Tr J 5:46 Ag '19
- Digest of dyestuff patents. See monthly numbers of Color trade journal
- Foreign dye patents; their relation to the development of the American dye industry. R. E. Rose. J Ind & Eng Chem 11:1073-5 N '19
- German dye patents now available. Textile World 55:1672-3 Mr 15 '19
- Sulphur dyes. Color Tr J 5:45-6 Ag '19
- Sulphur dyes; patent. Met & Chem Eng 18:155 F 1 '18
- Dye plants**
- See also Sumac
- Dye soap**
- Universal soap dyes; patent. Chem & Met Eng 19:778 D 1 '18
- Dye testing**
- Apparatus and equipment for dye tests. E. Cagliostro. il diags Color Tr J 5:32-5 Ag '19
- Dye testing problems. E. W. Pierce. Textile World 53:3453 Ja 26 '18
- Dyestuff testing in the textile industry. E. W. Pierce. il Textile World 53:4431+, 4939+ Mr 30, Ap 27 '18
- Leniency in requirements for olive drab; tests before and since war. E. W. Pierce. il Textile World 53:3069+ Ja 12 '18; Correction. 53:3459 Ja 26 '18
- Observations on the estimation of the strength of dyestuffs. W. H. Watkins. J Ind & Eng Chem 11:1079-80 N '19
- Problems in testing dyes and intermediates. E. W. Pierce. J Ind & Eng Chem 10:803-4 O '18

- R. U. V. color testing and laboratory ultra violet ray outfit. il Textile World 53:4439 Mr 30 '18
- Solar determinator; a lamp for dye testing. il Textile World 53:3915 F 23 '18
- Testing fastness of colors on cotton yarn. Textile World 55:29 Ja 4 '19
- Testing fastness of worsted knitting yarns. Textile World 54:1737 O 12 '18
- Dyeing. See Dyes and dyeing**
- Dyeing apparatus**
- Circulating dyeing apparatus for limited service. diag Color Tr J 5:44 Ag '19
- Dyeing machines**
- Circulating and heating processing liquor. diags Textile World 53:2701 D 29 '17
- Circulating dyeing machine for fibres, warps in ball, worsted tops in the ball; patent. Color Tr J 4:117-18 My '19
- Delahanty pump and clutch for dyeing machines. il Textile World 53:3707 F 9 '18
- Dyeing machine for use in laboratory or dye house. Textile World 55:3969 Je 23 '19
- Dyeing mangle. diag Textile World 54:1977 O 26 '18
- Extractors or dyeing machines. diag Color Tr J 5:90 O '19
- Franklin top dyeing machine. Textile World 53:2368, 3278 D 8 '17, Ja 12 '18
- Hosiery dyeing machine. il Textile World 53:4949 Ap 27 '18
- Lap dyeing machine; patent. diag Textile World 53:4435+ Mr 30 '18
- Machine for dyeing piece goods; patent. Color Tr J 4:117 My '19
- Modern top dyeing plant. il Textile World 56:2199 O 11 '19
- New English yarn dyeing machine. diag Textile World 55:1687 Mr 15 '19
- Skein dyeing machine. diag Textile World 55:3317 My 31 '19
- Dyes and dyeing**
- American dyes. Textile World 54:853 Ag 24 '18
- Antimony in the textile industry. E. R. Darling. Textile World 55:1901, 1903+ Mr 29 '19
- Application of the hydron blues. Color Tr J 4:140-1 Ja '19
- Asymmetric dyes. C. W. Porter and C. T. Hirst. Am Chem Soc J 41:1264-7 Ag '19
- Change of shade in artificial light. P. V. Resenvelt. Color Tr J 5:71 S '19
- Chemist in the textile mill. Textile World 53:2153+, 2697+ N 24, D 29 '17
- Coal-tar dye census for 1917. Textile World 54:1319 S 21 '18
- Color effects on khaki uniform cloths. C. M. Whittaker. Color Tr J 4:110-11 My '19
- Color laboratory of the Bureau of chemistry. H. D. Gibbs. J Ind & Eng Chem 10:802-3 O '18
- Detection of added color in butter or oleomargarine. H. A. Lubs. J Ind & Eng Chem 10:436-9 Je '18
- Dry cleaning and refinishing. L. H. Buck. Textile World 54:943 Ag 31 '18
- Dye from sulfate lyes. J Ind & Eng Chem 10:152 F '18
- Dyeing fabrics of cotton and silk. H. R. Ulrich. Color Tr J 5:75-8 S '19
- Dyeing felts and loose fur. Textile World 54:947 Ag 31 '18
- Dyeing of gloves. J. Loeb. Color Tr J 5:10-11 Jl '19
- Dyeing of khaki in the United States; historical and theoretical. J. C. Hebden. J Ind & Eng Chem 10:640-4 Ag '18
- Dyeing of union fabrics. Textile World 56:475 Jl 26 '19
- Dyestuff notes for mill executives. F. A. Hayes. Textile World 56:1173, 1175 Ag 30 '19
- Dyestuffs. L. J. Matos. diags J Fr Inst 186:187-209 Ag '18
- Dyestuffs as medicinal agents. G. Heyl. Color Tr J 4:73-6 Ap '19
- Economy in dyeing and finishing. Textile World 53:4945 Ap 27 '18
- Electric dyeing process. diag Textile World 55:1685 Mr 15 '19



**Dyes and dyeing—Continued**

- Explosibility and inflammability of dyes. B. Humiston, W. S. Calcott and E. C. Lathrop. *J Ind & Eng Chem* 11:1075-6 N '19
- Halogenation of juglone: a new type of naphthalene dyes. A. S. Wheeler and J. W. Scott. *Am Chem Soc J* 41:833-41 My '19
- Handicraft dyeing in America. E. C. Gray. *Il Color Tr J* 4:144-8 Je '19
- How a bleachery met stringency. *Textile World* 56:1050-4 Ag '19
- Influence of moisture on the shade of dyed goods. *Textile World* 56:1181-4 Ag '19
- Jellies formed by dyes. *Chem & Met Eng* 19:414 S 25 '18
- Manufacture, use, and newer developments of the natural dyestuffs. C. R. Delaney. *J Ind & Eng Chem* 10:798-801 O '18; Same. *Color Tr J* 4:12-14 Ja '19
- Method for the purification of certain azo dyes. H. A. Lubs. *J Ind & Eng Chem* 11:456 My '19
- Method of standardizing the fastness of colors to light. *Sci Am S* 87:57 Ja 25 '19
- Natural dyestuffs—an important factor in the dyestuff situation. E. S. Chapin. *J Ind & Eng Chem* 10:795-8 O '18
- New process for the production of ungreenable aniline black. *Color Tr J* 4:16-18 Ja '19
- Nitroso-triphenylamine and colors of the second order. J. Piccard and M. Kharasch. *Am Chem Soc J* 40:1074-9 Jl '18
- Notes on the application of indanthrenes RS, GCD, and BCD. *Color Tr J* 4:83-4 Ap '19
- Phthalic acid derivatives; constitution and color. D. S. Pratt and A. B. Coleman. *Am Chem Soc J* 40:249-54 Ja '18
- Place of physical chemistry in dyestuff research. E. K. Strachan. *J Ind & Eng Chem* 11:1080-8 N '19
- Present status of dyes and dyeing in this country. *Textile World* 53:3035-6 Ja 12 '18
- Prussian blue. H. C. Fuchs. *Color Tr J* 4:92-3 Ap '19
- Redyeing of military cloths. L. J. Matos. *Textile World* 56:1781-4 S 27 '19
- Soluble antimony compounds. *Textile World* 55:1291-4 F 22 '19
- Structure of scarlet SaR (B) and ponceau aR (By). H. W. Stiegler. *J Ind & Eng Chem* 10:600 Ag '18
- Symposium on chemistry of dyestuffs: introductory remarks. R. N. Shreve. *J Ind & Eng Chem* 10:789-90 O '18
- Synthesis of aminoflavones, of flavone-azobeta-naphthol dyes, and of other flavone derivatives. M. T. Bogert and J. K. Marcus. *Am Chem Soc J* 41:83-107 Ja '19
- Tender cross-dyed yarn. *Textile World* 53:4337 Mr 28 '18
- Use of organic dyestuffs for lake manufacture. B. De Puyser. *Color Tr J* 4:98-100, 150-3; 5:51-4, 175-8 Ap, Je, Ag, D '19
- Vat dyes and processes of dyeing. R. W. Smith. *Color Tr J* 5:29-31, 171-4 Ag, D '19
- See also* Acridine dyes; Bleaching; Coal-tar products; Cochineal; Dye analysis; Dye factories; Dye houses; Dye industry; Dye soap; Dye testing; Dyeing machines; Fustic; Indigo; Logwood; Methyl orange; Nitraniline red; Purple

**Analysis****See Dye analysis****Cotton**

- Application of alizarine; use of American product in dyeing and printing. L. J. Matos. *Textile World* 55:3961-4 Je 28 '19
- Application of dyestuffs in cotton dyeing. J. M. Matthews. *J Ind & Eng Chem* 10:794-5 O '18
- Dyeing chamolissette. *Textile World* 53:2619, 3583 D 22 '17, F 2 '18
- Dyeing cotton ducks. *Textile World* 54:1081 S 7 '18
- Dyeing of cotton khaki; with special reference to the iron and chrome process. L. J. Matos. *Textile World* 54:408 Jl 27 '18
- Finishing of cotton moles and corduroys. A. Field. *Color Tr J* 4:100-1 Ap '19

- Indigo on cotton piece goods. G. Tagliani and W. Krostewitz. *Textile World* 54:2687 N 30 '18
- Logwood grays on cotton cloth. *Textile World* 56:1785 S 27 '19
- New methods of dyeing prussiate blue on cotton. *Color Tr J* 4:155-6 Je '19
- Status of dye industry and cotton dyeing. C. R. Delaney. *Textile World* 53:2493 D 16 '17
- Substantive dyestuffs for cotton. *Color Tr J* 5:48-9 Ag '19
- Sulphur blacks tendering after scrooping. *Textile World* 56:365-4 Jl 19 '19
- Sulphur dyestuffs. J. F. Springer. *Color Tr J* 4:54-7, 123-6 Mr, My '19
- Tendering of sulphur blacks. C. M. Whittaker. *Textile World* 54:1859-4 O 19 '18

**History**

- History of dyeing. E. Cagliostro. *Il Color Tr J* 5:91-6, 122-6, 153-7 O-D '19

**Leather**

- Dyeing and tanning of leather. J. Helfrich. *Il Color Tr J* 5:134-7 N '19
- Leather dyeing. L. G. Hayes. *Color Tr J* 5:108-15 O '19
- Tanning and coloring of leather. J. Helfrich. *Color Tr J* 5:72-4 S '19

**Linen**

- Processes for dyeing linen goods. *Textile World* 53:3461 Ja 26 '18

**Patents****See Dye patents****Silk**

- Dyeing and weighting silk. *Textile World* 55:1179 F 15 '19
- Dyeing of silk hanks. *Color Tr J* 4:119 My '19
- Dyeing silk with logwood. E. Lesser and D. Wallace. *Color Tr J* 5:142-3 N '19
- Important pointers in dyeing silk. F. Klein. *Sci Am S* 88:250 O 25 '19
- Machine for preparing silk piece goods for dyeing. *Color Tr J* 5:44-5 Ag '19

**Terminology**

- Names for our dyes. C. F. Goldthwait. *Color Tr J* 5:127-31 N '19
- Nomenclature of American dyes. *Textile World* 54:1437-4 S 28 '18

**Testing****See Dye testing****Velveteen**

- Treatment of cotton velvets. *Color Tr J* 4:141 Je '19

**Wool**

- Action of tetrazodi-o-tolylmethane chloride upon naphthol and naphthylamine sulfo acids. J. H. Stebbins, Jr. *J Ind & Eng Chem* 10:445-8 Je '18
- Dyeing fast shades on worsted yarns. L. J. Matos. *Textile World* 55:353-4 Ja 11 '19
- Dyeing lightweight wool fabrics. L. J. Matos. *Textile World* 54:2685 N 30 '18
- Evening shades on fine worsteds. L. J. Matos. *Textile World* 54:3217 D 28 '18
- Wool dyeing for woven fabrics. *Textile World* 53:3077 Ja 12 '18

**Dyes and dyeing, Photographic**

- Dyes in photography; their use in orthochromatic work and for non-halation plates. A. Seyewetz. *Sci Am S* 87:6 Ja 4 '19
- Intermediates used in the preparation of photosensitizing dyes; quaternary halides. C. H. Lund and L. E. Wise. *J Ind & Eng Chem* 11:458-60 My '19
- Intermediates used in the preparation of photosensitizing dyes; quinoline bases. L. A. Mikeska, J. K. Stewart and L. E. Wise. *J Ind & Eng Chem* 11:456-8 My '19
- New photographic mordant dye process. F. E. Ives. *Sci Am S* 87:20 Ja 11 '19; Same. *J Fr Inst* 186:755-7 D '18
- New yellow dye and light filters made from it. C. E. K. Mees and H. T. Clarke. *J Ind & Eng Chem* 11:454-5 My '19

**Dyes and dyeing, Photographic—Continued**

- Photographic sensitizing dyes: their synthesis and absorption spectra. L. E. Wise and E. Q. Adams. *J Ind & Eng Chem* 10:801-2 O '18; Same. *Color Tr J* 4:19-20 Ja '19
- Synthesis of photosensitizing dyes; pinaverdol and pinacyanol. L. E. Wise and others. *J Ind & Eng Chem* 11:460-3 My '19

**Dyestuffs.** See Dye industry; Dyes and dyeing

**Dyewood.** See Fustic

**Dynamic balancing.** See Balancing of machinery

**Dynamics**

Tractor hitch problem fundamentally mathematical. *diags Automotive Ind* 40:1069-70 My 15 '19

See also Aerodynamics; Force and energy; Hydrodynamics; Matter; Mechanics; Thermodynamics

**Dynamite**

Ditching with dynamite in wet soil. *Munic J* 44:264 Mr 30 '18

Dynamite as a house wrecker. *Il Sci Am* 121:513 N 22 '19

Methods of preparing dynamite primers. C. S. Hurter. *diags Eng & Contr* 49:193-4 F 20 '18

Safety in making and using primers. H. Comstock. *diags Eng & Min J* 105:290-1 F 9 '18

See also Explosives

**Dynamometer**

Dynamometer for testing twist drills. R. Pollakoff. *Il Am Mach* 50:1132 Je 12 '19

Electric dynamometers for aircraft engine tests. *Il Automotive Ind* 39:675-7+ O 17 '18

New tractor dynamometer. *Il Sci Am* 120:376 Ap 12 '19

900-hp. dynamometer installation; new test house of the Duesenberg motors corp. *Il Automotive Ind* 39:449-51 S 12 '18

Pollakoff universal milling machine dynamometer. *diags Ind Management* 55:331 Ap '18; *Mach* 24:932 Je '18; *Iron Age* 102:447-8 Ag 22 '18

**Dynamos.** See Electric generators

**Dynamotors**

Dynamotors and wind-driven generators for radiotelemetry. R. G. Thompson. *Il diags Elec J* 16:205-10 My '19

**Dysprosium**

Observations on the rare earths; holmium and dysprosium. H. C. Kremers and C. W. Balke. *Am Chem Soc J* 40:593-8 Ap '18

Observations on the rare earths; the purification and atomic weight of dysprosium. H. C. Kremers, B. S. Hopkins and E. W. Engle. *Am Chem Soc J* 40:598-611 Ap '18

**E****Earth**

Crust of the earth. S. C. Bailey. *diags Sci Am* S 85:165-6 Mr 16 '18

See also Atmosphere; Earthquakes; Geochemistry; Geological time; Geology; Glacial period; Magnetism, Terrestrial; Meteorology; Mines and mineral resources; Ocean; Ore deposits; Volcanoes

**Internal structure**

Constitution of the earth's interior. R. D. Oldham. *Sci Am* S 87:73 F 1 '19

**Earth, Age of**

Age of the earth. H. Shapley. *Sci Am* S 87:34-5+ Ja 13 '19

How old is the world? W. H. McNairn. *Sci Am* S 87:255-6 Ap 19 '19

**Earth, Figure of**

Gravitational instability and figure of the earth. *Sci Am* S 85:345 Je 1 '18

**Earth movements.** See Landslides

**Earth pressure**

Computing the lateral pressure of saturated earth. A. G. Husted. *diags Eng N* 81:441-2 S 5 '18

Experiments on earth pressures. P. M. Crowthwaite. *Eng & Contr* 50:127-8 Ji 31 '18

Lateral pressure of saturated earth by equivalent fluid weight. R. D. L. French. *Eng N* 81:1092 D 12 '18

Tests to determine pressures due to hydraulic fills. A. W. Goldbeck. *Il diags plan Eng N* 80:758-60 Ap 18 '18

Undercrossing wing wall designed to limit base pressure. *diags plan Eng N* 79:1054-5 D 6 '17

See also Dams; Retaining walls

**Earth slides.** See Landslides

**Earth temperature**

Maximum temperature in large tunnels and deep wells with a trial empirical formula. F. Butavand. *Eng & Contr* 52:119-20 Ji 30 '19

Significance of certain Mexican oil field temperatures. E. DeGolyer. *bibliog Econ Geol* 13:275-301 Je '18

**Earthenware.** See Pottery

**Earthquakes**

Locating submarine faults. O. Klotz. *Sci Am* S 85:403 Je 29 '18

Mechanics of earthquakes. C. Somigliana. *Sci Am* S 87:402-3+ Je 23 '19

See also Volcanoes

**Earthquakes and building**

Effect of structures of recent Porto Rico earthquakes. M. L. Vicente and C. F. Joslin. *Il Eng N* 82:806-8 Ap 24 '19

Guatemala earthquake shifts steel viaduct on its piers. W. T. Penney. *Eng N* 80:999 My 23 '18

Guatemala earthquakes destroyed all masonry buildings. E. Stuart. *Il Eng N* 81:623-6 O 3 '18

Porto Rican earthquake fails to disturb reinforced concrete. *Il Concrete* 13:204 D '18

**Earths, Rare**

American pyrophoric-alloy industry. A. Hirsch. *Chem & Met Eng* 19:510-12 S 28 '18; Same. *J Ind & Eng Chem* 10:849-51 O '18

Commercial position of some unusual ores and metals in 1917. *Eng & Min J* 105:134-5 Ja 12 '18

Determination of cerium in the presence of other rare earths by precipitation as cerio iodate. P. H. M.-P. Brinton and C. James. *Am Chem Soc J* 41:1080-5 Ji '19

Electrolysis of solutions of the rare earths. L. M. Dennis and A. B. Ray. *Am Chem Soc J* 40:174-81 Ja '18

Observations on the rare earths; holmium and dysprosium. H. C. Kremers and C. W. Balke. *Am Chem Soc J* 40:593-8 Ap '18

Observations on the rare earths; the purification and atomic weight of dysprosium. H. C. Kremers, B. S. Hopkins and E. W. Engle. *Am Chem Soc J* 40:598-611 Ap '18

Observations on the rare earths; the purification of gadolinium. L. Jordan and B. S. Hopkins. *Am Chem Soc J* 39:2614-23 D '17

Observations on the rare earths; the separation of holmium. L. F. Yntema and B. S. Hopkins. *Am Chem Soc J* 40:1163-7 Ag '18

Observations on the rare earths; the separation of yttrium from erbium; the ratio  $\text{Er}_2\text{O}_3:2\text{ErCl}_3$ . E. Wichers, B. S. Hopkins and C. W. Balke. *Am Chem Soc J* 40:1615-19 N '18

Rare earths and what we can do with them. *Sci Am* 118:264 Mr 23 '18

Rarer key minerals. S. J. Johnstone. *Engineer* 124:457-8 N 23 '17; *Abstract. Illum Engr* 10:272 O '17

See also Yttrium

**Earthwork**

Economic method of making land by dredging. *Eng & Contr* 49:282 Mr 20 '18

See also Dams; Dikes; Dredging; Earth pressure; Embankments; Excavation; Fortification; Foundations; Grading (earthwork); Hydraulic excavation; Hydraulic filling; Intrenchments; Railroads—Earthwork; Retaining walls; Tamping machines; Tunnels and tunneling

**Earthwork—Continued**

Tables, calculations, etc.

Earthwork computations simplified. J. H. Dorroh. Eng N 82:787 Ap 17 '19

Economic balancing of highway excavation by a semi-graphic method. D. P. Bahcock. diags Eng N 82:361-4 F 20 '19

Exaggerated cross-sections measured by planimeter. C. P. Mowry. diags Eng N 83:436 Ag 28 '19

See also Excavation

**Easements**

Equitable servitudes in Missouri. G. L. Clark. Mo U Bul law ser 16:1-60 D 21 '17

**East St Louis, Illinois**

Flood protection and drainage at East St Louis. map Eng N 83:814-16 O 30 '19

**Railroads**

Terminal improvements in East St Louis. II diags map plan Ry R 65:405-6 S 20 '19

**Easter Island**

Bird cult of Easter island. Sci Am S 86:21 JI 13 '18

**Eastern manufacturing company**

Service work of the Eastern manufacturing co. J. Hoskins. U S Bur Labor Statistics Bul 227:153-7 '17

**Eastern supply association**

Annual fall meeting, New York city, Oct. 8. Dom Eng 89:181+ O 18 '19

Summer meeting, New York city, June 12. Dom Eng 83:467-70 Je 22 '18; Metal Work 89:797-94 Je 14 '18

**Eastman kodak company**

Eastman kodak co.'s training shop. II Mach 25:246-7 N '18

Report on the production of synthetic organic chemicals in the research laboratory for the year 1918-1919. C. E. K. Mees. J Ind &amp; Eng Chem 11:1141-2 D '19

**Easton, Pennsylvania****Sewerage**

Results of the test of the direct oxidation experimental sewage treatment plant at Easton. C. A. Emerson, Jr. plan Munic Eng 57:70-5 Ag '19; Same. Eng &amp; Contr 52:186-9 Ag 13 '19

**Echinocystis oregana**

Seeds of the echinocystis oregana. M. R. Daughters. J Ind &amp; Eng Chem 10:126-7 F '18

**Eclipses, Solar**

Total eclipse of the sun of June 8, 1918. H. C. Wilson. II Sci Am S 85:332 My 25 '18

**Economic conditions**

Economic duties of the engineer. W. R. Ingalls. Eng &amp; Min J 107:184-90 Ja 25 '19; Same abr. Eng N 82:292-5 F 6 '19; Excerpt. Eng &amp; Contr 51:193-4 F 19 '19

Greater productivity a world economic necessity. H. C. Hoover. Elec W 74:702 S 27 '19

Some twentieth-century problems. W. B. Dickson. Mech Eng 41:446-7 My '19

See also Business conditions; also subdivision Economic conditions under names of countries, e.g., Great Britain—Economic conditions, United States—Economic conditions

**Economics**

Fundamental factors of economic activity. D. B. Rushmore. Gen Elec R 22:306-7 My '19

See also Banks and banking; Bolshevism; Business; Cost; Cost of living; Credit; Depreciation; Government ownership; Government regulation of industry; Index numbers; Industrial relations; Industry; Labor and capital; Labor and laboring classes; Manufactures; Money; Monopolies; Prices; Profit sharing; Strikes; Tariff; Taxation; Trade unions; Trusts, Industrial; Wages

Economizers. See Fuel economizers

**Ecuador****Commerce**

Construction materials and machinery in Chile, Peru, and Ecuador. W. W. Ewing. II U S Bur For &amp; Dom Com 175:171-204 '19

Electrical goods in Ecuador and Peru. F. S. Smith. U S Bur For &amp; Dom Com 154:1-50 '17

Textile markets of Bolivia, Ecuador, and Peru. W. A. Tucker. II U S Bur For &amp; Dom Com 158:1-106 '18

**Edinburgh, Scotland****Rapid transit**

Zone fare in practice. W. Jackson. II diags plans map Elec Ry J 53:854-9 My 3 '19

**Edison, Thomas A. interests**

Development of the health department of Thomas A. Edison interests. M. M. Jones. II Ind Management 55:491-3 Je '18

Employment and personnel policy of Thomas A. Edison interests. M. M. Jones. Ind Management 55:308-6 Ap '18

Employment department organization of Thomas A. Edison interests. M. M. Jones. Ind Management 55:374-9 My '18

Plea for intensification of management. M. M. Jones. Sci Am 119:150 Ag 24 '18

**Edison electric illuminating company of Boston**

Seeks to postpone rate case until termination of war. Elec W 71:1053 My 18 '18

Split-conductor cable—balanced protection. W. H. Cole. diags Am Inst E E Pro 37:793-816 JI '18; Appendix. C. A. Adams. 37:817-20 JI '18; Same cond. Elec W 71:1370-1 Je 29 '18

**Edison illuminating companies, Association of.**

See Association of Edison illuminating companies

**Edison medal**

Presentation of medal to Dr John J. Carty. Elec R 72:874-6 My 25 '18; Power 47:782 My 28 '18; Am Inst E E Pro 37:supl86-7 Je '18

**Editing**

Preparation of book manuscript. F. H. Teall. Inland Ptr 64:175-6 N '19

**Education**

Education and business. F. Warner. Engineer 125:382 My 3 '18

Educational facilities for mill communities. P. P. Claxton. Textile World 54:179+ JI 18 '18

See also Apprentices; Architectural education; Business education; Classical education; Colleges and universities; Corporation schools; Correspondence schools and courses; Engineering education; Evening and continuation schools; Industrial education; Libraries; Military education; Mining schools and education; Physical education; Public schools; Scholarships and fellowships; Technical education; Trade schools; Vocational education

**Great Britain**

Teaching of natural science in Great Britain; excerpts from the report of a committee. Engineer 125:334-5 Ap 19 '18

Vocational education. J. C. M. Garnett. Sci Am S 85:149 Mr 9 '18

**Education, Engineering. See Engineering education****Education, Industrial. See Industrial education****Education, Technical. See Technical education****Efficiency, Industrial**

Application of industrial efficiency. C. E. Beaudaux. Eng &amp; Contr 52:311-12 S 10 '19

Decrease in the efficiency of common labor. A. G. Drury. Elec Ry J 52:68 JI 13 '18

Doing not your bit but your best. Factory 20:1194+ Je '18

Education a plant efficiency factor. J. K. Lamoree. Iron Age 104:296-7 JI 31 '19

Effect of long working hours on industrial efficiency. Automotive Ind 39:89-91 JI 18 '18

**Efficiency, Industrial—Continued**

- Efficiency and democracy. H. L. Gantt. *Am Soc M E J* 41:43 Ja '19; *Same*. *Iron Age* 102:1379 D 5 '18; *Same* cond. *Int Marine Eng* 24:106-7 F '19; *Discussion*. *Am Soc M E J* 41:41-3 Ja '19
- Efficiency and idleness. H. L. Gantt. *Ind Management* 56:377 N '18
- Efficiency of workmen and machine efficiency. W. F. Hirschmann. *Metal Ind* 17:21 Ja '19
- Efficiency opposed to prodigality. R. Mawson. *Ind Management* 55:9-10 Ja '18
- Efficiency—stop! look! listen! V. J. Loomis. *Ind Management* 57:43-4 Ja '19
- Efficiency—stop! look! listen! W. H. Smyth. *Ind Management* 56:234-5, 463-4; 58:206 S, D '18, S '19
- Efficiency; a method of making profits by universal democracy. W. S. Rogers and N. M. Scott. *Il charts Ind Management* 57:299-301 Ap '19
- How to measure factory efficiency. C. H. Stilson. *Factory* 22:352+ F '19
- Increasing the output in Great Britain. P. Kennaday. *Factory* 19:201-4 Ag '17
- Influence of the six-hour day on industrial efficiency and fatigue. H. M. Vernon. *Sci Am S* 88:263 N 8 '19
- Low labor output in war work not due to cost-plus contract. *Eng N* 82:909-10 My 8 '19
- Machinery versus trained brains. L. Hrebeklanovich. *Ind Management* 58:198-200 S '19
- Reducing industrial fatigue. *Automotive Ind* 40:219-21 Ja 23 '19
- Stability of shop personnel essential to maximum production. *Am Mach* 48:904 My 30 '18
- Synthetic investigation of organization. G. W. Mason. *Sci Am* 120:201 Mr 1 '19
- Under new management—a man's power. C. M. Horton. *Ind Management* 55:105-7 F '18
- Under new management—judging men. C. M. Horton. *Ind Management* 55:225-7 Mr '18
- War as a test of efficiency. E. N. Hurley. *Am Mach* 49:11-12 Jl 4 '18
- What is the value of rotation in jobs? H. Tipper. *Automotive Ind* 40:628-9 Mr 20 '19
- Workmanship and efficiency. A. R. Allard. *Ind Management* 56:299-300 O '18
- Workmanship as an efficiency aim. C. W. Starker. *Ind Management* 56:25-6 Jl '18
- See also* Ability tests; Employment management; Executives; Factory management; Foundry management; Industrial management; Office management; Rest periods; Routing systems; Time study
- Egg candlers**
- Home-made electric egg-tester. R. A. Jeffers. *diag Elec R* 73:27 Jl 6 '18
- How to candle eggs. M. E. Pennington, M. K. Jenkins and H. M. P. Betts. 12 pls *diags U S Agric Bul* 565:1-20 '18
- Eggers, Otto R.**
- Architectural renderer and designer. J. T. Boyd, jr. *Il Arch Rec* 43:420-5 My '18
- Eggs**
- Commercial preservation of eggs by cold storage. M. K. Jenkins. *J Fr Inst* 188:137-8 Jl '19
- Determination of loosely bound nitrogen as ammonia in eggs. N. Hendrickson and G. C. Swan. *diags J Ind & Eng Chem* 10:614-17 Ag '18
- Electric light and egg production. *Sci Am* 120:272 Mr 15 '19
- Installation and equipment of an egg-breaking plant. M. K. Jenkins and M. E. Pennington. *Il diags plans U S Agric Bul* 663:1-25 '18
- Millions of eggs produced in this country feed no one because carelessly handled. *Sci Am S* 86:219 O 5 '18
- Sex in eggs and chickens. M. K. Boyer. *Sci Am S* 88:265 N 8 '19
- Shell of the egg and the skeleton of the chick. *Sci Am* 119:515 D 28 '18

**Testing**

- Determining the freshness of eggs by photography. G. A. LeRoy. *J Fr Inst* 186:278 S '18
- How to candle eggs. M. E. Pennington, M. K. Jenkins and H. M. P. Betts. 12 pls *diags U S Agric Bul* 565:1-20 '18
- Making a scale for egg testing. *diag Sci Am* 118:585 Je 29 '18
- Testing eggs by photography. J. Boyer. *Il Sci Am* 118:362 Ap 20 '18
- See also* Egg candlers

**Transportation**

- Egg-mailing case that does not have to be handled with care. *Il Sci Am* 120:584 My 31 '19
- Prevention of breakage of eggs in transit when shipped in carlots. M. E. Pennington and others. *Il diags U S Agric Bul* 664:1-31 '18

**Egypt****Antiquities**

- Ancient Egyptian textile designs. H. H. Manchester. *Il Textile World* 53:4696+ Ap 13 '18
- Pigments of the tomb of Perneb. M. Toch. *J Ind & Eng Chem* 10:118-19 F '18
- Recently written chapter of remote history. *Sci Am* 120:670+ Je 21 '19

**Industries and resources**

*See* Mines and mineral resources—Egypt

Eight hour day. *See* Hours of labor

**Ejectors**

- Duplex ejector. L. V. Lauther. *diag Coal Age* 13:910 My 18 '18
- Inexpensive water ejector for pit use. J. E. Hester. *diags Elec Ry J* 51:530 Mr 16 '18
- Penberthy automatic ejector offers advantages for preventing flooded basements. *diag Elec R* 72:204-5 F 2 '18

**Ejectors, Sewage.** *See* Sewage ejectors

**Elastic limit**

- Determining the proportional limit. H. F. Moore. *Il Iron Tr R* 62:327-8 Ja 31 '18
- Elastic limit recorder. J. L. Jones and C. H. Marshall. *Iron Age* 102:391-2 Ag 15 '18; *Same*. *Automotive Ind* 39:287 Ag 15 '18; *Abstract*. *Iron Tr R* 63:842 O 10 '18

**Elasticity**

- Effects of cold working on the elastic properties of steel. J. A. Van Den Broek. *Il Engineer* 125:443-4 My 24 '18
- Elastic indentation of steel balls under pressure. C. A. Briggs, W. C. Chapin and H. G. Hell. *charts Am Soc M E J* 40:386-8 My '18; *Same*. *Am Mach* 48:1105-9 Je 27 '18
- Modulus of elasticity. *Coal Age* 16:32 Jl 3 '19
- Modulus of elasticity. *Power* 48:595 O 22 '18
- New compressometer devised to measure elasticity modulus. H. A. Davis. *Il diags plan Eng N* 81:710 O 17 '18
- New theory of plate springs. D. Landau and P. H. Parr. *diags J Fr Inst* 185:481-507 Ap '18
- Properties of electrolytic copper—modulus of elasticity. B. Welbourn. *Inst E E J* 56:53-4 D '17
- Variation of Young's modulus with temperatures. H. L. Dodge. *Chem & Met Eng* 19:151 Ag 1 '18

*See also* Elastic limit; Hysteresis; Resilience; Strains and stresses; Strength of materials

**Elbows, Pipe.** *See* Pipe elbows

**Electric accidents.** *See* Electric apparatus and appliances—Accidents; Electricity, Injuries from

**Electric alarms**

- Bell-alarm protection. E. H. Beckert. *diag Elec W* 73:902 My 3 '19
- Bell-alarm relay switches. E. H. Beckert. *diag Elec W* 72:1184 D 21 '18
- Safety features in switching installations. M. M. Samuels and F. Bechoff. *diags Elec W* 72:878-80 N 9 '18

*See also* Burglar alarms; Fire alarms

**Electric apparatus, Protective.** See **Electric protective apparatus**

**Electric apparatus and appliances**

Apparatus for the discovery of metallic objects buried in the soil; abstract. *diag Elec W 70:1156-7 D 15 '17*

Automatic helpers for the management. C. E. Clewell. *il Factory 22:939-43 My '19*

Battlefield salvage of war metals. Eng & Min J 105:330 F 23 '18

Developments in the electrical industry during 1918. J. Liston. *il diag Gen Elec R 22:9-46 Ja '19*

Electric bandage cutter. *Elec W 70:1128 D 8 '17*

Electric gas meter. *il Sci Am 119:416+ N 23 '18*

Electric knife-cleaning, vegetable-paring and other kitchen-utility machines. *il Elec R 72:307-8 F 16 '18*

Electric method of testing radiators. J. E. Emswiler. *il diag Am Soc Heat & V E 24: 285-93 '18; Same. Metal Work 90:90-2 J1 26 '18; Discussion. Am Soc Heat & V E 24: 294-6 '18*

Electric switch machines with distant control. *diag Ry Age 64:1041-3 Ap 19 '18*

Electric weighing of a moving mass. J. M. Bird. *il Sci Am 119:111+ Ag 10 '18*

Electrical apparatus development. *diag Elec W 73:1102-5; Discussion. 1085-6 My 24 '19*

Electrical determination of ore beds; patent. *Elec W 70:1237 D 29 '17*

Electrical recording of boiler-heat losses. J. B. C. Kershaw. *diag Power 49:524 Ap 8 '19*

Electrically heated faucet that supplies hot water. *il Elec W 71:1346 Je 22 '18*

Electrically heated industrial appliances and devices. G. J. Kirkgasser. *il Ind Management 56:417-23 N '18*

Electricity in household service; motor-driven domestic utilities. T. W. Behan. *il Gen Elec R 22:174-87 Mr '19*

How the domestic electrical appliances are serving the country. G. A. Hughes. *Elec R 72:983 Je 15 '18*

Installation of convenience outlets is of timely importance. *Elec R 73:53-5 J1 13 '18*

Just Jones deals in household appliances. J. H. Moseley. *J Elec 43:358-9 O 15 '19*

Manufacturers must use substitutes for brass. *Elec W 72:802-3 O 26 '18*

1917 developments of the Cutler-Hammer manufacturing company. *Elec R 72:84-5 Ja 12 '18*

Prevalent trend of domestic appliance market. E. A. Edkins. *il Elec W 71:670-1 Mr 30 '18*

Progress in producing and transmitting electric power. *Elec Ry J 53:1003-4 My 24 '19*

Robinson electric engraving machine for tool work. *il Am Mach 48:215 Ja 31 '18*

Substitute materials in electrical apparatus; abstract. *Elec W 74:138 J1 19 '19*

Westinghouse electrical developments during 1918. *Elec R 74:25-8 Ja 4 '19*

See also **Armatures; Audion; Automobiles—Electric equipment; Burglar alarms; Commutators; Condensers (electricity); Electric alarms; Electric batteries; Electric bells; Electric circuit breakers; Electric controllers; Electric current converters; Electric current rectifiers; Electric equipment; Electric fans; Electric furnaces; Electric fuses; Electric generators; Electric industries; Electric instruments; Electric irons; Electric lamps; Electric machinery; Electric meters; Electric motors; Electric precipitation; Electric protective apparatus; Electric railroads—Equipment and supplies; Electric shops; Electric shovels; Electric signals; Electric standards; Electric switches; Electric transformers; Electricity in mining; Electricity in the home; Electricity on the farm; Electromagnets; Fire alarms; Galvanometers; Gas and oil engines—Ignition; Hotels—Electric equipment; Induction coils; Phase converters; Plumbing shops—Electric appliance departments; Relays; Rheostats; Ships—Electric equipment; Spark plugs; Storage**

**batteries; Submarine boats—Electric equipment; Switchboards; Synchroscopes; Washing machines, Electric**

**Accidents**

Fires and accidents reported due to electrical causes. *Am Ind 19:35-6 My '19*

Life and fire hazards of electricity. D. Pierce. *Elec R 72:940-1 My 18 '18*

**Classification**

New classification of electrical exports. *Elec W 74:235-6 Ag 2 '19*

**Grounding**

Earthing power-station equipment. P. H. Adams. *il Power 48:451-4 S 24 '18*

Grounding of appliance casings. *Elec R 73:26-7 J1 6 '18*

Grounding of fixture and appliance casings. *Elec R 72:631 Ap 13 '18*

**Repair**

Curing electric troubles. *il diag plan Motor Age 35:22-4 Mr 20 '19*

**Electric arc**

Effect of magnetic field on circuit-breaker arc. *diag Elec W 71:1376-7 Je 29 '18*

See also **Electric lamps, Arc**

**Electric automobiles.** See **Electric vehicles**

**Electric batteries**

Catalytic action of carbon in batteries; abstract. M. Fery. *Elec W 71:1329 Je 22 '18*

Centralizing the batteries in a large public building. *il J Elec 43:365 O 15 '19*

Construction of a dry cell battery. *diag Motor Age 34:34-5 S 5 '18*

Electrical characteristics and testing of dry cells. *il diag U S Bur Stand Circ 79:1-44 '19*

Electro-plating generators. F. S. Taylor. *Metal Ind 15:294-8 J1 '17*

Experimental carbon cell. S. A. Reed. *Elec W 71:990 My 11 '18*

New form of primary battery; abstract. *Elec W 72:20-1 J1 6 '18*

New voltaic cell. *J Ind & Eng Chem 10:744 S '18*

Permanganate electric cell. A. W. Warrington. *Sci Am S 85:343 Je 1 '18*

Planck's formula for the potential difference between solutions and the values of certain important cells. H. A. Fales and W. C. Vosburgh. *diag Am Chem Soc J 40:1291-1316 S '18*

Recharging dry cells. V. J. Kubanyi. *diag Power 47:777 My 28 '18*

Sign of the zinc pole in a battery. *Sci Am S 87:53 Ja 25 '19*

Thermoelectric standard cell. C. A. Hoxie. *il diag Am Inst E E Pro 37:57-64 F '18*

Uses of manganese dioxide ore; the dry cell battery. W. C. Phalen. *Chem & Met Eng 21:196-8 Ag 15 '19*

See also **Depolarization; Electrolytic cells; Storage batteries**

**Testing**

Testing flashlight cells. *Illum Engr 10:271 O '17*

Tests to determine deterioration of small dry cells with age. A. J. Helfrecht. *Elec R 75: 603-4 O 11 '19*

**Electric bells**

Operation of electric bells on alternating current circuits. G. A. Schneider. *J Elec 42:519-20 Je 1 '19*

Operation of electric bells on alternating electric currents. G. A. Schneider. *J Elec 42:304 Ap 1 '19*

See also **Electric signals**

**Electric blasting.** See **Blasting**

**Electric blockers**

Patented automatic electric blocker. *il Metal Ind 15:496 N '17*

**Electric buses**

Buses abandoned in Havana. *Elec Ry J 52: 417 S 7 '18*

Electric buses for city transportation. G. D. Smith. *il Elec W 71:1140-1 Je 1 '18*

**Electric cables**

- Accomplishing reduction of duct temperatures. W. Keating and C. H. Mueller. *Elec W* 71:823-4 Ap 20 '18; Discussion. L. E. Imlay. 71:1330 Je 22 '18
- Advantages and disadvantages of the plugged cable duct. B. M. Smith. *Elec R* 74:865-6 My 24 '19
- Aerial cable construction for electric power transmission. E. B. Meyer. *il diags Am Inst E E Pro* 37:561-70 Je '18
- Aluminum-iron-rope cable for high-tension transmission lines; abstract. *Elec W* 71:158 Ja 19 '18
- Attaching conductors to fishing wires and pulling-in lines. T. Croft. *il Elec R* 74:72-3, 113-14, 155-6 Ja 11-25 '19
- Built-up electric cable. T. M. R. Von Keler. *diag Am Mach* 48:1114 Je 27 '18
- Cable cart that lifts its own cable reels. *il Elec W* 70:1244 D 29 '17
- Cable-stripping machine lowers labor cost. *il diag Elec R* 75:499 S 20 '19
- Cables cooled by fan. *il Elec W* 72:261 Ag 10 '18
- Ceiling replaces floor for carrying cables. *il Elec R* 73:506 S 28 '18
- Cement fireproofing for cables. *Elec W* 72:986 N 23 '18
- Clause in cable specifications cares for dielectric losses. *Elec R* 75:73 J1 12 '19
- Coal pile causes corrosion and cable failures. *Elec R* 72:162-3 Ja 26 '18
- Detective and protective devices for electric cables. *diags Engineer* 126:116 Ag 9 '18
- Dielectric field in an electric power cable. R. W. Atkinson. *diags Am Inst E E Pro* 38:815-56 Je '19
- Dielectric losses cause cable failure. C. P. Royce. *Elec R* 73:338 Ag 31 '18
- Dielectric strength of air films entrapped in solid insulation and a practical application of the problem for alternator coils and cables. F. Dubsky. *diags Am Inst E E Pro* 38:141-61 F '19
- Duct splicing saves short lengths of cable. J. B. Noe and A. Rabe. *il Elec W* 71:1210-12 Je 8 '18
- Efficient methods for pulling wires into conduit. E. M. Lothrop. *diags Elec R* 74:435 Mr 15 '19
- Failures prove to be few in reinstalled cable. *Elec W* 73:484 Mr 8 '19
- High-tension single-conductor cable for poly-phase systems. W. S. Clark and G. B. Shanklin. *il diags Am Inst E E Pro* 38:663-715 Je '19
- How a mining company uses cable potheads. *diags Elec W* 71:1089 My 25 '18
- Improved construction of three-conductor, three-phase cables. *diags Elec R* 72:168-9 Ja 26 '18
- Increasing carrying capacity of underground cable. E. O. Schweitzer. *il Elec W* 71:613-14 Mr 23 '18
- Labor data pertaining to installation of cables. J. D. Morgan. *Elec W* 73:532-3 Mr 15 '19
- Locating faults in underground cables. *Elec R* 75:578 O 4 '19
- Measurement of power loss in dielectrics of three-conductor high-tension cables. F. M. Farmer. *diags Am Inst E E Pro* 37:125-45 F '18; Discussion. *Elec W* 71:413 F 23 '18
- New cable standards. *Engineer* 128:445 O 31 '19
- Paper-insulated cable properties. W. S. Clark. *Elec R* 75:960 D 6 '19
- Problems encountered in cable operation and design. *Elec W* 74:17-18 J1 5 '19
- Protecting cable splicers in manholes. *Elec R* 73:506 S 28 '18
- Protecting cables in manholes; advantages of fiber conduit are pointed out. A. L. Fisher. *Elec R* 73:739 N 9 '18
- Pulling conductors into conduits. T. Croft. *diags Power* 49:846-8 Je 3 '19
- Pulling in conductors with a crane. T. Croft. *diags plans Power* 50:136-7 J1 22 '19
- Pulling in heavy cable. *Elec R* 73:1023 D 28 '18
- Reducing trouble at underground cable splices. H. M. Alsop. *Elec R* 74:154 Ja 25 '19

- Resistance and reactance of three-phase armored cable to third harmonics; abstract. R. Swyngedauw. *Elec W* 73:1222-3 Je 7 '19
- School for cable splicers reduces breakdowns. *Elec R* 74:1006 Je 14 '19
- Seasonal rating of underground cables. *Elec R* 72:798-9 My 11 '18
- Split-conductor cable—balanced protection. W. H. Cole. *diags Am Inst E E Pro* 37:793-816 J1 '18; Appendix. C. A. Adams. 37:817-20 J1 '18; Same cond. *Elec W* 71:1370-1 Je 29 '18
- Submarine cable laid under Mississippi river. *Elec W* 71:1275 Je 15 '18
- Tapping a 13,200-volt three-conductor cable. E. B. Meyer. *Elec W* 70:1198 D 22 '17
- Thawing out cables electrically. M. S. Montgomery. *Elec R* 71:1068-9 D 22 '17
- Transposition joint for split-conductor cables; abstract. *diags Elec W* 71:263 F 2 '18
- Twenty-two miles of old cable reinstalled. *Elec W* 73:274-5 F 8 '19
- Underground cable construction. F. F. Sengstock. *Elec R* 74:394-5 Mr 8 '19
- Unique method of making stranded-conductor cables. *diags Elec R* 73:186-7 Ag 3 '18
- Varnished cambric cable for underground service. W. E. Hazeltine. *il Gen Elec R* 22:442-4 Je '19
- Ventilation of ducts reduces underground cable failures. *Elec R* 74:561 Ap 5 '19
- See also Cables, Submarine; Electric conduits; Electric distribution; Electric lines; Electric wire and wiring; Insulation

**Electric cells. See Electric batteries; Electrolytic cells****Electric circuit breakers**

- Automatic circuit breakers save labor in coal mines. *il Elec W* 72:208-9 Ag 3 '18; Same. *Coal Age* 14:349 Ag 22 '18
- Automatic reclosing circuit-breaker. *il Elec R* 72:572 Mr 30 '18; *Elec W* 71:750 Ap 6 '18; *Coal Age* 13:928 My 18 '18
- Automatic reclosing circuit breakers in mine service. E. C. Raney. *il diags Coal Age* 15:800-2 My 1 '19
- Circuit-breaker signal for hand-operated board. L. E. Wood. *il diag Elec W* 70:1103-4 D 8 '17
- Circuit breaker signal operation. W. M. Blythe. *Elec R* 73:300-1 Ag 24 '18
- Circuit breaker with self-timing attachment. *il Elec W* 71:958 My 4 '18
- Electrical distribution in mines. E. Steck. *Coal Age* 16:3 J1 3 '19
- High-speed circuit breaker prevents flash-overs on Milwaukee electrification. *il diags Elec Ry J* 52:154-6 J1 27 '18; Same. *Elec R* 73:266-8 Ag 17 '18
- High-speed circuit breakers for Chicago, Milwaukee & St Paul electrification. C. H. Hill. *il diag Gen Elec R* 21:623-6 S '18
- High-voltage automatic circuit breaker. *diags Elec W* 73:817 Ap 19 '19
- High-voltage circuit-breaker details; abstract. L. R. Golladay. *Elec W* 71:989 My 11 '18
- Large capacity circuit breakers. H. G. MacDonald. *il Elec J* 16:261-2 Je '19
- Making temperature trip the circuit breaker. *Elec Ry J* 52:518 S 21 '18
- Modern bus and switch structures. C. D. Gray and M. M. Samuels. *il diags Elec W* 73:788-92 Ap 19 '19
- New type of reclosing circuit-breaker. *il Power* 49:969 Je 24 '19; *Coal Age* 16:152 J1 24 '19
- Rating and selection of oil circuit breakers. E. M. Hewlett, J. M. Mahoney and G. A. Burnham. *diags Am Inst E E Pro* 37:41-56 F '18; Abstract. *Elec W* 71:410-11; Discussion. 411-12 F 23 '18
- Roller-Smith self-timing circuit-breakers. *il Elec R* 72:778 My 4 '18; *Am Mach* 48:851 My 16 '18

**Electric circuits**

- Adding energy consumption of two separate services. J. N. McClurg. *diag Elec W* 71:1377 Je 29 '18
- Circuit load record of Commonwealth Edison company. *Elec R* 74:721 My 3 '19

**Electric circuits—Continued**

- Determination of economical power circuits. P. O. Reyneau. *diag Elec W* 71:1072-3; 73: 471-3 My 25 '18, Mr 8 '19; Discussion. W. F. Butcher. 73:902 My 3 '19
- Determining of load centers of circuits. T. Croft. *diags Power* 47:696-7 My 14 '18
- Determining the load center. C. E. Cary. *diags Elec R* 72:385 Mr 2 '18; Discussion. 72:526-6 Mr 23 '18
- Device for testing series street-lighting circuits. *Elec W* 71:258 F 2 '18
- Effects of unsymmetrically spaced conductors. G. S. Humphrey. *diags Elec W* 70: 1097-1100 D 8 '17
- Electrical characteristics of transmission circuits. W. Nesbit. *chart diags Elec J* 16:279-87, 314-26, 385-96, 485-9, 515-19 J1-S, N-D '19
- Electrical study course—properties of alternating-current circuits. *diags Power* 50:507-9 S 23 '19
- Floor-plan symbols for electric circuits. *Elec W* 74:474 Ag 30 '19
- Fundamental considerations of power-factor correction. R. A. McCarty. *diags Power* 47: 639-41 Ap 30 '18
- General equations of the electric circuit. C. P. Steinmetz. *Am Inst E E Pro* 38:249-318 Mr '19; Abstract. *Elec W* 73:425 Mr 1 '19
- Graphical determination of line constants. T. A. Wilkinson. *charts (supp) diag Elec W* 71:557-8 Mr 16 '18
- Initial current obtained in incandescent lamps. C. J. Berry. *il Elec W* 71:459-62 Mr 2 '18
- Maintaining constant frequency. *il Power* 48: 90-1 J1 16 '18
- Method of symmetrical co-ordinates applied to the solution of polyphase networks. C. L. Fortescue. *diags Am Inst E E Pro* 37:629-716 Je '18
- Old and new shop circuits. C. E. Clewell. *il Am Mach* 50:729-32 Ap 17 '19
- Peculiar case of voltage on supposedly dead feeder. E. C. Seares. *diags Elec W* 70:1148 D 15 '17
- Potential grading on series lighting circuits. *Elec W* 71:769-70 Ap 13 '18
- Simple method of finding open circuits in series lighting circuits. E. N. Vickery. *Elec R* 72:606 Ap 6 '18
- Simplifying transmission-line calculations. T. A. Wilkinson. *chart Elec W* 71:244-8 F 2 '18
- Substitute for the disconnect switch. *il Elec R* 73:300 Ag 24 '18
- Test methods for series circuits. W. I. Carpenter. *Elec R* 72:731 Ap 27 '18
- See also* Electric conductors; Electric current rectifiers; Electric distribution; Electric lines; Electric transmission; Power factor
- Electric codes.** *See* Electric engineering—Laws and regulations; also National electrical code; National electrical safety code
- Electric companies.** *See* Electric utilities
- Electric condensers.** *See* Condensers (electricity)
- Electric conductivity**
- Application of the thermionic amplifier to conductivity measurements. R. E. Hall and L. H. Adams. *il diags Am Chem Soc J* 41: 1515-25 O '19
- Conduction in liquid dielectrics. J. E. Shrader. *diags Elec J* 16:334-8 Ag '19
- Conductivity of aluminum; abstract. G. Grassl. *Elec W* 71:56 Ja 5 '18
- Copper castings for electrical purposes. G. F. Comstock. *il Iron Age* 101:1004-6 Ap 18 '18; Same. *Metal Ind* 16:221-2 My '18; Abstract. *J Fr Inst* 185:581-2 Ap '18
- Dionic tester in water works service. J. Race. *Eng & Contr* 50:40-1 J1 10 '18
- Electric conductivity of benzole and benzene. *Gas Age* 41:79 Ja 15 '18
- Electric conductivity of mica; abstract. E. Branly. *Elec W* 71:264 F 2 '18
- Electrical conductance of solutions in bromine. E. H. Darby. *Am Chem Soc J* 40:347-56 F '18

- Electrical conduction in metals at low temperatures. F. B. Silsbee. *U S Bur Stand Bul* 14:301-6 Je 17 '18
- Electrical conductivity and other properties of saturated solutions of copper sulphate in the presence of sulphuric acid. H. M. Goodwin and W. G. Horsch. *Chem & Met Eng* 21:181-2 Ag 15 '19
- Electrical conductivity recorder for salinity measurements. E. E. Weibel and A. L. Thuras. *diags J Ind & Eng Chem* 10:626-7 Ag '18
- Electrolytic conductivity in non-aqueous solutions; relations between the conductivity of the solute and several physical properties of the solvent. H. J. M. Creighton. *J Fr Inst* 187:313-18 Mr '19
- Electrolytic conductivity in non-aqueous solutions; the electrical conductance of trimethyl-para-tolyl-ammonium iodide in water and several organic solvents. H. J. M. Creighton and D. H. Way. *diags J Fr Inst* 186:676-98 D '18
- Photoelectric sensitivity of bismuthinite and various other substances. W. W. Coblenz. *diag U S Bur Stand Bul* 14:591-604 J1 12 '19
- Relation between electrical and thermal conductivities of metals; abstract. S. Weber. *Elec W* 72:169-70 J1 27 '18
- Relative conductivity of metal raceways for wires. *chart Elec R* 73:341 Ag 31 '18
- Solubility of bismuth oxychloride in hydrochloric acid and its relation to complex formation. A. A. Noyes, F. W. Hall and J. A. Beattie. *Am Chem Soc J* 39:2526-32 D '17
- Some optical and photoelectric properties of molybdenite. W. W. Coblenz and H. Kahler. *diags U S Bur Stand Sci Pa* 338:121-62 '19
- Spectral photoelectric sensitivity of silver sulphide and several other substances. W. W. Coblenz and H. Kahler. *diags U S Bur Stand Sci Pa* 344:231-49 '19
- Studies in conductivity; notes on the measurement of the conductivity of solutions. H. I. Schlesinger and F. H. Reed. *diag Am Chem Soc J* 41:1727-32 N '19
- Studies in conductivity; the conductivity of alkaline earth formates in anhydrous formic acid. H. I. Schlesinger and R. D. Mullinix. *Am Chem Soc J* 41:72-5 Ja '19
- Study of the electrical conductance of aqueous phthalate solutions. H. E. Patten, A. J. Johnson and G. H. Mains. *diags Am Chem Soc J* 40:1156-62 Ag '18
- Super-conductivity of metals at low temperature. *Sci Am S* 87:381 Je 14 '19
- Thermal and electric conductivity of carbon steels. *Iron Age* 101:614 Mr 7 '18
- See also* Electric conductors; Electric resistance

**Electric conductors**

- Characteristics of iron and steel conductors. C. E. Oakes and F. A. B. Sahn. *Elec W* 72:150-1, 249-52 J1 27, Ag 10 '18
- Conduit and wire sizes for two-wire feeders. T. A. Nash. *diag Power* 47:188 F 5 '18
- Current capacity of copper busbars; abstract. F. M. Billhimer. *Elec W* 71:627 Mr 23 '18
- Graphs for finding safe current-carrying capacity of insulated copper wire. M. C. Mason. *Elec R* 73:1020 D 28 '18
- Heating of underground conductors under intermittent load. A. L. Freret. *Elec R* 75:451-2 S 13 '19
- Heavy alternating-current conductors. K. C. Randall. *diags Elec J* 16:343 Ag '19
- Inductance of tubular conductors. H. B. Dwight. *diag Elec R* 72:224-5 F 9 '18
- Investigation of conductor heating. H. C. Horstmann and V. H. Tousley. *Elec W* 72: 1173-4 D 21 '18
- Investigation of heating of conductors. H. C. Horstman and V. Tousley. *Elec W* 72:489-90, 690-3 S 14, O 12 '18
- Properties of electrolytic copper—modulus of elasticity. B. Weibourn. *Inst E E J* 56:58-4 D '17
- Reactance values for rectangular conductors. H. B. Dwight. *Elec J* 16:255-6 Je '19

**Electric conductors—Continued**

- Reels to prevent conductors kinking when being installed. T. Croft. *diags* Power 50: 503-4 S 23 '19
- Resistance and reactance of commercial steel conductors. H. B. Dwight. *Elec J* 16:25-7 Ja '19
- Resistance of copper conductors. W. Nesbit. *chart diags* *Elec J* 16:280-7 JI '19
- Skin effect in tubular and flat conductors. H. B. Dwight. *Am Inst E E Pro* 37:977-98 Ag '18
- Solderless connectors for large conductors. *Il Sci Am* 118:92 Ja 26 '18
- Spliced conductors in conduits. B. A. Briggs. *Il Power* 47:261 F 19 '18
- Undamped currents in super-conductors. *Sci Am S* 87:71 F 1 '19
- Use of aluminum in the electrical industry; abstract. J. Escard. *Elec W* 71:107 Ja 12 '18

*See also* Busbars; Electric cables; Electric distribution; Electric transmission; Electric wire and wiring; Insulation; Lightning conductors

**Electric conduits**

- Advantages of wood duct for underground systems. R. A. Paine, Jr. *Elec W* 72:355 Ag 24 '18
- Comments on conduit benders. T. Croft. *diags* *Elec R* 72:733-4, 774-5, 807-8, 848-9 Ap 27-May 18 '18
- Correct conduit sizes. *Elec W* 73:533 Mr 15 '19
- Design of underground distribution for electric light and power systems. G. J. Newton. *diags* *Am Inst E E Pro* 37:237-48 Mr '18
- Determining wire combinations to be installed in conduit. V. H. Tousley. *Elec R* 74:277-8 F 15 '19
- Drainage system to prevent water collecting in conduits. *diag* *Elec R* 73:672 O 26 '18
- Facts about conduit fishing. T. Croft. *diags* *Elec R* 73:303-4, 339-40, 381-2, 420-1, 465-6, 509-10, 551-2 Ag 24-O 5 '18
- Home-made conduit bender. *Il Elec W* 71:1142 Je 1 '18
- Making measurements for fitting conduit. T. Croft. *diags* *Elec R* 74:475-6, 552-3, 564-5 Mr 22-Apr 5 '19
- Methods of bending conduits. T. Croft. *diags* *Elec R* 72:78-9, 124, 164-5, 206, 248-9, 289-90, 349-50 Ja 12-F 23 '18
- Protecting cables in manholes; advantages of fiber conduit are pointed out. A. L. Fisher. *Elec R* 73:739 N 9 '18
- Safe methods of piling conduit in storeroom. M. King. *diags* *Elec W* 72:1034-5 N 30 '18
- Selecting conduit size for power-plant wiring. A. R. Zahorsky. *diags* *Elec W* 74:399-400 Ag 23 '19
- Ventilation of ducts reduces underground cable failures. *Elec R* 74:561 Ap 5 '19
- Whitcotton pipe and conduit bender. *Il Elec R* 72:739 Ap 27 '18

*See also* Electric cables; Electric conductors; Electric distribution; Electric wire and wiring; Telephone conduits

**Cost**

- Cost of conduit and tunnel construction. G. B. Springer. *Elec R* 74:315-16 F 22 '19
- Cost of installing underground construction. *Elec W* 71:51 Ja 5 '18
- Estimating the cost of underground conduit. J. F. Mahoney. *chart diags* *Elec W* 72:7-9 JI 6 '18

**Electric contractors**

- Accurate determination of overhead in electrical estimating; with discussion. E. L. Morley. *Elec R* 73:943-5 D 14 '18
- Building up a large contracting and repair business. *Il Elec R* 75:536-7 S 27 '19
- California's electrical co-operative campaign. S. M. Kennedy. *Elec W* 72:155-7 JI 27 '18
- Coming activity in electrical installation work in England. *Elec R* 74:223-4 F 8 '19
- Contract suitable for farmers' lines. *Elec R* 75:493-4 S 20 '19
- Contractor-dealer of tomorrow. J. C. Rendler. *J Elec* 42:379-82 Ap 15 '19

Contractor-dealers hold enthusiastic annual convention. *Elec R* 75:144-8 JI 26 '19

- Electrical opportunity in immediate building requirements. J. D. Barnhill. *Elec R* 73:1019-20 D 28 '18
- English contractors meet same problems as American; abstract. D. Smeaton. *Elec R* 74:1007-8 Je 14 '19
- Features of the Goodwin plan. W. L. Goodwin. *Elec R* 73:135 JI 27 '18
- Financing time-payment plans for wiring contracts. *Elec R* 74:476-7 Mr 22 '19
- How the Chicago electrical estimators' association can help electrical contractors. *Elec R* 74:317 F 22 '19
- Illinois contractors adopt Goodwin plan. *Elec R* 72:378-80 Mr 2 '18
- Importance of co-operation between electrical manufacturer and contractor. J. N. Shreve. *Elec R* 73:183-4 Ag 3 '18
- Indiana state association of electrical contractors and dealers holds convention, Indianapolis, May 28-29. *Elec R* 72:954-5 Je 8 '18
- Installing wiring which will not be used immediately. S. M. Hall. *Elec R* 74:156-7 Ja 25 '19
- Meeting of the Conference club, Asheville, N. C., Jan. 17-19. *Elec W* 71:212 Ja 26 '18
- Meeting of the Conference club, Schenectady, July 21-23. *Elec W* 72:172-3 JI 27 '18
- Methods of computing overhead expenses of electrical contractors. P. C. Burrill. *Elec R* 72:849-50 My 18 '18
- New code of practice adopted by Massachusetts contractors. *Elec R* 74:870 My 24 '19
- Open price plan explained to Massachusetts contractors. F. W. Lord. *Elec R* 73:1021 D 28 '18
- Plans to promote outlet business standardized. *diags* *Elec R* 73:869 N 30 '18
- Profit sharing by electrical contractors. *Elec R* 72:950 Je 8 '18
- Putting overhead on a scientific basis. W. L. Goodwin. *Elec R* 73:895-6 D 7 '18
- Relation between central stations and contractor-dealers. J. V. Strange. *Elec R* 75:760-1 N 1 '19
- Report on estimating labor costs compiled by the Electrical estimators' association of Chicago. *diags* plans *Elec R* 73:125-31 JI 27 '18
- Results of Goodwin plan in contractor-dealer field. W. A. Scott. *Elec R* 73:42-5 JI 13 '18
- Selling electric service rather than a wiring job. R. A. Gordon. *Elec R* 75:368 Ag 30 '19
- Standard code of practice for electrical contractors submitted for approval by Massachusetts state association of electrical contractors and dealers. *Elec R* 72:290 F 16 '18
- Successful methods of conducting old house-wiring business. *Elec R* 75:208-9 Ag 2 '19
- What constitutes efficiency in repair business. A. P. Denton. *Elec R* 75:168-9 JI 26 '19

**Licenses**

- New Chicago ordinance covering licensing of electrical contractors. *Elec R* 75:249-50 Ag 9 '19
- Oregon contractor's license law. *J Elec* 42:208-9 Mr 1 '19
- Proposed changes in Chicago contractors' license law. *Elec R* 75:119 JI 19 '19

**Electric control**

- Adapting automatic control to motor-started converters. R. J. Wensley. *Il diags* *Elec Ry J* 53:948-51 My 17 '19
- Arc-welding systems. O. A. Kenyon. *diags* *Elec W* 73:167-71 Ja 25 '19
- Automatic control of electric heaters, valves and similar apparatus. G. E. Palmer. *diag* *Elec R* 72:563 Mr 30 '18
- Car dumpers. J. A. Jackson. *Il diags* *Gen Elec R* 22:366-72 My '19; Same cond. *Eng & Min J* 107:991-3 Je 7 '19
- Complete system of electrically operated steam valves. plan *Elec R* 75:327-8 Ag 23 '19
- Control gallery for industrial installations. S. L. Guthorn. *diags* *Elec W* 74:464-5 Ag 30 '19



**Electric control—Continued**

- Control of electric furnaces; abstract. F. E. Hill and A. P. M. Fleming. *diag Elec W* 73: 976 My 10 '19
- Control of station auxiliaries; Northwest station of the Commonwealth Edison co. *il diag Elec W* 71:976-6 My 11 '18
- Controlling the propulsion of the New Mexico. H. F. Harvey, jr. *il diags Gen Elec R* 22:272-92 Ap '19
- Cost data on drag-line operation for coal mine. L. W. Nickel. *il Elec R* 72:101-2 Ja 19 '18; Same. *Coal Age* 13:323-4 F 16 '18; Abstract. *Eng N* 80:742 Ap 11 '18
- Dean valve controls at new plate mill. *il Iron Age* 102:1267 N 21 '18; Same. *Elec R* 73:832 N 23 '18
- Distant control of projectors for sea coast defense. J. L. Hall. *diags Gen Elec R* 22:676-9 S '19
- Distant electrical controls for military searchlights. T. Hall. *il diags Gen Elec R* 22:718-21 S '19
- Electric control equipment of mine hoist. *il Coal Age* 13:929 My 18 '18
- Electrical equipments for movable highway and railway bridges. H. H. Vernon. *il diags Gen Elec R* 22:373-83 My '19
- Electrical valve control. *il Eng & Min J* 107: 411-12 Mr 1 '19; Same cond. *Iron Tr R* 63: 1356 D 12 '18
- Electrically-controlled motor boats used on the Belgian coast. *Engineer* 124:425 N 16 '17; Same. *Elec W* 70:1157 D 15 '17
- Electrically controlled torpedo boat. *Elec W* 70:1135 D 15 '17
- Electrically operated wasteways of the Tieton canal. C. F. Gleason. *il J Elec* 43:464-5 N 15 '19
- G. E. automatic control for electric furnaces. *diag Elec W* 71:699 Mr 30 '18; Foundry 46: 186 Ap '18; *Met & Chem Eng* 18:490 My 1 '18; *Iron Tr R* 63:328 Ag 8 '18
- Main control equipment of the New Mexico. C. T. Hentschel. *il diags Gen Elec R* 22: 261-71 Ap '19; Same. *Sci Am S* 87:408-10 Je 28 '19
- Manless car operation in a stone quarry. *il Elec Ry J* 52:337-8 Ag 24 '18; Excerpt. *Eng & Contr* 50:276 S 18 '18
- Novel electrical control for a train of motor trucks or other vehicles. *il diags Sci Am* 120:317 Mr 29 '19
- Regulation of alternating-current commutator machines by direct current; abstract. M. Osnos. *Elec W* 72:798 O 26 '18
- Remote-control air-break switch of inexpensive type. *il diag Elec W* 71:622 Mr 23 '18
- Remote control of lamps in a large building. *diag Elec W* 74:584 S 13 '19
- See also* Electric controllers; Electric motors—Control; Electric railroads—Control; Electric switches; Voltage regulation; Wireless control
- Electric controllers**
- Arc-Master equipment for drum type controllers. *diag Elec R* 74:821-2 My 17 '19
- Control of direct-current motors. C. E. Clewell. *il diag Am Mach* 51:5-9 Jl 3 '19
- Controller explosions sometimes result from equipment conditions rather than from poor design. *Elec Ry J* 52:879 N 16 '18
- Drum reversing switch for machine tools. *il Iron Age* 100:1533 D 27 '17
- Features of industrial motor control. C. E. Clewell. *il diag Elec W* 72:60-3 Jl 13 '18
- Fundamental problems of industrial control. C. E. Clewell. *il diags Elec W* 70:1190-3 D 22 '17
- G. E. electrical control for calendars. *diag Elec W* 71:491 Mr 2 '18; *Elec R* 72:438-9 Mr 9 '18
- Improvements in contactor types of industrial controllers. H. D. James. *il diags Elec J* 16:489-93 N '19
- Master controller for use with automatic magnetically operated controllers. *il Coal Age* 15:1042 Je 5 '19
- Motors and control for traveling cranes. C. E. Clewell. *il diags Elec W* 71:148-51 Ja 19 '18

- N S Ogden automatic drum-type controller for storage-battery trucks and tractors. *il Elec R* 74:1101 Je 28 '19
- Renewing K controller shafts and handles. R. S. Beers. *diags Elec Ry J* 53:61 Ja 4 '19
- Reynolds automatic controller for a fire-alarm siren. *il Elec W* 71:179 Ja 19 '18
- Speed-adjusting controller for printing presses. W. G. Merrowit. *Elec W* 72:705 O 12 '18

*See also* Electric motors—Control; Electric railroads—Control; Rheostats

**Electric converters.** *See* Electric current converters; Rotary converters

**Electric cooking**

- Advantages of electric cooking; abstract. *Elec W* 71:574-5 Mr 16 '18
- Analysis of electric cooking situation made by Southern California Edison company. S. M. Kennedy. *Elec W* 72:351-2 Ag 24 '18
- Automobile electric kitchen. A. S. Rice. *il diag plan Gen Elec R* 21:277-80 Ap '18
- Building an electric cooking load. G. D. Smith. *J Elec* 42:581 Je 15 '19
- Commonwealth Edison company's electric kitchen. A. F. Allsop. *il Elec R* 72:908-5 Je 1 '18
- Electric cooking load as developed by Detroit Edison company. R. F. Hotton. *Elec R* 75: 385-7 S 6 '19; Same cond. *Elec W* 74:767, 808-9 O 4-11 '19
- Electric frying kettles and combination griddle and baker. *il Elec R* 74:728 My 3 '19
- Electrical cooking as applied to large kitchens. W. A. Gillott. *plans Inst E E J* 56:92-102 Ja '18; Same cond. *Elec R* 71:1095-9 D 29 '17; Discussion. *Inst E E J* 56:102-12, 153-63, 205-8, 250-2 Ja-Apr '18
- Electricity for cooking and heating in Seattle, Wash. *il diags Metal Work* 91:65-8 Ja 10 '19
- Electricity in household service; heating and cooking. G. A. Hughes. *il Gen Elec R* 22: 188-95 Mr '19
- Electricity is tried in canning and drying. *il Elec W* 74:710 S 27 '19
- Electricity the food and coal economizer. *Elec R* 72:804 My 11 '18
- Energy consumption of electric ranges. *Elec W* 73:378 F 22 '19
- Fuel economy in cooking. A. H. Barker. *Elec R* 74:68-9 Ja 11 '19
- Keeping in touch with your electric cooking prospects in war time. T. H. Kettle. *Elec R* 72:769-70 My 4 '18
- Modern electrical bakery in a large department store. *il Elec R* 74:535-7 Ap 5 '19
- 1919 to be banner year for electric cooking. G. A. Hughes. *Elec R* 74:23-4 Ja 4 '19
- Progress in electric cooking in Switzerland. *Elec R* 71:972 D 8 '17
- Progress of electric cooking and heating. B. M. Maddox. *J Elec* 42:377-9 Ap 15 '19; Abstract. *Elec R* 74:908-9 My 31 '19
- Save fuel, labor and transportation by use of electricity. *Elec R* 72:286-7 F 16 '18
- Value of electric cooking as central-station load. P. L. Miles. *Elec R* 75:532-3 S 27 '19

*See also* Electric ovens; Electric stoves

**Bibliography**

- Electric heating and cooking.** *Eng Soc W Pa* 34:575-7 N '18

**Cost**

- Cost of operation of club electric grill. *Elec W* 71:519 Mr 9 '18
- Electric cooking and heating doomed by cost. R. Falconer. *charts Gas Age* 44:324-6 O 1 '19
- How to compare gas and electric cooking costs. G. C. Shadwell. *Gas Age* 44:228-9 S 1 '19

**Rates**

- Public service company makes electric range rate. *Elec W* 73:1278 Je 14 '19

**Electric current converters**

- Automatic current limiting regulator for alternating circuits. *diag Engineer* 128:470-1 N 7 '19
- Features of synchronous converter control. *Elec R* 74:1096-7 Je 28 '19

**Electric current converters—Continued**

- Method of symmetrical co-ordinates applied to the solution of polyphase networks. C. L. Fortescue. *diags Am Inst E E Pro* 37:629-716 Je '18  
 Mobile induction regulators. *diag Elec R* 73:668 O 26 '18  
 Reducing converter shut-downs by changing feeder lengths. *plan Elec R* 75:31 JI 5 '19  
 Relation of trolley feeder taps to machine flash-overs. *Elec R* 74:642-3 Ap 19 '19  
 Relative advantages of three-phase-mono-phase current converters; abstract. C. Della Salda. *Elec W* 71:1045 My 18 '18  
 Voltage regulator and phase-balancer regulator equipment of the Philadelphia electric company. R. M. Carothers. *II diags Gen Elec R* 21:196-201 Mr '18

**See also Rotary converters****Electric current rates. See Electric rates****Electric current rectifiers**

- Electro-magnetic alternating current rectifier. G. F. Haller. *diags Sci Am S* 87:76-8 F 1 '19  
 Factors affecting vapor-rectifier performance. W. Tschudy. *diags Elec W* 71:403-5 F 23 '18  
 Flexible charging outfit. *II Elec W* 71:1167 Je 1 '18  
 How to make a current rectifier. *diag Motor Age* 34:28 Ag 22 '18  
 Large mercury-vapor rectifiers in Hirschberg electricity station; abstracts. J. Obach. *Sci Am S* 87:123 F 22 '19; *Elec W* 73:1223 Je 7 '19  
 Mercury arc tube operation. R. W. Kidd. *II diags J Elec* 42:527-8 Je 1 '19  
 Recent rectifier patents. *II diags Elec R* 72:372 Mr 2 '18  
 Rectification of alternating currents by the corona; abstract. J. W. Davis. *Elec W* 71:1278-9 Je 15 '18  
 Rectifying high-tension alternating currents. S. Cohen. *II diags Elec W* 74:573-5 S 13 '19  
 Selenium rectifier; abstract. H. Greinacher. *Elec W* 72:170 JI 27 '18  
 Tungar rectifier—its theory, characteristics and application; abstract. F. K. Dalton. *Elec W* 74:84 JI 12 '19

**Electric currents**

- Evolution of the thermionic valve. R. L. Smith-Rose. *diags Inst E E J* 56:253-66 Ap '18  
 Flow of wattless current explained. W. Brown. *diags Power* 50:534-5 S 30 '19  
 Fundamental relations between direct- and alternating-current circuits. T. Croft. *diags Coal Age* 14:770-2 O 24 '18  
 General method for studying periodic currents; abstract. J. Mills. *Elec W* 71:470 Mr 2 '18  
 Harmonics in symmetrical M-phase systems. V. Karapetoff. *Elec W* 71:660-2 Mr 30 '18  
 Induced currents in pipe framework. A. R. Zahorsky. *diags Elec R* 72:926-7 Je 1 '18  
 Majestic determinant for quickly testing circuits. *II Elec R* 74:239 F 8 '19  
 Pressure drop curves for copper overhead lines. G. N. Wright. *Inst E E J* 55:520-1 JI '17; Excerpt. *Elec W* 70:1202-3 D 22 '17  
 Transformation of direct current to alternating current; abstract. O. Li Gotti. *diag Elec W* 73:1399 Je 28 '19  
 Transient phenomena in electrical supply systems. E. W. Marchant. *biblog diags Inst E E J* 56:445-55 JI '18; Abstract. *Elec W* 72:216 Ag 3 '18; Discussion. *Inst E E J* 56:455-71 JI '18  
 Travel of electric current. *Coal Age* 14:35, 189, 232, 284, 567, 836; 15:29-30 JI 6, 25-Ag 8, S 19, O 31 '18, Ja 2 '19  
 Voltage rises in third-rail circuits. D. D. Ewing. *diags Elec Ry J* 50:1072-5 D 15 '17

**See also** Electric circuits; Electric conductivity; Electric conductors; Electric current converters; Electric distribution; Electric measurement; Electric meters; Electric testing; Electric transformers; Electric transmission; Electric waves; Short circuits; Stray currents

**Electric currents, Alternating**

- Automatic current limiting regulator for alternating circuits. *diag Engineer* 128:470-1 N 7 '19  
 Electrical study course—addition of alternating voltages. *diags Power* 50:218-19 Ag 5 '19  
 Electrical study course—alternating pressures and voltages. *diags Power* 50:63-4 JI 8 '19  
 Electrical study course—alternating-voltage cycles. *diags Power* 50:186-8 JI 29 '19  
 Electrical study course—generation of alternating voltages. *diags Power* 50:106-8 JI 15 '19  
 Electrical study course—introduction to alternating current. *diag Power* 50:17-18 JI 1 '19  
 Electrical study course—measurement of alternating current and voltage. *diags Power* 50:263-5 Ag 12 '19  
 Electrical study course—properties of alternating-current circuits. *diags Power* 50:507-9 S 23 '19  
 Electrical study course—two-phase systems. *diags Power* 50:340-1 Ag 26 '19  
 Precise measurement of alternating currents. T. W. Varley. *diag Elec W* 72:362 Ag 24 '18  
 Radio instruments and measurements. *diags U S Bur Stand Circ* 74:19-41 '18  
 Rectification of alternating currents by the corona; abstract. J. W. Davis. *Elec W* 71:1278-9 Je 15 '18  
 Rectifying high-tension alternating currents. S. Cohen. *II diags Elec W* 74:573-5 S 13 '19; Same. *Sci Am S* 88:295-6 N 15 '19  
 Technical story of the frequencies. B. G. Lamme. *Am Inst E E Pro* 37:1-21 Ja '18; Same. *Sci Am S* 85:222-3, 230-1 Ap 6-13 '18  
 Utilizing the time characteristics of alternating current. H. E. Warren. *II Am Inst E E Pro* 38:629-43 My '19  
 Vacuum tube as a generator of alternating-current power. J. H. Morecroft and H. T. Friis. *II diags Am Inst E E Pro* 38:1193-1221 O '19

**See also Electric distribution****Electric dehydration. See Dehydration, Electric****Electric detonators. See Detonators, Electric****Electric discharges**

- Influence of the magnetic field on the initial phase of the electric discharge. *Sci Am S* 87:371+ Je 14 '19

**See also Electric sparks; Spark plugs****Electric discharges thru gases**

- Light emission of gases and gas mixtures by electric discharges; note. *Sci Am S* 86:319 N 16 '18  
 Spark lengths in gases and vapors. *Sci Am S* 85:147 Mr 9 '18

**See also Ionization; X rays****Electric distribution**

- Analytical solutions. R. D. Evans. *diags Elec J* 16:345-9 Ag '19  
 Arrangement of feeder inductance to reduce converter flash-overs. *diag Elec R* 75:534-5 S 27 '19  
 Block bus distribution in steel mills. R. J. Gaudy. *Elec R* 73:942 D 14 '18  
 Calculating short-circuit currents in networks. W. R. Woodward. *II diag Elec J* 16:344-5 Ag '19  
 Canton service distribution box. *II Elec R* 73:108 JI 20 '18  
 Carrying overloads by increasing primary voltage. *Elec W* 72:447 S 7 '18  
 Changing long lines from two-phase to three-phase. G. E. Armstrong. *Elec W* 74:469-70 Ag 30 '19  
 Control of large amounts of power. E. B. Wedmore. *diags Inst E E J* 56:269-92 My '18; Discussion. 56:292-324, 517-30 My, JI '18; Abstract. *Sci Am S* 86:185 S 21 '18  
 Convenient arrangement of fuses on feeder panels. H. B. Foote. *diags Elec W* 71:206 Ja 26 '18  
 Correcting power factor in distribution circuit. J. F. Dubois. *diags Elec W* 71:257-8 F 2 '18

**Electric distribution—Continued**

- Creation of an artificial neutral point in a monophasic or three-phase network; abstract. L. Dubar. *Elec W* 72:560 S 21 '18
- Current distribution in armature conductors. W. V. Lyon. *diags Elec W* 74:66-8 J1 12 '19
- Delta-connected transformers to by-pass third harmonic neutral current. *diag Elec R* 75:367 Ag 30 '19
- Design of underground distribution for electric light and power systems. G. J. Newton. *diags charts map Am Inst E E Pro* 37:203-53 Mr '18
- Determination of economical power circuits. P. O. Reyneau. *diag Elec W* 71:1072-3; 73:471-3 My 25 '18, Mr 8 '19; Discussion. W. F. Butcher. 73:902 My 3 '19
- Development of analytical solutions. C. Fortescue. *Elec J* 16:350-2 Ag '19
- Distribution circuits utilized as tie lines. *diag Elec W* 72:1035 N 30 '18
- Economical increase made in distribution capacity. S. B. Hood. *diags Elec W* 72:1030-3 N 30 '18
- Economical loading of transformer banks. *Elec W* 72:737-8 O 19 '18
- Economical plan of fusing interconnected secondaries. M. E. Grah. *diag Elec W* 71:569 Mr 16 '18
- Economy in electrical distribution. W. B. Stelzner. *Elec W* 72:292-5 Ag 17 '18
- Effects of unsymmetrically spaced conductors. G. S. Humphrey. *diags Elec W* 70:1097-1100 D 8 '17
- Electrical distribution system at Hog Island shipyard. H. W. Young. *il diags plan Elec R* 73:683-5 N 2 '18
- Electrical study course—adjustment of voltage or balancer sets. *diags Power* 49:318-20 Mr 4 '19
- Electrical study course—current distribution in three-wire systems. *diags Power* 49:368-70 Mr 11 '19
- Electrical study course—current division in a three-wire generator. *diags Power* 49:651-3 Ap 29 '19
- Electrical study course—current in the inductances of a three-wire generator. *diags Power* 49:616-18 Ap 22 '19
- Electrical study course—fundamental principle of three-wire generators. *diags Power* 49:489-91 Ap 1 '19
- Electrical study course—inductance and resistance on three-wire generator. *diags Power* 49:570-3 Ap 15 '19
- Electrical study course—inductances used on a three-wire generator. *diags Power* 49:532-4 Ap 8 '19
- Electrical study course—methods of obtaining a three-phase system. *diags Power* 50:431-3 S 9 '19
- Electrical study course—properties of alternating-current circuits. *diags Power* 50:507-9 S 23 '19
- Electrical study course—putting balancer sets into service on three-wire system. *diags Power* 49:404-5 Mr 18 '19
- Electrical study course—shunt balancer sets for three-wire systems. *diags Power* 49:282-4 F 25 '19
- Electrical study course—three-wire generators in parallel. *diags Power* 49:728-31 My 13 '19
- Electrical study course—three-wire systems from two generators. *diags Power* 49:208-10 F 11 '19
- Electrical study course—two-phase systems. *diags Power* 50:340-1 Ag 26 '19
- Electrical study course—two-wire and three-wire systems. *diags Power* 49:174-6 F 4 '19
- Electrical study course—two-wire versus three-wire system. *diags Power* 49:247-9 F 18 '19
- Electrical study course—types of three-wire generators. *diags Power* 49:688-91 My 6 '19
- Emergency and test centers valuable distribution aids. *il diags map Elec W* 72:1172-3 D 21 '18
- Emergency feeder is utilized as tie line. *diag Elec W* 72:66 J1 13 '18
- Extension of the step-by-step method of transmission line computation. F. E. Perrot. *Univ of Cal Pub in Engineering* v 2, no 4:131-8 '19
- Factors to consider in applying relays. E. A. Hester. *diags Elec W* 72:931-4 N 16 '18
- Feeder cables let down through diamond drill holes. *Elec R* 73:302 Ag 24 '18
- Flexible distribution as used in Cleveland, O. *diag Elec W* 71:1041-2 My 18 '18
- Flexible distribution for industrial plants. L. F. Leurey. *il diags Elec W* 73:835-8 Ap 26 '19
- Graphic determination of distribution economics. G. M. Armbrust. *diag Elec R* 74:416-18 Mr 15 '19
- Inherent limitations on transformations possible by stationary apparatus. J. Slepian. *diags Am Inst E E Pro* 38:1061-75 S '19
- Interesting underground distributing system at Astoria, Oregon. *diag Elec R* 72:796-7 My 11 '18
- Large manhole simplifies cable work in substation. *diag plan Elec W* 72:698-9 O 12 '18
- Lighting system fed from the power lines. *diags Elec W* 74:358 Ag 16 '19
- Locating the cause of voltage variation. J. J. Rezab. *diag Elec W* 71:1090 My 25 '18
- Measurement of load on distributing transformers. *il Elec R* 75:366 Ag 30 '19
- Method of determining proper loading of distributing transformers. F. A. Robbins. *Elec R* 74:562-3 Ap 5 '19; Same. *Elec W* 73:887-9 My 3 '19
- Methods of determining economical feeder sizes. P. O. Reyneau. *Elec W* 70:1142-4 D 15 '17
- Ohio electric light association committee recommends underground practice. *Elec W* 72:447-8 S 7 '18
- Operating features of three-phase four-wire distribution. G. E. Wagner. *diags Elec R* 72:671-5 Ap 20 '18; Summary. *Elec W* 71:983-4 My 11 '18
- Opinions on present underground practice. *Elec W* 70:1150 D 15 '17
- Power distribution for the Montreal tramways. *il diags plans Elec Ry J* 51:448-52 Mr 9 '18
- Pressure drop curves for copper overhead lines. G. N. Wright. *Inst E E J* 55:520-1 J1 '17; Excerpt. *Elec W* 70:1202-3 D 22 '17
- Problem in three-wire distribution from rotary converters. L. Dorfman. *diags Elec J* 16:500-2 N '19
- Reducing damage and disturbance due to cable breakdowns on four-wire feeders. *diags Elec R* 75:712-13 O 25 '19
- Relative conductivity of metal raceways for wires. *chart Elec R* 73:341 Ag 31 '18
- Sectionalization of overhead for three-wire operation. E. R. Shepard. *Elec Ry J* 50:1040-1 D 8 '17
- Series street-lighting systems. *diag Elec R* 74:478-9 Mr 22 '19
- Shipbuilding expedited by electric service; electrical distributing system for Staten Island shipbuilding company. D. Etwell. *il diags Elec W* 71:42-5 Ja 5 '18
- Single-phase load on a two-phase system. J. B. Gibbs. *diags Power* 50:7 J1 1 '19
- Solving distribution problems. E. B. Meyer. *il Elec W* 71:1260-1 Je 15 '18
- Special wire tables facilitate feeder calculations. H. E. Davis. *Elec Ry J* 52:884-5 N 16 '18
- Study of unbalanced three-phase loads. L. A. Doggett. *diags Elec W* 74:512-13 S 6 '19
- Successful operation of secondary networks. S. B. Hood. *diag Elec W* 71:199-201 Ja 26 '18
- Supply of single-phase power from three-phase systems. M. Walker. *diags Inst E E J* 57:109-39; Discussion. 139-48, 277-89, 470-4 Ja, Mr, Je '19
- Switching lighting load from two-wire to three-wire supply. G. M. Hardy. *diag Power* 49:103 Ja 21 '19
- Three-phase four-wire distribution. G. E. Wagner. *diags Elec J* 16:99-102 Mr '19
- Transmission system changed from delta to star. *Elec W* 74:704-5 S 27 '19

**Electric distribution—Continued**

Trend of practice in overhead distribution; report of Ohio electric light association committee. Elec W 72:495 S 14 '18

Voltage regulation of distributing feeders as a means of improving central station efficiency. F. Hershey. II Gen Elec R 22:544-51 J1 '19

War-time expedient and measure of economy; change from two-phase to three-phase four-wire circuit. H. C. Dean. diags Elec W 71:1034-5 My 18 '18

*See also* Boosters; Busbars; Electric cables; Electric conductors; Electric conduits; Electric current rectifiers; Electric fuses; Electric lines; Electric plants; Electric plants—Interconnection; Electric power; Electric substations; Electric transformers; Electric transmission; Electric wire and wiring; Rotary converters; Short circuits; Switchboards; Voltage regulation

**Grounding**

Best practice in service and meter wiring. E. B. Meyer. diags Elec R 72:80-2 Ja 12 '18  
Carbon ground cones. diag Elec W 72:138 J1 20 '18

Factors affecting selection of insulators. A. O. Austin. diags Elec W 70:1234-6 D 29 '17  
Four-wire operation helped by good grounds. S. B. Hood. Elec W 70:1149 D 15 '17

Ground connections for electrical systems. O. S. Peters. bibliog diags U S Bur Stand Tech Pa 108:1-224 '18; Abstract. J Fr Inst 186:246-7 Ag '18

Grounded neutral on alternating-current generators. S. L. Henderson. diags Elec J 16:340-3 Ag '19

Grounding arc circuits an undesirable practice. Elec W 74:575-6 S 13 '19

Grounding rules for power-plant operators. Elec W 74:188 J1 26 '19

Grounding the neutral of generating and transmission systems. H. R. Woodrow. diags Am Inst E E Pro 38:745-9 Je '19

Method of making secondary grounds. Elec W 72:16 J1 6 '18; Discussion. 72:453 S 7 '18

National electrical code rules as to grounding of services and conduit systems. T. H. Day. diags Elec R 73:140-1 J1 27 '18

Prevailing trend in grounding practice. W. C. Wagner. Elec W 71:329-30 Ap 20 '18

Reliability of methods of testing ground resistance. Elec W 71:621 Mr 23 '18

Rules for grounding discussed by inspectors. Elec R 74:947-8 Je 7 '19

Safety of grounded secondary connection. diags Elec W 72:649 O 5 '18

Use of salt for ground connections. Elec R 73:102-3 J1 20 '18

**Grounds and faults**

Cable fault localization in practice; abstract. D. M. V. Hutchison. Elec W 71:367 F 16 '18

Elusive ground. I. S. Chamberlain. II Power 47:304 F 26 '18

Heating of underground conductors under intermittent load. A. L. Freret. Elec R 75:451-2 S 13 '19

Localization of faults on broken three-phase cables; abstract. L. Levin. Elec W 72:652 O 5 '18

Loop tests for fault localization; abstract. G. W. Stubbings. Elec W 72:21 J1 6 '18

Unsymmetrical connections. E. C. Farham. diags Power 49:374 Mr 11 '19

***See also* Detectors, Ground**

Electric dog; use of the selenium cell to make an orientation mechanism. B. F. Miessner. II diags plan Sci Am S 87:376-7 Je 14 '19

Electric driving  
Acme steel goods company makes 3000-horsepower contract. Elec R 73:374 S 7 '18

Advantages of electricity for operating portable drills shown. Elec R 75:348 Ag 30 '19

Application of electric drive in macaroni plant. P. B. Findley. II Elec R 75:313-14 Ag 23 '19

Application of motors to steel-mill operations. C. E. Clewell. bibliog II Elec W 71:250-3 F 2 '18

Application of motors to the textile industry.

C. E. Clewell. II Elec W 71:354-7 F 16 '18  
Application of printing-press motors. C. E. Clewell. II Elec W 72:302-5 Ag 17 '18

Application of the electric drive to rolling mills. A. P. Pyne. Inst E E J 57:35-40; Discussion. 40-7 D '18

Applications of flywheels in motor operation. C. E. Clewell. II diags Elec W 71:400-2 F 23 '18

Attitude of machine-tool builders to motor drive. C. E. Clewell. II diags Elec W 70:994-7 N 24 '17; Excerpt. Am Soc M E J 40:107 Ja '18

Automatic speed control for sugar centrals. II Elec R 72:487-8 Mr 16 '18

Belted motors and group drives. W. H. Wakeman. diags Power 49:654 Ap 29 '19

British experts build 20,000 horsepower mill motor. J. Horton. II Iron Tr R 64:953-5 Ap 10 '19

Calculating power requirements for small machinery. J. L. Lane. diags Mach 25:827-8 My '19

Central-station business at Piqua, O., has made rapid progress. Elec R 72:73 Ja 12 '18

Central-station service for clay-working plants. Elec R 72:428-30 Mr 9 '18

Central-station service for ice making and refrigeration. C. J. Carlsen. II Elec R 74:783-7 My 17 '19

Central-station service in Toledo scale factory. Elec R 72:381 Mr 2 '18

Centrifugal machines and their adaptability to electric motor drive. H. W. Rogers. II Gen Elec R 22:413-20 My '19

Comparison of drives for rolling-mill tables. W. S. Hall. Elec W 74:745-6 O 4 '19

Complete electrification of sugar mills. C. G. Hadley. II Elec W 72:1022-4 N 30 '18

Construction of famous Los Angeles aqueduct facilitated by electricity. C. W. Geiger. II Elec R 73:241-2 Ag 17 '18

Converting from mechanical to electric drive. W. L. H. Doyle. II Textile World 53:3593-F 2 '18

Converting machines to individual drive. diags Elec W 74:637-40 S 20 '19

Design of new electric-drive water-pumping station was governed by power rate. H. W. Taylor. II Eng N 82:653-5 Ap 3 '19

Direct and alternating-current motors in shop work. W. A. Scott. II Elec R 72:905-6 Je 1 '18

Economic industrial applications of electricity. N. T. Wilcox. W Soc E J 22:566-72 O '17; Same. Sci Am S 85:146-7 Mr 9 '18; Discussion. W Soc E J 22:572-8 O '17

Economy of electric drive in cane sugar mills. C. A. Kelsey. II Gen Elec R 21:252-68 Ap '18

Electric drive applied to silk industry. C. T. Guilford. II Elec R 73:855-7 N 30 '18

Electric drive for punching, shaping and slotting machines. C. E. Clewell. II Am Mach 50:439-44 Mr 6 '19

Electric drive for rope haulage. Coal Age 14:191 J1 25 '18

Electric drive for seeding and packing raisins. Elec R 73:769 N 16 '18

Electric drive for steel mill main rolls. K. A. Pauly. II Gen Elec R 22:308-22 My '19

Electric drive in California cement mill. II Elec R 75:223-5 Ag 9 '19

Electric motors for ammonia compressor drive; with discussion. Power 47:168-9 Ja 29 '18

Electric motors in the cement industry. R. B. Williamson. diags Am Inst E E Pro 37:1237-73 N '18; Same cond. Elec R 73:770-1. 813-14 N 16-23 '18; Abstract. Elec W 72:1168 D 21 '18

Electric operation permits economical gravel plant layout. E. E. Glass. diag Eng N 80:723-3 Ap 11 '18

Electric power for coking plants. F. E. Harris. Gas Age 43:10 Ja 1 '19

Electric rolling mill plant. II diags Engineer 126:308, 312-14 O 11 '18

Electric versus hydraulic drive for steel-mill auxiliaries. R. B. Gerhardt. Elec R 75:736-8 N 1 '19; Abstract. Iron Age 103:1568 Je 12 '19

**Electric driving—Continued**

- Electrical equipment of a paper mill in Kalamazoo, Mich. Elec R 71:1106 D 29 '17
- Electrical equipment of new Pacific coast flour mill. Il Elec R 74:295-6 F 22 '19
- Electrical equipment of the Mark steel plant. J. P. Collopy. Il diags plan Elec R 72:791-5 My 11 '18
- Electrical equipment of western Portland cement plant. Il Elec R 75:809-10 N 15 '19
- Electrical equipments for movable highway and railway bridges. H. H. Vernon. Il diags Gen Elec R 22:373-83 My '19
- Electrical operation of a small textile mill. H. C. N. Ripley. Il Elec W 74:868-9 O 25 '19
- Electrical preparation for ordnance base in France. Elec W 71:95 Ja 12 '18
- Electrically-driven plate mills. G. W. Haney. Il diag plan Elec J 16:188-92 My '19
- Electrically-driven plate mills. G. E. Stolts. charts diags. Elec J 16:69-73 F '19; Abstract. Elec W 72:1141-2 D 14 '18
- Electrically-driven printing presses. Il diags Engineer 126:140, 144-5 Ag 16 '18
- Electrically-driven rolling mills. L. Rothera. Il diags plan Engineer 125:146-8 F 15 '18; Abstract. Elec W 71:575 Mr 16 '18; Abstract. Elec R 72:377 Mr 2 '18
- Electrically-driven ships' auxiliaries. Il diags Engineer 127:478-80, 482 My 16 '19
- Electrically-driven 38-in reversing cogging mill. Il diags Engineer 126:510, 513-15 D 13 '18
- Electrically equipped municipal grain elevator will have connected load of 1500 hp. W. A. Scott. Elec R 73:417 S 14 '18
- Electrically operated quarry and rock-crushing plant in Chicago. Il Elec R 72:1067-9 Je 29 '18
- Electricity as applied to loading and unloading coal and ore boats. R. H. McLain. Il diag Gen Elec R 22:352-65 My '19
- Electricity in beet-sugar factories. J. P. Collopy. Il Elec W 74:178-81 J1 26 '19
- Electricity in beet-sugar factories. E. M. Ellis. Il Gen Elec R 21:188-95 Mr '18
- Electricity in logging and saw mills. E. H. Horstkotte. Il Gen Elec R 21:151-61 F '18
- Electricity in raw-water ice plants. C. H. Stevens. Il Elec R 71:1005-8 D 15 '17
- Electricity in the ceramic arts. J. P. Alexander. Il Gen Elec R 22:113-16 F '19
- Electricity in the manufacture of automobile tires. B. B. Jackson. Il diag plan Elec R 73:121-4, 166-9 J1 27-Ag 3 '18
- Electricity in the manufacture of corks. W. H. Easton. Il Elec R 72:462-3 Mr 16 '18
- Electricity in the silk industry; abstract. C. Vallet. Elec W 71:989 My 11 '18
- Electricity supercedes steam pumps in Los Angeles. Il Elec R 73:723-5 N 9 '18
- Electrification of paper mill finishing-room machinery. W. T. Edgell, Jr. Il diags Gen Elec R 22:399-406 My '19
- Electrification of pumping stations saves coal and money. H. R. Cady. diag Eng N 80:915-16 My 9 '18
- Electrified paper mill; plant of the Brown co. Il Elec R 73:999-1000 D 28 '18
- Emergency methods for use in industrial plants. H. S. Rich. Elec W 73:431-2 Mr 1 '19
- Equipment, power consumption, tonnage and capacities of mills of the Bethlehem steel co. J. L. Sturtevant. Iron Age 102:1016 O 24 '18
- Experiences with motor drive in Wayne knitting mills. Elec R 72:249 F 9 '18
- Factors affecting application of motors to lathes. C. E. Clewell. Il Elec W 70:1238-42 D 29 '17
- Fan, blower and air-compressor applications. C. E. Clewell. Il Elec W 71:196-9 Ja 26 '18
- Features of electric drive in new paper mill. W. A. Scott. Elec R 74:587 Ap 12 '19
- Features of electrically operated hydraulic dredge. C. W. Geiger. Il Elec R 75:263-5 Ag 16 '19
- Fertilizer industry and its power requirements. J. E. Mellett. Il Gen Elec R 21:96-110 F '18
- Four-frame electric drives. C. W. Starker. diags Textile World 54:1609+ O 5 '18
- Ideal twenty-four-hour load now awaiting central station power; saving in oil can be obtained by electrification. S. G. Gassaway and W. G. Taylor. Gen Elec R 21:699-703 O '18
- Improving motor drive in Maine shoe factory. Il Elec W 71:303-4 F 9 '18
- Induction motor drive for skip hoists. F. R. Burt. diags Elec J 16:381-2 S '19
- Industrial load characteristics. J. E. Mellett. Elec W 71:721-3 Ap 6 '18
- Keystone steel and wire company. F. B. Crosby. Il plans Gen Elec R 21:332-43 My '18
- Large motor-driven cotton bale press. Elec R 72:103 Ja 19 '18
- Largest use of electric power on construction work. Il chart maps plan Eng N 83:417-20 Ag 28 '19
- Light, electricity and the shop. C. E. Clewell. Il diags Am Mach 50:163-7 Ja 23 '19
- Load characteristics of automobile tire factory. Il Elec W 71:157 Ja 19 '18
- McDonald bar mill; new Carnegie plant at Youngstown (O.) district. Iron Age 101:179-80 Ja 10 '18
- Making paper by electricity. Il J Elec 42:260-1 Mr 15 '19
- Making uniforms by electricity. Il Elec R 73:344 Ag 31 '18
- Mill production increased by replacing steam engine with electric motor. Il Elec W 71:99-100 Ja 12 '18; Same. Elec R 72:118-19 Ja 19 '18
- Mills will adopt higher frequency. J. E. Fries. Iron Tr R 64:1281 My 15 '19
- Modern lighting and power installation for Canadian knitting mill. Il Elec R 74:127-30 Ja 25 '19
- Motor capacity for shop machinery. C. E. Clewell. Il diags Am Mach 50:631-4 Ap 3 '19
- Motor drive as viewed by machine builders and motor manufacturers. C. E. Clewell. Il diag Am Mach 50:475-8 Mr 18 '19
- Motor drive for government spruce production mill. Elec R 73:544 O 5 '18
- Motor drive for woodworking machinery. C. E. Clewell. Il Elec W 72:253-6 Ag 10 '18
- Motor drive in a modern foundry. Il Elec R 72:99-100 Ja 19 '18
- Motor drive in an outdoor sawmill. Il Elec R 72:201-2 F 2 '18
- Motor drive in electric crane factory. Elec R 72:428 Mr 9 '18
- Motor drive in Newburgh shipyard. W. H. Easton. Il Elec W 72:160-1 J1 27 '18; Same cond. Int Marine Eng 23:400-2 J1 '18; Same cond. Elec R 73:358-9 Ag 17 '18
- Motor drive in paper and pulp mills. C. E. Clewell. Il diag Elec W 73:152-4, 198-201 J1 27-Ag 3 '18
- Motor-driven drag line. Iron Tr R 63:723-4 S 26 '18
- Motor testing in industrial plants. P. C. Jones. diag Elec W 74:293-6 Ag 9 '19
- Motors replace steam engine in dairy. J. P. Moore. Il Elec R 72:120 Ja 19 '18
- New type of planing machine drive. Il Iron Age 102:692 S 19 '18
- Oil-well drilling by electricity proves economical. J. G. Dickinson. Elec R 75:916-17 N 29 '19
- Operating characteristics of motor-driven planers. C. E. Clewell. Il diag Elec W 71:87-90 Ja 12 '18; Discussion. W. G. Merowit. 71:1300 Je 22 '18
- Operating details of an electrically operated cement mill. Il Elec R 74:210-12 F 8 '19
- Operating electrically-driven steel mills. J. T. Sturtevant. plans Iron Tr R 63:1292-3 D 5 '18
- Operating features of an electrically driven sugar mill. F. A. Ortiz. Il Elec R 72:369-71 Mr 2 '18
- Operating features of motor drive in a bakery. Il Elec R 72:751-4 My 4 '18
- Opportunities for central-station power in the oil fields. L. E. Mohrhardt. Il Elec R 73:7-11 J1 6 '18

**Electric driving—Continued**

- Opportunity of electrical refrigeration; abstract. H. N. Sessions. *Elec W* 72:991 N 23 '18
- Oregon lumber mill electrifies. *Elec R* 73:388 S 7 '18
- Portable hand keyseater driven electrically. *il diag Elec W* 74:531 S 6 '19
- Power requirements for driving lime plants. *Elec W* 72:1026 N 30 '18
- Power requirements of machines in large shops. *Elec W* 71:310 F 9 '18
- Preventing interruption of production; selecting and inspecting electrical equipment. S. Fisher. *Elec W* 72:639-42 O 5 '18
- Quarry with modern electrical equipment. *Elec R* 72:842 My 18 '18
- Rehabilitation of New York cotton mill. *il diags Elec W* 73:1263-6 Je 14 '19
- Relation of load-factor to operating cost of electric drive. D. R. Shearer. *Elec R* 72:759-61 My 4 '18
- Service study of machine tool drives. H. W. Tice. *Iron Age* 103:1285-7 My 15 '19; Same cond. *Iron Tr R* 64:897-9 Ap 3 '19
- Small motors for hard tools and other uses. C. E. Clewell. *il Am Mach* 50:899-901 My 8 '19
- Solving woodworking drive problems. W. A. Black. *il Elec W* 71:821-3 Ap 20 '18
- Speed, torque and power in machine-tool work. C. E. Clewell. *diags Elec W* 70:1092-4 D 8 '17
- Standardized flexible distributing systems in industrial plants. B. Jones. *il diags plans Gen Elec R* 21:285-99 Ap '18
- Status of electric drive. W. Sykes. *il Iron Tr R* 65:1184-5 O 30 '19
- Steam versus electricity for auxiliary drive. E. L. Martheleur. *Elec W* 74:128 JI 19 '19
- Steel-mill electric drive—present status and recent developments. B. Wiley. *il diag Elec R* 74:737-40 My 10 '19
- 1200-hp motor replaces steam engine in rod mill. *il Elec W* 73:226-7 F 1 '19
- Types of motors designed for different loads. C. E. Clewell. *il Elec W* 70:1145-8 D 15 '17
- Typical motor-driven ice plant. *il Elec R* 72:147-9 Ja 26 '18
- Using electric power to dredge a relocated river channel. J. H. Walter. *Eng N* 81:723-5 O 17 '18
- Value of flywheels in woodworking. D. R. Shearer. *Elec W* 71:968-9 My 11 '18
- Value of graphic instruments in improving motor drive. T. S. Montgomery and W. B. Bray. *il Elec R* 72:831-4 My 18 '18
- Westinghouse electrical developments during 1918. *Elec R* 74:25-8 Ja 4 '19
- What it pays to know about electric drive. C. E. Clewell. *il Factory* 20:629-31, 837-40, 1076-8 Ap-Je '18
- When to use motor drive. H. D. Jackson. *Factory* 21:82+ JI '18

*See also* Electric motors; Electric power; Electricity in mining; Pumping machinery, Electric; Ship propulsion, Electric

**Electric elevators. See Elevators, Electric****Electric engineering**

- Army electrical work in the advance areas in France. O. F. Allen. *il map Gen Elec R* 22:568-86 Ag '19
- Developments in the electrical industry during 1917. J. Liston. *il diags Gen Elec R* 21:4-52 Ja '18
- Review of electrical engineering progress. E. W. Rice, Jr. *Am Inst E E Pro* 37:999-1010 Ag '18; Same. *Gen Elec R* 21:528-34 Ag '18; Same cond. *Elec R* 72:1086-9 Je 29 '18; Same cond. *Elec W* 71:1374 Je 29 '18; Same cond. *Power* 48:66-7 JI 9 '18; Same cond. *Sci Am S* 86:194-5 S 28 '18; Excerpt. *Ry R* 63:256-9 Ag 17 '18
- Some metrological memories. T. C. Mendenhall. *J Fr Inst* 136:91-106 JI '18

*See also* Armatures; Commutation (electricity); Electric apparatus and appliances; Electric contractors; Electric distribution; Electric driving; Electric generators; Electric heating; Electric lighting; Electric lines; Electric machinery; Electric

measurement; Electric meters; Electric motors; Electric plants; Electric railroads; Electric transmission; Electric wire and wiring; Electricity; Electricity in mining; Electricity on the farm; Hydroelectric plants; Railroads—Electrification; Ship propulsion, Electric; Telegraph; Telephone; Wireless telegraph; also the subdivision Electric equipment under various subjects, e.g. Foundries—Electric equipment, Hospitals—Electric equipment, Hotels—Electric equipment, Railroads—Electric equipment, Ships—Electric equipment, Theaters—Electric equipment

**Bibliography**

Structural service department. *Am Inst Arch J* 6:313-20 Je '18

**Laws and regulations**

Principal changes in new Chicago electrical code. *Elec R* 74:1048-9 Je 21 '19

*See also* Electric contractors—Licenses; Electric inspection; Electric wire and wiring; also National electrical code; National electrical safety code

**Safety devices and measures**

- Combined electrical fire and safety code. M. G. Lloyd. *Elec R* 74:178-80 F 1 '19
- Jenney versus deadman; convenience should be sacrificed to safety in raising poles. G. H. McKelway. *il Elec Ry J* 52:494 S 21 '18
- Linemen's safety tools. *il Elec R* 73:73 JI 13 '18
- Protecting linemen from poles with rotted butts. *il Elec R* 73:418 S 14 '18
- Protecting the employee. *Elec W* 73:115 Ja 18 '19
- Reducing the hazards of transformer cutouts. H. P. Wallace. *Elec R* 73:703 N 2 '18
- Safeguarding electrical employees. *il diags Elec W* 72:1223-6 D 28 '18
- Safety features of 13,000-volt feeder rack. *il Elec R* 73:548-9 O 5 '18
- Safety rules for men handling electrical circuits or apparatus. *il Gen Elec R* 22:484-6 Je '19
- Safety staging for linemen. *il Elec R* 73:261 Ag 17 '18
- Safety suggestions for the maintenance electrician. A. Gemmell. *diags plans Elec R* 73:583-4 O 12 '18
- See also* Electric distribution—Grounding; Electric protective apparatus; National electrical code; National electrical safety code; Screwdrivers, Insulated

**Study and teaching**

- Co-operative course in electrical engineering. *Elec W* 73:1405 Je 28 '19
- Electrical courses at the School of engineering of Milwaukee. *il Elec R* 72:518-15 Mr 23 '18
- Electrical testing course; General electric company. *il Gen Elec R* 21:238-9 Ap '18
- Electrical testing course of the General electric company. C. M. Ripley. *il Gen Elec R* 21:300-12 Ap '18

**Tables, calculations, etc.**

- Analytical solutions. R. D. Evans. *diags Elec J* 16:346-9 Ag '19
- Calculating short circuits on power systems. R. F. Gooding. *diags Elec W* 74:827-30, 938-41 O 18, N 15 '19
- Development of analytical solutions. C. Fortescue. *Elec J* 16:350-2 Ag '19
- Electrical characteristics of transmission circuits. W. Nesbit. *charts diags Elec J* 16:279-87, 314-26, 385-96, 485-9, 515-19 JI-S, N-D '19
- Electrical study course—addition of alternating voltages. *diags Power* 50:218-19 Ag 5 '19
- Electrical study course—alternating-voltage cycles. *diags Power* 50:186-8 JI 29 '19
- Electrical study course—simple method of adding voltages. *diags Power* 50:306-7 Ag 19 '19

**Electric engineering—Tables, calculations, etc.***—Continued*

- Extension of the step-by-step method of transmission line computation. F. E. Pernot. Univ of Cal Pub in Engineering v 2, no 4: 131-8 '19
- General equations of the electric circuit. C. P. Steinmetz. Am Inst E E Pro 38:249-318 Mr '19
- Inherent limitations on transformations possible by stationary apparatus. J. Slepian. diags Am Inst E E Pro 38:1061-76 S '19
- Selection of an electric system. T. Croft. diags Coal Age 16:178-84 J1 31 '19
- Some new formulas for reactance coils. H. B. Dwight. diag Am Inst E E Pro 38: 1039-60 S '19
- Study of unbalanced three-phase loads. L. A. Doggett. diags Elec W 74:512-13 S 6 '19
- Supply of single-phase power from three-phase systems. M. Walker. diags Inst E E J 57:127-39 Ja '19
- Theory of the transient oscillations of electrical networks and transmission systems. J. R. Carson. Am Inst E E Pro 38:407-89 Mr '19
- Transmission-line computations. A. E. Kennelly. Elec W 73:356-7 F 22 '19
- Electric engineering societies**
- Structural service department; electrical societies, associations, and allied interests. Am Inst Arch J 6:313-15 Je '18
- Electric equipment**
- Canadian textile mill operated by central-station service. V. K. Stalford. II Elec R 75: 135-7 J1 26 '19
- Electric service in world's largest hotel, Hotel Pennsylvania. II plan Elec W 73:940-3 My 10 '19
- Electrical equipment of Clear Lake lumber mills. W. A. Scott. II Elec R 74:1066-8 Je 28 '19
- Electrical features of the Brooklyn army supply base. II Elec R 75:509-12 S 27 '19
- Electrical installation in San Francisco's City Hall. II Elec R 74:661-7 Ap 26 '19
- Electrical service at great seaboard terminal. II diag Elec W 73:784-7 Ap 19 '19
- Electricity at summer conference grounds. II J Elec 43:6-8 J1 1 '19
- Electricity in the making of moving pictures. C. M. Heintz. II J Elec 43:9-11 J1 1 '19
- Electricity in the world's largest hotel; the Pennsylvania. W. H. Easton. II plan Elec J 16:288-94 J1 '19
- Extensive use of electricity for San Francisco harbor. II Elec R 73:1001-5 D 28 '18
- General electric company—its service to architects and engineers and its relation to the electrical features of building construction. Am Inst Arch J 6:sup12-23 Je '18
- Improvements in industrial plant operations; Lodge & Shipley machine tool company, Cincinnati. E. E. George. II Elec W 73: 1207-9 Je 7 '19
- Industrial maintenance and rehabilitation methods during the last three years of the Lodge & Shipley machine tool company of Cincinnati. E. E. George. II diags Elec W 73:1167-70 My 31 '19
- Modern equipment in an industrial plant. J. H. Longfellow. II J Elec 42:430-1 My 1 '19
- Paper mill installation in the Northwest. J Elec 42:585 Je 15 '19
- Unique electrical features of Los Angeles terminal market. C. W. Geiger. II Elec R 72:962-3 Je 8 '18

*See also* Automobiles—Electric equipment; Department stores—Electric equipment; Electric apparatus and appliances; Electric distribution; Electric driving; Electric lighting; Electric power; Electric railroads—Equipment; Electric transmission; Electricity in mining; Electricity on the farm; Garages, Electric; Hospitals—Electric equipment; Office buildings—Electric equipment; Railroads—Electric equipment;

Schoolhouses—Electric equipment; Ships—Electric equipment; Shipyards—Electric equipment; Submarine boats—Electric equipment; Theaters—Electric equipment

**Bibliography**

Structural service department; electricity within and around buildings. Am Inst Arch J 6:316-18 Je '18

**Marking**

Distinctive marking of electrical apparatus. F. Bechoff. Elec W 74:634 S 20 '19

Piece number system for electrical installations. S. L. Guthorn. Elec W 74:14-15 J1 5 '19

**Repair**

Maintaining industrial-plant equipment. II chart Elec W 73:623-6 Mr 29 '19

Records for an electrical repair and maintenance department. R. B. Gerhardt. Elec R 75: 624-6 O 11 '19

**Electric fabric**

Successful use of electric quilts. F. E. Wynne. Elec R 74:191 F 1 '19

**Electric fans**

Development of fan motor windings. E. W. Denman. diags Elec J 16:267-60 Je '19

Electric fan and the summer sale. J Elec 43:13-14 J1 1 '19

Electric fan developments for 1918. II Elec R 74:196-8 F 1 '19

Electric fans for fuel conservation; with agitation of the air less heat is required. C. Catlett. Elec W 71:255 F 2 '18

Elements of 1919 fan distribution program. Elec W 73:196 Ja 25 '19

How dealer can advocate more use for fans. Elec R 74:194 F 1 '19

Making the electric fan more useful. Elec R 72:293-4, 646-7, 1010-11; 74:174-6 F 16, Ap 13, Je 15 '18, F 1 '19

New electric fans. II Elec R 72:309-14 F 16 '18

New features of 1918 fan designs. II Elec W 71:334-5 F 9 '18

New features of 1919 fan designs. II Elec W 73:346-7 F 15 '19

Useful ideas in selling electric fans. Elec R 75:77 J1 12 '19

Variable-speed alternating-current fans. II Elec W 71:543 Mr 9 '18

*See also* Fans, Mechanical

**Electric fittings**

Adjustable aligning plate for Hubbell flush receptacles. II Elec R 73:306-7 Ag 24 '18

Advantages of bevel-cornered conduit boxes. G. W. Chase. diags Elec R 73:68 J1 13 '18

Ajax plural-plug socket. II Elec R 71:1118 D 29 '17

Angular plug-gage making. H. Pusep. diags Am Mach 50:635-40 Ap 3 '19

Benjamin marine fixtures. II Elec R 73:387 S 7 '18

Canopy tap device. II Elec R 72:128 Ja 19 '18

Cutler-Hammer swivel plug. II Elec R 75: 672 O 18 '19

Dennison vapor-proof fitting. II Elec W 73: 139 J1 20 '18

Electrical wiring devices for marine service. II Elec R 73:557 O 5 '18

Forming an electrical contact plug. O. Vogetzer. II diags Am Mach 50:601-2 Mr 27 '19

G. E. threaded catch socket. II Elec R 71:1118 D 29 '17

Hubbell current tap. II Elec W 71:75 Ja 5 '18

Installation of convenience outlets to be popularized. J. G. Learned. Elec R 75:35-6 J1 5 '19

Levolier—a new principle in pull sockets. II Elec R 73:746 N 9 '18

Make push-switch installations steam-tight. II Elec R 72:931 Je 1 '18

Metal half-cone shade for lamp guards. II Elec R 72:486 Mr 16 '18

Outlet box manufacturers adopt standard numbering system. Elec R 75:244-5 Ag 9 '19; Same. J Elec 43:212 S 1 '19

Outlet campaign inaugurated in many cities. Elec R 73:366-7 S 7 '18

Pass & Seymour porcelain locking socket. II Elec W 70:1272 D 29 '17

**Electric fittings—Continued**

- Pass & Seymour pull canopy fixture switch. *Il Elec R 72:780-1 My 4 '18*  
 Pass & Seymour sign, outlet-box and concealed receptacles. *Il Elec R 72:167 Ja 26 '18*  
 Receptacle plug and box. *Il Elec W 71:75 Ja 5 '18*  
 Spartan double service receptacle. *Il Elec W 70:1224 D 22 '17*  
 Youmans water-tight switch box. *Il Elec W 71:542 Mr 9 '18*

**Electric flatirons.** See **Electric irons**

**Electric furnace association**

Organization. *Elec R 74:514 Mr 29 '19*

**Electric furnace company, Salem, Ohio**

Plant of the Electric furnace co. *Il Metal Ind 17:93-4 F '19*

**Electric furnaces**

- Ajax-Wyatt electric furnace. C. H. Clamer. *Il diags Metal Ind 17:362-3 Ag '19*  
 Aluminum-manufacturing processes used in Europe. O. Nissen. *diags plan Chem & Met Eng 19:304-15 D 15 '18*  
 Annealing and heat treating of steel and melting of non-ferrous metals in the electric furnace; abstract. T. F. Bally. *Elec W 70:1110 D 8 '17*  
 Bally automatic electric furnace for heat treating shells. *Il Met & Chem Eng 18:156 F 1 '18*  
 Bally electric metal melting furnaces. *Il diag Metal Ind 15:399-401 S '17*  
 Booth-Hall electric steel furnace. *Il Iron Age 101:45-7, 130 Ja 3 '18; Same cond. Iron Tr R 62:162-3 Ja 10 '18; Same cond. Met & Chem Eng 18:211-12 F 15 '18*  
 British experience with electric steel. *Iron Age 103:1572-3 Je 12 '19*  
 Canada's electric steel plant at Toronto. *Il diags Iron Age 101:1053-7 Ap 25 '18; Elec R 73:177-8 Ag 3 '18*  
 Condensation in electric zinc smelting. J. Thomson. *Chem & Met Eng 19:62-3 JI 15 '18*  
 Design and operation of a small Kjellin furnace; manufacture of electric steel for stamp-mill shoes and dies on the Witwatersrand, South Africa. G. H. Stanley and W. Buchanan. *diags plan Met & Chem Eng 18:349-53, 416-20 Ap 1-15 '18*  
 Design of electric furnaces. R. C. Gosrow. *Chem & Met Eng 21:235-41 S 1 '19*  
 Development of electric melting furnaces. H. W. Gillett and A. E. Rhoads. *Il Metal Ind 16:355-8 Ag '18*  
 Development of stellite; melting problems solved by Snyder electric furnaces. E. Haynes. *Il Iron Age 102:886-8 O 10 '18; Same. Iron Tr R 63:905-6 O 17 '18*  
 Developments in electric iron and steel furnaces. J. Bibby. *diags Engineer 127:518-15 My 23 '19; Abstracts. Elec W 74:84, 712-13 JI 12, S 27 '19*  
 Developments in the Rennerfelt furnace. H. A. De Fries and J. Hertenius. *diag Iron Age 103:190-1 Ja 16 '19*  
 Economic industrial applications of electricity. N. T. Wilcox. *W Soc E J 22:569-72 O '17; Same. Sci Am S 85:146-7 Mr 9 '18; Discussion. W Soc E J 22:572-8 O '17*  
 Effect of actions inside furnaces on performance. W. K. Booth. *diag Elec W 74:236-7 Ag 2 '19*  
 Effect of conductor arrangements upon input to electric furnace. *diags Elec R 75:668 O 18 '19*  
 Electric brass furnaces displace other types. W. R. Clark. *Elec W 73:741-2 Ap 12 '19*  
 Electric brass melting—its progress and present importance. H. M. St John. *Elec J 16:373-80 S '19*  
 Electric furnace. F. Rowlinson. *Il diags Sci Am S 88:132-3, 180-1-4 Ag 30, S 20 '19*  
 Electric furnace after the war. F. A. J. Fitzgerald. *Il Elec R 73:726-7 N 9 '18; Abstract. Chem & Met Eng 19:611-12 O 15 '18*  
 Electric furnace an adjunct to cupola. G. K. Elliott. *Foundry 47:687 O 1 '19; Same. Iron Tr R 65:891-2 O 2 '19*  
 Electric furnace and steel converter compared. C. R. Messinger. *Foundry 46:71-2 F '18; Same. Iron Age 101:446-7 F 14 '18*

Electric furnace developments discussed by Chicago section, American institute of electrical engineers, and the electrical section, Western society of engineers. *Elec R 72:423-4 Mr 9 '18*

Electric furnace developments for metals. *diags Metal Ind 17:424-7 S '19*

Electric furnace economical for making steel castings. W. E. Moore. *Elec W 73:847 Ap 26 '19*

Electric furnace for forging and annealing of steel. W. S. Scott. *Il Elec R 72:941-4 Je 8 '18; Same. Chem & Met Eng 19:86-9 JI 15 '18*  
 Same cond. *Iron Tr R 63:440-2 Ag 22 '18; Abstract. Iron Age 101:1676-7 Je 27 '18*

Electric furnace for heat treating of small airplane parts. D. D. Miller. *Il Am Mach 49:373-6 Ag 29 '18*

Electric furnace for melting alloys. W. H. Easton. *Il Elec W 72:295-7 Ag 17 '18*

Electric furnace for melting nonferrous metals. E. F. Collins. *Il chart diags Foundry 47:284-8, 329-33 My 15-Je 1 '19; Abstract. Elec W 73:1110-14, 1117 My 24 '19; Abstract. Iron Tr R 64:1023-4 Ap 17 '19; Excerpt. Iron Age 103:1288 My 15 '19; Excerpt. Metal Ind 17:221-4 My '19*

Electric furnace for steel castings. D. D. MacGuffie. *Iron Age 101:1282-3 My 16 '18*

Electric furnace in Norway's iron industry. H. Styrl. *Iron Age 100:1226b-1226c N 15 '17; Discussion. A. Paulsson. Iron Age 100:1484 D 20 '17*

Electric furnace in the steel foundry. W. E. Moore. *Iron Age 102:1206-7 N 14 '18*

Electric furnace installation. T. R. Hay. *Iron Age 101:735-7 Mr 21 '18*

Electric furnace operation at Buffalo. *Il Elec W 73:1378-81 Je 28 '19*

Electric furnace performance for alloys with high zinc content. *Il Elec R 74:814-15 My 17 '19*

Electric furnace problem in iron and steel works; discussion. *Engineer 127:475-6 My 16 '19*

Electric furnace reduces titaniferous ores. E. H. Rothert. *Il Iron Tr R 62:791 Mr 28 '18*

Electric furnace replaces crucibles. *Il Iron Age 104:913-16 O 2 '19*

Electric furnace smelting of phosphate rock and use of the Cottrell precipitator in collecting the volatilized phosphoric acid. J. N. Carothers. *Il diags J Ind & Eng Chem 10:35-8 Ja '18; Excerpts. Eng & Min J 105:879-80 My 11 '18*

Electric furnaces as applied to steel making. H. L. Hess. *Il Mech Eng 41:245-8 Mr '19*

Electric furnaces discussed by Faraday society. *Met & Chem Eng 18:480 My 1 '18*

Electric furnaces for heat treatment. T. F. Bally. *Il Iron Age 101:1199-1201 My 9 '18; Abstract. Elec W 71:780-1 Ap 13 '18*

Electric furnaces for steel foundries. W. E. Moore. *Il diags plan Elec J 16:360-6 S '19; Excerpts. Mech Eng 41:874-6 N '19*

Electric furnaces for the melting of brass. V. H. Manning. *Elec W 73:493 Mr 8 '19*

Electric furnaces for the production of steel and ferro-alloys. J. A. Seede. *Il diags plan Gen Elec R 21:767-80 N '18*

Electric furnaces for zinc reduction. E. A. Johansson. *diags Met & Chem Eng 18:654 Ja 15 '18*

Electric furnaces in the steel industry and their relation to the central station business. *Chem & Met Eng 20:73-6 Ja 15 '19*

Electric furnaces in the United Kingdom, 1918; abstracts. R. G. Mercer. *Engineer 127:490 My 16 '19; Iron Age 103:1497-8 Je 5 '19*

Electric furnaces of the resistance type. T. E. Bailey. *Chem & Met Eng 21:11-13 JI 1 '19; Excerpts. Metal Ind 17:816-17 JI '19*

Electric heat treatment of gun forgings. C. E. Wright. *Il Iron Age 103:673-8 Mr 13 '19*

Electric heated industrial furnaces. G. J. Kirk-gasser. *Il diags Ind Management 57:26-32 Ja 19*

Electric heating and heat treating. T. F. Bally. *Il Automotive Ind 39:183-90 Ag 1 '18*



**Electric furnaces—Continued**

- Electric-resistance furnace of large capacity for zinc ores. C. H. Fulton. *Il diags Am Inst Min Bul* 153:2159-95 S '19
- Electric riveing furnaces found highly successful. H. P. Smith. *Elec W* 73:34 Ja 4 '19
- Electric steel. F. D. Jones. *Il diags Mach* 24:1104-10 Ag '18
- Electric steel for small castings. R. F. Flinterman. *Iron Age* 101:1398-1400 My 30 '18; *Excerpt. Met & Chem Eng* 18:511-12, 610 My 15-Je 1 '18
- Electric steel furnaces in England. F. J. Moffett. *Elec R* 73:1000 D 28 '18
- Electric steel in England; reasons for the prohibition of furnace installations. *Iron Age* 101:458 F 14 '18
- Electric steel protest; War Industries board official answered. C. H. Booth. *Iron Age* 102:284 Ag 1 '18; *Same. Elec R* 73:173-4 Ag 3 '18
- Electric tool-tempering furnace. *Il Iron Tr R* 64:1025 Ap 17 '19
- Electric treatment of airplane forgings. D. D. Miller. *Il Iron Age* 102:381-5 Ag 15 '18
- Electric unit added to melting equipment. *Il diags Iron Tr R* 63:1353-4 D 12 '18
- Electrical furnaces go to higher capacities. *Il diags Elec R* 72:611-12 Ap 6 '18
- Electrical melting of nonferrous metals. D. D. Miller. *Foundry* 46:110-14 Mr '18
- Electrolytic and electrothermic processes and products. *diags Gen Elec R* 21:758-66 N '18
- Experiences in electric steel foundry. *Il diags Elec W* 74:630-4 S 20 '19
- Experimenting with the electric furnace. W. S. Scott. *J Elec* 42:173-4 F 15 '19
- Fulton's electric zinc furnace. *diags Met & Chem Eng* 18:539-40 My 15 '18
- Great saving from electric furnaces on the Pacific coast. C. H. Vom Baur. *Iron Age* 102:388 Ag 15 '18
- Greaves-Etchells electric furnace. *Il diags Engineer* 125:54, 59 Ja 18 '18
- Greene electric furnace is used in Seattle steel foundries. *Il Elec R* 73:950 D 14 '18; *Iron Age* 103:1005-7 Ap 17 '19; *Iron Tr R* 64:1017 Ap 17 '19; *J Elec* 43:14 J1 1 '19
- Harnessing the electric furnace to the foundry. D. Walker. *Foundry* 46:9-11 Ja '18
- Heat-treating gears for army trucks in the electric furnace. D. D. Miller. *Il Am Mach* 49:461-4 S 12 '18
- Heat treatment of steel by electric furnaces. H. Otto. *diags Ry Mech Eng* 93:615-16 O '19
- High temperature processes and products. C. R. Darling. *Engineer* 125:118 F 8 '18
- High-temperature resistance furnaces with ductile molybdenum or tungsten resistors. W. E. Ruder. *diags Am Inst Min E Bul* 134:585-93 F '18; *Discussion. 136:716-17 Ap '18*
- How research work brings results. H. E. Diller. *Il Foundry* 47:545-9 Ag 15 '19
- How the nitrogen problem has been solved. H. J. M. Creighton. *Il diags J Fr Inst* 187:379-99 Ap '19
- How the power house aids the forge. L. F. Johnson. *Il Iron Tr R* 64:1221-6 My 8 '19
- Improved form of granular carbon resistance furnace for fusion point of coal ash and firebrick. C. H. Lovejoy. *diags Chem & Met Eng* 20:538 My 15 '19
- Improving the quality of gray-iron castings by the electric furnace. G. K. Elliott. *Iron Age* 103:939-40 Ap 10 '19; *Same. Foundry* 47:585-6 S 1 '19
- Laboratory furnaces made by Edison electric appliance company. *Il Elec R* 74:524-5 Mr 29 '19
- Log of an electric furnace; abstract. E. A. Suverkrop. *Met & Chem Eng* 18:371 Ap 1 '18
- Making electric steel for ball bearings. A. V. Farr. *Il diags Iron Tr R* 64:211-15 Ja 16 '19
- Manufacture of ferro-alloys in electric furnaces. C. B. Gibson. *Il Elec J* 16:366-72 S '19
- Meeting of American Institute of chemical engineers, June 18-21; symposium on electric furnaces. H. W. Gillett; T. E. Bailey; H. M. St John. *Chem & Met Eng* 21:6-15 J1 1 '19
- Melting brass in a rocking electric furnace. H. W. Gillett and A. E. Rhoads. *Il diags U S Bur Mines Bul* 171:1-126 '18; *Abstracts. J Ind & Eng Chem* 10:459-68 Je '18; *Met & Chem Eng* 13:583-90 Je 1 '18; *Am Mach* 48:1013-20 Je 18 '18; *Metal Ind* 16:265-8 Je '18; *Foundry* 46:314-20 J1 '18; *Elec W* 72:360 Ag 24 '18; *Bibliography. J Ind & Eng Chem* 10:468 Je '18; *Chem & Met Eng* 19:82 J1 15 '18
- Melting of brass in the induction furnace. G. H. Clamer. *Il Am Mach* 48:21-2 Ja 3 '18
- Melting silver, nickel, and bronze alloys by electricity. *Eng & Min J* 107:323-4 F 15 '19
- Modern electric furnace practice. J. K. Harrison. *Il Iron Tr R* 62:913 Ap 11 '18
- Modern steel-making by electricity. H. Etchells. *J Elec* 43:310-12 O 1 '19
- New electric furnaces for making ferro-alloys. *Elec W* 71:566 Mr 16 '18
- New electric rotating brass furnace. C. H. Booth. *Il Iron Age* 103:1699-1702 Je 26 '19; *Excerpts. Metal Ind* 17:317-19 J1 '19; *Abstract. J Elec* 43:223-4 S 1 '19
- New process of electric steel melting; Greene electric furnace. *Il Foundry* 46:26 Ja '18
- New type of electric furnace; abstract. A. Sahlin. *diags Elec W* 74:139 J1 19 '19
- Nitrogen fixation furnaces. E. K. Scott. *diags Chem & Met Eng* 19:710-15, 757-61 N 15-D 1 '18; *Same cond. Gen Elec R* 21:793-804 N '18
- Northrup-Ajax high-frequency induction furnace. *Il diags Chem & Met Eng* 19:155-6 Ag 1 '18; *Mach* 24:1157 Ag '18; *Am Mach* 49:364 Ag 22 '18; *Elec W* 72:578-9 S 21 '18
- Northrup-Ajax induction furnace. *Il diags Iron Age* 103:1294-5 My 15 '19
- Northrup high-frequency furnace; abstract. E. F. Northrup. *Chem & Met Eng* 19:615 O 15 '18
- Notes on electric-furnace problems. J. L. M. Yardley. *diags Am Inst Min E Bul* 142:1593-8 O '18; *Discussion. 148:690-1 Ap '19*
- Operating brass-making induction furnaces. R. N. Blakeslee, jr. *Il chart diags Elec W* 74:642-4 S 20 '19
- Operating records of electric steel furnaces. *Il Elec W* 74:125-7 J1 19 '19
- Oval-shaped electric furnace. *Il Iron Tr R* 64:1080 Ap 24 '19
- Performance and equipment of 2-ton Heroult electric furnace. *Il Elec R* 73:747-9 N 9 '18
- Pig iron from scrap steel. *Am Soc M E J* 40:191-2 F '18
- Pointers on electric steel furnace practice. H. E. Diller. *Il diags Foundry* 47:239-42 My 1 '19
- Pouring metal direct from furnace to molds. *Il diags Foundry* 47:449 J1 1 '19
- Present status of electric brass melting. H. M. St John. *Il diags Chem & Met Eng* 19:321-8 S 15 '18; *Same cond. Elec W* 71:1129-31, 1216-18 Je 1-8 '18; *Abstract. Iron Age* 101:1281 My 16 '18
- Production of high temperature and its measurement. E. F. Northrup. *Il Met & Chem Eng* 17:685-7 D 15 '17; *Abstract. Sci Am S* 84:405 D 29 '17
- Progress with the electric furnace. *Sci Am* 121:28 J1 12 '19
- Refining of steel by electric furnace process. C. A. Tupper. *Il Elec R* 71:963-6 D 8 '17
- Remelting of aluminium pig in the electric furnace. D. D. Miller. *Il diags Chem & Met Eng* 19:251-4 S 1 '18
- Rocking electric arc furnace. H. M. St John. *Chem & Met Eng* 21:13-15 J1 1 '19; *Excerpts. Metal Ind* 17:320-2 J1 '19
- Saving the waste with an electric furnace. C. B. Merrick. *Il diags J Elec* 42:30-1 Ja 1 '19
- Sectional heat-treating furnace of General electric co. *Il Iron Tr R* 64:1295 My 15 '19
- Ship propulsion, electric heating devices and searchlights. J. R. Hewett. *Il Gen Elec R* 22:733-8 S '19
- Silicon carbide useful as a resistor. W. S. Scott. *Iron Tr R* 63:209 J1 25 '18
- Size vs. recoveries in ferromanganese furnaces. E. S. Bardwell. *Chem & Met Eng* 19:749 D 1 '18

**Electric furnaces—Continued**

- South Africa's first electric steel furnace is unique. Iron Age 101:422 F 7 '18; Discussion. J. M. Dixon. 102:330 O 3 '18
- Status of the electric steel industry. Iron Age 101:84-5, 113 Ja 3 '18
- Status of the electric steel industry. E. F. Cone. Iron Age 103:60-2 Ja 2 '19
- Steel turnings and the electric furnace. J. A. Holden. Iron Age 101:424 F 7 '18; Same. Met & Chem Eng 18:372 Ap 1 '18
- Stellite developed by arc furnace. E. Haynes. II Iron Tr R 63:905-6 O 17 '18
- Symposium on electric furnaces at a meeting of the American institute of chemical engineers. II Metal Ind 17:316-22 Jl '19
- Temperature uniformity in an electric furnace. J. B. Ferguson. diags plan Chem & Met Eng 20:233-8 Mr 15 '19
- Trend toward electric brass melting. Met & Chem Eng 18:434-5 My 1 '18
- Use of modified Rosenhain furnace for thermal analysis. H. Scott and J. R. Freeman, Jr. II diags Am Inst Min Bul 152:1429-35 Ag '19
- Utilization of electric brass furnaces. H. W. Gillett. J Ind & Eng Chem 11:664-8 Jl 1 '19; Same cond. Chem & Met Eng 21:6-10 Jl 1 '19
- Utilization of manganese ores in Sweden. J. Harden. Met & Chem Eng 17:701-4 D 15 '17; Same abr. Iron Age 101:938-40 Ap 11 '18
- Value of electric furnaces; letter to the Steel division of the War Industries board. C. H. Booth. Iron Age 102:383 Ag 15 '18
- Vertical-arc-type electric furnace. Elec W 72:579 S 21 '18
- Vertical-cylindrical electric furnaces for heat-treating and shrinking. A. M. Clark. II Chem & Met Eng 21:205-7 Ag 15 '19; Same cond. Iron Age 103:1502-3 Je 5 '19
- Vom Baur electric furnaces. Iron Tr R 62:540-1 F 28 '18; Met & Chem Eng 18:510 My 15 '18; Elec W 72:21 Jl 6 '18
- Vom Baur electric steel furnace. C. H. Vom Baur. II diag Iron Age 103:1071-3 Ap 24 '19; Same. Chem & Met Eng 20:488-9 My 1 '19
- War industries board discourages further expansion of electric steel. Chem & Met Eng 19:171-2 Ag 15 '18
- Webb electric steel furnace. II plan Iron Age 102:257-60 Ag 1 '18
- Westinghouse easily handled electric furnaces. II Iron Tr R 63:1019-20 O 31 '18
- Working results of a Rennerfelt electric steel furnace; abstract. II diag Chem & Met Eng 21:101 Jl 15 '19

See also Electrometallurgy

**Control**

- Changing furnace voltage by variable transformer connection. diag Elec R 72:636-7 Ap 13 '18
- Control of electric furnaces; abstract. F. E. Hill and A. P. M. Fleming. diag Elec W 73:956 My 10 '19
- Current control; patent. diag Met & Chem Eng 18:316 Mr 15 '18
- G.E. automatic control for high-rated electric furnaces. diag Elec W 71:699 Mr 30 '18; Foundry 46:186 Ap '18; Met & Chem Eng 18:490 My 1 '18; Iron Tr R 63:328 Ag 8 '18
- Transformers and connections to electric furnaces. J. F. Peters. II diags Elec J 16:397-9 S '19
- Wiring and control for large electric furnace. II Elec W 74:304-5 Ag 9 '19

**Electrodes**

- Electrodes for electric furnaces: their manufacture, properties, and utilization. J. Escard. diags Gen Elec R 21:664-71, 781-92 O-N '18
- Preventing oxidation of electrodes. diags Foundry 47:467 Jl 15 '19

**Manufacture**

- How electric furnaces are built. II Iron Tr R 64:1545-8 Je 12 '19
- Making basic electric furnace bottoms. A. W. Lorenz. Foundry 46:403 S '18

**Painting**

- Furnace radiation lowered by painting. J. W. Richards. Iron Tr R 64:1418 My 29 '19

**Patents**

- Improvements to electric furnaces; patent. diags Chem & Met Eng 21:49 Jl 1 '19
- Induction furnaces; patent. diag plan Met & Chem Eng 18:374-5 Ap 1 '18
- Low-temperature furnace; patent. diag Met & Chem Eng 18:315 Mr 15 '18
- Polyphase arc furnaces; patent. diags Met & Chem Eng 18:263-4 Mr 1 '18
- Two-phase arc furnace; patent. diags Met & Chem Eng 18:263 Mr 1 '18

**Power**

- Electric furnace and the central-station industry. II Elec R 74: 799-801 My 17 '19
- Electric steel furnace rate situation is uncertain. Elec W 73:1323 Je 21 '19
- Five-wire supply for big electric furnaces. Elec W 71:776-7 Ap 13 '18
- Power factor of electric arc furnaces; abstract. Elec W 73:381 F 22 '19
- Supply of single-phase power from three-phase systems. M. Walker. diags Inst E E J 57:121-7; Discussion. 139-48, 277-89 Ja, Mr '19
- Utility serves large single-phase loads. Elec W 74:136 Jl 19 '19

**Testing**

- Commercial testing of metallurgical electric furnaces. H. M. St John. Chem & Met Eng 21:377-92 S 15 '19

**Electric fuses**

- Assuring satisfactory fuse operation. II diags Elec W 71:763-5 Ap 13 '18
- Development of 2500-volt fuses. R. C. Cole. Elec W 72:436-7 S 7 '18
- Economical plan of fusing interconnected secondaries. M. E. Grah. diag Elec W 71:569 Mr 16 '18
- Four-in-one cartridge fuse. diags Elec W 71:387 F 16 '18; Same. Power 47:222-3 F 12 '18
- Fuse sizes for industrial motors. Elec R 74:434-5 Mr 15 '19; Same. Am Mach 50:652 Ap 3 '19; Same. J Elec 42:297 Ap 1 '19; Same. Ry Mech Eng 93:180 Ap '19
- G.E. combined fuse and disconnecting switch for outdoor service. II Elec R 72:740-1 Ap 27 '18; Elec W 71:907 Ap 27 '18
- Handling electric detonators. Coal Age 14:80 Jl 13 '18
- How the enigma of increased fuse requirements was solved. Elec Ry J 52:1093-4 D 21 '18
- Improper refilling of fuses. II Power 46:869 D 25 '17
- Improved renewable fuse. II Elec W 72:90 Jl 13 '18
- Maintenance of fuse boxes for railway service. H. H. Johnston. Elec J 16:399 S '19
- Opinion on high-tension switching and protection. Elec W 72:353-4 Ag 24 '18
- Perfect ferrule and knife-blade fuses. II Power 48:375 S 10 '18
- Selection of fuses for motor-driven machines. Elec W 72:208 Ag 3 '18
- Trico renewable cartridge fuses. Elec W 71:126 Ja 12 '18; Elec R 72:492 Mr 16 '18
- Unreliability of fuses of large motor circuits. H. Wilson. Power 46:574 N 13 '17; Discussion. M. King. 46:806 D 11 '17
- Visual marking of fuses; excerpts. T. H. Day. Elec R 75:714-15 O 25 '19

**Testing**

- Blake illuminated fuse tester. II Elec R 73:265 Ag 17 '18; Textile World 54:855 Ag 24 '18
- Convenient fuse tester. L. V. Lauther. diag Coal Age 14:298 Ag 15 '18
- Convenient method for use in testing fuses. diag Elec W 74:707 S 27 '19
- Device for testing fuses in service. II Elec Ry J 52:625 O 5 '18
- Methods of testing blown fuses. E. C. Parham. diags Power 50:304-5 Ag 19 '19
- Methods of testing fuses and circuits. A. R. Locke; W. F. Perry. diags Elec R 74:157 Ja 25 '19

**Electric fuses—Testing—Continued**

- Portable fuse testers save time and labor. diags Elec Ry J 53:190 Ja 25 '19  
 Use of simple panel for the testing of fuses. il Elec W 71:983; 72:495 My 11, S 14 '18

**Electric garages. See Garages, Electric****Electric generators**

- Design of large dynamos; abstract. M. Vidmar. Elec W 72:798 O 26 '18  
 Dynamical theory of electric engines. L. B. Atkinson. diags Inst E E J 57:1-26 D '18  
 Electrical study course—common faults in machine installation. diags Power 48:493-6 O 1 '18  
 Electrical study course—elementary single-coil dynamo. diags Power 47:14-16 Ja 1 '18  
 Electrical study course—faults in generators and motors. diags Power 48:631-4, 707-10, 767-70, 848-51 O 29, N 12, 26, D 10 '18  
 Electrical study course—the dynamo. diags Power 47:294-6 F 26 '18  
 Equalizing the generator load. J. J. Nolan. diag Coal Age 15:219 Ja 30 '19  
 Generator. H. H. Bliss. il diags plan J Elec 42:588-90 Je 15 '19  
 Vibration effects on the operation of electric generators. R. K. Long. Power 47:263 F 19 '18

**Bibliography**

- Critical review of the bibliography on unbalanced magnetic pull in dynamo-electric machines. A. Gray and J. G. Pertsch. biblog diags Am Inst E E Pro 37:1061-8 S '18

**Cooling**

- Condition of conditioned air. W. A. Field. Elec R 73:668-9 O 26 '18  
 Condition of conditioned air; cooling turbo-generators. M. A. Lincoln. Elec R 73:581-2 O 12 '18  
 Forced ventilation for water-wheel type generators. Elec R 74:430-1 Mr 15 '19  
 Getting the most out of turbo-generators. L. H. Parker and J. J. Preble. il diags Elec W 71:564-6 Mr 16 '18  
 Increasing output without enlarging the equipment. J. T. Foster. plan Elec W 71:34-5 Ja 5 '18

**Fires**

- Extinguishing fires in turbo-generators. J. T. Foster. il diags Elec W 72:116 JI 20 '18  
 Fires in turbo-alternators. diags Power 49:950-2 Je 17 '19  
 Fires in turbo-generators. M. A. Walker. Power 47:119-20 Ja 22 '18; Discussion. 47:705-6, 879-80, 883-4; 48:61 My 14, Je 18, JI 9 '18  
 Waterproofing turbogenerator windings. Elec R 75:31-2 JI 5 '19

**Lubrication**

- Lubrication of electric generators and motors. R. Trautschold. Elec R 74:629-30 Ap 19 '19

**Mounting**

- Erecting a large vertical generator. N. L. Rea. diag Power 48:919-20 D 24 '18  
 Mounting generators overhead. il Factory 20:74 Ja '18  
 Small motor and generator installations. il Elec R 72:609 Ap 6 '18

**Repair**

- Disconnecting generator brush yokes. J. J. Nolan. diags Coal Age 15:521 Mr 20 '19  
 Rebuilding 25,000-kw. generator. T. Wilson. il Power 49:76-9 Ja 21 '19  
 Reinsulation of large generators. il Elec W 73:1316-18 Je 21 '19  
 Repair of alternator has interesting features. il Elec R 75:961 D 6 '19  
 Rewinding 12,000-kw. turbo-generator field. il Elec W 73:893-4 My 3 '19  
 Shooting electrical troubles. diags Motor Age 36:11+ N 13 '19  
 Electric generators, Alternating current  
 A. E. G. turbo-generator. Power 48:324 Ag 27 '18; Sci Am S 86:91 Ag 10 '18

**Armature reaction in single-phase alterna-**

- tors; abstract. F. D. Newbury. Elec W 71:1323 Je 22 '18  
 Characteristics of the inductor type generator. M. C. Spencer. il diags Elec R 72:707-11 Ap 27 '18  
 Cleaning turbo-alternators. H. W. Morreall. diag Power 47:132 Ja 22 '18  
 Failure of Diesel-driven alternators to parallel. D. L. Fagnan. diags Power 50:390-1 S 2 '19  
 Features of mammoth waterwheel generator. il diag Elec W 73:1156-8 My 31 '19  
 Heating of banding wires on a self-excited a.-c. generator. C. D. Corwin. il Power 49:826 My 27 '19  
 High-frequency generator for airplane wireless telegraph sets. A. Nyman. il diags Elec J 16:140-5 Ap '19  
 How an induction motor operates as an induction generator. F. A. Annett. diags Power 50:468-70 S 16 '19  
 Hunting of synchronous machines. A. Hearvey. il diags Power 50:587-8 N 22 '19  
 Improvement of the turbo-alternator; abstract. Elec W 71:1146 Je 1 '18  
 Induction generators with phase advancers; abstract. Elec W 71:1094 My 25 '18  
 Interborough rapid transit company's 70,000-kw. turbogenerator. il Elec R 75:4-6 JI 5 '19  
 Interchangeability of generator frequencies. il Elec W 73:127-8 Ja 18 '19  
 Limitations of steam turbines and turbo-generators discussed before the A. I. E. E. Elec R 75:372-3 N 22 '19  
 Limiting alternator short-circuit currents. R. Brown. il diags Elec W 70:477-9 S 8 '17; Discussion. N. S. Diamant. 70:1251-2 D 29 '17  
 Limits to alternator voltage. F. D. Newbury. Sibley J 32:118-19 My '18  
 Load division between induction-type frequency changer sets. Q. Graham. il Power 49:195 F 11 '19  
 Load division between synchronous frequency changers operating in parallel. Q. Graham. il Power 48:591-3 O 22 '18  
 Mechanical design and specification of the turbo-alternator rotor. S. F. Barclay. diags Inst E E J 56:472-90; Discussion. 490-516 JI '18  
 Methods of synchronizing alternating-current machines. F. Gillooly. diags Power 50:456-9 S 16 '19  
 New generating equipment of Commonwealth Edison company, Chicago. il Elec R 72:621-4 Ap 13 '18  
 New Mexico's generators. C. S. Raymond. il diags Gen Elec R 22:244-54 Ap '19; Same. Sci Am S 87:356-8 Je 7 '19  
 Ninety-five thousand kilowatt addition to Northwest station of the Commonwealth Edison co., Chicago. il Power 47:354-8 Mr 12 '18  
 Operating temperatures in large a.-c. generators. H. D. Stephens. diags Elec W 71:663-4 M 30 '18  
 Present limits of speed and output of single-shaft turbo generators. F. D. Newbury. diags Am Inst E E Pro 38:1233-42 N '19; Same. Elec R 75:906-9 N 29 '19  
 Review of work of sub-committee on wave shape standard of the standards committee. H. S. Osborne. il diags Am Inst E E Pro 38:1-28 Ja '19  
 Six-unit Northwest generating station of the Commonwealth Edison company will develop 165,000 kw. il diags Elec W 71:928-31 My 4 '18  
 Sudden short circuits of alternators. N. S. Diamant. diags Elec W 71:1028-31, 1126-8, 1366 My 18, Je 1, 29 '18  
 Sustained short-circuit phenomena and flux distribution of salient-pole alternators. N. S. Diamant. diags Am Inst E E Pro 37:435-96 My '18  
 Synchronizing two alternators when driven by one turbine. K. A. Reed. il diags Power 50:568-9 O 7 '19  
 Temperature indicators for alternators. S. L. Henderson. il diags Elec J 16:193-6 My '19  
 Third harmonics in alternator windings. L. C. Grant. Elec R 75:860 N 22 '19

**Electric generators, Alternating current—Cont.**  
 32,500-kva. waterwheel generator. R. B. Williamson. *Il* diags Elec W 74:456-8 Ag 30 '19  
 Trend of turbogenerator development. Elec R 72:530-1 Ap 13 '18  
 Turbine-driven alternator burned out. *Il* plan Power 48:611-12 O 22 '18  
 Turbo-electric ship Wulsty Castle. *Il* diags Engineer 125:423-6, 428 My 17 '18  
 Variation of alternator excitation with load; abstract. F. D. Newbury. Elec W 72:405-6 Ag 31 '18  
 Ventilation systems for steam turbine alternators. E. Knowlton and E. H. Freiburghouse. *diag* Gen Elec R 21:240-6, 367-72 Ap-MY '18  
 Vertical-shaft water-wheel alternator. H. D. Stephens. *Il* diags Power 47:572-5 Ap 23 '18  
 Westinghouse vertical generators for water-wheel drive. *Il* Elec R 73:712-13 N 2 '18  
 World's largest electric generators. Elec W 74:39 JI 5 '19

See also Electric generators—Fires

#### Testing

Determination of the efficiency of the turbo-alternator. S. F. Barclay and S. P. Smith. *diag* plan Inst E E J 57:293-304 Ap '19; Extracts. Engineer 127:290-1 Mr 21 '19; Abstract. Elec W 73:797 Ap 19 '19; Discussion. Inst E E J 57:305-14, 475-90 Ap, Je '19

#### Electric generators, Direct current

Causes of direct-current generators failing to build up their voltage. R. Beach. *diags* Power 49:519-21 Ap 8 '19  
 Constant voltage on shunt d.c. generators. *diags* J Elec 43:360 O 15 '19  
 Difficulty experienced in getting a generator up to full voltage. *diags* Power 50:25-6 JI 1 '19  
 Direct-current generator for constant potential at variable speed. S. R. Bergman. *diags* Am Inst E E Pro 37:1011-18 Ag '18  
 Dynamotors and wind-driven generators for radiotelegraphy. R. G. Thompson. *Il* diags Elec J 16:205-10 My '19  
 Effect of interpoles on commutation of direct-current machines. R. L. Witham. *Il* diags Power 49:303-5 Mr 4 '19  
 Electrical study course—characteristic curves of compound generators. *diags* Power 47:796-8 Je 4 '18  
 Electrical study course—characteristic curves of shunt and series generators. *diags* Power 47:730-2 My 21 '18  
 Electrical study course—compound-wound generators. *diags* Power 47:653-5 My 7 '18  
 Electrical study course—current division in a three-wire generator. *diags* Power 49:651-3 Ap 29 '19  
 Electrical study course—current in the inductances of a three-wire generator. *diags* Power 49:616-18 Ap 22 '19  
 Electrical study course—fundamental principle of three-wire generators. *diags* Power 49:489-91 Ap 1 '19  
 Electrical study course—inductance and resistance on three-wire generator. *diags* Power 49:570-3 Ap 15 '19  
 Electrical study course—inductances used on a three-wire generator. *diags* Power 49:532-4 Ap 8 '19  
 Electrical study course—parallel operation of generators. *diags* Power 49:20-4, 92-4, 130-2 Ja 7, 21-28 '19  
 Electrical study course—series-connected generators. *diags* Power 47:580-2 Ap 23 '18  
 Electrical study course—shunt-connected generators. *diags* Power 47:509-12 Ap 9 '18  
 Electrical study course—three-wire generators in parallel. *diags* Power 49:728-31 My 13 '19  
 Electrical study course—types of three-wire generators. *diags* Power 49:688-91 My 6 '19  
 Flywheel equalizing generator is economical for ore dock. *Il* Elec R 72:835-6 My 18 '18  
 Generator cable resistance that will last long time if properly installed. J. J. Nolan. *diags* Coal Age 15:261 F 6 '19

Generator overcompounded. E. C. Parham. Power 48:304 Ag 27 '18  
 Generators would not operate in parallel. E. C. Parham. *diags* Power 49:292 F 25 '19  
 Homopolar generator. R. V. Morse. *diags* Sibley J 33:2-7 O '18  
 How interpoles affect the operation of direct-current machines. R. L. Witham. *diags* Power 49:358-60 Mr 11 '19  
 Large electrolytic generators for Norway. *Il* Elec R 72:594 Ap 6 '18  
 Losses and reactions in d. c. generators. H. H. Bliss. *Il* diags J Elec 43:77-9 JI 15 '19  
 Owen automatic lighting and power unit. P. M. Heldt. *Il* diags Automotive Ind 39:806-9 N 7 '18  
 Parallel operation of direct-current generators. T. F. Barton. *diags* Power 47:546-7 Ap 16 '18; Discussion. 48:99-100 JI 16 '18  
 Performance of motor-generator sets. F. T. Hague. *Il* *diag* Elec J 16:47-52 F '19  
 Polarity of direct-current generators. Q. Graham. *diags* Power 48:10 JI 2 '18  
 Regulation of automotive generators. W. A. Dick. *diags* Elec J 16:148-51 Ap '19  
 Reversing field connections of compound generator. B. A. Briggs. *diags* Power 49:769 My 20 '19  
 Short-circuit on two compound-wound generators. J. O. Kammerman. *diags* Power 49:657 Ap 29 '19  
 Shunt and series windings opposed. E. C. Parham. *diags* Power 49:125-6 Ja 28 '19  
 Standardization of generators for electrotyping. F. T. Taylor. *Il* Metal Ind 17:323-5 JI 17 '19  
 Voltage of generators varies when being paralleled. F. Gillooly. *diags* Power 50:312 Ag 19 '19  
 Westinghouse small geared turbines. *Il* Ry R 62:846-7 Je 8 '18  
 Westinghouse turbo-generator for direct current. *Il* Iron Tr R 62:1618 Je 27 '18; Am Mach 49:89 JI 11 '18; Elec R 73:143 JI 27 '18; Eng & Min J 106:224 Ag 3 '18  
 See also Commutators

#### Testing

Generator fault that long evaded detection. A. M. Severson. Elec W 72:937 N 16 '18  
 Solution for an acceptance-test problem: simple method of correcting generator-unit load-characteristic curve for variations in speed. W. B. Kouwenhoven. Elec W 71:138-9 Ja 19 '18

**Electric haulage.** See Electric locomotives; Electric tractors; Electric trucks

#### Electric heaters

Calo air heater for motor car carburettors. *Il* Engineer 124:480 N 30 '17  
 Convenient electric heater for use in the analytical distillation of gasoline. E. W. Dean. *diags* plan J Ind & Eng Chem 10:823-6 O '18  
 C-H electric air heaters. *Il* Elec R 72:307 F 16 '18; Elec W 71:386 F 16 '18; Iron Age 101:445 F 14 '18  
 C-H jacketed electric heater unit. *Il* Eng N 79:1084 D 6 '17; Met & Chem Eng 18:102 Ja 15 '18; Sci Am 117:479 D 22 '17  
 Deep parabolic reflector heating stove. *Il* Elec W 72:378 Ag 24 '18  
 Electric heater for coffee urns. *Il* Elec R 72:167-8 Ja 26 '18  
 Electric heaters can serve a dual purpose. *diag* Elec W 72:164 JI 27 '18  
 Electric heaters keep track switches clear of snow and ice. *Il* diags Eng N 81:1120 D 19 '18  
 High power factor induction heaters; abstracts. C. E. Magnusson. *Il* *diag* Elec W 73:634 Mr 29 '19; J Elec 43:17-18 JI 1 '19  
 Holdover of electric heater stocks large. Elec W 73:1413-14 Je 28 '19  
 Hughes electric air heaters. *Il* Elec R 71:1075-6 D 22 '17  
 Radiant air heater with cone-shaped element. *Il* Elec W 72:521 S 14 '18  
 Torid portable electric heater. *Il* Elec W 72:474-5 S 7 '18  
 Westinghouse electric foot-warmer for outdoor service. *Il* Elec R 72:209-10 F 2 '18; Iron Tr R 64:631-2 Mr 6 '19

**Electric heaters—Continued**

Willis electric radiators. *Il Elec R 72:82-3 Ja 12 '18; Elec W 70:1272 D 29 '17; Heat & Ven 15:67 Mr '18*

*See also* Electric water heaters

**Electric heating**

Advantages of electric heat. *Elec R 73:297 Ag 24 '18*

Application of electric heat to incubators and brooders. *Il Elec R 75:835 N 15 '19*

Coal and electricity compared for the heating of homes. *Heat & Ven 16:24-8 Ag '19*

Electric heating as a profitable load. *B. Dibble. Il J Elec 42:102-5 F 1 '19*

Electric heating engineering data. *Elec R 73:1016 D 28 '18*

Electric heating not economical. *A. V. White. Gas Age 42:514 D 16 '18*

Electric heating of industrial plants; abstract. *F. Rutgers. Elec W 71:106 Ja 12 '18*

Electric heating offers many advantages for use in churches. *A. Scheible. Il Elec R 73:824-5 N 23 '18*

Electricity for cooking and heating in Seattle, Wash. *Il diags Metal Work 91:65-8 Ja 10 '19*

Electricity in household service; heating and cooking. *G. A. Hughes. Il Gen Elec R 22:188-95 Mr '19*

Electricity will not replace coal. *A. V. White. Am Gas Eng J 109:290 S 28 '18*

Experience with electric heating in the Northwest. *J. D. Ross. J Elec 42:566-8 Je 15 '19*

Heating by electricity. *Munic J 46:107-8 F 8 '19*

Heating of buildings by electricity. *V. H. Greisser. J Elec 42:564-6 Je 15 '19*

How rheostat for motion-picture machine may serve as heater in ticket booth. *T. J. Coghlan. diags Elec R 71:1071-2 D 22 '17*

Idaho investigation finds electric house heating impracticable. *Elec R 75:875-6 N 22 '19*

Possibilities of reducing fuel consumption by the adoption of electrical heating; abstract. *P. H. Mitchell. Elec W 71:941 My 4 '18*

Progress of electric cooking and heating. *B. M. Maddox. J Elec 42:377-9 Ap 15 '19*

Way in which to tackle an electric heating job. *W. S. Scott. Elec W 73:486-6 Mr 8 '19*

*See also* Electric fabric; Electric furnaces; Electric heaters; Electric water heaters; Locomotive boilers—Electric heating

**Bibliography**

Structural service department; heating, cooking, and other appliances and devices. *Am Inst Arch J 6:319-20 Je '18*

**Cost**

Difficulties in electric house heating. *J. F. Merrill. J Elec 42:212-14 Mr 1 '19; Excerpt. Elec W 73:585-6 Mr 22 '19*

Electric cooking and heating doomed by cost. *R. Falconer. charts Gas Age 44:324-6 O 1 '19*

**Electric heating, industrial**

Advice on electric heating solicitation. *R. T. Kaighin. Elec W 73:1040-1 My 17 '19*

Central station and the industrial electric heating load. *A. F. Allsop. Il Elec R 72:979-82, 1029-33; 73:5-6 Je 15-22, JI 6 '18*

Conditions and costs of electric heating on Minidoka project. *Elec R 74:312-14 F 22 '19*

Developments in the electrical industry during 1918. *J. Liston. Il diags Gen Elec R 22:24-9 Ja '19*

Electric baking of cores, japans and enamels. *A. M. Clark. Il Metal Ind 17:187-8 Ap '19*

Electric heat in the typewriter industry. *A. M. Clark. Elec R 75:620 O 11 '19*

Electric heat storage in boilers. *J Ind & Eng Chem 10:151 F '18*

Electric heat treating becoming favorable. *T. F. Bally. Elec W 74:80 JI 12 '19*

Electric heating in manufacturing. *T. R. Hay. Ind Management 56:53-5 JI '18*

Electric heating of molds. *H. E. White. Il diags Am Soc M E J 40:388-9 My '18; Same. Automotive Ind 38:1207-8 Je 20 '18; Same. Am Mach 48:1109-11 Je 27 '18*

Electric snow melting device. *Il Ry Age 65:520 S 13 '18; Elec Ry J 52:881-2 N 16 '18*

Electrically heated industrial appliances and devices. *G. J. Kirkgasser. Il Ind Management 56:417-23 N '18*

Electrically-heated metal pattern plates on molding machines. *R. A. Bolze. Il Elec J 16:229 My '19*

Electrically heated soaking pit; with discussion. *T. F. Bally. diags Iron Age 103:1419-21 My 29 '19; Same. Iron Tr R 64:1416-18 My 29 '19; Discussion. Iron Age 103:1421-2 My 29 '19*

Electrically-heated steam-boilers. *Il Sci Am 121:394 O 18 '19*

Electricity as a substitute for natural gas for heating purposes. *F. Thornton, Jr. Eng Soc W Pa 34:227-33 Ap '18; Excerpts. Iron Age 102:572-3 S 5 '18; Excerpt. Heat & Ven 15:55 S '18; Abstract. Iron Tr R 63:785-6 O 3 '18; Discussion. Eng Soc W Pa 34:234-44 Ap '18; Excerpts. Iron Age 102:573 S 5 '18*

Electricity in celluloid manufacture. *E. W. Manter. Il Elec J 16:94-5 Mr '19*

Ford methods in ship manufacture; electric rivet heating. *F. E. Rogers. Il Ind Management 57:368-9 My '19*

Gas and electric heating; abstract. *C. O. Bastian. Elec W 72:265 Ag 10 '18*

Growth of industrial heating in Chicago. *Elec R 72:803 My 11 '18*

Heating liquids by electricity; the past, the present and the future; with discussion. *H. O. Swoboda. Il diags Eng Soc W Pa 34:537-74 N '18*

Industrial applications of electricity. *D. D. Miller. Il Elec W 72:693-5 O 12 '18*

Industrial heating is discussed in Ohio. *Elec W 73:1046 My 17 '19*

Ironing out cracks in iron; Bardeen electrical method of eliminating fatigue of metals. *Elec R 72:844 My 18 '18; Same. Sci Am S 86:48 JI 20 '18*

Low-temperature industrial heating. *D. D. Miller. Il Elec R 72:181-4, 230-3 F 2-9 '18*

Pattern plates dried by electrical heaters. *Il Iron Tr R 65:838-9 S 25 '19*

Principles of inductive heating with high frequency currents. *E. F. Northrup. Chem & Met Eng 20:381-2 Ap 15 '19*

Rivets heated by means of electric current. *Il Elec W 73:1275 Je 14 '19*

Separate organization to handle electric heating. *W. S. Scott. Elec W 73:325 F 15 '19*

Steam-raising by electricity, with heat storage; abstracts. *E. Höhn. Am Soc M E J 40:356 Ap '18; Power 47:67 Ja 8 '18*

*See also* Electric furnaces; Electric ovens

**Rates**

Making proper rates for electric welding. *C. I. Crippen. Elec W 73:1173-4 My 31 '19*

Electric hoist manufacturers' association offers facilities to government. *Elec R 72:518-19 Mr 23 '18*

Electric hoisting. *See* Hoisting machinery; Mine hoisting

Electric ignition. *See* Airplane engines—Ignition; Automobile engines—Ignition; Gas and oil engines—Ignition

Electric industries

Appliance sales policies. *T. W. Simpson. J Elec 42:383-6 Ap 15 '19*

Application of trade acceptances to electrical industry. *Elec R 72:810-11 My 11 '18*

Atlantic division of the Electrical supply jobbers' association discusses trade acceptances and business conditions. *Elec R 72:341-2 F 23 '18*

Building up a large contracting and repair business. *Il Elec R 75:536-7 S 27 '19*

Business conditions in the electrical industry. *Elec R 73:363-5 S 7 '18*

Can the salesman cure the ills? *S. New. Elec R 73:422-3 S 14 '18*

Channels of distribution from manufacturer to consumer. *S. A. Chase. Elec R 75:36-7 JI 15 '19; Same. J Elec 43:113-14 Ag 1 '19*

Credit and collection prospects for 1918. *M. A. Curran. Elec W 71:97-8 Ja 12 '18*

**Electric Industries—Continued**

Delivery of high-tension service to large consumers. R. Collier. *Il Elec R* 75:392-6 S 6 '19; Excerpts. *Elec W* 74:518-21 S 6 '19

Economic aspects of industrial reconstruction. *Elec R* 73:799-801 N 23 '18

Economic position of the jobber. *Elec W* 72:1170-1 D 21 '18

Electrical household appliance business. P. G. Gough. *J Elec* 43:453-4 N 15 '19

Electrical industry and organizations. *Am Inst Arch J* 6:308-10 Je '18

Electrical industry in reconstruction. *Elec W* 72:924-5 N 16 '18

Electrical merchandising methods of Detroit Edison co. A. H. Tuscany. *Elec R* 75:449-50 S 13 '19

Features of the Goodwin plan. W. L. Goodwin. *Elec R* 73:135 J1 27 '18

4th annual convention of the Associated manufacturers of electrical supplies. *Elec W* 73:635-7 Mr 29 '19

Future trade relations in the Pan-Pacific. J. McElroy. *J Elec* 43:406-7 N 1 '19

How can the electrical industry assist the architect? J. O. Case. *J Elec* 42:370-4 Ap 15 '19

Illuminating engineering publicity. G. H. Stickney. *Illum Eng Soc* 12:319-26; Discussion. 327-43 no 8 '17

Importance of co-operation between electrical manufacturer and contractor. J. N. Shreve. *Elec R* 73:183-4 Ag 3 '18

Increasing efficiency in the electrical industry. H. H. Blas. *J Elec* 43:420 N 1 '19

Labor readjustment in the electrical industry. *Il Elec R* 73:802-4 N 23 '18

Manufacturer approves the Goodwin plan. J. N. Shreve. *Elec R* 71:1021-2 D 15 '17

Opportunities and developments in electrical merchandising. E. A. Edkins. *Elec R* 75:407-8 S 6 '19

Output and work of women in industry; study of National industrial conference board. *Elec W* 72:490-1 S 14 '18

Pacific coast section of N. E. L. A. 3rd annual convention. *Elec W* 73:903, 947-50 My 3-10 '19; *Elec R* 74:753-7 My 10 '19; *J Elec* 42:475-91 My 15 '19

Problem of employing disabled soldiers considered; some of the disqualifications for duties in electrical industry. *Elec R* 73:98-9 J1 20 '18

Problems of the retail trade. M. A. De Lew. *J Elec* 42:574-5 Je 15 '19

Raw materials used by electrical manufacturers. *Elec W* 73:1382 Je 28 '19

Results of Goodwin plan in contractor-dealer field. W. A. Scott. *Elec R* 73:42-5 J1 13 '18

Salesmen's auxiliary. H. Angus. *J Elec* 43:302-4 O 1 '19

Selling the farmer. R. E. Smith. *J Elec* 43:105-6 Ag 1 '19

Selling the idea. H. L. Harper. *J Elec* 42:375-6 Ap 15 '19

Successful methods of collecting bad accounts. C. A. Gauss. *Elec R* 75:754-6 N 1 '19

War's effect on central-station policy. P. Cabot. *Elec W* 72:696-7 O 12 '18

Washing machine campaign as a business builder. *J Elec* 43:456-7 N 15 '19

Ways of merchandising electrical appliances. E. A. Edkins. *Elec W* 74:532-3 S 6 '19

Why electrical dealers should consider after-war conditions now. J. S. Older. *Elec R* 73:586 O 12 '18

Women's place in the electrical industry. *Il Elec W* 71:1196-9 Je 3 '18

*See also* Electric apparatus and appliances; Electric contractors; Electric engineering; Electric heating; Electric plants; Electric plants (central stations); Electric power; Electric shops; Electric utilities; Electric welding; Electricity in mining; Electrochemical industries; Electrochemistry; Electrometallurgy; Electroplating; also Association of Edison illuminating companies; Edison, Thomas A., interests

**Accounting**

Contractor-dealers adopt standard accounting system. chart *Elec R* 74:544-6 Ap 6 '19

Standardized accounting system. chart *J Elec* 43:168-70 Ag 15 '19

**Advertising**

Aim of publicity campaign of the Electrical supply jobbers' association. *Elec W* 73:908 My 3 '19

All-electrical Christmas. *Il J Elec* 43:455 N 15 '19

Christmas windows far and near promote the sale of electrical gifts. *Il J Elec* 43:446-7 N 15 '19

Complete electrical equipment for the home. J. G. Learned. *Elec R* 75:188-90 Ag 2 '19

Co-operative advertising in California. S. M. Kennedy. *Elec W* 73:80-2 Ja 11 '19

Creating the desire for appliances by newspaper advertising. I. R. Alexander. *Elec R* 74:917 My 31 '19

Effective house-wiring publicity. W. B. Stoddard. *Il J Elec* 43:300-1 O 1 '19

Effective methods of advertising electrical merchandise. W. B. Stoddard. *Il Elec R* 74:725-6 My 3 '19

Electrical advertising should again be pushed. J. F. Gilchrist. *Elec W* 73:535 Mr 15 '19

Electricity in local products week. C. M. Heintz. *Il J Elec* 43:251-2 S 15 '19

How and why of jobbers' publicity campaign. diag *Elec R* 74:724-5 My 3 '19

Iron campaign by Dayton power & light co. proves successful. *Elec R* 75:665-6 O 13 '19

Merchandising suggestions for the electrical dealer. *Il Elec R* 75:670-1 O 13 '19

Selling the washing machine. *J Elec* 43:444-5 N 15 '19

Speeding up sales of electric sewing machine motors. *Il Elec R* 75:497-8 S 20 '19

Using the manufacturer's literature. H. Angus. *Il J Elec* 43:418-19 N 1 '19

**Exhibitions**

Chicago electrical show proves a noteworthy success. *Il Elec R* 75:639-42 O 18 '19

Exhibits at N. E. L. A. convention. *Elec R* 74:846-8 My 24 '19

Government exhibit of foreign electrical goods. *Elec R* 73:295-6 Ag 24 '18

National electric light association lighting exhibit. G. F. Morrison. *Il Gen Elec R* 22:776-82 O '19

**War work**

Effective work of Associated manufacturers of electrical supplies. *Elec W* 71:46-8 Ja 5 '18

Electrical industry in war service; abstracts. J. W. Lieb. *Elec R* 72:993-4 Je 15 '18; *Elec W* 71:1304-5 Je 22 '18

Electrical manufacturing industry is responding to nation's needs. R. K. Sheppard. *Elec R* 72:1089 Je 29 '18

Electrical war service work of the Associated manufacturers of electrical supplies. *Elec R* 72:38-9 Ja 5 '18

General electric company in the great world war. J. R. Hewett. *Il Gen Elec R* 22:493-504, 601-19, 726-40, 746-55, 996-1000 J1-N '19

Organization meeting of war service committee. *Elec W* 70:1111 D 8 '17

Organization of the General war service committee of the electrical manufacturing industry. diag *Elec W* 71:109 Ja 12 '18

Raw materials supply in electrical industry; General war service committee of electrical manufacturing industry confers with War Industries board. *Elec R* 73:58-60 J1 13 '18; Same. *Elec W* 72:76-8 J1 13 '18

War means close co-operation with government. C. L. Collens. *Elec W* 70:1101-2 D 8 '17

War service committee of associated manufacturers. *Elec W* 70:1111 D 8 '17

**Australia**

Electrical goods in Australia. R. A. Lundquist. *Il U S Bur For & Dom Com* 155:1-64 '18

**Electric Industries—Continued****Belgium**

Antwerp plant will soon be in operation again. Elec R 74:385 Mr 8 '19

**California**

California electrical co-operative campaign achieves great success. Elec R 74:517-18 Mr 29 '19; J Elec 42:108-10, 157-8 F 1-15 '19  
California's electrical co-operative campaign. S. M. Kennedy. Elec W 72:155-7 Jl 27 '18

**China**

Electrical goods in China, Japan, and Vladivostok. R. A. Lundquist. Il U S Bur For & Dom Com 172:1-110 '18; Abstract. Elec R 74:299-301 F 22 '19

Electrical progress. Il Sci Am 120:321 Mr 29 '19

Future of electricity in Shanghai. T. H. V. Aldridge. Il J Elec 43:161 Ag 15 '19  
Selling electrical goods. J Elec 42:313-15 Ap 1 '19

**Far East**

Markets for electrical goods in the Far East. Elec R 72:767-8 My 4 '18

**France**

Can we sell electrical goods in France? Sci Am 120:12 Ja 4 '19

**Germany**

Electrical competition in foreign markets. J. M. Goldstein. chart Elec W 73:468-71 Mr 8 '19

Electrical industry in the enemy country. C. D. Snow and J. J. Kral. Elec W 72:252 Ag 10 '18

Electrical situation in Germany; abstract. Dr Niefind. Elec W 70:1250 D 29 '17

Electricity supply restrictions in Germany; abstract. Elec W 71:262-3 F 2 '18

Substitutes in the German electrical industry. Sci Am S 85:294-5 My 11 '18

**Great Britain**

Board of trade report on electric power supply. Inst E E J 57:sup11-13 Ja '19

British electrical installations in war time. G. S. Ram. Elec R 73:414-15 S 14 '18

Electrical trades after the war. Engineer 125:563-5 Je 28 '18

Housing and electricity supply in Great Britain. Elec R 75:484-5 S 20 '19

Lessons of the war for electrical engineers. H. I. Rogers. Inst E E J 57:31-4 D '18

Yorkshire local section: chairman's address. W. Lang. Inst E E J 56:19-22 D '17

**Italy**

Electrical market in Italy. O. M. Smart. Il chart Elec W 74:831-3 O 18 '19

**Japan**

Electrical development in Japan. G. Swope. Elec R 72:199-200 F 2 '18

Electrical goods in China, Japan, and Vladivostok. R. A. Lundquist. Il U S Bur For & Dom Com 172:111-76 '18; Abstract. J Elec 42:266-7 Mr 15 '19

Electrical industry in Japan. U. Noda. maps J Elec 43:399-400 N 1 '19

Status of power supply in the Japanese empire. Elec W 71:872 Ap 27 '18

**South America**

Electrical goods in Bolivia and Chile. P. S. Smith. Il U S Bur For & Dom Com 167:1-94 '18

Electrical goods in Ecuador and Peru. P. S. Smith. U S Bur For & Dom Com 154:1-50 '17

Export conditions for electrical products; summary of information on South American countries. Il Elec W 74:64-5 Jl 12 '19

Market for electrical goods. P. S. Smith. Il Elec W 73:364-8, 479-81 F 22, Mr 8 '19

Trade opportunities in Latin America. G. W. Fishback. Il J Elec 43:407-8 N 1 '19

West coast electrical trade with South America. Il J Elec 43:150-2 Ag 15 '19

**Sweden**

Swedish developments in the use of electric power. Elec R 75:60-3 Jl 12 '19

**United States**

Analysis of exports of incandescent lamps. Elec W 73:656-7 Mr 29 '19

Central station and the contractor in Massachusetts. Elec W 73:144-5 Ja 18 '19

Conditions in electrical manufacturing during 1917. C. H. Roth. Elec R 72:16 Ja 5 '18

Development in electrical apparatus during 1917; review prepared by Westinghouse electric and manufacturing company. Elec R 72:44-8 Ja 5 '18; Abstract. Elec Ry J 51:47-8 Ja 5 '18

Developments in electrical industry in 1917. Elec W 71:2-3 Ja 5 '18

Developments in the electrical industry during 1917. J. Liston. Il diag chart Gen Elec R 21:4-52 Ja '18

Developments in the electrical industry during 1918. J. Liston. Il diags Gen Elec R 22:9-46 Ja '19

Electrical exports for fiscal year ending June 1918. Elec R 73:458 S 21 '18

Electrical exports for year 1917 break all records. Elec R 72:632-3 Ap 13 '18

Electrical exports in 1918 break all records. Elec R 74:389-90 Mr 8 '19; Elec W 73:448-9 Mr 1 '19

Electrical progress and tendencies in 1917. A. Scheible. Elec R 72:2-7 Ja 5 '18

Electrical supply manufacturers active in tariff revision. Elec R 74:267-8 F 15 '19

Estimated value of materials used in the electrical industry in 1917. Elec R 72:17 Ja 5 '18

Great progress in electrical activity. T. C. Martin. Elec W 71:9-10 Ja 5 '18

Growth of electrical revenue in fifteen years; chart. Elec W 71:28 Ja 5 '18

High prices hamper growth of export trade. E. M. Herr. Elec W 73:543 Mr 15 '19

Large co-operative appliance campaign launched in Chicago. Elec R 74:1044-5 Je 21 '19

Making a market for the central stations. L. W. Alwyn-Schmidt. Elec W 73:223-4, 320-1 F 1, 15 '19

Manufacturing developments in the industry. F. C. Pratt. Elec W 74:753-6 O 4 '19

New record set by November electrical exports. Elec R 74:225 F 8 '19

Reconstruction outlook in the industry. Il Elec W 72:1116-17 D 14 '18

Report of N. E. L. A. Pacific coast section commercial committee. J Elec 42:483-6 My 15 '19

Review of the year, 1918, in the electrical industry. Il Elec R 74:1-11 Ja 4 '19

Sales of three largest electrical distributors. Elec W 73:1295-6 Je 14 '19

San Francisco electrical development league. H. Bostwick. J Elec 43:459 N 15 '19

Study of international trade. J. J. Gibson. Elec W 71:681-2 Mr 30 '18

Total electrical exports for 1917 amount to \$55,478,079. Elec W 71:744 Ap 6 '18

United States exports of electrical machinery and appliances by countries during the year ended June 30, 1918. Elec W 73:292-3 F 8 '19

Value of publicity to the electrical industry. W. H. Onken, Jr. J Elec 43:477-8 N 15 '19

Westinghouse electrical developments during 1918. Elec R 74:25-8 Ja 4 '19

**Electric Inspection**

British electrical inspector reports on factories and accidents. G. S. Rams. Elec R 75:826-7 N 15 '19

Demands of electrical inspection. E. F. Hensler. J Elec 43:118-19 Ag 1 '19

Forms for electrical inspection by municipal department. Elec R 74:73-4 Ja 11 '19

Importance to public of inspection of interior wiring. W. S. Boyd. Elec R 73:670-2, 706-8 O 26-N 2 '18

Inspecting power lines by aeroplane. E. R. Doyle. Elec R 74:911 My 31 '19

Inspection of electrical installations aboard ships. F. A. Anderson. Il J Elec 42:516-18 Je 1 '19

**Electric inspection—Continued**

Organizing electrical inspection and maintenance. C. A. Cowdery. chart Elec W 74:645-9 S 20 '19

Western association of electrical inspectors 14th annual meeting, Chicago. Elec W 73:236 F 1 '19

See also National electrical safety code

**Electric instruments**

Considerations involving choice of measuring instruments. M. Seymour. Elec R 74:153 Ja 25 '19

Esterline duplex indicating instruments. II Elec R 73:711-12 N 2 '18

Instrument for the analysis of wave shapes; abstract. A. Roth. Elec W 72:1086-7 D 7 '18

Power-operated electrical instruments for measuring and controlling temperatures. II Elec R 73:231-2 Ag 10 '18; Chem & Met Eng 19:210-11 Ag 15 '18

Standardization of electrical indicating instruments for use with radio apparatus. G. Y. Allen. II diags Elec J 16:494-500 N '19

See also Electric apparatus and appliances; Electric measurement; Electric meters; Electric testing; Spark recorders

**Electric insulation. See Insulation****Electric irons**

Device bumps irons to test their durability. II Elec W 74:765 O 4 '19

Evenly heated electric iron. II Elec W 72:427 Ag 31 '18

Reliable safeguarding of flatirons. Elec R 73:468-9 S 21 '18

Savo electric iron. II Elec W 70:1178 D 15 '17

**Electric laboratories**

Electrical laboratory apparatus for educational institutions. J. J. Lamberty. II diags Gen Elec R 21:78-81 Ja '18

High-voltage laboratory at Purdue university. C. F. Harding. diag plan Elec W 74:284-5 Ag 9 '19

Research laboratory of the General electric company at Schenectady. H. R. Hosmer. II Sibley J 32:98-103 Ap '18

War instruction at Massachusetts "Tech." II Elec W 72:636-8 O 5 '18

**Electric lamps**

Adjustable extension lamp. M. P. Bertrande. diags Power 47:374 Mr 12 '18

Color matching lighting. G. H. Stickney. II Sibley J 32:104-7 Ap '18

Cyclic fluctuations in rate of lamp renewal. M. D. Cooper. Elec W 71:93-5 Ja 12 '18

Economies in the utilization of electrical energy in the plant. W. Frederick. II diags Power 49:48-51 Ja 14 '19

Free lamp renewal policy re-established. Elec W 73:181-2 Ja 25 '19

Fundamentals of illumination design; reflectors and enclosing glassware. W. Harrison. II diags Gen Elec R 21:484-90 J1 '18

Important lamp-renewal innovation by Commonwealth Edison company. Elec R 72:270-1 F 16 '18

Lamp-life record system. diag Elec R 74:115 Ja 18 '19

Lamp substitution to save coal. Ry R 63:652-3 N 2 '18

Lamps and illumination. H. H. Bliss. II J Elec 43:313-15 O 1 '19

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 12:350-60 no 8 '17

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 13:456-62 no 9 '18; Abstract. Gen Elec R 22:48-52 Ja '19

Savings through proper maintenance of lamps and lighting appliances. Illum Engr 11:45 F '18

Use and abuse of electric headlights on mining locomotives. K. W. Mackall. II diags Coal Age 14:1060-7+ D 12 '18; Excerpt. Eng & Min J 107:741 Ap 26 '19

Wireless signal lamp for war work. Elec W 71:1031 My 18 '18

Wood for electric lamp stands. Am Lumberman 2305:41 J1 19 '19

See also Automobiles—Lighting; Electric lanterns; Electric light fixtures; Electric lighting; Safety lamps, Electric; Searchlights

**Electric lamps, Arc**

Adaptation of the high intensity arc to the open-type 60-inch army searchlight. J. T. Beechlyn. II diags Gen Elec R 22:655-9 S '19

Improved arc-lamp carbon holder. II Elec R 73:109 J1 20 '18

New German low-power lamp developed. Elec R 75:351 Ag 30 '19

Rebuilding arc lamps as incandescent fixtures. W. B. Turner. II Elec W 72:1174-5 D 21 '18

Renovation of discolored arc-lamp globes. A. Herz. II Elec W 72:935-6 N 16 '18; Abstract. Illum Engr 11:231 O '18

Testing arc lights under pressure; abstract. W. Matthiesen. Elec W 71:262 F 2 '18

Uranium calclde arc lamp. Illum Engr 11:162 Je '18

Why separate cutout is required for each arc lamp. L. C. Richards. diag Elec R 73:830 N 23 '18

See also Electric lamps, Mercury vapor

**Electric lamps, Incandescent**

Analysis of exports of incandescent lamps. Elec W 73:656-7 Mr 29 '19

Application of pyrometry to problems of lamp design and performance. I. H. Van Horn. II diags Am Inst Min Bul 153:sup2247-53 S '19

Calculating the life of incandescent lamps. H. A. Snow. Elec W 71:1324 Je 22 '18

Development of electric incandescent lamps. Illum Engr 11:232 O '18

Electric incandescent lamp situation in France. A. Larnaude. Illum Engr 11:192 Ag '18

Films of metals and salts in glow lamps. W. Reinders and L. Hamburger. Sci Am S 85:183 Mr 23 '18

Government specifications and tests for incandescent lamps. M. G. Lloyd. Elec R 72:712 Ap 27 '18

High candle-power projection incandescent lamps; abstract. Elec W 71:1094 My 25 '18

Initial current obtained in incandescent lamps. C. J. Berry. II Elec W 71:459-62 Mr 2 '18

Lamp policy of the fuel administration. Elec W 72:457-60 S 7 '18; Same. Elec R 73:370-3 S 7 '18; Same. Gen Elec R 21:685-8 O '18

Lamp that burns out without breaking down. II Sci Am 119:94 Ag 3 '18

Recent developments in incandescent lighting. G. H. Stickney. Illum Eng Soc 13:352-3 no 6 '18

Report of lamp committee of N. E. L. A. Elec W 73:1080-1 My 24 '19

Review of the National electric light association lamp committee report. G. F. Morrison. II Gen Elec R 22:767-75 O '19

Rider multifilament incandescent lamp. diags Elec R 72:891 My 25 '18

Standard specifications for incandescent electric lamps. U S Bur Stand Circ 13:1-14 '18

Temperatures of incandescent-lamp filaments. B. E. Shackelford. Am Inst Min Bul 153:sup2265-9 S '19

Triangulation signal lamp. Illum Engr 10:264 O '17

What is an incandescent lamp? R. W. Shenton. diags Sci Am S 88:238-9 O 25 '19

See also Electric lamps, Tungsten; Safety lamps, Electric

**Electric lamps, Mercury vapor**

Ageing of mercury vapor lamps. W. Coblenz, B. Long and H. Kahler. Sci Am S 88:163 S 13 '19

Decrease in ultra-violet and total radiation with usage of quartz mercury vapor lamps. W. W. Coblenz, M. E. Long and H. Kahler. diags U S Bur Stand Sci Pa 330:1-20 '18

Deterioration in ultra-violet radiation of mercury lamps. Sci Am 120:64 Ja 18 '19



- Electric lamps, Mercury vapor—Continued**  
Improved quartz mercury-vapor lamp for ultra-violet light. *diag Met & Chem Eng* 18:43-4 Ja 1 '18; *Excerpt. Elec W* 71:491 Mr 2 '18
- Electric lamps, Pocket**  
Portable magneto lamps in the Teutonic armies. *Elec W* 71:314 F 9 '18; *J Ind & Eng Chem* 10:150 F '18
- Electric lamps, Portable**  
Increasing the load with portable lamps. A. E. Frankenberg. *Elec J* 16:215-16 My '19
- Electric lamps, Tungsten**  
Automobile headlight proves serviceable for use on mine locomotives. J. J. Nolan. *il Coal Age* 15:174-5 Ja 23 '19  
Developments in electric lamps for shop use. C. E. Clewell. *il diags Am Mach* 51:321-4 N 6 '19  
Gas-filled lamp and its effect on illuminating engineering. F. W. Willcox. *il diags Illum Engr* 12:142-61 Je '19; *Discussion. 12:161-71, 179-81 Je-Jl '19*  
Glow-lamps for projection purposes. O. Kruh. *Illum Engr* 11:158 Je '18  
Incandescent lamps. *Am Gas Eng J* 109:388-9 O 26 '18  
Light projection with gas-filled lamps. R. P. Burrows and J. T. Caldwell. *il diags Elec W* 71:766-9 Ap 13 '18; *Abstract. Sci Am* 118:235 Mr 16 '18; *Abstract. Chem & Met Eng* 19:336 S 15 '18  
Mazda C lamps for motion picture projection. A. R. Dennington. *il diag Elec J* 16:201-4 My '19  
Mazda lamps for motion picture projection. L. C. Porter. *il diags Gen Elec R* 22:556-9 Jl '19  
Mazda lamps for motion-picture projectors. L. C. Porter. *il diags Gen Elec R* 20:979-83 D '17; *Abstract. J Fr Inst* 185:118 Ja '18; *Abstract. Illum Engr* 11:157-8 Je '18  
Motion picture projection with tungsten filament lamps. J. T. Caldwell and others. *il diags Illum Eng Soc* 13:232-48; *Discussion. 248-55 no 4 '18*  
New candlepower ratings of lamps. G. L. Sealey. *Automotive Ind* 38:873 My 2 '18  
Oxygen-filled tungsten lamp. *Illum Engr* 10:293 N '17  
Past and present of incandescent lighting. H. W. Brown. *il Sibley J* 32:71-5+ F '18  
Recent development in electric illumination. *il Am Arch* 116:325-6 S 3 '19  
Standard specifications for incandescent electric lamps. U S Bur Stand Circ 13:1-14 '18  
Tests of gas-filled lamps. H. Pecheux. *Illum Engr* 12:182 Jl '19  
*See also Automobiles—Lighting*
- Manufacture**  
Chemistry and chemical control in the lamp industry. A. Brann and A. M. Hageman. *il Elec J* 16:198-201 My '19  
New process for manufacturing filaments for glow lamps. O. Ely. *Sci Am S* 86:183 S 21 '18  
Tungsten filaments. *J Ind & Eng Chem* 10:574 Jl '18
- Electric lanterns**  
Electric lanterns. *il J Elec* 43:139 Ag 1 '19
- Electric law.** *See Electric engineering—Laws and regulations*
- Electric light**  
Effect of artificial light on the growth and ripening of plants. J. L. R. Hayden and C. P. Steinmetz. *il Gen Elec R* 21:232-6 Mr '18  
Electric light and egg production. *Sci Am* 120:272 Mr 15 '19  
*See also Electric lighting; Photometry*
- Electric light and power association, Northwest.** *See Northwest electric light and power association*
- Electric light fixtures**  
Adjustable fixture for industrial use. *il Elec W* 71:1398 Je 29 '18  
Adjustable lamp stand for garages and shops. *il Elec R* 72:1017 Je 15 '18
- Ceiling-bright reflectolyte. *il Elec R* 72:697 Ap 20 '18  
Fixture adaptable to different sizes of lamps. *diag Elec W* 72:329-30 Ag 17 '18  
Holophane indirect-lighting unit for industrial uses. *il Elec W* 72:522 S 14 '18  
Holophane industrial lighting unit. *il Elec R* 73:512 S 28 '18  
Industrolite, a new industrial lighting unit. *il diags Elec R* 72:392-3 Mr 2 '18  
Lighting fixtures for shop illumination. C. E. Clewell. *il diags Am Mach* 51:727-31 O 16 '19  
Linking science and art in lighting. M. Luckiesh. *Elec R* 73:884-5; 74:171-3 D 7 '18, F 1 '19  
Maxolite diffuser for industrial lighting. *il diag Elec R* 73:784 N 16 '18  
New bulkhead fitting. *il Illum Engr* 11:57 F '18  
Protective guard for lighting units. *diag Elec R* 73:28 Jl 6 '18  
Raymo adjustable fixtures for store and office lighting. *il Elec R* 73:632-3 O 19 '18  
Steelite safety extension fixtures for industrial use. *il Elec R* 71:1035 D 15 '17  
Three new types of lighting fixtures. *diags Elec R* 73:423 S 14 '18  
*See also Street lighting fixtures; also Institute of lighting fixture manufacturers*
- Electric light plants, Municipal.** *See Electric plants, Municipal*
- Electric lighting**  
Adapting 220-volt circuits to 110-volt lamps. J. R. Colville. *Elec W* 70:1189-90 D 22 '17  
Analysis of consumption by small lighting customers. *Elec W* 71:1326 Je 23 '18  
Annual report of the Lighting and Illumination committee. *Am Inst E E Pro* 38:915-20 Jl '19  
Better lighting. *il J Elec* 43:462-3 N 15 '19  
Central station and illumination. H. E. Mahan. *il chart diags Gen Elec R* 21:441-8 Je '18  
Description of modern wiring installation in new theater. *il diag Elec R* 74:371-5 Mr 8 '19  
Design of industrial lighting system. W. Harrison and H. H. Magdick. *Elec W* 74:184-7, 232-4 Jl 26-Ag 2 '19  
Developments in the electrical industry during 1918. J. Liston. *il Gen Elec R* 22:40-6 Ja '19  
Dual purpose farm lighting equipment. *il Elec W* 71:1347 Je 22 '18  
Economics in the operation of large lighting installations. C. L. Law and J. E. Buckley. *diags plan Illum Eng Soc* 13:83-95; *Discussion. 96-100 no 1 '18*  
Effect of the war on electric lighting. G. H. Stickney. *il Elec R* 72:10-11 Ja 5 '18  
Effect of wall colors on lighting requirements. *Elec W* 74:363 Ag 16 '19; *Same. Sci Am S* 88:176 S 13 '19  
Electric house-lighting systems. D. S. Hatch. *il Motor Age* 34:7-10 D 19 '18  
Electric lamps and lighting; abstract. J. Ondracek. *Elec W* 72:168 Jl 27 '18  
Electric light a necessity. *Elec W* 71:82 Ja 12 '18; *Discussion. R. H. Pierce. Am Gas Eng J* 108:134 F 9 '18  
Electric lighting forty years ago. *Sci Am* 120:629 Je 14 '19  
Electric lighting of ecclesiastical buildings. W. Wilson. *diag Inst E E J* 56:193-8 Mr '13  
Electric lights for small plants. P. E. Merriam. *diags Power* 47:163 Ja 29 '18  
Electricity in household service. E. J. Edwards. *il Gen Elec R* 22:162-73 Mr '19  
Extensive use of electricity for San Francisco harbor. *il Elec R* 73:1001-5 D 28 '18  
Getting series lighting from D.-C. or A.-C. supply. E. G. King. *diag Elec W* 74:529 S 6 '19  
Graphical solution of illumination problems. N. S. Dickinson. *charts Elec W* 72:307 Ag 17 '18  
How to plan lighting installation for a factory. *Elec R* 73:49-52 Jl 13 '18  
Illumination of an athletic field. F. H. Murphy. *il plan Elec W* 70:1200-1 D 22 '17

**Electric lighting—Continued**

Improved lighting of electrical manufacturing plants. F. H. Bernhard. *Il Elec R* 73:917-22 D 14 '18

Incandescent lighting in war time. G. H. Stickney and T. W. Moore. *Il Gen Elec R* 21:674-9 O '18

Lamps and illumination. H. H. Bliss. *Il J Elec* 43:313-15 O 1 '19

Lighting and control for bridge over the Columbia. F. H. Murphy. *Il diags Elec W* 73:1266-8 Je 14 '19

Lighting curtailment in the industries. A. L. Powell. *Elec W* 71:709-10 Ap 6 '18

Lighting from three-phase service. *diag Elec R* 73:385 S 7 '18

Lighting plant capacity increased to 3 kw. P. M. Heldt. *Il diags Automotive Ind* 41:370-4 Ag 21 '19

Lighting progress for the past year. H. W. Mateer. *Il diag Elec R* 72:12-14 Ja 5 '18

Lighting ration in practice. *Ilum Engr* 11:177-81 J1 '18

Lighting system fed from the power lines. *diags Elec W* 74:358 Ag 16 '19

Linking science and art in lighting. M. Luckiesh. *Il Elec R* 74:171-3 F 1 '19

Matthews full automatic lighting plants. P. M. Heldt. *Il diags Automotive Ind* 40:1212-15+ Je 12 '19

Modern office lighting; lighting system for new office building of Edison lamp works. A. L. Powell. *Il Elec W* 73:316-20 F 15 '19

National electric light association lighting exhibit. G. F. Morrison. *Il Gen Elec R* 22:776-82 O '19

New method facilitates installation of lights on tile fronts. *Il diag Elec R* 74:38-9 Ja 4 '19

Park and boulevard lighting in Portland. F. H. Murphy. *Il Elec W* 73:889-90 My 3 '19

Past and present of incandescent lighting. H. W. Brown. *Il Sibley J* 32:71-5+ F '18

Possibilities in artistic residence lighting. M. Luckiesh. *Elec R* 72:378 Mr 2 '18

Progress in electric illumination. *Il Elec R* 74:6-7 Ja 4 '19

Progress in electric lighting in the United States during 1918. *Ilum Engr* 12:194 J1 '19

Proof that higher lighting intensities pay their cost. *Elec W* 73:434 Mr 1 '19

Proportioning general and localized lighting. F. C. Caldwell and M. H. Holmes. *Elec R* 71:891-2 N 24 '17; Same. *Gas Age* 41:40 Ja 1 '18

Protective lighting for industrial plants. D. H. Tuck. *Il Elec W* 71:1137-8 Je 1 '18

Recent advances in industrial lighting. W. Harrison. *Il diags Stevens Ind* 35:179-201 J1 '18

Relation between commercial power and lighting business. *Elec W* 72:403 Ag 31 '18

Restrictions of the use of gas and electricity in England. *Ilum Engr* 11:92-3 Mr '18

Selecting equipment for industrial lighting. W. Harrison and H. H. Magdick. *Il Elec W* 73:1319-21 Je 21 '19

Selection of lighting units. D. H. Tuck. *Il diag Elec W* 72:552-4 S 21 '18; Discussion. W. Harrison. 72:705 O 12 '18

Statistics of electric lighting. *Ilum Engr* 11:267 D '18

Stimulation of lighting business. *Il Elec W* 73:1090-1 My 24 '19

Western electric farm lighting equipment. *Il Elec R* 73:591-2 O 12 '18

Wiring chart for 110-125-volt house lighting. *Elec R* 74:399 Mr 8 '19

Wooden service box on lighting standard. *diags Elec W* 74:528 S 6 '19

*See also* Automobiles—Lighting; Car lighting; Daylight, Artificial; Electric lamps; Electric light fixtures; Electric meters; Electric plants; Electric signs; Electric wire and wiring; Electricity on the farm; Factories—Lighting; Locomotive headlights; Photometry; Printing offices—Lighting; Searchlights; Street lighting; Street lighting fixtures

**Cost**

Analysis of incandescent lighting costs for a year. *Elec W* 74:800 O 11 '19

Cost of arc lighting in Crawfordsville, Indiana. *Elec W* 70:1154 D 15 '17

Cost of electric light and the high cost of living. *Elec R* 73:375 S 7 '18

Data showing reduction in cost of lighting. W. Clark. *Elec R* 74:391-2 Mr 8 '19

**Rates**

*See* Electric rates

**Standardization**

Standardized industrial lighting systems. H. L. Cornelison. *diags plans Elec W* 74:69-72, 459-61 J1 12, Ag 30 '19

**Electric lighting, Decorative**

Electrical festival of Portland's victory rose carnival. F. D. Weber. *Il J Elec* 48:60-1 J1 15 '19

Electrically illuminated fountain. A. L. Powell. *Il diags plan Elec R* 72:551-3 Mr 30 '18

Spectacular lighting helps Chicago boost Victory loan. *Il Elec R* 74:672-3 Ap 26 '19

Electric lighting companies. *See* Electric utilities

Electric lighting fixtures. *See* Electric light fixtures

Electric lighting plants. *See* Electric plants

**Electric lines**

Adapting existing lines to increased loads. E. B. Hook, Jr. *Il map Elec W* 71:39-41 Ja 5 '18

Analysis of transmission-line construction. D. D. Ewing. *Elec W* 74:406-7 Ag 23 '19

Application of theory and practice to the design of transmission line insulators. G. I. Gilchrest and T. A. Klinefelter. *Il diags Elec J* 16:8-16 Ja '19

Arrangement of power conductors. *diags J Elec* 42:72-4 Ja 15 '19

Calculation of transmission and telephone lines. C. P. Steinmetz. *Elec W* 73:425 Mr 1 '19

California-Oregon and Pacific gas & electric systems tied together by 70,000-volt line. *Elec R* 73:725 N 9 '18

California 220,000-volt—1100-mile—1,500,000-kw. transmission bus. R. W. Sorensen, H. H. Cox and G. E. Armstrong. *maps Am Inst E E Pro* 38:1027-38 S '19; Same. *J Elec* 43:202-5 S 1 '19; Same. *Elec R* 75:477-80 S 20 '19; Excerpt. *Elec W* 74:743-5 O 4 '19

Catenary crossing span favored over dead-end type. D. F. Parrott. *diag Elec W* 74:76 J1 12 '19

Chicago's tunnels for electric light and power cables. G. B. Springer. *Il Elec R* 74:1019-23 Je 21 '19

Combination strain tower and lateral. *Il Elec R* 74:274 F 15 '19

Compact roof arbor for outgoing 2300-volt lines. *Il diags plan Elec W* 71:1322-3 Je 22 '18

Comparison of transmission-line railroad-crossing specifications. *Elec R* 73:102 J1 20 '18

Constructing a line under difficulties. C. L. Raymond. *Il diag Elec W* 74:700-1 S 27 '19

Construction details of 66,000-volt Wheeling-Moundsville line. *Il chart Elec R* 71:1009-11 D 15 '17

Construction developments for medium-voltage lines. D. F. Parrott. *diags Elec R* 74:703-8 My 3 '19

Cutting loose insulation from overhead lines. O. P. Morse. *Il Elec Ry J* 51:1101 Je 8 '18

Details of line construction—with particular reference to guying and anchors. C. R. Harte. *Il diags Elec Ry J* 52:868-75 N 16 '18

Difficulties with iron-wire transmission. M. D. Leslie. *map Elec W* 70:715-16 O 13 '17; Discussion. 70:957, 1252-3 N 17, D 29 '17

Distribution of line expense in house moving. *Elec W* 72:19 J1 6 '18

Double feeder insulators give strong construction. *Il Elec Ry J* 53:920 My 10 '19

Economical increase made in distribution capacity. S. B. Hood. *diags Elec W* 72:1030-3 N 30 '18

Economical transformer mounting. L. A. Sims. *Il Elec R* 73:582 O 12 '18

**Electric lines—Continued**

- Economical use of copper. P. O. Reyneau. Elec W 71:1208-10 Je 8 '18
- Electrical generation and distribution in Canada. L. G. Denis. maps Elec R 74:376-80 Mr 8 '19
- 11,000-volt overhead on the New York Connecting railroad. II diag map Elec Ry J 51:1042-7 Je 1 '18
- Emergency preventives against corrosion of outdoor material. A. Newman. Elec R 73:23-4 Jl 6 '18
- Emergency 13,000-volt transmission line construction for army camp. II Elec R 73:64 Jl 13 '18
- Forces which act upon a transmission line. C: R. Harte. diag Elec Ry J 51:364-7 F 23 '18; Correction. 51:979 My 18 '18
- Grounded neutral transmission line. W. E. Richards. diag Am Inst E E Pro 38:1005-10 Ag '19
- How to reduce strains on pin insulators. diag Elec W 71:728 Ap 6 '18
- Inexpensive overhead line crossing at railroad. II Elec W 73:496 S 14 '18
- Installing high-tension lines. M. Stafford. Coal Age 16:376 Ag 28 '19
- Interesting arrangement of conductors for river span. II diag Elec R 72:1003-4 Je 15 '18
- Interesting transmission line structures. II Elec R 73:419 S 14 '18
- Iron wire for transmission lines. W. T. Ryan. Elec R 73:713-15 Ap 27 '18
- Laying out a power transmission line. C: R. Harte. diag Elec Ry J 54:561-4 S 20 '19
- Line construction that endangers pedestrians and fire departments. II Elec R 74:643-4 Ap 19 '19
- Location of switches on distribution lines. II diag Elec W 71:308-9 F 9 '18
- Long cable span in Norwegian power plant. Munic J 44:399 My 11 '18
- Long-line phenomena and vector locus diagrams. E. Velander. diag Elec W 73:212-16 F 1 '19
- Long spans facilitate mountain service. N. B. Hinson. II diag Elec W 71:1306-8 Je 22 '18
- Long spans permitted by steel wires a saving. L. M. Klauber. diag Elec W 71:86-7 Ja 12 '18
- Maine company's pothead practice. Elec W 72:306 Ag 17 '18
- Metal cross-arm spacer for pole-line construction. diag Elec W 73:1328 Je 21 '19
- Mounting of apparatus for rural lines. diag Elec R 72:465-6 Mr 16 '18
- Moving transformers off the main street. II Elec W 72:260 Ag 10 '18
- New charts for aerial suspensions. J. N. Le Conte. diag J Elec 42:120-3 F 1 '19
- Numbering of pole line structures. diag Elec R 73:526-8 O 5 '18
- 110,000-volt transmission line over the St Lawrence river. S. Svenningson. II Am Inst E E Pro 37:1275-84 N '18; Abstract. Elec W 72:1215 D 28 '18
- Overhead department economies. C: R. Harte. II Elec Ry J 51:492-5 Mr 16 '18
- Pelree economical, convenient and safe wireholder. II diag Elec R 73:305-6 Ag 24 '18
- Pin or arm insulation not sufficient. II diag Elec W 72:394-6 Ag 31 '18
- Power-line crossing over telephone-line anchor pole. II Elec W 72:164 Jl 27 '18
- Predetermination of synchronous phase-modifier performance. H. V. Carpenter. Am Inst E E Pro 38:997-1003 Ag '19
- Rails instead of trolley wires for traveling cranes. diag Elec R 74:918-19 My 31 '19
- Safety features of 13,000-volt feeder rack. II Elec R 73:548-9 O 5 '18
- Sag-calculations for iron wire lines. M. D. Leslie. Elec W 72:196-7 Ag 3 '18
- Sag-temperature calculations of transmission lines on steep grades. A. Still. diag J Fr Inst 185:509-15 Ap '18; Same. Elec R 72:945-7 Je 8 '18
- Sectionalizing lines by disconnecting switches. diag Elec W 74:704 S 27 '19
- Selection of economical transmission route. P. O. Reyneau. Elec W 74:176-8 Jl 26 '19
- Size of neutral wire for a three-wire system. T. A. Nash. Power 47:113 Ja 22 '18
- Special arrangement of arresters and choke coils. II Elec R 73:508 S 28 '18
- Special junction box for service taps at curbs; to protect cables from moisture. II diag Elec W 74:759 O 4 '19
- Special line construction for long spans and rugged country. II Elec R 75:667 O 18 '19
- Special transmission-line problems. II diag Elec W 71:919-22 My 4 '18
- Standardization of overhead construction. H. E. Wulfig. diag Elec W 71:870-2 Ap 27 '18
- Standardized specifications for transmission line railroad crossings; recommendations and chart of Bureau of standards. Elec R 73:377-9 S 7 '18
- Steel conductors for series circuits. L. M. Klauber. Elec W 71:1313-15 Je 22 '18
- Test points in series circuits save time. Elec W 71:362 F 16 '18
- Tie lines arranged for use at two frequencies. diag Elec W 73:227 F 1 '19
- Transformer hoisting device. II Elec R 73:740 N 9 '18
- Transmission-line construction of Duquesne light company. T: R. Hay. II Elec R 73:643-6 O 26 '18
- Transmission-line practice; construction and costs; abstract. E. T. Driver and E. V. Pannell. Elec W 71:1219 Je 8 '18
- Transmission line progress chart. Elec R 73:380 S 7 '18
- Transmission line relay protection. H. R. Woodrow and others. diag Am Inst E E Pro 38:631-63 Je '19; Excerpts. Elec R 75:13-18 Jl 5 '19
- Transmission line with 4801-foot span over St Lawrence. II Eng N 82:383-4 F 20 '19
- Typical line construction over rough territory in California. diag Elec W 71:464-5 Mr 2 '18
- Underground construction and electrolysis. Elec W 73:1086-7 My 24 '19
- Vertical taps simplify the turning of corners. diag Elec W 71:1042 My 18 '18
- Weather conditions and labor efficiency; influence of temperature on cost of doing line-work pointed out. A. G. Drury. Elec R 73:260-1 Ag 17 '18
- See also* Anchors, Guy; Electric cables; Electric conduits; Electric fuses; Electric plants—Interconnection; Electric protective apparatus; Electric railroads; Electric service, Rural; Electric substations; Electric transmission; Electric utilities; Electric wire and wiring; Hydroelectric plants; Poles; Telegraph; Telephone; Telephone lines
- Clearance**
- Chart which gives wire clearances necessary. Elec W 72:747 O 19 '18
- Clearances of transmission line conductors. diag Elec R 74:231 F 8 '19
- Cost of construction**
- Comparative cost of steel and wooden pole transmission line. Elec R 72:163 Ja 26 '18
- Cost of building a 33,000-volt line. G: W. Cook. II Elec W 74:798-9 O 11 '19
- Determining labor costs of pole line extensions. A. G. Drury. Elec W 71:1376 Je 29 '18
- Effects of present conditions on cost of line construction. A. C. Hurd. Elec W 72:111-12 Jl 20 '18
- Estimated cost of overhead interconnection. Elec W 73:583-4 Mr 22 '19
- Increased cost of line extensions. A. S. B. Cushing. Elec W 71:832 Ap 20 '18
- Itemized cost of line construction. Elec W 71:880 Ap 27 '18
- Itemized cost of 33,000-volt transmission line in central Illinois. Elec R 75:207 Ag 2 '19
- Labor data pertaining to installation of cables. J: D. Morgan. Elec W 73:532-3 Mr 15 '19
- Studies in wood, steel and concrete pole-line costs. F. L. Haushalter. Elec R 72:587-9, 625-9, 667-70 Ap 6-20 '18

## Electric lines—Continued

## Inductive interference

- California joint committee on inductive interference completes report. Elec Ry J 51:38 Ja 5 '18
- Design of transpositions for parallel power and telephone circuits. H. S. Osborne. diags Am Inst E E Pro 37:739-78 Jl '18; Abstract. Elec W 71:1373 Je 29 '18
- Inductive effects of alternating current railroads on communication circuits. H. S. Warren. Am Inst E E Pro 37:1019-48 Ag '18; Abstract. Elec Ry J 52:299 Ag 17 '18
- Means for preventing inductive interference. diag Elec W 72:353 Ag 24 '18
- Neutral resistance reduces inductive interference. B. M. Smith. plan Elec R 75:117-18 Jl 19 '19
- Overhead lines and inductive interference. Elec W 73:1088 My 24 '19
- Telephone circuits with zero mutual induction. W. W. Crawford. diags Am Inst E E Pro 38:377-405 Mr '19

## Maintenance and repair

- Assuring continuity of high-tension transmission. J. M. Drabelle. Elec W 74:73-4 Jl 12 '19; Same. Elec Ry J 54:325-6 Ag 16 '19
- Efficient method of rectifying line trouble. Elec W 72:794-5 O 26 '18
- Emergency repair for transmission lines. Elec W 74:526 S 6 '19
- Emergency switching and communicating scheme. diag Elec W 71:569-70 Mr 16 '18
- Locating defective transmission-line insulators. T. F. Johnson, jr. diags Elec W 74:568-72 S 13 '19
- Moving poles without untying line conductors. G. C. Sawyer. il Elec W 74:580 S 13 '19
- Portable track linemen's tool kit. il Elec R 73:180 Ag 3 '18
- Power truck for general utility line work. il Elec R 72:338 F 23 '18
- Practices and precautions in working on live transmission lines. H. J. Burton. Elec R 75:410-11 S 6 '19
- Rebuilding tower line damaged in sleet storm. diags Elec W 71:257 F 2 '18
- Temporary repair job on pole-line corner. diag Elec W 72:65 Jl 13 '18

See also Electric railroads—Maintenance and repair

## Poles

- Compact pole lifter superior to sheer legs. J. M. Crawford. il Elec R 74:912 My 31 '19
- Composite transmission structures of steel and wood. F. C. Weiss. il Elec R 75:622-3 O 11 '19; Abstract. Elec W 74:247 Ag 2 '19
- Concrete poles carry 22,000-volt power line. il diags Elec W 71:296-7 F 9 '18
- Examples of pole guying from other fields. C. R. Harte. il Elec Ry J 53:321-4 F 15 '19
- Getting the right wood poles for electric railway service. C. R. Harte. il Elec Ry J 51:743-7 Ap 20 '18
- Insuring durability of the pole-top fittings. C. R. Harte. il diags Elec Ry J 53:1204-8 Je 21 '19
- Joint usage of poles—a war economy. T. N. Bradshaw. diags Elec W 72:840-1 N 2 '18
- Locating line poles to prevent auto collisions. diag Elec W 72:16-17 Jl 6 '18
- Pole cross-arm mounted without fastenings. H. D. Hammond. diags plan Elec W 74:75 Jl 12 '19
- Portable rig for setting high-transmission line poles. F. B. Walker. il Elec W 73:1329-30 Je 21 '19
- Practical points in pole and tower erection and support. C. R. Harte. il Elec Ry J 52:490-4 S 21 '18
- Simple steel cross-arm of easy construction. diag Elec W 72:399 Ag 31 '18
- Standardization of joint-pole practices. Elec W 72:400-1 Ag 31 '18
- Two-pole structure makes low-cost line terminal. il Elec W 74:131 Jl 19 '19
- When a line pole needs a guy. C. R. Harte. il chart diags Elec Ry J 53:139-42 Ja 18 '19

Wishbone cross-arms favored in California. L. J. Moore. diags Elec W 72:1118 D 14 '18

## Scrap material

Utilization of second-hand line materials. L. M. Klauber. il Elec W 71:509-12 Mr 9 '18

## Terminology

Identification nomenclature of transmission lines; method employed by Portland railway, light & power company. Elec R 72:604 Ap 6 '18

Nomenclature for high-voltage transmission network. Elec R 74:153 Ja 25 '19

## Testing

- Phase and fault testing by means of lamp signals. F. Gillooley. diags Elec R 74:617-19 Ap 19 '19
- Variable setting for overload relays. diag Elec R 74:760 My 10 '19
- Electric lines, Artificial**
- Artificial high-voltage line; abstracts. Sci Am S 85:265 Ap 27 '18; Elec W 72:20 Jl 6 '18
- Electric locomotives**
- Advantages of storage-battery locomotives. C. W. Chappelle. Coal Age 14:437-8; Discussion. 439-42 S 5 '18
- Axle generators for St Paul locomotives. Elec Ry J 52:289-90 Ag 17 '18
- Comparison of low-speed and high-speed interurban freight locomotives. D. C. Hershberger. il Elec J 16:436-40 O '19
- Determination of the proper size of storage-battery locomotive. D. C. Ashmead. Coal Age 14:548-52 S 19 '18
- Duplex dial watt-hour meter for electric locomotives using regenerative braking. il Elec Ry J 54:402 Ag 23 '19
- Efficiency and safety of electric industrial locomotives. il Elec Ry J 51:864 My 4 '18
- Electric battery locomotive. il Engineer 125:213 Mr 8 '18
- Electric equipment for steam railroads. il Ry Age 64:897-8 Ap 5 sec 1 '18
- Electric locomotives and trucks. Coal Age 14:387 Ag 29 '18
- Electric locomotives for lumbermen. il Am Lumberman 2251:58 Jl 6 '18
- Electric locomotives of moderate weight and power. A. B. Cole. il Elec Ry J 53:1152-4 Je 14 '19
- 50-ton electric locomotives for Canada. il Elec Ry J 52:843 N 9 '18
- Fitting the electric locomotive to its load. A. H. Babcock. Elec Ry J 53:1139-41 Je 14 '19
- Four improved types of electric locomotives. il diag maps Ry Age 64:717-22 Mr 22 '18
- Gearless electric locomotive for C. M. & St P. il Ry Age 67:819-21 O 24 '19
- Hints for the freight operator. A. B. Cole. il diags Elec Ry J 53:396-407 Mr 1 '19
- Impact effect of electric locomotives on bridges. Eng & Contr 49:408 Ap 24 '18
- Information on class-T locomotives. E. B. Katté. Elec Ry J 51:695 Ap 13 '18
- Knocking down a 120-ton electric locomotive for export. W. D. Bearce. il Gen Elec R 20:204-8 Mr '17; Same. Ry R 60:455-7 Mr 31 '17; Same cond. Eng N 77:459 Mr 22 '17; Same cond. Engineer 123:424 My 11 '17; Same cond. Iron Tr R 61:88 Jl 12 '17; Same cond. Elec R & W Elec'n 70:467 Mr 17 '17; Abstract. Sci Am 118:382 Ap 27 '18
- Mechanical problems in design of electric locomotives. W. K. McAfee. Elec Ry J 51:99 Ja 12 '18
- Most powerful electric passenger locomotives. il Ry Age 64:275-6 F 1 '18
- New direct-current gearless passenger locomotives for C. M. & St P. railway. il diag Elec R 75:842-3 N 15 '19; Same. Ry R 65:675-7 N 8 '19
- New 50-ton electric locomotive for Swiss mountain climbing. il diags Elec Ry J 51:805 Ap 27 '18
- New passenger locomotive for the St Paul. il Elec Ry J 51:237 F 2 '18
- New single-phase locomotives for the Swiss Bundesbahn. H. Studer. diags Elec Ry J 52:411-13 S 7 '18

**Electric locomotives—Continued**

- New York Central well satisfied with its bipolar motor locomotives. E. B. Katté. *Il Elec Ry J* 51:564 Mr 23 '18
- 1918 data for the pioneer constant-speed electrification. E. Marshall. *Il chart Elec Ry J* 53:1217-18 Je 21 '19
- Oerlikon locomotives for Switzerland. J. Buchli. *Sci Am S* 88:156+ S 6 '19
- 180-ton locomotives for the New Haven railroad. E. R. Hill. *Il diags map Elec Ry J* 51:556-9 Mr 23 '18; Same cond. *Eng N* 80:553-4 Mr 21 '18
- One-piece cast steel frames for electric locomotives. *Il Ry Age* 67:843 S 26 '19
- Pennsylvania electric locomotive. *Il diags plan Ry Mech Eng* 92:87-90 F '18
- Preparations for future electrification in Europe. *diags Elec Ry J* 52:830 N 9 '18
- Progress of electric locomotive design. W. B. Potter and S. T. Dodd. *Ry Age* 66:1157-8 My 9 '19
- St Paul locomotive tested at Erie. *Il diags Elec Ry J* 54:827-31 N 1 '19
- Single-phase locomotive for Swiss federal railways. *diags Elec Ry J* 53:1141-2 Je 14 '19
- Steam vs. electric locomotives. A. J. Manson. *Ry Mech Eng* 93:133-5 Mr '19
- Storage-battery tractors and locomotives find favor in northwest. *Elec R* 74:454 Mr 22 '19
- 3000-volt gearless locomotive for the St Paul. A. H. Armstrong. *diags Elec Ry J* 51:561-4 Mr 23 '18; Same. *Gen Elec R* 21:362-6 My '18; Same. *Ry R* 62:641-3 My 4 '18
- 266-ton locomotive for the St Paul. F. H. Shepard. *Il diags plan Elec Ry J* 51:559-61 Mr 23 '18

See also Electric tractors; Locomotives, Mine; Railroads—Electrification

**Control**

- New type of mine locomotive controller. L. W. Webb. *Il diags Gen Elec R* 21:620-2 S '18

**Testing**

- Test of new C. M. & St P. electric locomotive. *Il Ry Age* 67:749-50 O 10 '19

**Electric machinery**

- Application of harmonic analysis to the theory of synchronous machines. W. V. Lyon. *diags Am Inst E E Pro* 37:1121-57 S '18
- Critical review of the bibliography on unbalanced magnetic pull in dynamo-electric machines. A. Gray and J. G. Pertsch. *bibliog diags Am Inst E E Pro* 37:1061-8 S '18
- Economical substitute for matting; Mastic insulite. M. S. Montgomery. *Elec R* 71:1070 D 22 '17
- Efficiency of machines with aluminum windings; abstract. G. Schonwald. *Elec W* 72:1085 D 7 '18
- Electric yarding engines successfully operated in logging operations. *Il Elec R* 74:217-18 F 8 '19
- Electrical laboratory apparatus for educational institutions. J. J. Lamberty. *Il diags Gen Elec R* 21:78-81 Ja '18
- Electrical study course—losses in direct-current machinery. *diags Power* 47:876-8 Je 18 '18
- Flow of power in electrical machines. J. Slepian. *diags Elec J* 16:303-11 Ji '19
- Governing of electrical machinery. *diags J Elec* 43:468-9 N 15 '19
- Heavy-machinery starting precautions. M. S. Montgomery. *Elec R* 71:986 D 8 '17
- Logging by electricity. *Sci Am* 120:34+ Ja 11 '19
- Magnetic pull in electric machines. E. Rosenberg. *diags Am Inst E E Pro* 37:1069-1113 S '18
- Notes on the design of electromagnetic machines; abstract. S. P. Smith. *Elec W* 71:677 Mr 30 '18
- Reactance of synchronous machines and its applications. R. E. Doherty and O. E. Shirley. *bibliog Il diags Am Inst E E Pro* 37:821-908 Ji '18
- Recent developments in shaft pressing at destination. N. L. Rea. *Il diags Gen Elec R* 22:138-40 F '19

**Solder for electrical machinery. R. Pittman.**

- Power 49:787-8 My 20 '19
- Some causes of breakdown to electrical machinery. W. C. Worrall. *Elec R* 75:308-12 Ag 23 '19
- Testing blocks that assure accurate results. *diag Elec W* 71:907 Ap 27 '18

See also Brushes (electric machinery); Commutators; Electric apparatus and appliances; Electric controllers; Electric current converters; Electric driving; Electric engineering; Electric generators; Electric locomotives; Electric motors; Electric plants; Electric protective apparatus; Electric shovels; Electric tractors; Electric transformers; Electricity in mining; Electricity on the farm; Elevators, Electric; Hydroelectric plants; Motor generators; Rotary converters; Ship propulsion, Electric; Ships—Electric equipment; Washing machines, Electric

**Grounding**

- Earthing power-station equipment. P. H. Adams. *Il Power* 48:451-4 S 24 '18
- Power-station earth connections. P. H. Adams. *Il diags Power* 48:40-2 Ji 9 '18

**Repair**

- Drying pit designed for electrical repair shops. *diag Elec W* 71:727 Ap 6 '18
- Tools used in electrical work-shops. M. M. Clement. *diags Mach* 25:215-16 N '18
- What constitutes efficiency in repair business. A. P. Denton. *Elec R* 75:168-9 Ji 26 '19

**Temperature**

- Direction of fan reversed. E. C. Parham. *Power* 46:833-4 D 18 '17
- Heating of machines and transformers; abstract. J. Fischer-Hinnen. *Elec W* 72:1180 D 21 '18
- Methods of increasing capacity of electrical apparatus. M. S. Montgomery. *Elec R* 72:122-3 Ja 19 '18
- Suggested amplification of heating rules for electrical machinery; abstract. M. Vidmar. *Elec W* 73:38 Ja 4 '19
- Temperature indicator for transformer winding. V. M. Montsinger and A. T. Childs. *Il diags Gen Elec R* 21:396-401 Je '18
- Ventilation systems for steam turbine alternators. E. Knowlton and E. H. Freiburg-house. *diag Gen Elec R* 21:240-6, 367-72 Ap-MY '18

**Electric measurement**

- Application of the radiometer to the measurement of electric current. T. D. Cope. *diag J Fr Inst* 187:737-44 Je '19
- Application of the thermionic amplifier to conductivity measurements. R. E. Hall and L. H. Adams. *Il diags Am Chem Soc J* 41:1515-25 O '19
- Calculating growth of current in an inductance. C. Hering. *Elec W* 74:175 Ji 26 '19
- Dielectric field in an electric power cable. R. W. Atkinson. *diags Am Inst E E Pro* 38:815-56 Je '19
- Electrical measurement of fluid flow in pipes. J. M. Spitzglass. *diags Mech Eng* 41:429-32+ My '19
- Electrical study course—measurement of alternating current and voltage. *diags Power* 50:263-5 Ag 12 '19
- Interesting metering problem. V. H. Todd. *diag Power* 50:151-2 Ji 22 '19
- Measurement of power loss in dielectrics of three-conductor high-tension cables. F. M. Farmer. *diags Am Inst E E Pro* 37:125-45 F '18; Discussion. *Elec W* 71:413 F 23 '18
- Measurement of the crest values of alternating voltage by the kenotron, condenser, and voltmeter. J. R. Craighead. *Il diags Gen Elec R* 22:104-9 F '19
- Motor capacity for shop machinery. C. E. Clewell. *Il diags Am Mach* 50:631-4 Ap 3 '19
- New standard of current and potential. C. T. Allcutt. *Il diags Am Inst E E Pro* 37:83-9 F '18

**Electric measurement—Continued**

- Power factor and phase rotation. L. F. Curtiss. diags J Elec 42:530-3 Je 1 '19
- Practical application of Kirchhoff's law. V. J. Kubanyl. diags Power 48:878-9 D 17 '18
- Precise measurement of alternating currents. C. O. Gibbon. diags Elec W 71:979-81 My 11 '18
- Precise measurement of alternating currents. T. W. Varley. diags Elec W 72:362 Ag 24 '18
- Radio instruments and measurements. II diags U S Bur Stand Circ 74:1-341 '18
- Short-cut for finding combined resistance of multiple circuits. diags Elec Ry J 52:703 O 19 '18
- Thermoelectric standard cell. C. A. Hoxie. II diags Am Inst E E Pro 37:57-64 F '18
- Wattmeter wrongly applied in measuring the power taken by a three-phase motor from a three-phase circuit. E. C. Parham. diags Power 50:16 JI 1 '19
- See also* Electric meters; Electric resistance; Electric testing; Electric units; Electric waves; Galvanometers; Inductance; Magnetic measurements; Thermocouples; Wheatstone bridge
- Electric meters**
- Adapting induction meters to new frequency. E. L. Fischer. Elec W 71:457-8 Mr 2 '18
- Best practice in service and meter wiring. E. B. Meyer. II diags Elec R 72:59-63 Ja 12 '18
- Calibration of power-factor indicators. W. W. Hoke. diags Elec W 72:1076-8 D 7 '18
- Causes of meters humming and their remedies. Elec R 72:564 Mr 30 '18; Discussion. W. F. Hankins. 72:781 Ap 27 '18
- Character of the thermal storage demand meter. P. M. Lincoln. II diags Am Inst E E Pro 37:147-68 F '18; Discussion. Elec W 71:413 F 23 '18
- Chemical meter. Sci Am 119:85 Ag 3 '18
- Compro inclosed switches and meter protective device. II Elec R 71:1036 D 15 '17
- Data on meter errors. diags Elec R 72:882-3 My 25 '18
- Demand-meter contacts renewed in repair shops. J. N. M'Clurg. diags Elec W 72:1034 N 30 '18
- Demand-meter situation. C. F. Mathes. Elec W 72:1024-6 N 30 '18
- Demand meters. J. A. Laubenstein. II diags Gen Elec R 21:573-6 Ag '18
- D. C. calibration of power-factor meters. T. W. Varley. diags Elec W 71:248-9 F 2 '18
- Duncan induction meter. II Elec R 73:592-3 O 12 '18
- Electric graphic meter for testing machine characteristics. Automotive Ind 40:892-4 Ap 24 '19
- Electrostatic glow meter. R. J. Wensley. II diags Elec J 16:228 My '19
- Factors affecting determination of the maximum demand. C. I. Hall. diags Gen Elec R 21:148-50 F '18; Same. Elec R 72:333-4 F 23 '18
- Graphic meters to record power factor. II chart Power 49:252 F 18 '19
- Graphic recording meter saves thousands of dollars. Elec R 72:433 Mr 9 '18
- How to read gas, electric and water meters. II Bldg Age 41:90-1 Mr '19
- Light portable graphic recording instruments. II Elec W 72:427 Ag 31 '18
- Making accurate power charts in the shop. C. E. Clewell. II diags Am Mach 49:1177-81 D 26 '18
- Maximum-demand meter practice in Minneapolis, Minn. Elec W 72:260-1 Ag 10 '18
- Measuring electric demand. diags Elec R 73:307 Ag 24 '18
- Meters. II J Elec 43:266-8 S 15 '19
- New capacity meter; abstract. J. Scott-Taggart. diags Elec W 73:1335 Je 21 '19
- Notes on demand meters. H. W. Richardson. II Elec W 73:219-22 F 1 '19
- Novel metering installation. II Elec R 73:180-1 Ag 3 '18
- Overcoming meter inaccuracies of outdoor installations. B. E. Smith. Elec R 72:347-8 F 23 '18
- Protection against thieving customers. C. W. Ward. Elec W 72:1037 N 30 '18

- Removing obstacles to power-factor charge. W. Brown. Elec W 72:1220-2 D 28 '18
- Sangamo direct-current, three-wire meter. II diags Elec R 73:746-7 N 9 '18; Elec W 72:963 N 16 '18
- Selection of an electricity meter; abstract. Elec W 71:523 Mr 9 '18
- Selling electric service by the can. II diags Sci Am 119:332 O 26 '18
- Short course for metermen brings good results. Elec R 74:472 Mr 22 '19; Same. Elec W 73:581 Mr 22 '19
- Speeding production by using graphic meters. II diags Elec W 72:588-9 S 28 '18
- Standardized meter box. W. R. Frampton. diags Elec R 74:192 F 1 '19
- Sub-meter energy losses registered on master meter. H. R. Thomas. Elec W 73:36-7 Ja 4 '19
- Substitute materials in electricity meters. Elec W 73:901 My 3 '19
- Temperature effects in direct-current meters; abstract. G. W. Stubbings. Elec W 71:783-4 Ap 13 '18
- Value of graphic instruments in improving motor drive. T. S. Montgomery and W. B. Bray. II Elec R 72:831-4 My 18 '18
- Westinghouse meters for wireless and high-frequency work. II Elec R 73:386 S 7 '18; Same. Elec W 72:520-1 S 14 '18
- What does the meter read? diags Power 49:944-5 Je 17 '19
- See also* Ammeters; Ampere-hour meters; Electric measurement; Electric railroads—Meters; Electric testing; Electrometers; Frequency meters; Potentiometers; Voltmeters; Watt-hour meters; Wattmeters

**Marking**

- Serial numbering and lettering for meters. P. W. Cordell. Elec W 74:657 S 20 '19

**Testing**

- Adjustable support for use in testing meters. P. M. Cordell. diags Elec W 74:413-14 Ag 23 '19
- Automatic test board for alternating-current meters. II Elec W 74:885 O 25 '19
- Combination load box and calibrator saves labor. II diags Elec W 71:727-8 Ap 6 '18
- Economies in central-station meter testing and repairing. C. W. Geiger. II Elec R 72:365-6 Mr 2 '18
- Inexpensive test table made from old material. P. M. Cordell. II Elec W 74:188-9 JI 26 '19
- Installation and testing of primary meters. H. R. Thomas. diags Elec W 73:1212-14 Je 7 '19
- Meter terminal block that facilitates testing. J. N. M'Clurg. diags Elec W 73:484 Mr 8 '19
- Method of testing meters at two power factors. J. N. M'Clurg. diags Elec W 71:361 F 16 '18
- Service tests of small-capacity meters. A. H. Bryant. Elec R 75:155-7 JI 26 '19
- Simple arrangement for the testing of d.-c. meters. J. N. M'Clurg. diags Elec W 71:674 Mr 30 '18
- Single-phase meter test board. W. R. Frampton. diags Elec R 72:805 My 11 '18
- Solution of meter-testing problem of small companies. G. W. Hewitt. Elec W 72:938 N 16 '18
- Substantial terminal board facilitates meter testing. diags Elec W 74:415 Ag 23 '19
- Testing the meters and training metermen. Elec W 73:1088-9 My 24 '19
- See also* Watt-hour meters—Testing
- Electric mining.** *See* Electricity in mining
- Electric motor generators**
- Bearing pitting in motor-generator sets. P. A. Borden. Elec W 71:1322 Je 22 '18
- Locating trouble in motor-generator set. E. C. Parham. diags Elec W 71:568 Mr 16 '18
- Performance of motor-generator sets. F. T. Hague. II diags Elec J 16:47-52 F '19
- Westinghouse 150-kw. synchronous motor-generator set for mine substations. II Elec R 74:727-8 My 3 '19

**Electric motors—Continued**

- Abuse and care of motors. R: Bowen. Coal Age 15:862 My 8 '19
- Advantages and method of interlocking motors. D: R. Shearer. diag Elec W 71:414 F 23 '18
- Average small-motor energy consumptions. Elec W 71:1379 Je 29 '18
- Calculating power requirements for small machinery. J. L. Lane. diags Mach 25:827-8 My '19
- Care and operation of electric motors in factories. J. P. Collopy. II diag Elec R 73:648-52 O 26 '18
- Connected motor capacity compared with demand. Elec W 74:474 Ag 30 '19
- Considerations in determining the capacity of rolling-mill motors. R. F. Hamilton. diags Am Inst E E Pro 37:261-82 Mr '18
- Correct motor sizes of great importance. Elec W 74:25 JI 5 '19
- Critical review of the bibliography on unbalanced magnetic pull in dynamo-electric machines. A. Gray and J. G. Pertsch. bibliog diags Am Inst E E Pro 37:1061-8 S '18
- Current and power curves show results to be expected of motors. C. W. Squier. Elec Ry J 51:1134-6 Je 15 '18
- Design, selection and standardization of steel motors discussed at a joint meeting of sections of the American Institute of electrical engineers with the Association of iron and steel electrical engineers. Cleveland, O., March 8. Iron Tr R 62:671 Mr 14 '18
- Determination of demand factors to save copper. H: C. Horstmann and V: H. Toussley. Elec W 73:308-10 F 15 '19
- Determining the value of slip. G. Hilpert. Sci Am S 86:406 D 28 '18
- Development of fan motor windings. E. W. Denman. diags Elec J 16:257-60 Je '19
- Direct and alternating-current motors in shop work. W. A. Scott. II Elec R 72:905-6 Je 1 '18
- Drying out electric motors. G. E. Michael. diag Power 47:630 Ap 30 '18; Discussion. E. J. Fernier. 48:21 JI 2 '18
- Dynamical theory of electric engines. L. B. Atkinson. diags Inst E E J 57:1-26 D '18
- Electric drive for punching, shaping and slotting machines. C. E. Clewell. II Am Mach 50:439-44 Mr 6 '19
- Electrical study course—common faults in machine installation. diags Power 48:493-6 O 1 '18
- Electrical study course—counter-electro-motive force of motors. diags Power 48:155-7 JI 30 '18
- Electrical study course—electric motor. diags Power 48:84-6 JI 16 '18
- Electrical study course—faults in generators and motors. diags Power 48:631-4, 707-10, 767-70, 848-51 O 29, N 12, 26, D 10 '18
- Electrical study course—fundamental principle of the electric motor. diags Power 46:827-8 D 18 '17
- Electrical study course—types of motors. diags Power 48:234-8 Ag 13 '18
- Extinguishing fires in large totally enclosed generators and motors. M. A. Savage. II diag Gen Elec R 21:53-5 Ja '18
- Four-frame electric drives. C. W. Starker. diags Textile World 54:1609+ O 5 '18
- Fuse sizes for industrial motors. Elec R 74:434-5 Mr 15 '19; Same. Am Mach 50:652 Ap 3 '19; Same. J Elec 42:297 Ap 1 '19; Same. Ry Mech Eng 93:180 Ap '19
- Graphic method of showing motor loading. P. S. Selden. Elec W 74:305 Ag 9 '19
- Installation of inside high-tension wiring and motors; rules issued by Louisiana fire prevention bureau. plan Elec R 71:1028-9 D 15 '17
- Kind and characteristics of motor; abstract. E. Adler. Elec W 73:850 Ap 26 '19
- Laminated iron in electric motors. M. S. Hancock. Elec J 16:338-9 Ag '19
- Loose connection causes motor troubles. R. L. Hervey. diags Power 49:791 My 20 '19
- Mechanical equipment of industrial buildings. C. L. Hubbard. Power 49:362-5 Mr 11 '19
- Motor capacity for shop machinery. C. E. Clewell. II diags Am Mach 50:631-4 Ap 3 '19
- Motor-data sheet for industrial plants. Elec W 71:568 Mr 18 '18
- Old and new shop circuits. C. E. Clewell. II Am Mach 50:729-32 Ap 17 '19
- Power and torque in electric motors. J. Lebovici. diags Elec R 74:19-22, 52-5, 98-101, 134-6, 213-15 Ja 4-25, F 8 '19
- Preventing interruption of production; selecting and inspecting electrical equipment. S. Fisher. Elec W 72:639-42 O 5 '18
- Pull-out force determines right motor size for saw. Elec W 74:132 JI 19 '19
- Reconnecting a 250-volt motor to operate on 110 volts. V. T. Kropid. diags Power 48:244 Ag 13 '18
- Selecting crane motors and gears. R. H. McLain. Iron Tr R 63:1073-4 N 7 '18; Abstracts. Iron Age 102:744 S 26 '18; Am Soc M E J 40:863-4 O '18
- Selection of motors aided by graphic meters. C. E. Clewell. II diag chart Elec W 71:454-6 Mr 2 '18
- Selection of motors for shipbuilding plant. D: Elwell. II plan Elec W 71:506-9 Mr 9 '18
- Selection of steel mill auxiliary motors and control as affected by mechanical features of the drive. J. D. Wright. II diags Am Inst E E Pro 37:255-60 Mr '18
- Small motor and generator installations. II Elec R 72:609 Ap 6 '18
- Speed, torque and power in machine-tool work. C. E. Clewell. diags Elec W 70:1092-4 D 8 '17
- Theory of motor action. II diags J Elec 43:171-2 Ag 15 '19
- Types of motors designed for different loads. C. E. Clewell. II Elec W 70:1145-8 D 15 '17
- What it pays to know about electric drive. C. E. Clewell. II Factory 20:1076-8 Je '18
- See also Armatures; Automobiles—Electric equipment; Electric controllers; Electric driving; Electric locomotives; Electric machinery; Electric motors, induction; Electric motors, Railway; Electric motors, Synchronous; Electric power; Electric transformers; Motor generators; Rotors

**Bearings**

- Ball bearings for electric motors. G: Andrus. Am Mach 47:1079-81 D 20 '17
- Ball bearings for electric motors. A. H. MacCaffray. Am Mach 48:613-14 Ap 11 '18
- Hot bearings cooled without stopping motor. B. F. Rurey. Elec W 74:529-30 S 6 '19
- Loose bearing caused induction motor to fail to start. H. Wilson. diags Power 50:231 Ag 5 '19
- Motor bearings. Elec R 73:384 S 7 '18
- Railway motor bearings. J. S. Dean. II Elec J 16:443-6 O '19
- Shifted motor bearing housings. E. C. Parham. Power 46:876-7 D 25 '17

See also Electric motors—Lubrication

**Cleaning**

- Compressed air for cleaning motors. D. R. Shearer. diags Power 47:369 Mr 12 '18; Discussion. R. K. Long. 47:668 My 7 '18

**Control**

- A.-C. speed-controlling and starting devices. Elec W 74:531 S 6 '19
- Application of printing-press motors. C. E. Clewell. II Elec W 72:302-5 Ag 17 '18
- Application of relays to industrial control. C. E. Clewell. II diags Elec W 72:106-8 JI 20 '18
- Broken rheostat contact causes motor fuse to blow. E. C. Parham. diags Elec W 74:249-50 Ag 2 '19
- Control of direct-current motors. C. E. Clewell. II diag Am Mach 51:5-9 JI 3 '19
- Control of induction motors. C. E. Clewell. II diags Elec W 72:438-41 S 7 '18
- Control system for cement-mill motors. W: H. Easton. II Elec R 73:490-1 S 28 '18
- Current-limit automatic controller for motors. II Elec W 71:1239 Je 8 '18
- Dynamic braking of electric motors; abstract. E. M. Bouton. Elec W 72:169 JI 27 '18
- Electrical study course—motor-speed control. diags Power 48:418-21 S 17 '18

**Electric motors—Control—Continued**

- Features of industrial motor control. C. E. Clewell. *Il diag Elec W* 72:60-3 J1 13 '18  
 Lettgo mechanical overload release. *Il diag Am Mach* 51:141-2 J1 17 '19; *Elec Ry J* 54:346 Ag 16 '19  
 Machine-tool controller developments in 1917. *Iron Age* 101:330 Ja 31 '18  
 Motor drops in speed as metal is wound on block. W. R. Clark. *diag Elec W* 74:80 J1 12 '19  
 Mounting motor control on building columns. *diag Elec W* 74:808-7 O 11 '19  
 Notes on the control of alternating current motors. C. E. Clewell. *Il Am Mach* 51:267-70 Ag 7 '19  
 Remote control of motor-driven pumps and compressors. F. M. Nourse. *Il diag Munic Eng* 55:133-6 O '18  
 Speed control of induction motors on cranes and hoists by means of solenoid load brakes. R. H. McLain and H. H. Vernon. *Il diag Gen Elec R* 22:117-25 F '19  
 Ward Leonard armature speed controllers. *Il Elec R* 72:966 Je 8 '18

**Lubrication**

- Cast-iron oil box prevents hot bearings. J. B. Blalock. *Il diag Elec Ry J* 52:748 O 26 '18  
 Improved lubrication with changed motor axle boxes. *Il diag Elec Ry J* 54:757-8 O 13 '19  
 Lubrication of electric generators and motors. R. Trauttschold. *Elec R* 74:629-30 Ap 19 '19  
 Oiling textile motors in large manufactories. L. E. Wood. *Elec W* 72:937 N 16 '18

**Manufacture**

- Adapting munitions plant to peace-time work. *Il diag plan Elec W* 74:620-6 S 20 '19  
 Butt welding of some non-ferrous metals. E. F. Collins and W. Jacob. *Il Gen Elec R* 21: 958-61 D '18  
 Controlling production in a motor plant. C. Lundberg. *Il Iron Age* 103:1279-84 My 15 '19  
 Iron mixture for motor frames. W. J. Keep. *Foundry* 46:43-4 Ja '18  
 Manufacture of electric motors. C. W. Starcker. *Il diag Am Mach* 47:501-4, 531-3, 637-40, 669-71, 756-6, 987-9, 1039-43; 48:53-8, 137-41, 309-13, 446-9, 527-9, 569-72 O 11-18, N 1, D 6-13 '17, Ja 10, 24, F 21, Mr 14, 28-Apr 4 '18

**Protection**

- Motor protection. *Il diag Textile World* 56: 121 J1 5 '19  
 Motor protection system. *Il Elec W* 70:1224 D 22 '17  
 Operating conditions of motors in a pulp mill. H. E. Stafford. *diag Elec W* 74:838 O 18 '19  
 Overload protection for electric motors. O. C. Callow. *diag Power* 50:60-2 J1 8 '19  
 Protecting polyphase induction motors from single-phase operation. B. W. Jones. *Il diag Power* 49:604-6 Ap 22 '19  
 Protecting small motors. J. J. Nolan. *diag Coal Age* 15:846-7 My 8 '19

**Rating**

- Continuous-rated motor and its application. L. F. Adams. *Gen Elec R* 22:421-6 My '19; Same. *Elec W* 73:936-9 My 10 '19; Same. *Sci Am S* 87:398-400 Je 21 '19  
 Determining power output of motors. H. S. Rich. *Power* 48:358 S 3 '18  
 Standardizing rolling mill motor ratings; abstracts. K. A. Pauly. *Iron Tr R* 63:724 S 26 '18; *Iron Age* 102:753 S 26 '18  
 Standardizing the rating of rolling-mill motors. *Elec W* 72:844 N 2 '18

**Repair**

- Adapting a motor to a different voltage. *diag Elec W* 74:192 J1 26 '19  
 Cutting out the stator coils of induction motors. R. McKinney. *diag Elec W* 74:706-7 S 27 '19  
 Dismantling a large motor. H. Wilson. *diag Power* 50:467 S 16 '19

- Electrical study course—faults in generators and motors. *diag Power* 48:631-4 O 29 '18  
 Enterprising electrical maintenance business in Milwaukee; Sorgel electric company's facilities. *Il Elec R* 74:433-4 Mr 15 '19  
 Locating knocks in motors. B. Z. Reiter. *diag Am Mach* 50:107 Ja 16 '19  
 Motor problem with armature shaft slightly too long. T. H. Reardon. *Elec R* 73:904 D 7 '18  
 Restoring a broken motor field connection. S. H. Anderson. *diag Power* 48:499 O 1 '18  
 Service in electrical machinery repair business. *Elec R* 74:396-8 Mr 8 '19  
 Underground motor repair shop. R. W. Mayer. *plan Coal Age* 15:1161 Je 26 '19

**Reversing**

- Electrical study course—reversing rotation of motors. *diag Power* 48:560-2 O 15 '18  
 Reversing an electric motor. *diag Coal Age* 14:878, 1044-5 N 7, D 5 '18  
 Simple electric motor reversing device. *Mach* 25:14 S '18

**Standards**

- Advantages of uniform motor design. J. Burke. *Elec W* 73:172-5 Ja 25 '19  
 Association of iron and steel electrical engineers boosts standardization of motors. *Iron Tr R* 63:675-6 S 19 '18  
 Wanted—standardized mill motors. W. T. Snyder. *Iron Tr R* 62:786 Mr 28 '18

**Starting**

- Improving synchronous-motor starting features. T. Schou. *Il Elec W* 71:714-17 Ap 6 '18  
 Method for determining resistance used for starting various types of motors. B. W. Jones. *diag Power* 48:740-4 N 19 '18; Discussion. 49:294 F 25 '19  
 Motor sparked when starting. E. C. Parham. *Power* 47:18 Ja 1 '18  
 Motor-starting trouble. *Elec R* 72:736-7, 887-8; 73:469 Ap 27, My 25, S 21 '18  
 Starting synchronous motors. E. E. George. *Elec W* 73:429-30 Mr 1 '19  
 Starting synchronous motors. T. M. Gray. *Power* 47:378 Mr 12 '18; Discussion. D. G. Simmons. 47:668 My 7 '18

**Starting devices**

- Allen-Bradley automatic motor starters. *Il Elec W* 72:328-9 Ag 17 '18  
 Alternating-current automatic starters for squirrel-cage induction motors. W. H. Patterson. *Il diag Power* 47:180-3 F 5 '18  
 Alternating-current motor-starting switch operated by push button. *Il Elec R* 75:672 O 18 '19  
 A. C. starting switch. *Il J Elec* 43:481 N 15 '19  
 Automatic motor starter. *Il Elec W* 71:1114 My 25 '18  
 Bijur direct shift for starters. *Il diag Automotive Ind* 37:919 N 22 '17  
 Common troubles with motor-starting devices. T. H. Reardon. *diag Elec R* 72:884-5 My 25 '18  
 C-H automatic starting switch for squirrel cage motors. *Il diag Elec R* 72:570 Mr 30 '18; *Elec W* 71:595 Mr 16 '18; *Iron Tr R* 62:859 Ap 4 '18  
 Cutler-Hammer drum type starting switches. *Il Mach* 24:858-9 My '18  
 Cutler-Hammer inclosed motor starters. *Il Iron Age* 104:776 S 18 '19; *Iron Tr R* 65:707 S 11 '19; *Ry Age* 67:585 S 19 '19  
 C-H squirrel cage motor starting switch. *Il Iron Age* 100:1477 D 20 '17  
 Fundamental problems of industrial control. C. E. Clewell. *Il diag Elec W* 70:1190-3 D 22 '17  
 G. E. remote-control starters for small squirrel-cage induction motors. *Il diag Elec R* 73:429 S 14 '18; *Elec Ry J* 52:664 O 12 '18; *Elec W* 72:579 S 21 '18; *Coal Age* 14: 743 O 17 '18; *Mach* 25:172 O '18  
 Mine-duty motor starters. *Il Elec R* 73:906 D 7 '18; Same. *Eng & Min J* 107:316 F 15 '19  
 New development in motor starters. *Il diag Engineer* 128:32-3 J1 11 '19



**Electric motors—Starting devices—Continued**

- New I-C starting compensator showing novel arrangement of parts. *Il Elec R 73:948 D 14 '18*
- Potential starter for induction motors. *Il Elec W 72:475 S 7 '18*
- Remote control of motor-driven pumps and compressors. F. M. Nourse. *Il diags Munic Eng 55:133-6 O '18*
- Selection of proper starting switches for induction motors. H. Southwood. *Power 50:133 J1 22 '19*
- Square D motor-starting switches. *Il Power 47:736 My 21 '18*
- Starters for large motors. *Mech Eng 41: 620-1 J1 19*
- Transformer connections eliminating auto-starters. *diags Elec W 71:933-4 My 4 '18*
- Wells-Morris motor-starting switches. *Il Elec W 71:439 F 23 '18*
- Westinghouse automatic starter for direct-current motors. *Il Am Mach 48:932 My 30 '18; Elec W 71:1063 My 18 '18; Elec R 72: 966-7 Je 8 '18; Mach 24:951 Je '18*
- Westinghouse quick-make motor-starting switch. *Il Am Mach 50:182 Ja 23 '19; Elec R 74:198-9 F 1 '19; Power 49:173 F 4 '19; Coal Age 15:323-4 F 13 '19; Textile World 55:923 F 1 '19*
- Westinghouse safety inclosed motor-starting switch. *Il Elec R 75:629 O 11 '19; J Elec 43:482 N 15 '19*
- Westinghouse type WK-100 safety motor-starting switch. *Il Elec R 75:885 N 22 '19; Iron Tr R 65:1261 N 6 '19*

**Testing**

- Electrical study course—apparatus required for brake tests on motors. *diags Power 49:860-1 Je 3 '19*
- Electrical study course—factors entering into brake tests. *diags Power 49:938-40 Je 17 '19*
- Electrical study course—fundamentals of brake tests on motors. *diags Power 49: 900-2 Je 10 '19*
- Electrical study course—prony brake test on electric motor. *diags Power 49:980-2 Je 24 '19*
- Electrical study course—simple efficiency test for shunt motors. *diags Power 48:913-17 D 24 '18*
- Electrical study course—testing motor efficiencies. *diags Power 49:820-2 My 27 '19*
- Manufacture of electric motors. C. W. Star-ker. *Il Am Mach 48:527-9 Mr 28 '18*
- Motor test board for use in plant repair shop. C. E. Smith. *diag Elec W 74:473 Ag 30 '19*
- Motor testing in industrial plants. P. C. Jones. *diag Elec W 74:293-6 Ag 9 '19*
- Phase test set. F. Huskinson. *diag Coal Age 13:770 Ap 27 '18*
- Portable outfit for the testing of motors. A. H. Platt. *diag Elec W 74:658 S 20 '19*
- Switching arrangement for testing motors. *diags Elec W 71:416 F 23 '18*
- Test for cumulative and differential field windings of direct-current compound motors. T. H. Reardon. *Elec R 72:80 Ja 12 '18*
- Test report for use with industrial plant motors. E. S. Lincoln. *Elec W 74:585 S 13 '19*
- See also Electric motors, Railway—Test-ing*
- Electric motors, Alternating current**
- Commutator machine as the standard single-phase type; abstract. F. Creedy. *Elec W 71:1278 Je 15 '18*
- How to secure constant speed in a series single-phase motor. H. E. Weightman. *diag Elec R 71:1117 D 29 '17*
- 19,000 h.p. electric reversing rolling mill equipment. *Il diags Engineer 127:334-6 Ap 4 '19*
- Polyphase shunt motor. W. C. K. Altes. *Il diags Am Inst E E Pro 37:91-123 F '18; Same cond. Gen Elec R 21:317-31 My '18*
- Relative advantages of alternating-current motors. *Elec W 74:567 S 13 '19*
- Reversed phase causes subnormal motor speed. M. M. Clement. *diags Elec W 70:1151 D 15 '17*

- Rewiring motors for different voltage and phase. *Elec R 72:387 Mr 2 '18*
- Rotating magnetic field alternating-current motors. F. A. Annett. *Il diags Power 50: 382-5 S 2 '19*
- St. Louis electrical works has new line of alternating-current motors. *Il Elec R 71:1119-20 D 29 '17; Elec W 71:126-7 Ja 12 '18*
- Secomor; a kinematic device which imitates the performance of a series-wound poly-phase commutator motor. V. Karapetoff. *diags Am Inst E E Pro 37:86-82 F '18*
- Single-phase motor would not carry its load. A. Carpenter. *Power 47:743 My 21 '18*
- Size of conductors for two-phase motor. *Power 47:63 Ja 8 '18*
- Small motors for hand tools and other uses. C. E. Clewell. *Il Am Mach 50:899-901 My 8 '19*
- Three-phase motors used on single-phase lines. *diag Elec W 74:361-2 Ag 16 '19*
- See also Electric motors, Induction; Elec-tric motors, Synchronous*
- Electric motors, Direct current**
- Allis-Chalmers new line of direct current motors. *Il J Elec 43:332 O 1 '19; Eng & Min J 108:515 S 20 '19; Coal Age 16:656 O 16 '19; Iron Tr R 65:765 S 18 '19*
- Choice of direct-current motor for centrifugal pumps. C. P. Royce. *Elec R 73:462 S 21 '18*
- Direct-current mill-type motors for steel mill auxiliary drives. J. D. Wright. *Il diags Gen Elec R 22:323-31 My '19*
- Direct current motors. H. H. Bliss. *Il diags J Elec 43:221-3 S 1 '19*
- Direct current vs. power factor. F. E. Austin. *diags Sci Am S 87:316-17 My 17 '19*
- Effect of interpoles on commutation of direct-current machines. R. L. Witham. *Il diags Power 49:303-5 Mr 4 '19*
- Emcol motor; abstract. *Elec W 74:29-30 J1 5 '19*
- How interpoles affect the operation of direct-current machines. R. L. Witham. *diags Power 49:358-60 Mr 11 '19*
- How to buy direct-current general-utility motors. A. Brunt. *Il Am Mach 49:532-4 S 19 '18*
- Interpole mill motors versus non-interpole. W. R. Runner. *diag Elec W 71:302-3 F 9 '18*
- Operation of direct-current motors in parallel or series. G. Fox. *diags Power 48:666-8 N 5 '18*
- Output coefficients for d.-c. motors of small size. E. W. Kellogg. *Elec W 71:347-8 F 16 '18*
- Reversal of compound direct-current motor under overload. R. A. Ferguson. *diags Elec R 73:708 N 2 '18*
- Use of light-weight motors a means of economizing. A. Brunt. *Elec W 71:360-1 F 16 '18*
- Electric motors, Induction**
- Calculating induction-motor magnetizing current. C. M. Lafoon. *diags Elec W 73:1258-62 Je 14 '19*
- Cleveland induction motor. *Il Elec W 71:1398-9 Je 29 '18*
- Data on the installation of induction motors. Eng & Min J 107:764 Ap 26 '19
- Design of large induction motors for steel mill work. H. L. Barnholdt. *Il diags Elec J 16:251-5 Je '19*
- G. E. grinder regulator maintains maximum production. *Il Elec R 72:437-8 Mr 9 '18; Elec W 71:543 Mr 9 '18*
- Half-synchronous working of the induction motor with single-phase rotor; abstract. G. Vallauri. *Elec W 73:1175 My 31 '19*
- High-power factor induction motors. M. La-tour. *diags Elec W 72:484-9 S 14 '18*
- How an induction motor operates as an induction generator. F. A. Annett. *diags Power 50:468-70 S 16 '19*
- Howell electric motors—their manufacture, characteristics and testing. *Il Elec R 72: 254-5 F 9 '18*
- Induction motor troubles. G. Fox. *Power 48: 119-20, 385-7 J1 23, S 10 '18*
- Induction motors driving centrifugal pumps. F. Jeffrey. *Il diags Power 50:324-7 Ag 26 '19*

**Electric motors, Induction—Continued**

- Large single-phase starting motors. W. C. K. Altes. *il* diags Gen Elec R 21:436-40 Je '18
- Low over-all cost and continuous production. A. P. Lewis. Elec W 72:592-5 S 28 '18
- Method of symmetrical co-ordinates applied to the solution of polyphase networks. C. L. Fortescue. diags Am Inst E E Pro 37:629-716 Je '18
- Mine-type motors. L. C. Mosley. *il* Gen Elec R 22:348-51 My '19; Same cond. Coal Age 16:6-8 Jl 3 '19
- Necessity of air-gap gaging in induction motors. D. R. Shearer. Power 47:62 Ja 8 '18
- New line of induction motors. Elec R 74:40-1 Ja 4 '19
- New Mexico's motors. A. D. Badgley. *il* Gen Elec R 22:255-60 Ap '19; Same. Sci Am S 87:396-7 Je 21 '19
- No-load conditions of single-phase induction motors and phase converters. R. E. Hellmund. diags Am Inst E E Pro 37:317-401 Ap '18
- Operating induction motors at reduced frequency. D. R. Shearer. Power 47:521 Ap 9 '18
- Operating polyphase motors single-phase. D. R. Shearer. diag Power 47:481 Ap 2 '18
- Operating two-phase motors single-phase. F. W. Plumb. diag Power 47:162-3 Ja 29 '18
- Performance of polyphase induction motors. J. Lebovici. diags Elec W 71:866-9 Ap 27 '18
- Physical conception of the operation of the single-phase induction motor. B. G. Lamme. *il* diags Am Inst E E Pro 37:403-34 Ap '18
- Reconnecting induction motors—for changes in number of poles. A. M. Dudley. diags Power 47:498-501; 48:271-4; 49:10-14 Ap 9, Ag 20 '18, Ja 7 '19
- Reconnecting induction motors—for changes of frequency. A. M. Dudley. diags Power 46:796-9 D 11 '17
- Reconnecting induction motors—general summary. A. M. Dudley. diags Power 49:393-6 Mr 18 '19
- Reconnecting motors from 220 to 440 volts series. C. C. Johnson. diags Elec W 74:887 O 25 '19
- St Louis induction motors. *il* Elec R 73:470-1 S 21 '18
- Shooting trouble in alternating-current motors. diags Elec W 74:653-5 S 20 '19
- Shunt-wound reversing-mill motor. *il* Iron Tr R 62:317-18 Ja 31 '18
- Transformers for induction motors. J. B. Gibbs. diags Eng & Min J 107:1076-8 Je 21 '19
- Types of induction motors; abstract. J. W. Kirkland. Elec W 71:1328 Je 22 '18
- Unbalanced load on induction motors. diags Power 49:413 Mr 18 '19
- Unity power-factor motor with squirrel-cage rotor. M. C. Spencer. diags Elec R 74:381-2 Mr 8 '19
- Variable-speed motor used in constant-speed service. E. C. Parham. diags Power 47:285 F 26 '18
- Wire and fuse sizes for induction motors. Elec R 74:232-4 F 8 '19
- Electric motors, Railway**
- Applying engineering principles properly in motor selection. C. W. Squier. Elec Ry J 52:505-8 S 21 '18
- Betterments available in car equipment. C. W. Squier. *il* Elec Ry J 51:500-7 Mr 16 '18
- Bird's-eye view of electric transportation; report of A. I. E. E. traction and transportation committee. Elec Ry J 52:7-8 Jl 6 '18
- Car performance from the engineer's office to the track. C. W. Squier. *il* Elec Ry J 53:1209-12 Je 21 '19
- Dipping and baking railway motors. J. S. Dean. Elec R 74:230 F 8 '19; Same cond. Elec Ry J 53:190 Ja 25 '19
- Dipping and baking railway motors will decrease troubles. J. V. Dobson. diags Elec Ry J 51:1149-52 Je 15 '18
- Electric-railway motor pinion making. *il* Am Mach 49:648-50 O 10 '18
- Electric traction on the Central Argentine railway. *il* diags Engineer 126:367-71 N 1 '18

- Electrical versus mechanical troubles with railway motor armatures. J. S. Dean. diags Elec Ry J 53:657 Mr 29 '19
- Eliminating resistance in railway motor control. diag Elec R 73:29 Jl 6 '18
- GE-258 motor in the shop. W. Fink. *il* Elec Ry J 52:293 Ag 17 '18
- Ground connections for motor leads. E. D. Ransom. diags Elec Ry J 52:885 N 16 '18
- Manufacturers' tests of materials for railway motors. J. S. Dean. *il* Elec Ry J 54:320-5 Ag 16 '19
- New device prevents rubbing of armature on pole faces. diags Elec Ry J 53:971 My 17 '19
- Overloads in railway motors. F. W. McCloskey. Elec J 16:457-8 O '19
- Preventing the breakage of armature leads on railway motors. A. L. Broomall. *il* Elec J 16:440-3 O '19
- Proper analysis is fundamental in choosing railway motors. C. W. Squier. Elec Ry J 51:956-8 My 18 '18
- Railway motor bearings. J. S. Dean. *il* Elec J 16:443-6 O '19
- Response to address of presentation of Edison medal. B. G. Lamme. Elec J 16:238-42 Je '19
- Saving coal at the gear and wheel tread. C. W. Squier. Elec Ry J 52:876-8 N 16 '18
- Saving motor shells from the scrap heap by thermit welding. *il* diags Elec Ry J 53:581-6 Mr 22 '19
- Special boring machine for railway-motor shells. J. Wright. *il* Am Mach 51:270 Ag 7 '19
- Using a series motor for emergency constant-speed work. F. J. Foote. diag Elec Ry J 51:1197 Je 22 '18
- Utilizing a four-spindle boring mill to rehabilitate 3000 motors. *il* Elec Ry J 52:424 S 7 '18
- Ventilated motors during a strenuous winter. R. E. Hellmund. diags Elec Ry J 51:507-10 Mr 16 '18; Abstract. Elec W 71:731 Ap 6 '18

**Testing**

- Accurate resistance tests locate trouble where inspection fails to do so. diags Elec Ry J 53:965-6 My 17 '19
- Manufacturers' tests of railway motors. J. S. Dean. *il* Elec Ry J 53:777-8 Ap 19 '19
- Railway motor testing. *il* diags Elec J 16:40-1, 76-7, 110, 158, 230-1 Ja-My '19
- Testing newly installed field coils for polarity. diag Elec Ry J 53:1235 Je 21 '19
- Electric motors, Synchronous**
- Centrifugal pump driven by a synchronous motor. F. G. Switzer. Sibley J 32:70-1 F '18
- Effect of power-factor on central-station operation. W. Brown. *il* Elec R 73:199-202 Ag 10 '18
- Eliminating trouble in synchronous motor field. J. A. Obermaier. diags Elec W 73:180 Ja 25 '19
- Flow of wattless current explained. W. Brown. diags Power 50:534-5 S 30 '19
- For and against synchronous motors. W. Brown. *il* Elec W 72:982-4 N 23 '18
- Improving synchronous-motor starting features. T. Schou. *il* Elec W 71:714-17 Ap 6 '18
- Industrial application of the synchronous motor. Elec R 72:719 Ap 27 '18
- Location for power-factor corrective apparatus. W. Brown. diags Elec W 72:1125-8 D 14 '18
- Starting synchronous motors. E. E. George. Elec W 73:429-30 Mr 1 '19
- Starting synchronous motors. T. M. Gray. Power 47:376 Mr 12 '18; Discussion. D. G. Simmons. 47:668 My 7 '18
- Synchronous motor as a means of reducing costs. R. Treat. *il* Gen Elec R 22:407-12 My '19
- Synchronous motor characteristics. T. Schou. diag Elec W 73:828-30, 880-3 Ap 26-My 3 '19
- Synchronous-motor drive for ice machines. J. R. Watson. Power 49:626-7 Ap 22 '19
- Synchronous motor for driving air blower. *il* Elec W 70:1150-1 D 15 '17

**Electric motors, Synchronous—Continued**

- Synchronous motor in operation. W. Brown. *il* *diags* Power 50:492-4 S 23 '19
- Synchronous motor proves economical for compressor drive. H. Dean. *il* Elec R 74:229 F 8 '19
- Synchronous motors in the meat packing industry. T. J. Byrne. *il* Gen Elec R 22:461-4 Je '19
- Utilizing the time characteristics of alternating current. H. E. Warren. *il* Am Inst E E Pro 38:629-43 My '19
- What is the synchronous motor? W. Brown. *il* *diags* Power 50:366-8 S 2 '19
- What synchronous motors can and cannot do. W. Brown. Elec W 71:604-7 Mr 23 '18

**Electric muffles**

- Electric muffle for decalcification point. Iron Age 102:849 O 3 '18

**Electric ovens**

- Brooklyn installs electrically heated oven. *il* *diags* Elec Ry J 54:746-9 O 18 '19
- Electric drying ovens in a road mill. *il* Iron Age 101:441-2 F 14 '18
- Electric enameling ovens at Ford plant. *il* Elec R 71:401-8 S 8 '17; Same cond. Automobile 37:620 O 11 '17
- Electric heat for drying and baking. G. J. Kirkgasser. *il* *diag* Ind Management 56:489-95 D '18
- Electric heating in the telephone industry. *il* Elec R 73:666-7 O 26 '18
- Electric japanning. C. D. Carlson. Iron Age 99:1252-3 My 24 '17; Same. Iron Tr R 61:541-2 S 13 '17; Same. Mach 24:131-2 O '17; Same cond. Automobile 37:727 O 25 '17
- Electric japanning gives extreme satisfaction. *il* *chart* Elec W 74:876-9 O 25 '19
- Electric oven used for baking cores. *il* Iron Age 100:652-3 S 20 '17; Same. Gen Elec R 21:146-8 F '18
- Electrically-heated ovens; construction and operation of enameling ovens. *il* Iron Age 103:188-9 Ja 16 '19; Same cond. Metal Ind 17:137-8 Mr '19
- Output per kilowatt-hour given for enameling ovens. Elec W 73:1171 My 31 '19
- Testing a large bake oven. *il* J Elec 42:580 Je 15 '19

*See also* Electric muffles

**Electric plants**

- Concrete may replace steel in power-house construction. Elec W 72:496 S 14 '18
- Economic operation of turbo-electric stations. C. T. Hirschfeld and C. L. Karr. *diag* U S Bur Mines Tech Pa 204:1-27 '18
- Elastic coupling of prime movers and generators; abstract. O. Ohnesorge. Am Soc M E J 40:718 Ag '18
- Electric plant at a Canadian smelting works. *il* Engineer 126:24-6, 32 Jl 12 '18
- Electrical energy from the Volterra soffioni. *il* Engineer 126:124 F 8 '18; Same. Eng & Contr 50:422-3 O 30 '18; Same cond. Power 47:531 Ap 9 '18
- Electrical equipment of the Mark steel plant. J. P. Collopy. *il* *diags* plan Elec R 72:791-5 My 11 '18
- Electrical generation and distribution in Canada. L. G. Denis. *maps* Elec R 74:376-80 Mr 8 '19; Excerpts. Elec W 73:582 Mr 22 '19
- Electrically equipped oil refinery at East Chicago ready to operate. Elec R 72:269 F 16 '18
- Engineering equipment at Hong-Kong university. *il* *plans* *maps* Engineer 125:136-8, 168-9 F 15-22 '18
- European power plant practice. S. Q. Hayes. *diags* Elec W 74:508-11, 924-8 S 6, N 15 '19
- Experiences with an electric power plant eleven degrees from the North Pole. J. L. Allen. *il* Gen Elec R 22:92-5 Ja '19
- Gastean plant at Ford City, Ontario. *il* *diags* plan Power 48:186-93 Ag 6 '18
- Heat conservation in power plants. Elec R 71:1032-3 D 15 '17
- Mastering power production. W. N. Polakov. *charts* Ind Management 55:100-4, 185-9, 298-302, 380-4, 485-90; 56:1-7, 217-26, 321-9, 399-403 F-Jl, S-N '18

- Matthews full automatic lighting plants. P. M. Heldt. *il* *diags* Automotive Ind 40:1312-15+ Je 12 '19
- Methods of drying out flooded power plant equipment. N. L. Rea. *diags* Power 47:46-8 Ja 8 '18
- Modern steel plant power house; Corrigan, McKinney & co., Cleveland. *il* Iron Tr R 61:1263-7+ D 13 '17
- New plant of the Pennsylvania salt manufacturing company. *il* *diags* plan Power 48:406-13 S 17 '18
- Power needs of United States nitrate plants. E. R. Welles and C. T. Mitchell. *il* Elec W 73:677-9 Ap 5 '19
- Power-plant problem in South China. H. B. Wilson. Power 48:747-8 N 19 '18
- Power supply for the Central Argentine electrification. *il* *diag* Elec Ry J 52:646-50 O 12 '18
- Power system of the south Philadelphia works. G. Bright. *il* Elec J 16:126-31 Ap '19
- Practical suggestion for emergency motor service. A. P. Lewis. *diags* Elec W 73:83 Ja 11 '19
- Presidential address before Society of engineers. W. B. Esson. Engineer 125:169-70 F 22 '18
- Production of electricity by steam power; with discussion. A. Dow. Power 46:810-12 D 11 '17
- Providing stand-by service. E. W. Miller. *diag* Power 47:302-3 F 26 '18
- Providing the power for increased production in a textile mill. W. L. H. Doyle. *il* Elec W 70:1194-5 D 22 '17; Same. Textile World 53:3693+ F 2 '18
- Purchasing power-plant equipment. *diag* Power 47:875 Je 18 '18
- Random notes on electrical trouble. J. L. Ball. Coal Age 14:251 Ag 8 '18
- Scottish local section; chairman's address. A. Page. *map* Inst E E J 56:42-7 D '17
- Selecting the power plant engines. *il* Heat & Ven 15:47-50 F '18
- Setting volcanoes to work. *il* Sci Am 117:305 O 27 '17; Same. Dom Eng 81:436-7 D 15 '17
- Tamarack mills power plant. C. H. Bromley. *il* *diags* Power 47:426-30 Mr 26 '18
- Tractor saves town from darkness; used to drive generator. J. H. Wiley. *il* Elec R 72:757-8 My 4 '18
- Up-to-date coal-mine power plant of Clearfield bituminous coal corporation. D. C. Ashmead. *il* *diags* plans Coal Age 13:48-52, 232-6 Ja 12, F 2 '18
- See also* Electric equipment; Electric plants, Municipal; Electric power; Electric substations; Electric transmission; Hydro-electric plants; Power factor; Power plants; Steam plants

**Accidents**

- Generator wreck at St Paul. *il* Power 49:40-1 Ja 14 '19

**Automatic operation**

- Automatic operation is discussed at Schenectady. Elec W 73:490 Mr 8 '19

**Central stations vs. isolated plants**

- Another fuel administrator plays the central station's game. Power 48:168 Jl 30 '18
- Camouflaged by coal conservation. Power 47:919-20 Je 25 '18
- Central or independent power service. F. B. Kenney. Power 47:524-6 Ap 9 '18
- Central station versus private plant; hearing before Public service commission of New York, First district. Elec R 72:422-3, 460-1 Mr 9-16 '18; Elec W 71:529, 582-3 Mr 9-16 '18; Power 47:386, 474-5, 512-13 Mr 12, Ap 2-9 '18
- Chicago central-station service conserves 54,840 more tons of coal. Elec R 73:298 Ag 24 '18
- Coal consumption rates in various central stations and industrial plants. Elec R 73:846-8 N 30 '18
- Commercial value of exhaust steam. F. C. Ruck. Power 48:614-15 O 22 '18

**Electric plants—Central stations vs. isolated plants—Continued**

Compulsory co-operation of central station and isolated plant. S. R. Sague. Power 47: 870-2 Je 18 '18

Coöperation of public-service and isolated plants. I. N. Evans. Power 47:583-5 Ap 23 '18; Discussion. 47:763-4; 48:88-90 My 28, Ji 16 '18

Economics of the shop power house. V. T. Kropidowski. Ry Mech Eng 91:243-4, 373-5, 675-8 My, Ji, D '17

Efficiency engineering for coal mines. C. H. Elsom. Coal Age 13:53-6 Ja 12 '18

Electric current without cost during heating season. Power 47:549 Ap 16 '18

Emergency shop power and coal conservation. C. E. Clewell. Il Am Mach 50:533-6 Mr 20 '19

Fair attitude. E: Trump. Power 48:208 Ag 6 '18

Forcible shutting down of isolated power plants. P. R. Moses. Power 47:443-4 Mr 26 '18

Fuel administration's attitude toward the isolated plant. Power 48:59-60 Ji 9 '18; Discussion. E: J. Cheney. 48:174 Ji 30 '18

Fuel conservation by off-peak rates for isolated plants. Power 47:747 My 21 '18

Industrial power problems. W. F. Uhl. Am Soc M E J 40:923-8 N '18

Lumber exchange building, Chicago, buys summer current. Power 48:252 Ag 13 '18

Mastering power production. W. N. Polakov. charts Ind Management 56:399-403 N '18

Methods for more efficiently utilizing our fuel resources; central station, isolated plant, and fuel conservation. G. F. Brown. Gen Elec R 21:448-50 Je '18; Same. Ry R 62:856-7 Je 15 '18

Need of building power plant in war times. Heat & Ven 15:39-43 My '18

Public steam and electrical systems; analysis of the building heating situation in large cities. J. A. M'Hollan. Elec W 71:513-15 Mr 9 '18

Relation of coal situation to central-station load. J. R. Cravath. Elec W 71:1359-60 Je 29 '18

To save fuel use the central station. H. A. Garfield. Elec W 71:5 Ja 5 '18

Ultimate B.t.u. Power 47:589 Ap 23 '18

**Costs**

Effect of the war upon isolated plant costs. Elec R 74:1024-7 Je 21 '19

Mastering power production; principle of essential cost and use of standard cost. W. N. Polakov. Ind Management 56:321-9 O '18

Operating cost, Tamarack mills power plant. Power 47:548-9 Ap 16 '18

Reasonable charge for off-peak electric current. Power 48:275-6 Ag 20 '18

**Demand factor**

Determination of demand factors to save copper. H: C. Horstmann and V: H. Tousley. Elec W 73:308-10 F 15 '19

**Interconnection**

Advantages of tying in the California systems discussed by representatives of the companies and railroad commission. Elec W 71: 218-19, 374-5 Ja 26, F 16 '18

Benefits possible from interconnection. L. L. Elden. Il map Elec W 71:1191-4 Je 8 '18

California 220,000-volt—1100-mile—1,500,000-kw. transmission bus. R. W. Sorensen, H. H. Cox and G. E. Armstrong. maps Am Inst E E Pro 38:1027-38 S '19; Same. J Elec 48:202-5 S 1 '19; Same. Elec R 75:477-80 S 20 '19; Excerpt. Power 50:522 S 23 '19; Excerpt. Elec W 74:743-5 O 4 '19

Commonwealth Edison system to tie in with hydroelectric system. Elec R 73:214 Ag 10 '18

Conservation of fuel in California. R. J. C. Wood. map Elec W 72:348-50 Ag 24 '18

Consolidation of two central-station systems. Elec W 71:934 My 4 '18

Economy of water effected by interconnection. R. H. Halpenny. Il diag Elec W 72: 828-31 N 2 '18

Electric consolidations and their relations to fuel conservation. H. G. Butler. Mech Eng 41:266-7 Mr '19

Electric power supply for war industries. R. J. McClelland. map Elec W 72:100-5 Ji 20 '18

Electrical interconnection to conserve fuel advocated by New York and California. maps Elec W 71:12-14 Ja 5 '18

Emergency interchange of power. G. R. Kenny. diag J Elec 42:347-9 Ap 15 '19

Financing new tie lines despite war-time demands. Elec W 71:779 Ap 13 '18

Four large California systems unite for period of war. Elec W 71:218 Ja 26 '18

Interconnected power systems of the South. Il map Met & Chem Eng 18:470-9 My 1 '18; Same, without map. Power 47:720-7 My 21 '18

Interconnecting New England power stations. L. L. Elden. Elec W 71:1246-7 Je 15 '18

Interconnection between Albany and Syracuse. Il Elec W 74:91 Ji 12 '19

Interconnection does not mean monopoly. Elec W 71:1246 Je 15 '18

Interconnection for power interchange in Wisconsin. Il map Elec W 72:494 S 14 '18

Interconnection in eastern New York. Elec W 72:1045 N 30 '18

Interconnection of electricity supply undertakings in the west of Scotland; abstract. Elec W 71:677 Mr 30 '18

Interconnection of plants in Massachusetts. map Elec W 71:448-9 Mr 2 '18

Interconnection of power systems. Il maps Am Inst E E Pro 37:1297-1333 D '18

Interconnection of systems makes rapid progress in West. Elec R 72:281 F 16 '18

Interconnection of two Arizona systems. map Elec W 73:845 Ap 26 '19

Interconnection reduces steam reserve necessary. L. J. Moore. map Elec W 73:840-2 Ap 26 '19; Same cond. Mech Eng 41:548-9 Je '19

Interconnection saves power at Schenectady. Elec W 71:369 F 16 '18

Interconnections in eastern North and South Carolina. Elec W 73:1024+ My 17 '19

Interstate power systems connected over Mississippi river. Elec R 74:474 Mr 22 '19

Kansas gas & electric company of Wichita and Empire district electric company of Joplin have completed arrangements for interconnection. diag Elec W 73:218 F 1 '19

Linking up rural communities in Iowa. Il map Elec R 72:583-6 Ap 6 '18

Maintaining constant frequency. Il Power 48: 90-1 Ji 16 '18

More light on New England interconnection. map Elec W 72:1027-9 N 30 '18

New England-Boston power interconnection. map Elec W 72:612-13 S 28 '18

New England interconnection plan takes shape. diags map Elec W 72:257-9, 299-301 Ag 10-17 '18

New England power company increasing facilities to meet war-time demands. Elec W 71:1384-5 Je 29 '18

New England power interconnection. Power 48:545-6 O 8 '18

New era in power transmission. L: Bell. Elec W 73:631-2 Mr 29 '19

Operation of interconnected systems, with map of systems leading into San Francisco. J. P. Jollyman. Il Elec W 71:1020-2 My 18 '18

Outdoor substations for intercountry development. Il diags plans map Elec W 73:884-7 My 3 '19

Pacific coast plants fully loaded. Il maps Elec W 73:1031-7 My 17 '19

Pooling of power. Power 47:159-60 Ja 29 '18

Proposed interconnection of electric power supply in Great Britain. Elec R 72:226-9 F 9 '18

Richmond, Va., to save electric current. H. F. Byrd. Power 47:783 My 28 '18; Elec W 71: 1125 Je 1 '18

Spain plans national transmission network. G: F. Paul. map Elec W 74:122-3 Ji 19 '19

Standardization of frequency; description of the Warren duplex-clock frequency-control system. H: E. Warren. Il Elec R 72:967-9 Je 8 '18; Excerpt. Elec W 71:1294 Je 15 '18

**Electric plants—Interconnection—Continued**

- Super-power line is proposed in Northeast. W. S. Murray. Elec W 74:74 J1 12 '19  
Synchronizing stations to reduce interruptions. Il diags Elec W 71:305-7 F 9 '18  
Transmission line service in Illinois. map Elec W 71:671 Mr 30 '18  
Transmission systems of Connecticut. map Elec W 72:926-8 N 16 '18  
Trend of public utility interconnection. maps Elec R 72:413-17 Mr 9 '18  
Typical benefits from plant interconnection; Narragansett electric lighting company and Attleboro steam & electric company. Elec W 71:449 Mr 2 '18

**Load curves**

- Analysis of consumption by small lighting customers. Elec W 71:1326 Je 22 '18  
Customers' demand and what it means. T. D. Rose. Elec R 72:522-3 Mr 23 '18  
Daylight saving closes up noon valley in load. J. E. Mellett. Elec W 72:18 J1 6 '18  
Economic aspects of summer load. Il Elec W 71:1084-7, 1134-6 My 25-Je 1 '18  
Effect of daylight saving on load. Elec W 71:973-4 My 11 '18  
Effect of the change to daylight saving. W: H. Winslow. Elec W 71:893 Ap 27 '18  
Electric power diagrams; annual load relief map, peak load and load factor analysis. W: L. Robertson. Il Sci Am S 86:284 N 2 '18  
Fertilizer industry and its power requirements. J. E. Mellett. Gen Elec R 21:108 F '18  
How daylight darkness affected the load curve in Chicago. Elec W 70:1164 D 15 '17  
Industrial load characteristics. J. E. Mellett. Elec W 71:721-3 Ap 6 '18  
Load curves visualize effect of fuel-saving order on central-station company. Elec R 72:202 F 2 '18  
Load-factor basis for purchasing electricity. Elec W 71:1378 Je 29 '18

**Load factor**

- Coal consumption rates in various central stations and industrial plants. Elec R 73:846-8 N 30 '18  
Commercial men should study load-factor conditions. C. I. Cupper. Elec W 73:38 Ja 4 '19  
Electric power diagrams; annual load relief map, peak load and load factor analysis. W: L. Robertson. Il Sci Am S 86:284 N 2 '18  
Electric welding load. J: Hood. Il J Elec 42:361-3 Ap 15 '19  
Load-factor basis for purchasing electricity. Elec W 71:1378 Je 29 '18  
Relation of load-factor to operating cost of electric drive. D. R. Shearer. Elec R 72:759-61 My 4 '18  
System load factor versus station load factor. Elec W 71:620 Mr 23 '18

**Management**

- Bonus plan reduces coal consumption at Manila, P.I. B. H. Blaisdell. Elec Ry J 51:308-11 F 16 '18  
Charting instructions to get better economies. Elec W 71:982-3 My 11 '18  
Electric railway power plant and its personnel. H. L. Smith. Elec Ry J 51:361-3 F 23 '18

See also Electric plants (central stations)—Management; Electric utilities—Management

**Parallel operation**

- Some problems in the operation of power plants in parallel. E. C. Stone. diags Am Inst E E Pro 38:973-96 Ag '19

**Safety devices and measures**

- Extinguishing fires in turbo-generators. diags Elec W 73:1116-17 My 24 '19  
Standardizing location of safety appliances. Il Elec R 73:377 S 7 '18  
Electric plants (central stations)  
Arrangements to avoid operating difficulties. Il diag map Elec W 72:732-4, 838-40 O 19, N 2 '18

- Central-station war service; more than 90 per cent of the energy delivered to motors is for war material production. Elec W 71:1212-13 Je 8 '18

- Central stations and fuel economy; abstract. E. Lehoux. Elec W 71:314-15 F 9 '18  
Central stations and the manufacture of electrochemical products. C. A. Winder. Met & Chem Eng 18:354-6 Ap 1 '18; Discussion. H. M. St John. 18:621-2 Je 15 '18  
Central stations meeting war demands. Elec W 71:760-1 Ap 13 '18  
Coal operator and central station. Coal Age 15:485 Mr 13 '19

- Control of large amounts of power. E. B. Wedmore. diags Inst E E J 56:269-92 My '18; Discussion. 56:292-324, 517-30 My, J1 '18; Abstract. Sci Am S 86:185 S 21 '18

- Co-operation of central station and lumber mills. W. A. Scott. Il Elec R 75:942-3 D 6 '19

- Delray station to be revamped. Power 49:776 My 20 '19

- Distant-load indicator. R. S. Seese. diag Power 47:558 Ap 16 '18

- Effect of fuel order on utilities. Elec R 72:145-6 Ja 26 '18

- Effect of peace on the central stations. I. L. Kentish-Rankin. Il Elec R 73:810-12 N 23 '18

- Electricity in household service. H. C. Hoyt. Il Gen Elec R 22:156-61 Mr '19

- Features of steam plant supplementing water power. Il diags map Elec W 71:818-20 Ap 20 '18

- Fuel-burning equipment of some large modern central stations. J. G. Worker. Il diags Elec R 74:411-15 Mr 15 '19; Same. Elec J 16:56-60 F '19

- Future location of central power stations. D. C. Ashmead. map Power 47:661-4 My 7 '18

- Large generating stations; abstract. M. Seidner. Elec W 73:40 Ja 4 '19

- Manufacturers and the central stations. A. W. Berresford. Elec W 71:1184-5 Je 8 '18

- Meeting the emergency; fire in an electric plant. M. G. Johns. Power 47:59-60 Ja 8 '18

- Power production in war times. W. C. Slade. Elec Ry J 51:567-9 Mr 23 '18

- Present-day problems in station design. L: R. Lee. Elec W 74:697-700 S 27 '19

- Rehabilitating a small central-station system. L. Lustig. Elec W 72:1222-3 D 28 '18

- Relation of coal situation to central-station load. J. R. Cravath. Elec W 71:1359-60 Je 29 '18

- Significance and the opportunities of the central station industry. R: F. Schuchardt. Elec J 16:166-8 My '19

- 60,000-kw turbine-generator installation. W. S. Finlay, Jr. Il diags plan Elec J 16:173-82 My '19; Excerpts. Elec Ry J 53:906-8 My 10 '19; Excerpts. Elec W 73:932-5 My 10 '19

- Some phases of the fuel problem. G: A. Orrok. Elec W 74:801-3 O 11 '19

- Standardized method of unit construction for central stations. Il Elec R 72:409-12 Mr 9 '18

- Struggling with poor coal. G: E. Wood. Elec Ry J 51:573-4 Mr 23 '18; Same cond. Power 47:491 Ap 2 '18

- Unique features of a small electric generating plant. A. R. Zahorsky. diags plan Elec R 72:363-4 Mr 2 '18

See also Boiler plants; Electric distribution; Electric engineering; Electric lighting; Electric lines; Electric plants—Interconnection; Electric plants, Municipal; Electric railroads; Electric transmission; Electric utilities; Electric vehicles and the central station; Electricity in mining; Hydroelectric plants; Steam plants

**Cost of power**

See Power cost

**Costs**

- Actual construction cost of medium-size station. Elec W 71:830 Ap 20 '18  
Detroit production costs at Connors Creek station. Elec W 74:656 S 20 '19  
Higher costs push up expense of production. Elec W 72:1033 N 30 '18

**Electric plants (central stations)—Costs—Cont.**

Operating costs of an eastern central station. Elec W 73:323 F 15 '19  
 Public utilities and the war. C: W. McKay. Elec R 72:548-50 Mr 30 '18  
 Unit costs of the Cleveland electric illuminating company. Power 47:513 Ap 9 '18  
 War time costs of service. Elec W 72:453 S 7 '18

**Management**

Central station and illumination. H. E. Mahan. II chart diag Gen Elec R 21:441-8 Je '18  
 Central-station customers' peak-load distribution. R. R. Young. Elec W 72:166-7 JI 27 '18  
 Daily records of plant costs and efficiencies. J. N. Strike. Elec W 74:870-4 O 25 '19  
 Economic operation of turbo-electric stations. C. T. Hirschfeld and C. L. Karr. diag U S Bur Mines Tech Pa 204:1-27 '18; Same. Elec R 73:886-90, 923-8 D 7-14 '18; Same cond. Elec W 72:1120-4 D 14 '18  
 Effect of power-factor on central-station operation. W. Brown. II Elec R 73:199-202 Ag 10 '18  
 Efficient operation of central power stations. J. D. Morgan. Power 50:550-7 O 7 '19  
 Electric furnace and the central-station industry. II Elec R 74:799-801 My 17 '19  
 Electric furnaces in the steel industry and their relation to the central station business. Chem & Met Eng 20:73-6 Ja 15 '19  
 Employee participation as a central station answer. R. H. Ballard. J Elec 43:375 O 15 '19  
 Getting the maximum out of equipment. W. Brown. Elec W 72:791-3 O 26 '18  
 Heating as an equalizer in central stations. M. A. Beurienne. Power 49:886 Je 10 '19  
 How system operators can improve economy. H. J. Burton. Elec W 71:49-50 Ja 5 '18  
 Improved industrial lighting offers timely load. F. H. Bernhard. Elec R 72:984-5 Je 15 '18  
 Increasing the economy of central-station operation. J. W. Andree. Elec W 72:881-2 N 9 '18  
 Keeping records that aid load dispatching. F. Gillooly. Elec W 74:864-7 O 25 '19  
 Load dispatching system of the Philadelphia electric company. G. P. Roux. II map Elec J 16:470-4 N '19  
 Organization charts, power station of Buffalo General electric company, Buffalo, New York. Power 48:87 JI 16 '18  
 Power-factor correction—an urgent necessity. W. Brown. Elec W 72:834-7 N 2 '18  
 Power-station organization chart; Commonwealth Edison co. Power 48:164 JI 30 '18  
 Power-station organization chart; Edison electric illuminating co. of Brooklyn, N. Y. Power 48:118 JI 23 '18  
 Practice and preach conservation, by leading their communities in fuel conservation in the reconstruction period. II Elec W 72:1020-1 N 30 '18  
 Predicting load on residence circuits. P. O. Reyneau. Elec W 71:969-71 My 11 '18  
 Reinforcing system operator's memory. F. Gillooly. II diag Elec W 74:347-50 Ag 16 '19  
 Unit analyses of industrial power business. Elec W 74:627-9 S 20 '19  
 Utilizing surplus capacity of water-works station. Elec W 72:308 Ag 17 '18  
 War's influence on central-station selling. Elec W 71:1214-15 Je 8 '18

See also Electric rates; Electric utilities—Management

**Rates**

See Electric rates

**Records**

Daily records of plant costs and efficiencies. J. N. Strike. Elec W 74:870-4 O 25 '19  
 Efficient operation of central power stations. J. D. Morgan. Power 50:550-7 O 7 '19  
 Keeping operating records. C: C. Raltt. Elec W 72:979-82 N 23 '18  
 Keeping records that aid load dispatching. F. Gillooly. Elec W 74:864-7 O 25 '19

**Statistics**

Census bureau gives out additional central-station statistics; Washington, Iowa, North and South Carolina, Kansas, Illinois, Georgia, Maine and Louisiana. Elec R 74:459-61 Mr 22 '19  
 Census bureau report of electric light and power stations—1917. Elec W 73:444, 496, 540, 740 Mr 1-15, Ap 12 '19  
 Central-station April operations. Elec W 74:20 JI 5 '19  
 Central-station census; New Hampshire, Colorado, Virginia, Delaware, District of Columbia and Maryland. Elec R 74:188-9 F 1 '19  
 Central-station census statistics; data for Nevada, Vermont, Mississippi, New Mexico and Utah. Elec R 74:219-20 F 8 '19  
 Central-station census; substantial gains made in Arizona, Rhode Island, Connecticut and Wyoming. Elec R 74:33-4 Ja 4 '19  
 Central station January operations. Elec W 73:685 Ap 5 '19  
 Central station March operations. Elec W 73:1217 Je 7 '19  
 Central-station May operations. Elec W 74:238-9 Ag 2 '19  
 Central-station July operations. Elec W 74:757-8 O 4 '19  
 Central station November operations. Elec W 73:225 F 1 '19  
 Central station December operations. Elec W 73:482 Mr 8 '19  
 Central station operations in 1918. Elec W 73:33 Ja 4 '19  
 Central-station returns for twelve months. Elec W 73:892 My 3 '19  
 Central station September operations. Elec W 72:1079 D 7 '18  
 Central-station statistics for New York, California, Indiana and Montana. Elec R 74:422-3 Mr 15 '19  
 Central-station statistics for ten states; North Dakota, South Dakota, Minnesota, Alabama, Pennsylvania, Michigan, Idaho, Missouri, Texas, Wisconsin. Elec R 74:547-9 Ap 5 '19  
 Central-station statistics for West Virginia, Arkansas, Massachusetts. Elec R 74:384 Mr 8 '19  
 Central stations of four more states show progress; Kentucky, Florida, Tennessee and Nebraska. Elec R 74:302-3 F 22 '19  
 Data on central-station and municipal plants: tabulation. Elec W 74:319 Ag 9 '19  
 Data on central stations in the West; New Mexico, Oregon, Nevada, Utah. J Elec 42:215-16 Mr 1 '19  
 Electric light and power industry from 1907 to 1912 and 1917. S. G. Koon. Power 49:890-1 Je 10 '19  
 Electric light and power stations of New York state. S. G. Koon. Elec W 74:124 JI 19 '19  
 Electric utilities of California. J Elec 43:422 N 1 '19  
 Federal government's data on energy supply. Elec W 73:1184 My 31 '19  
 Growth in the electric light and power industry. Power 49:627 Ap 22 '19  
 Light and power earnings in 1917. Elec W 71:26-7 Ja 5 '18  
 Oregon and New Jersey central stations report increases. Elec R 74:268-9 F 15 '19  
 Output continues to increase. Elec W 74:879-80 O 25 '19  
 Output of large generating systems, 1917. Elec W 71:618-19 Mr 23 '18  
 Output of the largest generating systems in America, 1916-1918. Elec W 73:632-3 Mr 29 '19  
 Power production and fuel consumption by utilities for March. Elec R 75:307 Ag 23 '19  
 Revenues show great stability. Elec W 74:516-17 S 6 '19  
 Statistical analysis of the central electric stations of Canada. Power 49:309-10 Mr 4 '19  
 Statistics of the electrical industry. Gas Age 43:474-5 My 1 '19  
 Unit analyses of industrial power business. Elec W 74:627-9 S 20 '19

**Electric plants (central stations)—Statistics**  
—Continued

United States Geological survey's report on power production in February. W. B. Heroy. Elec R 74:898 My 31 '19

Value of statistics in central-station operation. E. J. Fowler. Elec R 75:867-9 N 22 '19

Western central station statistics; Washington, California, Montana. J. Elec 42:328-9 Ap 1 '19

**Alabama**

Warrior steam plant of Alabama power company. W. B. West. Il Elec R 72:449-50 Mr 16 '18

**Argentina**

Central Argentine power house designed to meet war-time conditions. Il diag Elec W 72:684-7 O 12 '18

Electric traction on the Central Argentine railway. Il diag plan (supp) maps Engineer 126:324-8, 330 O 18 '18

**Canada**

Remodeling the Hochelaga (Montreal) power plant. Il diag plans Elec Ry J 51:1084-90 Je 8 '18

**Chile**

South American power house; abstract. Elec W 71:314 F 9 '18

**Colorado**

New electric generating station at Denver. H. H. Kerr and T. O. Kennedy. Il J Elec 43:306-8 O 1 '19

**Germany**

Steam central station for Hanover, Germany; abstract. Elec W 71:159 Ja 19 '18

**Illinois**

Control of station auxiliaries; Northwest station of the Commonwealth Edison co. Il diag Elec W 71:975-6 My 11 '18

Joliet (Ill.) plant a step toward higher steam pressures. Il diag Elec W 71:146-8, 185-6, 193-5, 242-4 Ja 19-F 2 '18; Same cond. Power 47:108-13 Ja 22 '18

Ninety-five thousand kilowatt addition to Northwest station of the Commonwealth Edison co., Chicago. Il Power 47:354-8 Mr 12 '18

Six-unit Northwest generating station of the Commonwealth Edison company will develop 165,000 kw. Il diag Elec W 71:923-31 My 4 '18

**Iowa**

Citizens' gas & electric company's 20,000-kilowatt steam plant at Waterloo. Il Elec R 72:861-3 My 25 '18

Reconstruction of a two-phase station for the Iowa railway & light company of Cedar Rapids. Il diag Elec W 72:644-6, 788-90 O 5, 26 '18

**Massachusetts**

52,000-kw. station of New Bedford (Mass.) company. Il diag Elec W 71:396-8, 771-4 F 23, Ap 13 '18

Plant arrangement and costs of construction; features of latest station of Turners Falls power & electric company. Il diag Elec W 72:780-2, 888-90 O 26, N 9 '18

**Michigan**

Central-station development in Holland, Mich. Il Elec R 71:1055-6 D 22 '17

**Minnesota**

5000-kilowatt station at Winona, Minn. Il diag plan Elec R 73:321-4 Ag 31 '18

**Missouri**

Foundation construction for new station at Kansas City. Il Elec R 73:492-3 S 28 '18

Kansas City plans for reducing power shortage. Il Elec W 72:741-2 O 19 '18

New station of Kansas City light & power company. Il Elec R 72:665-6 Ap 20 '18

**New England**

War-time service problems in New England. Il maps Elec W 73:1007-19 My 17 '19

**New Hampshire**

Development in New Hampshire and Vermont. map Elec W 74:833-5 O 18 '19

**New South Wales**

New South Wales power station; abstract. O. W. Brain. Elec W 74:30 Jl 5 '19

**New York (state)**

International railway installs steam turbine in unique location. Il diag plan Elec Ry J 52:44-7 Jl 13 '18

Niagara Falls a war-load center. maps Elec W 73:986-1000 My 17 '19

**Ohio**

Cincinnati's new 100,000-kilowatt power station. Il diag plan Elec R 73:397-400, 439-41 S 14-21 '18; Power 48:337-44 S 8 '18

New central station of Union gas & electric company at Cincinnati. Il Elec R 72:142-4 Ja 26 '18

New station of Dayton power & light company. W. A. Scott. Il Elec R 72:332 F 23 '18

New 25,000-kw. power plant for Dayton, Ohio. Il diag plan Power 48:620-4 O 29 '18

Power station at Millers Ford. Il diag plan Elec R 73:603-8 O 19 '18

Walnut station of Columbus railway, power & light company. Il plan Elec R 72:325-31 F 23 '18; Elec Ry J 51:407-11 Mr 2 '18; Elec W 71:450-3 Mr 2 '18; Power 47:318-24 Mr 5 '18

**Oregon**

Wood-burning station of Northwestern electric company, Portland, Ore. Il Elec R 73:573-4 O 12 '18

**Pacific coast**

Pacific coast plants fully loaded. Il maps Elec W 73:1031-7 My 17 '19

**Pennsylvania**

New Essington plant. Il Power 48:593-5 O 22 '18

New power plant for Erie lighting co. F. B. Hoff. Il diag plan Am Arch 116:389-97 S 17 '19

Northwest Pennsylvania's newest station. J. B. Scott. Il diag plan Elec W 74:60-3, 400 Jl 12, Ag 23 '19

War load felt greatly around Pittsburgh. maps Elec W 73:992-5 My 17 '19

West Penn power company to erect \$5,000,000 plant. Power 48:402 S 10 '18

**South America**

List of central stations in Chile, Uruguay, Ecuador and Peru. P. S. Smith. Elec W 73:479-81 Mr 8 '19

**United States**

Central station progress and developments. Elec R 74:2-5 Ja 4 '19

Central station progress in the Middle West. Il diag map Elec W 73:1001-6 My 17 '19

Distribution of water power and central station power in the United States; map. Power 50:371 S 2 '19

How the South handled war-time loads. Il maps Elec W 73:1022-30 My 17 '19

**Vermont**

Development in New Hampshire and Vermont. map Elec W 74:833-5 O 18 '19

**West Virginia**

Bulk-supply generating station at mouth of mine, Windsor, W. Va. Il diag plan Elec W 71:292-6, 344-7 F 9-16 '18; Power 47:210-16 F 12 '18

Combining loads to gain economies of large units and high diversity factor; West Penn power company and American gas & electric company, Windsor, W. Va. Il diag plan Elec Ry J 51:264-7, 314-17 F 9-16 '18

Logan, West Virginia, power plant. Il diag plan Power 46:818-23 D 18 '17

Rivesville, W. Va., new power plant. J. W. Weir. Power 49:317 My 27 '19

**Electric plants (central stations)—Continued****Wisconsin**

Features of three-phase-two-generating station, Sheboygan, Wis. *il* diags Elec R 74: 85-8 Ja 18 '19

**Electric plants (substations).** See **Electric substations**

**Electric plants, Municipal**

Advantages of combined operation of water and electric utilities and selling electric current for private use in Springfield, Ill. W. J. Spaulding. *Munic Eng* 56:229-30 Je '19

California municipal electric plants. H. A. Mason. *Munic J* 47:185-6 S 20 '19

Central station at Calgary, Alberta. J. F. McCall. *il* Elec R 72:221-3 F 9 '18

Changes in equipment effect savings in a municipal plant. J. T. Sharp, jr. *il* diag Power 49:249-51 F 18 '19

Hannibal's municipal light and water departments. *Munic J* 45:427-8 N 30 '18

Holland, Mich., water and light plants operated on same basis as private utility. *Eng & Contr* 48:496-7 D 12 '17

Municipal lighting plants. Power 48:19-20 J1 2 '18; Discussion. J. A. Whitlow. 48:282 Ag 20 '18

Municipal lighting plants in California. Power 46:886 D 25 '17

Opportunities for and data on small municipal hydro-electric plants. W. G. Fargo. *il* *Munic Eng* 56:168-71 My '19

Pasadena's municipal light department. C. W. Kolner. *il* *Munic J* 45:283 O 12 '18

Procedure in maintenance and operation of McPherson (Kans.) water and electric plant. A. Groesbeck. *Munic Eng* 53:192-5 N '17

Salford electric power station. *il* Engineer 126:519-20 D 13 '18

Wallingford, Conn., municipal electric works; physical and financial condition after sixteen years of service. A. L. Pierce. *Munic J* 43: 556-7 D 6 '17

War-time lighting finances; municipal plant of South Norwalk, Conn. *Munic J* 45:404-6 N 23 '18

**Electric plants, Portable**

Largest portable substation yet produced. B. H. Lytle. *il* diags Elec Ry J 52:467-8 S 14 '18

Portable substation. Elec R 72:720 Ap 27 '18

Portable substation for serving emergency loads equipped by Portland (Ore.) railway, light & power company. *il* Elec W 71:726 Ap 6 '18

**Electric potential.** See **Electromotive force**

**Electric power**

Coal, petroleum and gas required in immense volumes for production of electric power in United States: table. *Am Gas Eng J* 111:174 Ag 23 '19

Conditions in the power industry; digest of reports of the U. S. consuls. L. W. Alwyn-Schmidt. Power 46:800-2; 47:329-30, 802-4, 907-9; 48:486-8, 798-800; 49:163-4 D 11 '17, Mr 5, Je 4, 25, O 1, D 3 '18, F 4 '19

Conservation of energy in generation of power. G. O. Smith. Elec W 73:856 Ap 26 '19

Delivery of high-tension service to large consumers. R. Collier. *il* Elec R 75:392-6 S 6 '19; Excerpts. Elec W 74:518-21 S 6 '19

Economies in the utilization of electrical energy in the plant. W. Frederick. *il* diags Power 49:48-51 Ja 14 '19

Electric power collection. C. P. Steinmetz. *Gen Elec R* 22:565-7 Ag '19

Electric power conditions in the Dominion of Canada. Elec W 71:1386-7 Je 29 '18

Electrical generation and distribution in Canada. L. G. Denis. maps Elec R 74:376-80 Mr 8 '19

Electrical study course—power and power factor. diags Power 50:561-2 O 7 '19

Electricity and the war. A. B. Cole. Elec R 74:271-2 F 15 '19

Electricity releases chemistry's power. J. M. Matthews. *il* *Gen Elec R* 21:727-50 N '18

Energy component in industry. Elec W 74: 650-2 S 20 '19

Estimating power requirements of a locality. L. W. Schmidt. Power 48:55-7 J1 9 '18

Flow of power in electrical machines. J. Slepian. diags Elec J 16:303-11 J1 '19

Geological survey's data on power supply. Elec W 74:430 Ag 23 '19

Interconnection of eastern electric generating systems. map Elec W 73:331 F 15 '19

Largest use of electric power on construction work. *il* chart maps plan Eng N 83: 417-20 Ag 28 '19

Planning for power. G. O. Smith. Elec R 74:885-8 My 31 '19; Excerpts. Elec W 73: 1210-11 Je 7 '19; Excerpts. Power 49:874-6 Je 3 '19

Power consumption of national industries. L. W. Schmidt. Power 48:628-30 O 29 '18

Power production of country during February to April. Elec R 75:825-6 N 15 '19

Power situation affects fuel supply. C. G. Gilbert and J. E. Pogue. Coal Age 14:648-9 O 3 '18

Power situation at the end of the war. L. W. Alwyn-Schmidt. Power 49:51-3 Ja 14 '19

Power supply and generation of the future; abstract. C. P. Steinmetz. Elec R 75:743-4 N 1 '19

Prices and conditions for the supply of electric power. W. Cramp. Engineer 128:473 N 7 '19

Primaries of today the secondaries of tomorrow. W. S. Murray. Elec J 16:168-70 My '19

Relation between commercial power and lighting business. Elec W 72:403 Ag 31 '18

Report of British coal conservation committee; abstract. Elec W 71:264 F 2 '18

Salesmanship applied to electric power business. T. O. Kennedy. Elec W 74:893 O 25 '19

Scottish local section; chairman's address. A. Page. map Inst E E J 56:42-7 D '17

Secretary Lane on plan for power resource survey. E. Mels. Elec W 73:964 My 10 '19

Special investigations on power supply. F. K. Lane. Power 49:211-12 F 11 '19; Same abr. Elec R 74:266-7 F 15 '19

Suggested uses for electric power in the industries of peace and reconstruction. J. W. Beckman. Elec R 73:735-6 N 9 '18

Twenty-seven thousand dollar saving in Manhattan building plant. Power 48:918-19 D 24 '18

Unit analyses of industrial power business. Elec W 74:827-9 S 20 '19

Use of electricity in the iron and steel trades; Newcastle local section; chairman's address. A. H. W. Marshall. Inst E E J 56:23-9 D '17

Water power situation on the Pacific coast. G. F. Sever. J Elec 42:6-10 Ja 1 '19

Way to enormous coal economies. *il* Sci Am 118:135+ F 9 '18

See also **Electric distribution**; **Electric driving**; **Electric plants**; **Electric plants—Interconnection**; **Electric transmission**; **Electricity supply**; **Hydroelectric power**; **Power factor**

**Cost**

See **Power cost**

**Purchased power**

See **Electric plants—Central stations vs. isolated plants**

**Rates**

See **Electric rates**

**Electric power club**

Annual meeting, Hot Springs, Va., May 30-June 1. Elec W 71:1224-6 Je 8 '18; Elec R 72:952 Je 8 '18

Reorganization plan of Electric power club adopted. Elec R 74:903-4 My 31 '19; Elec W 73:1179 My 31 '19

Semi-annual meeting, Cleveland, O., Jan. 13-15. Elec R 74:105, 148-9 Ja 18-25 '19; Elec W 73:140-1 Ja 18 '19

War means close co-operation with government; presidential address. C. L. Collens. Elec W 70:1101-3 D 8 '17

War service committee. Elec W 70:1111 D 8 '17



- Electric power distribution.** See **Electric distribution**
- Electric power for mines.** See **Electricity in mining; Mining engineering—Power**
- Electric power plants.** See **Electric plants**
- Electric power transmission.** See **Electric transmission**
- Electric precipitation**  
 Application of the Cottrell process to the recovery of fume from silver refining operations. W. G. Smith and A. A. Helmrod. *Il diags plan Chem & Met Eng* 21:360-3 S 15 '19
- Care of flue-gas treaters. J. M. Wauchope. *Power* 49:536 Ap 8 '19
- Checking up on Cottrell process. N. H. Gellert. *diags Iron Tr R* 64:448-50 F 13 '19
- Cleaning foundry air electrically. H. D. Egbert. *Il diags plan Iron Tr R* 63:956-9 O 24 '18; Same. *Foundry* 47:43-5+ Ja '19
- Concrete used in building dust precipitation plant. W. E. North. *Il diags plan Concrete* 14:sup13-19 F '19
- Cottrell process for potash recovery. L. Bradley. *Chem & Met Eng* 19:457-60 S 26 '18; Same. *J Ind & Eng Chem* 10:834-8 O '18; Same cond. *Iron Age* 102:1151-3 N 7 '18
- Cottrell processes in the sulphuric acid industry. A. A. Helmrod and H. D. Egbert. *Il diags plan Chem & Met Eng* 19:309-14 S 15 '18
- De-gassing of gas by electrical precipitation. J. G. Davidson. *diags Canada Honorary Advisory Council for Scientific and Industrial Research Report* 3:1-45 '18
- Electric furnace smelting of phosphate rock and use of the Cottrell precipitator in collecting the volatilized phosphoric acid. J. N. Carothers. *Il diags J Ind & Eng Chem* 10:35-8 Ja '18; Excerpts. *Eng & Min J* 105:879-80 My 11 '18
- Electrical precipitation from flue gas. *Il Iron Age* 102:273 Ag 1 '18
- Electrical precipitation of metals in waste gases. *Il Elec W* 72:1169 D 21 '18
- Electrical precipitation of solids from flue gases. J. M. Wauchope. *Il diags Elec R* 74:744-7 My 10 '19; Abstract. *Elec W* 74:30-1 JI 5 '19
- Electrostatic dust precipitation. W. H. Easton. *Il Ind Management* 56:473-5 D '18
- Electrostatic precipitation. O. H. Escholz. *Il diags Am Inst Min E Bul* 140:1293-1305; Bibliography. 1305-6 Ag '18; Discussion. 142:1553-7; 143:1654-67; 144:1775-9 O-D '18; Discussion. *Chem & Met Eng* 19:285-6 S 15 '18
- Electrostatic precipitation in the smelting industry. C. S. Barnum. *Elec W* 73:895-6 My 3 '19
- Notes on electrical precipitators. E. E. Thum. *Il diags Chem & Met Eng* 20:59-64 Ja 15 '19
- Perkin medal presentation address. C. F. Chandler. *Chem & Met Eng* 20:102-4 F 1 '19; Same. *J Ind & Eng Chem* 11:147-8 F '19
- Portable precipitator. A. R. Lamb. *Chem & Met Eng* 20:386-7 Ap 15 '19
- Precipitation from flue gases; installation at copper refinery. *Il Elec R* 73:575 O 12 '18
- Precipitation of solids from smoke and gases. *Il diags Ry Age* 67:477 S 5 '19
- Purification of coal gas by electricity. M. Meredith. *Coal Age* 14:1971 D 12 '18
- Turning smoke into money; the origin and development of the Cottrell electric precipitation. R. H. Moulton. *Il Sci Am* 119:50-1 JI 20 '18
- Westinghouse electrical equipment for Cottrell plant. *Eng & Min J* 106:1030 D 14 '18
- Electric propulsion of ships.** See **Ship propulsion, Electric**
- Electric protective apparatus**  
 By-pass arresters protect generator-field insulator. *Il Elec W* 74:129 JI 19 '19
- Desirable characteristics and functions of cut-outs. C. A. Harrington. *Elec W* 71:881 Ap 27 '18
- Effect of transient voltages on dielectrics. F. W. Peek, Jr. *diags Am Inst E E Pro* 38:717-44 Je '19
- Helping the choke coil retard high-frequency waves. *diag Elec R* 73:978 D 21 '18
- Impulse protective gap an effective appliance. *Il Elec W* 71:1370 Je 29 '18
- Insuring protection of current transformers. V. Karapetoff. *Elec W* 73:473-4 Mr 8 '19
- Lightning protection for special transmission lines; abstract. G. C. Dill. *Elec W* 72:71-2 JI 13 '18
- New flash suppressor applied on the St. Paul. N. W. Storer and F. T. Hague. *Elec Ry J* 51:858-60 My 4 '18
- Overload protection for electric motors. O. C. Callow. *diags Power* 50:60-2 JI 8 '19
- Prevention of line disturbances by suppression of arcing earths; abstract. W. Peterson. *Elec W* 72:1232 D 28 '18
- Protecting disconnecting switches with fuses. *Il Elec W* 73:1171-2 My 31 '19
- Protecting polyphase induction motors from single-phase operation. B. W. Jones. *Il diag Power* 49:604-6 Ap 22 '19
- Protection from flashing for direct current apparatus. J. J. Linebaugh and J. L. Burnham. *Il diags Am Inst E E Pro* 37:617-28 Je '18; Same. *Gen Elec R* 21:499-516 JI '18; Abstracts. *Elec W* 71:1372-3 Je 29 '18; *Elec Ry J* 52:9-10 JI 6 '18
- Protection of converter control. *Il Elec R* 73:336 Ag 31 '18
- Protective value of the earthed reactive coil at the neutral point of alternating-current systems; abstract. H. Gorges. *Elec W* 74:589 S 13 '19
- Split-conductor cable—balanced protection. W. H. Cole. *diags Am Inst E E Pro* 37:793-816 JI '18; Appendix. C. A. Adams. *37:817-20 JI '18; Same cond. Elec W* 71:1370-1 Je 29 '18
- Suppression of intermittent earths; abstract. *Elec W* 74:663-4 S 20 '19
- Surge arresters for transmission lines. H. W. Young. *diag Elec W* 73:1276 Je 14 '19
- Switchgear standardization. C. C. Garrard. *diags Inst E E J* 56:213-28 Ap '18; Abstract. *Elec W* 71:732 Ap 6 '18; Discussion. *Inst E E J* 56:228-46, 436-42 Ap, Je '18
- Temperature trip circuit breaking. *Eng & Min J* 106:1033 D 14 '18
- See also **Electric alarms; Electric circuit breakers; Electric engineering—Safety devices and measures; Electric fuses; Electric switches; Lightning arresters; Relays; also National electrical safety code**
- Electric pumps.** See **Pumping machinery, Electric**
- Electric railroad bridges.** See **Bridges, Electric railroad**
- Electric railroads**  
 Circuit-breaker action that made residents think they were at the battle front. *Elec Ry J* 52:880 N 16 '18
- City constructs railway to convey employees and freight to its filtration plant. *Eng & Contr* 49:277-8 Mr 13 '18
- Developments in electric transportation. *Il Elec R* 74:7-8 Ja 4 '19
- Developments in the electrical industry during 1918. J. Liston. *Il Gen Elec R* 22:14-17 Ja '19
- Electric railways and manufacturers of railway apparatus in class two. *Elec Ry J* 52:471 S 14 '18
- Future of the industry. L. C. Bradley. *Elec Ry J* 54:sup53-5 O 11 '19
- Problems of the industry and work of electric railway war board. L. S. Storrs. *Elec Ry J* 51:653 Ap 6 '18
- Unprecedented operating difficulties on electric railway properties. *Elec Ry J* 51:231-2 F 2 '18
- See also **Electric lines; Electric locomotives; Electric motors, Railway; Elevated railroads; Employees, Transportation of; Interurban railroads; Railroads—Electrification; Street cars; Street railroads; Subways; Third rails**
- Accidents**  
 Causes of two accidents. *Elec Ry J* 52:290 Ag 17 '18
- Electric railway hazards—causes, effects, and remedies. R. E. McDougall. *Elec Ry J* 54:693-4 O 4 '19

**Electric railroads—Accidents—Continued**

- Fixed schedule for injured persons other than employees. L. J. Tynan. Elec Ry J 54:721-2 O 11 '19
- Getting the personal touch in accident-reduction campaigns. Elec Ry J 54:281 Ag 9 '19
- Organization for public accident-prevention campaigns. R. E. McDougall. Elec Ry J 54:723-4; Discussion. C. B. Proctor. 724-5 O 11 '19
- Speed and its relation to accidents; abstract with discussion. E. C. Carpenter. Elec Ry J 54:722-3 O 11 '19

**Accounting**

- Accounting measures to meet business depression in the industry. E. A. Sallers. Elec Ry J 54:sup37-9 O 11 '19
- New tentative accounting classification for New York adapted by Second district commission from I. C. C. classification. Elec Ry J 51:228 F 2 '18
- Not depreciation but retirement; electric railway representatives suggest change of terms. Elec Ry J 52:170 JI 27 '18
- Saving money through accounting. M. W. Glover. Elec Ry J 52:660-1 O 12 '18

**Advertising**

- Advertising and publicity. T. T. Wright. Elec Ry J 54:287-8 Ag 9 '19
- Advertising for traffic. F. G. Buffe. Elec Ry J 54:663-6 S 27 '19
- Electric railways must advertise. E. R. Kelsey. Elec Ry J 52:158-9 JI 27 '18
- Getting the right kind of publicity. B. J. Mullaney. Elec Ry J 54:216 Ag 2 '19
- Merchandising of transportation is lacking. A. B. Cole. Elec Ry J 53:460-2 Mr 8 '19
- More publicity needed. B. A. Hegeman, jr. Elec Ry J 51:1239-40 Je 29 '18

**Braking**

- Hand-operated switch provides connections for emergency braking. Il diag Elec Ry J 52:842 N 9 '18
- Transference of load in cars while braking. T. F. Burke. diags Elec Ry J 54:750-2 O '18 '19

See also Braking, Regenerative

**Buildings and structures**

- Buildings and structures. C. S. Kimball. Elec Ry J 54:sup79-80 O 11 '19
- Temporary inspection facilities in New York. J. Glaser. Il Elec Ry J 53:184-5 Ja 25 '19

**Car houses**

See Car houses

**Cars**

- See Cars; Electric railroads—Rolling stock; Motor cars (railroad); Street cars

**Claims**

- American electric railway claims association discusses accident prevention at Atlantic City convention. Elec Ry J 54:718-25 O 11 '19
- Fixed schedule for injured persons other than employees. L. J. Tynan. Elec Ry J 54:721-2 O 11 '19
- Pacific claim agents hold large meeting. Elec Ry J 54:69-70 JI 12 '19

See also American electric railway claims association

**Coasting**

- Coasting results on the Chicago Elevated. H. A. Johnson. Elec Ry J 54:277-9 Ag 9 '19
- Coasting saves power in Twin Cities. Elec Ry J 53:703 Ap 5 '19
- Improvements in the power-saving recorder. diag Elec Ry J 51:770 Ap 20 '18
- Increased economy results from correct operation of car equipment. C. W. Squier. Elec Ry J 52:275-7 Ag 17 '18
- Saving that extra shovelful of coal by increased coasting. H. C. Kendall. Elec Ry J 52:51-4 JI 13 '18
- Simplifying coasting records in Houston. Elec Ry J 52:1139-40 D 28 '18

**Construction**

- Applying common-sense in line construction. C. R. Harte. Il Elec Ry J 52:278-82 Ag 17 '18
- Building a railway to Hog Island. Il diags Elec Ry J 52:824-9 N 9 '18
- Catenary overhead construction on the Canadian Northern. W. C. Lancaster. Il Elec Ry J 50:1024-9 D 8 '17
- Electric railway construction on the Detroit-Superior bridge, Cleveland, O. Il diags map Elec Ry J 52:144-6 JI 27 '18
- How Public service railway is helping build ships in Newark vicinity. Il map plans Elec Ry J 52:734-9 O 26 '18
- Providing strength and attractiveness in special overhead supports. C. R. Harte. Il Elec Ry J 52:92-5 JI 20 '18
- Public service railway does war work at Camden and Gloucester. Il plan map Elec Ry J 52:919-22 N 23 '18
- See also Electric railroads—Track; Electric railroads—Wiring; Railroads—Electrification

**Control**

- Automatic HL control for Boston surface cars. A. D. Webster. Il diag Elec J 16:459-64 O '19
- Cam-operated railway controller. R. S. Beers. Il diags Gen Elec R 22:95-9 Ja '19
- Control of tramcar trains; abstract. R. Wolff. Elec W 73:636-7 Mr 15 '19
- Experiences with low-voltage control. O. Gottschalk. Elec Ry J 52:700-1 O 19 '18
- Far-reaching investigation results from a controller that could not be shut off. Il Elec Ry J 54:576-7 S 20 '19
- Field control for existing equipments. W. P. Jackson. Il plan Elec Ry J 50:1081-2 D 15 '17
- Foot control mechanism makes one-man car operation easier. Il Elec Ry J 51:977 My 18 '18
- Getting more life from K controller segments and contact fingers. R. S. Beers. Il diags Elec Ry J 53:697-8 Ap 5 '19
- Multiple-unit control that wouldn't behave on cold mornings. Elec Ry J 52:880 N 16 '18
- Remedy for ice on control contacts. Elec Ry J 53:143 Ja 18 '19
- Renewing worn controller parts. J. W. Brown. Il Elec Ry J 51:144 Ja 19 '18
- Six-motor multiple-unit trains for Montreal. Can. K. MacLeod. Il diags Elec Ry J 51:402-4 Mr 2 '18
- Testing railway control equipment. W. H. Ponsonby. Il diags Elec J 16:87-90 Mr '19
- Treatment of loose railway drum controller cylinders. R. S. Beers. Il Elec Ry J 53:319-20 F 15 '19

**Cost of construction**

- Cost data on special work construction. M. Bernard. diags Elec Ry J 50:1170; 51:195 D 29 '17, Ja 26 '18

**Cost of maintenance and operation**

- Baltimore costs mount. Elec Ry J 52:210 Ag 3 '18
- Comparative costs of subway and surface lines in Boston; report to the Massachusetts public service commission. J. A. Beeler. Elec Ry J 51:313 F 16 '18
- Cost data on special work renewals. M. Bernard. Elec Ry J 50:108, 279, 406, 588, 781, 871, 957, 1043 JI 21, Ag 18, S 8, 29, O 27, N 10, 24, D 8 '17
- Costs of material up 120 per cent in Manchester, England. J. M. McElroy. Elec Ry J 52:573-4 S 28 '18
- New Orleans higher operating costs more than absorb the gains in revenues for 1917. Elec Ry J 52:210 Ag 3 '18
- Relationship of items of cost under pre-war conditions and today. F. W. Doolittle. Elec Ry J 54:sup9-11 O 11 '19
- Revenue gains in Great Britain eaten up by increased expenses. R. J. Howley. Elec Ry J 52:572-3 S 28 '18

**Crossings**

- Articulated cast manganese crossing with renewable centers. diags Elec Ry J 52:19-20 JI 6 '18

**Electric railroads—Crossings—Continued**

Articulating manganese crossings for longer life. *Il* *Elec Ry J* 51:192-4 *Ja* 26 '18

**Employees**

Are electric railway employees becoming more courteous? *Elec Ry J* 52:446 *S* 14 '18  
 Boston Elevated strike ends. *Il* *Elec Ry J* 54:190 *Jl* 26 '19  
 Call for women by the railway mechanical department. *Elec Ry J* 52:645 *O* 12 '18  
 Disabled soldier in electric railway service. *Il* *Elec Ry J* 52:579-82 *S* 28 '18  
 Employees' pay checks. *Elec Ry J* 52:417 *S* 7 '18  
 Home attractions keep Mexican track laborers satisfied. C. A. Elliott. *Il* *diags plan* *Elec Ry J* 52:150-2 *Jl* 27 '18  
 Labor and the electric railways. B. I. Budd. *Elec Ry J* 52:377-8 *Ag* 31 '18  
 Lodging house for thirty men costs \$11,000. *Il* *diags plans* *Elec Ry J* 52:615-16 *O* 5 '18  
 Old and new employees. H. G. Winsor. *Elec Ry J* 51:1189-91 *Je* 22 '18  
 Shipbuilders running cars. *Elec Ry J* 51:1186 *Je* 22 '18  
 Some principles in the training of car men. E. C. Clarke. *Elec Ry J* 53:1056 *My* 31 '19  
 Substation operators trained in fifteen days. *Il* *Elec Ry J* 53:919-20 *My* 10 '19  
 Training motormen for emergencies. *Elec Ry J* 52:421-2 *S* 7 '18  
 Typical posters of the National safety council. *Elec Ry J* 52:196 *Ag* 3 '18  
 Union membership should mean special ability. J. A. Beeler. *Elec Ry J* 51:803-4 *Ap* 27 '18  
 Value of courtesy. F. M. Hamilton. *Elec Ry J* 51:1191-2 *Je* 22 '18  
 Women help relieve labor scarcity in B. R. T. mechanical department. *Il* *Elec Ry J* 52:655-7 *O* 12 '18

*See also* Street railroads—Employees

**Equipment and supplies**

Car equipment service tests determine fitness of apparatus. C. W. Squier. *Il* *chart diags* *Elec Ry J* 53:128-33 *Ja* 18 '19  
 Caring for d.c. aluminum car arresters during the winter. R. T. Wagner. *Elec Ry J* 52:886-7 *N* 16 '18  
 Determining best location of whistles on interurban cars. F. L. Hinman. *Elec Ry J* 50:1124-5 *D* 22 '17  
 Distribution of materials and supplies. B. J. Yungbluth. *Elec Ry J* 53:473-5 *Mr* 8 '19  
 Equipment. D. Durie. *diags* *Elec Ry J* 54:sup 76-9 *O* 11 '19  
 Factors that must be kept in mind by railway properties in placing orders for supplies and equipment. R. J. Pike. *Elec Ry J* 50:1102-3 *D* 15 '17  
 Handy adjuster for gear-case cover springs. *Il* *diags* *Elec Ry J* 54:566 *S* 20 '19  
 Hard bronze trolley wheels with two-piece bushings. R. A. Willson. *Il* *diags* *Elec Ry J* 50:1082-3 *D* 15 '17  
 Inventorizing materials and supplies. B. J. Yungbluth. *Elec Ry J* 53:473-5 *Mr* 8 '19  
 Maintenance of door operators. G. E. Oakley. *Elec Ry J* 53:588-9 *Mr* 22 '19  
 Maintenance of equipment. J. Sutherland. *Elec Ry J* 54:766-7 *O* 18 '19  
 Mounting and maintenance of car resistors. H. R. Meyer. *diags* *Elec J* 16:269 *Je* '19  
 Reclaiming warped resistance grids. W. H. McAloney. *Il* *Elec Ry J* 51:47 *Ja* 5 '18  
 Selecting and caring for hand tools used by way department. R. C. Cram. *Il* *diags* *Elec Ry J* 51:959-65 *My* 18 '18  
 Self-contained one-man kerosene furnace. *Il* *Elec Ry J* 52:882 *N* 16 '18  
*See also* Cars; Electric fuses; Electric motors; Railway; Electric railroads—Scrap material; Street cars; Trolley hangers; Trolley shoes; Trolley wire

**Fare collecting**

How the Public service railway established and will collect its zone fare. *Il* *diags plan map* *Elec Ry J* 53:598-604 *Mr* 22 '19

Zone fare collection on front-entrance center-exit cars. *Il* *Elec Ry J* 54:327-8 *Ag* 16 '19

*See also* Street cars—Fare collecting

**Fares**

Are higher fares getting results? *Elec Ry J* 53:186-9 *Ja* 25 '19  
 Bay State zone case closed. *Elec Ry J* 51:937-8 *My* 11 '18  
 British fares to be raised. *Elec Ry J* 52:418 *S* 7 '18  
 Change in unit fare approved for Massachusetts northeastern street railway. *Elec Ry J* 52:182 *Jl* 20 '18  
 Commission-made rates are paramount. T. Conway, jr. *Elec Ry J* 51:130-3 *Ja* 19 '18  
 Compromise fare increase approved by Massachusetts commission. *Elec Ry J* 51:1210-11 *Je* 22 '18  
 Crisis in the affairs of the electric railways. I. L. Lee. *Elec Ry J* 52:917-18 *N* 23 '18  
 Diagrams showing the need for higher fares. *Elec Ry J* 51:187-8 *Ja* 26 '18  
 Ethical aspects of the situation. R. T. Sullivan. *Elec Ry J* 53:413-18 *Mr* 1 '19  
 Fares have essentially been cut in half. J. J. Stanley. *Elec Ry J* 52:770-1 *N* 2 '18  
 Financial relief is blocked; court decision destroys most fare increases in New York. *Elec Ry J* 51:812-13 *Ap* 27 '18  
 Higher fares essential. H. B. Weatherwax. *Elec Ry J* 51:1234-5 *Je* 29 '18  
 Higher fares granted to New York lines by Public service commission for second district. *Elec Ry J* 50:1029, 1122 *D* 8, 22 '17  
 How can the public be convinced? *Elec Ry J* 53:408-12 *Mr* 1 '19  
 How New York commissioners differ in basic rate-making views. *Elec Ry J* 51:129 *Ja* 19 '18  
 Illinois traction system rate changes. *Elec Ry J* 52:260 *Ag* 10 '18  
 Increased revenue to offset higher wages. T. N. McCarter. *Elec Ry J* 51:1227-8 *Je* 29 '18  
 Industry is facing more serious problems. *Elec Ry J* 52:115-17 *Jl* 20 '18  
 List of electric railway companies whose fares have recently been increased. *Elec Ry J* 52:258-9 *Ag* 10 '18  
 Massachusetts commission increases on interstate line. *Elec Ry J* 52:392 *Ag* 31 '18  
 Massachusetts governor's relief message. *Elec Ry J* 51:472 *Mr* 9 '18  
 Mileage rate system on Boston & Worcester street railway satisfactory. *Elec Ry J* 50:1053 *D* 8 '17  
 Milford, Attleboro & Woonsocket company given choice of seven-cent fare or modified zone system. *Elec Ry J* 52:214 *Ag* 3 '18  
 More zone fares for Massachusetts. *Elec Ry J* 51:881-2 *My* 4 '18  
 New Bay State fares in effect. *Elec Ry J* 53:161-2 *Ja* 18 '19  
 New fare arrangement on Bay State lines. *Munic J* 45:37-8 *Jl* 13 '18  
 Proper basis for interurban passenger rates. A. Swartz. *Elec Ry J* 52:925 *N* 23 '18  
 Public service railway of New Jersey gets seven-cent fare. *Elec Ry J* 52:636 *O* 5 '18  
 Publicity for zone fares. *Elec Ry J* 54:484-5 *S* 6 '19  
 Raise rates to permit higher wages; hearing before War labor board. *Elec Ry J* 51:1223-6+ *Je* 29 '18  
 Raising the fare from seven to ten cents at the public's request; fair-minded communities served by the Worcester & Warren street railway. *Elec Ry J* 51:457-60 *Mr* 9 '18  
 Rate of 2.5 cents a mile granted by Indiana commission. *Elec Ry J* 51:225-6 *F* 2 '18  
 Results with six-cent fares on Bay State railway. R. B. Stearns. *Elec Ry J* 50:1051-2 *D* 8 '17  
 Six cents for key route of San Francisco—Oakland terminal railways. *Elec Ry J* 52:351 *Ag* 24 '18  
 Ten-cent fare refused to Bay State. *Elec Ry J* 52:1102-4 *D* 21 '18  
 Three cents a mile for interurbans; electric railway war board urges filing of new tariffs. *Elec Ry J* 51:1099-1100 *Je* 8 '18

**Electric railroads—Fares—Continued**

Traffic check and what it showed on the Public service railway. map Elec Ry J 53:644-8 Mr 29 '19

War committee requests President Wilson to appoint federal administrator or board to recommend railway relief. Elec Ry J 52:208 Ag 3 '18

What is wrong with the railways? Elec Ry J 53:361-5 F 22 '19

What the rail rate raise means. F. Putnam. Elec Ry J 51:1103-4 Je 8 '18

Zone plan on the Shore line. il diag map Elec Ry J 54:685-7 O 4 '19

Zone system for New Jersey. maps Elec Ry J 53:523-8; 54:258 Mr 15, Ag 2 '19

Zone system in practice; Shore line electric railway, Conn. R. W. Perkins. Elec Ry J 51:86 Ja 12 '18

See also Street railroads—Fares

**Finance**

Advantages of service-at-cost for electric railroads. H. C. Clark. Elec Ry J 53:1219-20 Je 21 '19

Burdens from which we should be relieved. R. B. Rifenberick. Elec Ry J 54:66-7 JI 12 '19

Can service costs be collected from the traveling public? J. D. Mortimer. Elec Ry J 54:sup14-17 O 11 '19

Chicago financial program. Elec Ry J 52:474 S 14 '18

Chicago, North Shore & Milwaukee railroad improving; first report since receivership shows substantial revenue increases and capital expenditures. Elec Ry J 52:211 Ag 3 '18

Commissions have failed properly to administer the intent of the law. R. Schaddelee. Elec Ry J 54:240-2 Ag 2 '19

Comparison of revenues and expenses of electric railways for October, 1918 and 1917. Elec Ry J 53:251 F 1 '19

Comparison of revenues and expenses of electric railways for six months, January-June, 1917 and 1918. Elec Ry J 52:633 O 5 '18

Connecticut lines need help. L. S. Storrs. Elec Ry J 53:237-9 F 1 '19

Data of the industry. J. W. Welsh. Elec Ry J 54:181-4 JI 26 '19

Electric railway executives confer in New York. Elec Ry J 52:332-3 Ag 24 '18

Electric railways and investors. F. H. Sisson. Elec Ry J 53:506-8 Mr 15 '19

Fair return on railway properties. E. W. Bemis. Elec Ry J 54:sup125-6 O 11 '19

Fare increases show results. Elec Ry J 53:69-70 Ja 4 '19

Fare returns for May, 1919 compared with May, 1918. Elec Ry J 54:498 S 6 '19

Fifty-fifty for car rider and taxpayer. Elec Ry J 53:419-20 Mr 1 '19

Financial wrecks of 1917. Elec Ry J 51:39-41 Ja 5 '18

Financing, state vs. local regulation and service-at-cost plan. H. Erickson. Elec Ry J 54:242-4 Ag 2 '19

Future of traction companies. P. J. Keeley. Eng & Contr 52:328-9 S 17 '19

How the Public service railway established and will collect its zone fare. il diag plan map Elec Ry J 53:598-604 Mr 22 '19

Industry is facing more serious problems. Elec Ry J 52:115-17 JI 20 '18

Interesting flop of the New Jersey utility commission. W. W. Harris. Elec Ry J 52:181-2 JI 27 '18

Investment bankers discuss railway problems. Elec Ry J 54:797-9 O 25 '19

Is public aid desirable? H. Loring. Elec Ry J 62:774-6 N 2 '18

Loss of 12 per cent in net income. Elec Ry J 53:664-5 Mr 29 '19

Massachusetts public service commission recommends public control, guaranteed dividend, higher fare for Boston Elevated railway. Elec Ry J 51:272-7 F 9 '18

New Jersey company seeks seven-cent fare. Elec Ry J 51:478 Mr 9 '18

Operating rates up 5.34 per cent in March. Elec Ry J 54:40-1 JI 5 '19

Radical readjustment necessary. C. N. Willcoxon. Elec Ry J 51:454-5 Mr 9 '18

Railways cannot afford to lose riders. W. D. B. Ainey. Elec Ry J 53:872-4 My 3 '19

Railways facing a crisis. W. W. Harris. Elec Ry J 52:409-10 S 7 '18

Receiver for Bay State. Elec Ry J 50:1092 D 15 '17

Recommends service at cost for Massachusetts. Elec Ry J 51:290 F 9 '18

Relationship of items of cost under pre-war conditions and today. F. W. Doolittle. Elec Ry J 54:sup9-11 O 11 '19

Service-at-cost for Chicago; features of new plan now awaiting public approval. Elec Ry J 52:344 Ag 24 '18

Service-at-cost plan approved for Massachusetts. F. J. Macleod. Elec Ry J 51:226-7 F 2 '18

Slight improvement in April revenues. Elec Ry J 54:298 Ag 9 '19

Solving the traction problem. T. Conway, Jr. Elec Ry J 53:1157-9 Je 14 '19

Square deal is needed. A. M. Taylor. Elec Ry J 53:498-500 Mr 15 '19

State aid for physical improvements suggested by Massachusetts public service commission. F. J. Macleod. Elec Ry J 50:1030-3 D 8 '17

State subsidies for the street railway companies. R. W. Perkins. Elec Ry J 54:645-7 S 27 '19

Statistics show railway's plight. J. A. Emery. charts Elec Ry J 54:394-6 Ag 23 '19

Three cents a mile for interurbans; electric railway war board urges filing of new tariffs. Elec Ry J 51:1099-1100 Je 8 '18

Views of Massachusetts board. Elec Ry J 51:101 Ja 12 '18

Ware & Brookfield street railway operating eleven miles in Massachusetts to be sold. Elec Ry J 51:336 F 16 '18

Why a crisis exists. F. J. Macleod. Elec Ry J 51:461-2 Mr 9 '18

Why more income must be secured. Elec Ry J 53:915-16 My 10 '19

Worst year the industry has experienced. Elec Ry J 53:55-8 Ja 4 '19

See also Electric railroads—Accounting; Electric railroads—Cost of maintenance and operation; Electric railroads—Fares; Street railroads—Finance

**Fire protection**

Chemical fire protection for the car-storage yard. il Elec Ry J 54:753-4 O 18 '19

**Franchises**

How the public feels about it. Elec Ry J 53:639-43 Mr 29 '19

**Freight**

Classification for l.c.l. freight condemned. V. S. Curtis. Elec Ry J 52:421 S 7 '18

Comparison of low-speed and high-speed interurban freight locomotives. D. C. Herberger. il Elec J 16:436-40 O '19

Developing feeders for freight traffic. il map Elec Ry J 53:1044-8 My 31 '19

Electric freight haulage is an economic duty; organization charts. A. B. Cole. il Elec Ry J 53:39-48 Ja 4 '19

Electric railway as a freight carrier. W. Jackson. Eng N 83:434-5 Ag 28 '19

Electric railway freight haulage. A. B. Cole. il Elec J 16:453-6 O '19

Electric railway passenger and freight transportation. C. E. Morgan. il Elec J 16:422-3 O '19

Electric railways are in a position to haul more freight. A. B. Cole. il maps Elec Ry J 51:892-923 My 11 '18; Excerpts. Ry R 63:234-5 Ag 17 '18

Freight and express service started in Kansas City. Elec Ry J 52:333 Ag 24 '18

Freight increase hearing in Indiana; interurban electric railways submit case to the Public service commission. Elec Ry J 50:1052-3 D 8 '17

Freight motive power equipment. G. M. Woods. il diag Elec Ry J 51:1055-7 Je 1 '18

Hints for the freight operator. A. B. Cole. il diag Elec Ry J 53:396-407 Mr 1 '19

**Electric railroads—Freight—Continued**

Indiana freight rates up 15 per cent. Elec Ry J 51:271 F 9 '18  
 Indiana order on freight rates contains inconsistencies. Elec Ry J 52:382 Ag 31 '18  
 Merchandising of transportation is lacking. A. B. Cole. Elec Ry J 53:460-2 Mr 8 '19  
 New interurban freight rates in Indiana. Elec Ry J 52:260 Ag 10 '18  
 Parcel freight plan for Chicago. Elec Ry J 51:85 Ja 12 '18  
 Passenger cars rearranged for freight hauling. Il diags Elec Ry J 51:924 My 11 '18  
 Progress toward simpler classification for electric railway freight. V. S. Curtis. Elec Ry J 51:323-4 F 16 '18  
 Quick service demands more pay—Connecticut commission ruling. Elec Ry J 50:1153-5 D 29 '17  
 Rhode Island electric freight business increases 185 per cent in ten years. Il chart diags plans Elec Ry J 51:1002-5 My 25 '18  
 Use auto trucks with flanged and rubber tires. P. Witt. Elec Ry J 51:1200 Je 22 '18  
 Vancouver freight earnings \$1,000 a week. Il map Elec Ry J 52:834-6 N 9 '18  
 What freight handling on electric roads requires and costs. A. B. Cole. Il maps plans Elec Ry J 53:218-28 F 1 '19  
*See also* Bonner rail wagon system; New England electric freight association

**Landscape gardening**

Pacific electric has complete parking program. C. A. Elliott. Il Elec Ry J 54:516-17 S 13 '19

**Maintenance and repair**

Air-operated tower for line cars. Il Elec Ry J 54:794 O 25 '19  
 Auto-tower truck with engine-raised tower. S. L. Foster. Il Elec Ry J 51:281-2 F 9 '18  
 Auto tower versus horse-drawn tower. S. L. Foster. Elec Ry J 51:143-4 Ja 19 '18  
 Brooklyn installs electrically heated oven. Il diags Elec Ry J 54:746-9 O 18 '19  
 Dispatching trucks and work trains. C. L. Cadie. Elec Ry J 51:45 Ja 5 '18  
 Efficient and systematic maintenance prolongs life of rolling stock and reduces operating costs. Il Elec Ry J 52:622-3 O 5 '18  
 Efficient method of renewing decking on long viaduct. Eng & Contr 51:660 Je 18 '19  
 Emergency auto-ladder truck used in San Francisco. S. L. Foster. Il diags Elec Ry J 52:294-5 Ag 17 '18  
 How way engineers rate labor-saving appliances for use in track work. Elec Ry J 51:522-3 Mr 16 '18  
 Labor-saving methods in the way department. R. C. Cram. Il Elec Ry J 51:517-23 Mr 16 '18  
 Line truck on Ford chassis gives efficient service. Il diags Elec Ry J 52:469 S 14 '18  
 Overhead department economies. C. R. Harte. Il Elec Ry J 51:492-5 Mr 16 '18  
 Pole painters' tower wagon with three platforms. S. L. Foster. Il Elec Ry J 51:815-16 Ap 27 '18  
 Reclaiming contact shoes by welding. Il Elec Ry J 53:651 Mr 29 '19  
 Slogan for car repairs—do it right—do it now. J. J. Sinclair. Elec Ry J 52:117-18 Ji 20 '18  
 Timber preservation will aid in lowering maintenance costs. R. C. Cram. Elec Ry J 53:597 Mr 22 '19  
 Tower trucks and cars at Minneapolis. Il diags Elec Ry J 54:121-3 Ji 19 '19  
 War-time progress in maintenance of way. J. B. Tinnon. Elec Ry J 54:220-1 Ag 2 '19  
 What the maintenance of way department does. R. C. Cram. Elec Ry J 51:357-60 F 23 '18

*See also* Car lighting; Cars—Repair; Electric railroads—Cost of maintenance and operation; Electric railroads—Equipment and supplies; Electric railroads—Shops; Electric railroads—Track; Street railroads—Track

**Management**

Applying engineering and selling principles to electric railway transportation. J. F. Layng. Elec Ry J 51:8-29 Ja 5 '18  
 Auto-trolley-car shows big saving in operating costs. Elec Ry J 52:249 Ag 10 '18  
 Coal shortage forces co-operation and service economies. Elec Ry J 50:1163-4 D 29 '17  
 Competition between safety car and jitney. M. B. Lambert. Elec Ry J 52:375-6 Ag 31 '18  
 Connecticut company's power-saving campaign. W. Arthur. diags Elec Ry J 51:412-15 Mr 2 '18  
 Electric freight haulage is an economic duty; organization charts. A. B. Cole. Il Elec Ry J 53:39-48 Ja 4 '19  
 Electric railway freight haulage. A. B. Cole. Il Elec J 16:453-6 O '19  
 Electric railway passenger and freight transportation. C. E. Morgan. Il Elec J 16:422-6 O '19  
 Electric railroads from an operating standpoint. E. C. Spring. Elec Ry J 54:17-19 Ji 5 '19  
 Handling an extra hundred thousand at Norfolk. map Elec Ry J 51:1187-8 Je 22 '18  
 Kansas City railroads at rate hearing points out how economies are effected. Elec Ry J 52:152-3 Ji 27 '18  
 Meeting the critical coal situation. Elec Ry J 50:1117-18 D 22 '17  
 Saving \$400,000 a year on the Bay State. Elec Ry J 50:1115 D 22 '17  
 Saving fuel through operating economies. Elec Ry J 51:267-70 F 9 '18  
 Shop organization. J. S. Dean. chart Elec J 16:506 N '19  
 Sources of economy in automatic substation control. C. F. Lloyd. Elec Ry J 53:923-8 My 10 '19  
 Testing organization of electric railways. H. L. Smith. Il Elec Ry J 51:511-17 Mr 16 '18  
 Transportation engineers needed. E. W. Holst. Elec Ry J 51:577-8 Mr 23 '18  
 Way department requires particularly complete organization. R. C. Cram. charts Elec Ry J 52:272-4 Ag 17 '18

*See also* Electric railroads—Records; Electric railroads—Shops; Electric railroads—Tools; Street railroads—Management

**Meters**

Economy of checking devices for motormen. L. E. Gould. Elec Ry J 51:1103 Je 8 '18  
 Power-saving instruments a long-standing success in Great Britain and Ireland. Elec Ry J 54:521-6 S 13 '19  
 Saving from car energy metering. Elec Ry J 50:1084-5 D 15 '17  
 Study of car energy saving at Dubuque, Iowa. L. E. Gould. map Elec Ry J 52:334-6 Ag 24 '18

*See also* Electric railroads—Coasting

**Motors**

*See* Electric motors, Railway

**Power**

Automatic apparatus to limit peak loads. Elec W 72:115-16 Ji 20 '18  
 Central-station energy economical for railways. Il Elec W 72:269-71 Ag 10 '18  
 Connecticut company's power-saving campaign. W. Arthur. diags Elec Ry J 51:412-15 Mr 2 '18  
 Electric railway power at Montreal. Il map Elec Ry J 51:72-4 Ja 12 '18  
 Energy consumption of cars is affected by temperature changes. M. B. Rosevear. Elec Ry J 52:958-60 N 30 '18  
 Equipment inspection on a kw.-hr. basis. W. C. Bolt. Il Elec Ry J 53:575-7 Mr 22 '19  
 Gasoline vs. electric motor for street railway service. N. W. Storer. Elec Ry J 54:sup27-9 O 11 '19  
 Heating does not account for all the winter increase. W. S. Hammond. Elec Ry J 51:577 Mr 23 '18  
 Increased economy results from correct operation of car equipment. C. W. Squier. Elec Ry J 52:275-7 Ag 17 '18

**Electric railroads—Power—Continued**

- Keeping up the trolley voltage. C. W. Place. Elec Ry J 54:27-8 J1 5 '19  
 Operating performance in electric railway power plants. Power 50:575 O 7 '19  
 Power distribution for street and interurban railways. J. M. Drabelle. Elec Ry J 54:765-6 O 18 '19  
 Power generation. A. B. Stitzer. charts Elec Ry J 54:sup72-6 O 11 '19  
 Power limiting circuit reduces load a maximum of 30 per cent. Elec Ry J 52:19 J1 6 '18  
 Power-saving instruments a long-standing success in Great Britain and Ireland. Elec Ry J 54:521-6 S 13 '19  
 Study of car energy saving at Dubuque, Iowa. L. E. Gould. map Elec Ry J 52:334-6 Ag 24 '18

*See also* Electric plants (central stations); Electric railroads—Coasting; Electric railroads—Meters; Electric substations

**Power plants**

*See* Electric plants (central stations); Electric substations

**Public relations**

- How can the public be convinced? Elec Ry J 53:408-12 Mr 1 '19  
 Interborough publicity sets public to thinking. Elec Ry J 51:217-19 F 2 '18  
 Publicity among the Bostonese. Elec Ry J 50:1034-6 D 8 '17  
 Railways are agents of the public. H. C. Clark. Elec Ry J 53:1011-13 My 24 '19  
 State the facts to the public. W. D. B. Ainey. Elec Ry J 54:387-91 Ag 23 '19  
 Trenton & Mercer county traction corporation going at publicity wholeheartedly. Elec Ry J 50:1068-70 D 15 '17  
 Value and necessity of publicity. W. D. Burroughs. Elec Ry J 54:sup90-1 O 11 '19  
 When the Mark Twains become Buffalo Bills. T. Dreier. Elec Ry J 50:1155 D 29 '17  
 Why the Georgia railway & power company needs higher rates is ably set forth in a newspaper campaign. Elec Ry J 52:47-8 J1 13 '18

*See also* Electric railroads and state; Street railroads—Public relations

**Purchasing**

- Problems of the purchasing agents. W. Whiteford. Elec Ry J 54:sup88 O 11 '19

**Rails**

*See* Rails

**Rates**

*See* Electric railroads—Fares

**Records**

- Car maintenance records facilitate work. C. R. McMahon. Elec Ry J 54:119-20 J1 19 '19  
 Dissecting passenger interchange time graphs. D. D. Ewing. Elec Ry J 52:610-12 O 5 '18  
 Effect of grades and curves in plotting speed-time graphs. C. W. Squier. Elec Ry J 52:96-8 J1 20 '18  
 Improved train order register for interurban roads. Elec Ry J 51:378 F 23 '18  
 Improvements in the power-saving recorder. diag Elec Ry J 51:770 Ap 20 '18  
 Individual passenger travel record assists tax collection. Elec Ry J 50:1044 D 8 '17  
 Keeping an accurate record of energy consumption at San Diego. Elec Ry J 52:518 S 21 '18  
 Money-saving factors in the maintenance of special work. R. C. Cram. II map plan Elec Ry J 52:108-8 J1 20 '18  
 Progress of the headway recorder. Elec Ry J 51:717-18 Ap 13 '18  
 Tax returns simplified. Elec Ry J 50:1083 D 15 '17

*See also* Electric railroads—Meters

**Regulation**

*See* Electric railroads and state

**Rolling stock**

- Electric rolling stock for 1917. Elec Ry J 51:34-5 Ja 5 '18  
 Interurban motor section cars. II diag Elec Ry J 53:590 Mr 22 '19  
 New electric rolling stock for 1918. Elec Ry J 53:49-51 Ja 4 '19  
 New rolling stock for district railway, London. diag Elec Ry J 54:345 Ag 16 '19  
*See also* Cars; Street cars

**Safety devices and measures**

- Co-operation makes safety work successful. C. B. Scott. Elec Ry J 53:359-60 F 22 '19  
 Co-ordination of safety between transportation and equipment departments. G. K. Jeffries. Elec Ry J 54:694 O 4 '19  
 Electric railway men and safety. H. B. Adams. Elec Ry J 52:612 O 5 '18  
 Human factor in safe operation and maintenance of rolling stock. F. R. Phillips. Elec Ry J 54:793-4 O 25 '19  
 Safety campaign of Northern Ohio traction & light company. Elec Ry J 51:234 F 2 '18  
 Safety siding that saved nine lives. II Elec Ry J 51:1242 Je 29 '18  
 Why does not every electric railway have a safety organization? C. B. Proctor. Elec Ry J 54:792-3 O 25 '19

*See also* Electric railroads—Signals; Street railroads—Safety devices and measures

**Scrap material**

- Connecticut company centralizes reclamation work at New Haven. II Elec Ry J 52:364-7 Ag 31 '18  
 Every shop a reclamation shop—but not a factory. Elec Ry J 52:488-9 S 21 '18  
 Making emergency gears to keep cars in service. W. C. Butler. II Elec Ry J 53:331 F 15 '19  
 Proper storage facilities aid salvage of scrap metal. II Elec Ry J 53:833 Ap 26 '19

**Shelter stations**

- Shelters and stations on Pacific Electric's interurban lines. C. A. Elliott. II diag Elec Ry J 53:733-4 Ap 12 '19

**Shops**

- Angle-iron posts for car painter's platform. II Elec Ry J 51:1197 Je 22 '18  
 Asphalt mastic makes good shop floor. Elec Ry J 51:923 My 11 '18  
 Car wheel drop pit saves time and expense. F. G. Lister. diag Elec Ry J 52:163-4 J1 27 '18  
 Columbus inspection shop rebuilt as unit, and track layout improved. II diag plans Elec Ry J 51:972-4 My 18 '18  
 Hydraulic car lift gives increased output to shops. H. MacNutt. II diag Elec Ry J 52:927-8 N 23 '18  
 Keeping the track special work in repair. R. C. Cram. Elec Ry J 51:1137-40 Je 15 '18  
 Mounting an air hoist in the door jamb. II Elec Ry J 52:164 J1 27 '18  
 Open pit construction in Fremont, Ohio, repair shop. II Elec Ry J 52:930 N 23 '18  
 Portable rivet heater for shop use. II Elec Ry J 54:438 S 6 '19  
 Railway shop maintenance kinks. J. S. Dean. Elec Ry J 54:759-60 O 18 '19  
 Repair shop statistics for 1914 published. Elec Ry J 51:768-9 Ap 20 '18  
 Routing a job through the shop. Elec Ry J 53:328 F 15 '19  
 Shop organization. J. S. Dean. chart Elec J 16:506 N '19  
 Shop rearrangement in Rochester, N.Y. plan Elec Ry J 51:580-1 Mr 16 '18  
 Shopwomen doing good work in Quaker City. Elec Ry J 52:295 Ag 17 '18  
 Twentieth century trolley hospital; Cleveland's big electric railroad repair shop. II Sci Am 118:106+ F 2 '18  
 Using car hoists for changing wheels. K. MacLeod. II diag Elec Ry J 51:142 Ja 19 '18

**Signals**

- Block signal system for coal mines. F. Huskinson. diag Coal Age 13:57-9 Ja 12 '18

**Electric railroads—Signals—Continued**

- Block signal system improvement on Pasadena short line. C. A. Elliott. *Il Elec Ry J* 52:664 O 12 '18
- Block signals immune to lamp failures. W. C. Wefel. *Il Elec Ry J* 52:977 N 30 '18
- Blue lights and their significance in the New York subways. E. A. Porr. *Il diag Elec Ry J* 54:579-81 S 20 '19
- Controlled permissive signaling for the Winnipeg electric railway. *diag Elec Ry J* 53:341 Ag 24 '18
- Indicating tail lights prevent accidents and save power. *Il diag Elec Ry J* 52:203 Ag 3 '18
- Some observations on signal maintenance. C. P. Nachod. *Elec Ry J* 54:442-3 Ag 30 '19
- Substantial highway crossing warning sign. *Il Elec Ry J* 50:1044 D 8 '17
- Track relays give assurance in high-speed signaling. *Il Elec Ry J* 50:1128-9 D 22 '17
- Warning signal protects dangerous crossing on Union traction company's tracks. *Il plan Elec Ry J* 51:1101-2 Je 8 '18
- See also Interlocking plants*

**Snow protection and removal**

- Fighting snow. J. M. Pneuman. *Il Elec Ry J* 52:840-2 N 9 '18; Same. *Eng & Contr* 51:68 Ja 15 '19
- Fighting snow on the interurban. *Il Elec Ry J* 52:372 Ag 31 '18
- Lehigh Valley Transit well prepared for snow. W. C. Klein. *Il Elec Ry J* 53:193-4 Ja 25 '19
- See also Street railroads—Snow protection and removal*

**Standards**

- Present status of engineering association standards; symposium. *Elec Ry J* 54:567-9 S 20 '19

**Stations**

- See also Electric railroads—Landscape gardening; Electric railroads—Shelter stations*

**Statistics**

- Electric railway statistics given out by Census bureau. *Elec R* 74:898-9 My 31 '19
- Electric railway statistics; miles of track and number of cars owned by states. *Elec Ry J* 51:41 Ja 5 '18
- Electric railway statistics; miles of track and numbers of cars owned by states. *Elec Ry J* 53:59 Ja 4 '19
- Electric railway statistics, 1916 and 1917. *Elec Ry J* 51:632-3 Mr 30 '18
- Electric railway statistics; revenues and expenses. *Elec Ry J* 50:1177-8 D 29 '17
- Eleven billion fare passengers in 1917. *Elec Ry J* 53:823-4 Ap 26 '19
- Geographical distribution of 1917 and 1912 census statistics for electric railways in United States. *Elec Ry J* 53:877 My 3 '19
- Keep graphic records of railway statistics. J. F. Layng. *Elec Ry J* 51:9-11 Ja 5 '18
- New track constructed and track rebuilt during 1918. *Elec Ry J* 53:52-3 Ja 4 '19
- Preliminary 1917 statistics of Census bureau for electric railways in six states. *Elec Ry J* 53:423, 522 Mr 1, 15 '19
- Statistics of the electrical industry. *Gas Age* 43:474-5 My 1 '19
- Ten-year traffic increase 51.9 per cent. S. L. Rogers. *Elec Ry J* 54:91 Ji 12 '19; Excerpt. *Elec R* 75:3 Ji 5 '19
- Track rebuilt and new track placed in service in 1917. *Elec Ry J* 51:36-8 Ja 5 '18

**Stops**

- See Street railroads—Stops*

**Substations**

- See Electric substations*

**Switches, frogs, etc.**

- Automatic track switches release men for other work. R. C. Cram. *Il diag Elec Ry J* 52:686-93 O 19 '18

- Building special work with an oxygen-acetylene cutting and welding outfit. M. C. Smith. *diag Elec Ry J* 54:317-19 Ag 16 '19
- Switch lock prevents derailments. *Il Elec Ry J* 52:164 Ji 27 '18

**Taxation**

- Taxation of electric railways. C. J. Bullock. *Elec Ry J* 54:186-8 Ji 26 '19

**Terminals**

- Interurban freight terminal. T. B. McMath. *Elec Ry J* 51:816-17 Ap 27 '18
- Joint use of tracks and terminals. R. T. Sullivan. *Elec Ry J* 54:sup64-8 O 11 '19
- New Akron terminal in operation. *Il plans Elec Ry J* 53:680-3 Ap 5 '19
- New interurban terminal building at Akron, Ohio. *plans Elec Ry J* 51:465 Mr 9 '18
- Solving a difficult terminal problem at Edgewater. *Il Elec Ry J* 52:619 O 5 '18
- What freight handling on electric roads requires and costs. A. B. Cole. *Il maps plans Elec Ry J* 53:218-28 F 1 '19

**Tickets**

- Ten-cent fares and 7-cent tickets. *Elec Ry J* 53:831-2 Ap 26 '19
- Ticket box-cutter for use on interurban lines. *Il Elec Ry J* 51:286 F 9 '18

**Tools**

- Tool list as aid in economical maintenance of way. C. A. Elliott. *Elec Ry J* 53:271 F 8 '19
- See also Screwdrivers, Insulated*

**Track**

- Evolution of the tramway rail. F. Bland. *Il Elec Ry J* 52:1144-5 D 28 '18
- Fittings for shimming tracks. *Il Elec Ry J* 52:426 S 7 '18
- Joint use of tracks and terminals. R. T. Sullivan. *Elec Ry J* 54:sup64-8 O 11 '19
- Labor-saving methods in the way department. R. C. Cram. *Il Elec Ry J* 51:517-23 Mr 16 '18
- Leakage resistance of electric railway roadbeds. E. R. Shepard. *Il charts diag Elec Ry J* 53:172-8 Ja 25 '19
- Mowing weeds on interurban right-of-way. E. Main. *Il Elec Ry J* 54:569 S 30 '19
- Notes on the history and development of electric railway rails. R. C. Cram. *Il diag Elec Ry J* 54:106-12 Ji 19 '19
- Reclamation of electric railway track by welding and grinding by the Connecticut company. H. J. Tippet. *Il Elec Ry J* 53:773-6 Ap 15 '19
- Way matters. C. H. Clark. *Elec Ry J* 54:sup 80-1 O 11 '19
- What the maintenance of way department does. R. C. Cram. *Elec Ry J* 51:357-60 F 23 '18
- What the way department finds it must do in the spring. R. C. Cram. *Il Elec Ry J* 51:740-2 Ap 20 '18
- See also Ballast; Rails; Street railroads—Track*

**Traffic**

- Traffic check and what it showed on the Public service railway. *map Elec Ry J* 53:644-8 Mr 29 '19

**Trolley switches**

- Spring switches and crossovers made from standard trolley frogs. *Il Elec Ry J* 54:566 S 20 '19

**Valuation**

- It is time for valuation compromise. P. J. Kealy. *Elec Ry J* 53:511-12 Mr 15 '19
- Official valuation of the property of the United railways, St Louis, Mo. *Elec Ry J* 51:783-4 Ap 20 '18
- Principles underlying determination of fair value. P. J. Kealy and others. *Eng N* 83:425-8 Ag 28 '19; Same. *Elec Ry J* 54:222-5 Ag 2 '19; Excerpt. *Eng & Contr* 52:321-2 S 17 '19
- Two estimates of Minneapolis railway values. *Elec Ry J* 51:245 F 2 '18

**Electric railroads—Valuation—Continued**

Valuation and accruing depreciation. P. J. Kealy. Elec Ry J 54:530-1 S 13 '19  
Valuation of electric railway properties. A. M. Taylor. Elec Ry J 54:128-9 JI 19 '19

**Wages**

Boston accepts wage award. Elec Ry J 52:710 O 19 '18  
Increased revenue to offset higher wages. T: N. McCarter. Elec Ry J 51:1227-8 Je 29 '18  
Massachusetts wage award. Elec Ry J 51:1202 Je 22 '18  
Philadelphia rapid transit company increases wages. Elec Ry J 52:251 Ag 10 '18  
Plea for the minor official. Elec Ry J 52:201 Ag 3 '18  
Public Service says living wage is \$1.15. Elec Ry J 52:197-9 Ag 3 '18  
Raise rates to permit higher wages; hearing before War labor board. Elec Ry J 51:1223-6+ Je 29 '18  
San Francisco-Oakland terminal wage award. Elec Ry J 52:252 Ag 10 '18  
Seven wage awards announced. Elec Ry J 52:981 N 30 '18  
Temporary agreement on Bay State wages. Elec Ry J 51:246 F 2 '18

**Wiring**

Aluminum catenary construction. Elec Ry J 51:142-3 Ja 19 '18  
Copper-clad wire for use as span wire. G. H. McKelway. Elec Ry J 53:332 F 15 '19  
Insulated negative return feeder system satisfactory at Lynchburg, Va. A. P. Way. map Elec Ry J 51:861-2 My 4 '18  
Power distribution. C. L. Cadle. Elec Ry J 54:sup71-2 O 11 '19  
Relation of trolley feeder taps to machine flash-overs. Elec R 74:642-3 Ap 19 '19  
Running small wires along trolley lines. G. H. McKelway. II Elec Ry J 52:973-4 N 30 '18  
Safety and cost determine construction of side feed spans. G. H. McKelway. II Elec Ry J 52:1106 D 21 '18  
Sectionalization of overhead for three-wire operation. E. R. Shepard. Elec Ry J 50:1040-1 D 8 '17  
Tension blocks facilitate replacement of five miles of trolley wire. II Elec Ry J 53:189-90 Ja 25 '19  
Trolley car length is a factor in wire-wear. G. H. Bolus. Elec Ry J 51:975 My 18 '18  
What is the proper length for trolley feeder taps? C. F. Lloyd. Elec Ry J 54:526 S 13 '19

**Yards**

New equipment in the Harvard avenue yard, Cleveland railway. II plan Elec Ry J 52:969-70 N 30 '18  
Pacific electric's new car storage and repair facilities. C. A. Elliott. II plans Elec Ry J 52:914-17 N 23 '18  
Storage yard rearrangement at Kansas City. A. E. Harvey. II diag Elec Ry J 52:1128-31 D 28 '18

**Australia**

New South Wales government tramways. II map Elec Ry J 52:4-6 JI 6 '18

**Canada**

Canadian lines near breaking point. E. P. Fredericks. Elec Ry J 53:91-2 Ja 11 '19  
What the war has meant to Canada's lines. II Elec Ry J 52:538-46 S 28 '18

**France**

Rehabilitation of French tramways. D. T. Pierce. II Elec Ry J 53:1101-3 Je 7 '19

**Great Britain**

British tramways seriously affected by war. II Elec Ry J 52:570-8 S 28 '18  
How Croydon, England is carrying on. T. B. Goodyer. Elec Ry J 52:574-6 S 28 '18  
Meeting war burdens; Croydon corporation tramways in the London suburban area. T. B. Goodyer. Elec Ry J 51:220-1 F 2 '18  
New London county council tramways proposed. Engineer 128:441 O 31 '19

Power-saving instruments a long-standing success in Great Britain and Ireland. Elec Ry J 54:521-6 S 13 '19  
Recent happenings in Great Britain; inquiry into London traffic. Elec Ry J 54:247 Ag 2 '19

Zone fare in practice: the British electric traction company. W. Jackson. II Elec Ry J 54:154-7 JI 26 '19

**Japan**

Practices and tendencies in Japanese electric railway transportation. S. Sano. II Elec Ry J 54:4-6 JI 5 '19

**Massachusetts**

Bay State to be reorganized. Elec Ry J 53:538 Mr 15 '19  
Compromise fare increase approved. Elec Ry J 51:1210-11 Je 22 '18  
Massachusetts suburban lines losing. F. J. Macleod. Elec Ry J 51:818 Ap 27 '18  
Massachusetts wage award. Elec Ry J 51:1202 Je 22 '18  
Service-at-cost offered to all Massachusetts electric railways. Elec Ry J 51:1093-6 Je 8 '18  
State aid for physical improvements suggested by Massachusetts public service commission. F. J. Macleod. Elec Ry J 50:1030-3 D 8 '17  
Traction problems referred to special commission. Elec Ry J 54:250-1 Ag 2 '19

**Netherlands**

Railways and tramways in Holland. Elec Ry J 54:215-16 Ag 2 '19

**New York**

Buffalo-Niagara Falls high-speed line completes successful year. II Elec Ry J 53:1103 Je 7 '19  
Consistent state policy is needed. J. K. Choate. Elec Ry J 54:689-90 O 4 '19  
Electric railways of New York state; report of conference of executives held at Syracuse, Sept. 18. Elec Ry J 54:688-9 O 4 '19  
Quick service between Buffalo and Niagara Falls. II map Elec Ry J 52:226-9 Ag 10 '18  
Situation in New York state. Elec Ry J 51:841 My 4 '18

**Pennsylvania**

Optimism prevails at Pennsylvania association meeting. Elec Ry J 54:13-17 JI 5 '19

**South Africa**

Electric railways. M. Edward. II Elec Ry J 53:686-6 Ap 6 '19

**Spain**

Long interurban line completed near Barcelona. Elec Ry J 52:650 O 12 '18

**United States**

Bankers say situation is serious. O. B. Willcox. Elec Ry J 52:1098-9 D 21 '18  
Chamber of commerce shows appreciation of electric railway situation. Elec Ry J 53:870-2 My 3 '19  
Cohesive spirit of electric railway industry must be conserved and intensified. P. H. Gadsden. Elec Ry J 53:4-6 Ja 4 '19  
Electric railways hard hit by war. H. B. Weatherwax. Elec Ry J 53:1177-9 Je 14 '19  
Examining the electric railway situation. Elec Ry J 53:1093-4 Je 7 '19  
Federal commission holds final hearings. Elec Ry J 54:sup93-113 O 11 '19  
Federal hearings in Washington. Elec Ry J 54:124-8, 163-74, 228-40, 329-39, 374-85, 438 JI 19-Ag 2, 16-30 '19  
Federal investigation opens in New York. Elec Ry J 53:1225-6 Je 21 '19  
Federal legislation. C. L. Henry. Elec Ry J 54:sup45-6 O 11 '19  
Formal statements at Washington: abstracts of written testimony presented before the Federal electric railway commission. Elec Ry J 54:175-88 JI 26 '18  
How the railways can be rehabilitated. M. L. Cooke. Elec Ry J 54:sup127-8 O 11 '19  
President acts to aid car lines. Elec Ry J 53:1015-16 My 24 '19



**Electric railroads—United States—Continued**

- Problem must be solved. P. H. Gadaden. Elec Ry J 52:1045-7 D 14 '18  
 Prospects for 1919 surveyed. Elec Ry J 53:3 Ja 4 '19  
 Railway conditions are encouraging. C. Renshaw. Elec Ry J 53:60 Ja 4 '19  
 Relief for present traction conditions. T. L. Sidlo. Elec Ry J 54:sup129-30 O 11 '19  
 Safety car and public ownership discussed; properly devised service-at-cost franchise. Elec Ry J 53:1222 Je 21 '19  
 State the facts to the public. W. D. B. Alney. Elec Ry J 54:387-91 Ag 23 '19  
 Street railway hearings. Ry R 65:138-9 JI 26 '19  
 Summing up of the railway testimony. Elec Ry J 54:284-6 Ag 9 '19  
 Through a commissioner's eyes. C. E. Elmquist. Elec Ry J 53:509-10 Mr 15 '19  
 Variables prevent one general solution. W. D. B. Alney. Elec Ry J 53:514-15 Mr 15 '19  
 Wage scales must be on reasonable basis. J. H. Pardee. Elec Ry J 54:sup2-4 O 11 '19  
 War board presents first annual report. Elec Ry J 52:761-8 N 2 '18  
 What the governors say. Elec Ry J 53:101-2 Ja 11 '19

See also United States—Federal electric railway commission

**Bibliography**

- List of electric railway war board bulletins. Elec Ry J 52:895 N 16 '18  
**Electric railroads and state**  
 Are higher fares getting results? Elec Ry J 53:188-9 Ja 25 '19  
 Commission-made rates are paramount. T. Conway, Jr. Elec Ry J 51:130-3 Ja 19 '18  
 Commissions have failed properly to administer the intent of the law. R. Schaddelee. Elec Ry J 54:240-2 Ag 2 '19  
 Consistent state policy is needed. J. K. Choate. Elec Ry J 54:689-90 O 4 '19  
 Constitutional barrier against fair rates; decision of Public service commission of First district, New York. Elec Ry J 51:125-8 Ja 19 '18  
 Epoch-making law provides for the public control of the Boston (Mass.) Elevated railway. M. C. Brush. Elec Ry J 51:1067-8 Je 1 '18  
 How New York commissioners differ in basic rate-making views. Elec Ry J 51:129 Ja 19 '18  
 How the public feels about it. Elec Ry J 53:639-43 Mr 29 '19  
 Interesting flop of the New Jersey utility commission. W. W. Harris. Elec Ry J 52:161-2 JI 27 '18  
 Public service commission for the First district of New York has no authority to require an electric railway to reserve a definite percentage of its revenues for maintenance and depreciation. Elec Ry J 51:1068 Je 1 '18  
 Rate limit removed in Jersey. Elec Ry J 51:1208 Je 22 '18  
 Service-at-cost offered to all Massachusetts electric railways. Elec Ry J 51:1093-6 Je 8 '18  
 State commission has power to raise rates. Munic J 43:615-16 D 22 '17  
 State commissions jealous of powers. Elec Ry J 52:922-3 N 23 '18  
 State management of Boston's street railways. Eng N 80:1071-2 Je 6 '18  
 Will regulation meet new needs? W. L. Ramson. Elec Ry J 51:817 Ap 27 '18  
**Electric railroads in war.** See Railroads in war  
**Electric railway accountants' association, Central.** See Central electric railway accountants' association  
**Electric railway association, American.** See American electric railway association  
**Electric railway commission.** See United States—Federal electric railway commission  
**Electric railway motors.** See Electric motors, Railway

**Electric rates**

- Attitude of central stations on rates. Elec W 72:445-6, 832-3, 1075-6 S 7, N 2, D 7 '18  
 California railroad commission approves rate increase for Pacific electric company. Elec W 72:224 Ag 3 '18  
 California rate increase will further bond issue. Elec W 73:334 F 15 '19  
 Central-station rate increases during 1917. Elec R 72:18-24 Ja 5 '18  
 Central-station rate situation. A. C. King. Elec R 74:806-7 My 17 '19  
 Central-station rates in theory and practice. H. E. Eisenmenger. Elec R 75:19-21, 47-51, 94-7, 138-43, 183-7, 231-6, 266-9, 304-7, 352-5, 388-91, 434-7, 473-6, 513-17, 555-8, 599-602, 643-8, 686-90, 728-32, 771-5, 811-16, 857-60, 898-902, 935-8, 974-8, 1008-11, 1048-53 JI 5-D 27 '19  
 Charging for electrical energy according to the consumer's power factor; abstract. P. Boucherot. Elec W 71:523 Mr 9 '18  
 Chart used by Canadian company to determine income at known load factor. Elec W 72:309 Ag 17 '18  
 Commission's decision in Indianapolis rate cases. Elec W 72:418 Ag 31 '18  
 Cost versus value of service in rate making. J. Bauer. Elec W 72:443-4 S 7 '18  
 Customers' demand and what it means. T. D. Rose. Elec R 72:522-3 Mr 23 '18  
 Discussion of Central West rate situation. Elec W 72:165 JI 27 '18  
 Economic aspects of summer load. II Elec W 71:1084-7 My 25 '18  
 Effect of the war on revenue from lighting. Elec W 72:987-8 N 23 '18  
 Electric rate increases to follow high cost of coal. Elec W 71:240-1 F 2 '18  
 Electric utility valuation and rates. C. W. McKay. Elec R 74:796-8, 934-6 My 17, Je 7 '19  
**Engineering data necessary for an electric rate determination.** B. H. Peck. chart W Soc E J 23:1-20 Ja '18; Excerpts. Elec W 71:825-7 Ap 20 '18; Discussion. W Soc E J 23:20-7 Ja '18  
 Factors affecting determination of the maximum demand. C. I. Hall. diag Gen Elec R 21:148-50 F '18; Same. Elec R 72:333-4 F 23 '18  
 Higher minimum charges necessary for farmers. Elec W 74:252-3 Ag 2 '19  
 How increased rates affect gas and electric revenue. Elec W 72:604 S 23 '18  
 Increase in electric rates. Power 47:385-6 Mr 12 '18  
 Justice of the power-factor rate. A. G. Darling. Elec W 74:586-7, 660-1, 708-10 S 13-27 '19  
 Lower energy rates are made for small company. Elec W 74:90-1 JI 12 '19  
 Massachusetts summer rate 35 cents per kilowatt-hour. Elec W 73:1287 Je 14 '19  
 Narragansett electric lighting company rate equalization plan to offset high coal prices. Elec W 73:334 F 15 '19  
 New Hampshire public service commission asks for jurisdiction over contract and schedule rates. Elec W 73:128 Ja 13 '19  
 New Jersey commission abrogates rate surcharge. Elec W 74:315 Ag 9 '19  
 New plan of service-charge schedules for power loads. Elec W 72:893-4 N 9 '18  
 New seasonal rate of Biddeford, Maine, central station. Elec W 72:213 Ag 3 '18  
 Newburyport company increases its rates. Elec W 74:595 S 13 '19  
 Origin of electric rate control. C. W. McKay. Elec R 74:796-8 My 17 '19  
 Power rate for electrically driven ice plants. H. B. Joyce. Power 47:137-8 Ja 22 '18  
 Power rates for the Engels copper mining co. Eng & Min J 108:452 S 13 '19  
 Rate readjustment in California case. Elec W 74:90 JI 12 '19  
 Rates cut to meet government sign regulations; Doherty managers adjust schedules. Elec R 71:1060 D 22 '17  
 Reasonable charge for off-peak electric current. Power 48:275-6 Ag 20 '18  
 Residence lighting rates and energy consumption. F. F. Espenschied. Elec W 70:1153-4 D 15 '17

**Electric rates—Continued**

- Special contract for housing of employees. Elec W 71:1092-3 My 25 '18  
 Statement of the rate situation in Illinois. Elec W 73:1221 Je 7 '19  
 Step meter rate being discouraged in New York. Elec W 72:797 O 26 '18; Elec R 73:665 O 26 '18  
 Substantial rate increase authorized in California. Elec W 73:146 Ja 18 '19  
 Surcharge still needed, says New Jersey company. Elec W 73:1234 Je 7 '19  
 War and rate problems. C: L. Edgar. Elec W 71:1332-3 Je 22 '18  
 War power problems met by California commission. Elec W 71:998-9 My 11 '18  
 War-time electricity rates in Indianapolis. Elec R 73:257-8 Ag 17 '18  
 What commissions are doing on rates. Elec W 71:1189-90, 1356-7; 72:158-9, 397-8 Je 8, 29, JI 27, Ag 31 '18

See also Electric cooking—Rates

**Electric reactance. See Reactors****Electric research**

- Research in progress or completed. Elec W  
 Printed in the third issue of each month  
 Value of research. Gen Elec R 22:743-5 O '19  
 See also Electric laboratories

**Electric resistance**

- Current distribution in armature conductors. W. V. Lyon. diags Elec W 74:66-8 JI 12 '19  
 Edge effect in copper bars at electric-lighting frequencies. J Fr Inst 185:417-19 Mr '18  
 Effect of annealing on the electrical resistance of hardened carbon steels. I. P. Parkhurst. diags J Ind & Eng Chem 10:515-18 JI '18  
 Effect of hydrogen on the electrical resistivity of carbon. T. Peczkalski. J Fr Inst 185:710 My '18  
 Electrical resistance of the human body; abstract. Elec W 71:211 Ja 26 '18  
 Electrical resistivity of porcelain and magnesia at high temperatures; abstract. P. H. Brace. Elec W 72:21 JI 6 '18  
 Electrical study course—Inductance and resistance on three-wire generator. diags Power 49:570-3 Ap 15 '19  
 Electrolytic resistance method for determining carbon in steel. J. R. Cain and L. C. Maxwell. chart diags J Ind & Eng Chem 11:852-60 S '19  
 Eleven ohms the resistance of a circular-mil-foot. T. A. Nash. Power 47:291 F 26 '18  
 Enameled resistance units for current regulation. J Elec R 73:973-4 O 26 '18; Same. Power 48:626-7 O 29 '18; Same. Coal Age 14:862-3 N 7 '18; Same. Elec Ry J 52:844 N 9 '18; Same. Ind Management 56:430 N '18  
 Graphical representation of resistances and reactances in multiple. H. C. Stanley. diags Gen Elec R 21:133-4 F '18  
 Influence of heat treatment on the electrical and thermal resistivity and thermo-electric potential of some steels. E: D. Campbell and W: C. Dowd. Met & Chem Eng 18:86-90 Ja 15 '18  
 Measuring the resistance of ground connections. Elec J 16:157 Ap '19  
 New standard of current and potential. C. T. Allcutt. JI diags Am Inst E E Pro 37:83-9 F '18  
 Occlusion of hydrogen and oxygen by metal electrodes. E. A. Harding and D. P. Smith. diags Am Chem Soc J 40:1508-31 O '18; Discussion. 41:1887-98 D '19  
 Resistance and reactance of three-phase armored cable to third harmonics; abstract. R. Swyngedauw. Elec W 73:1222-3 Je 7 '19  
 Resistance of copper conductors. W: Nesbit. chart diags Elec J 16:280-7 JI '19  
 Resistance of suspended wires. Sci Am 120:360 Ap 5 '19  
 Resistances in parallel determined graphically. A. S. L. Barnes. Elec W 71:1323-4 Je 22 '18  
 Resistivity of copper. T. H. Nash. Power 47:412 Mr 19 '18  
 Short-cut for finding combined resistance of multiple circuits. diags Elec Ry J 52:703 O 19 '18

- Silicon carbide useful as a resistor. W. S. Scott. Iron Tr R 63:209 JI 25 '18  
 Suggestions on care of resistance units. A. Gemmell. diags Elec R 72:1096-7 Je 29 '18  
 See also Electric conductivity; Insulation; Thermocouple wire; Wheatstone bridge

**Electric rheostats. See Rheostats****Electric safety lamps. See Safety lamps, Electric****Electric searchlights. See Searchlights****Electric service, Rural**

- Building rural distribution systems. P. B. Findley. Elec R 74:1094-5 Je 28 '19  
 How we get the rural load. H. C. Stair. Elec R 75:164-5 JI 26 '19  
 Iron-wire transmission for rural extensions. L. P. Perry. diags Elec W 70:713-15 O 13 '17; Excerpts. J Fr Inst 185:155-6 Ja '18  
 Linking up rural communities in Iowa. JI map  
 Elec R 72:583-6 Ap 6 '18  
 Serving the country customer in war times. Elec W 72:558-9 S 21 '18  
 Status of rural service in Wisconsin. Elec R 72:601-3 Ap 6 '18; Same cond. Elec W 71:985-7 My 11 '18

**Electric service companies. See Electric utilities****Electric ships. See Ship propulsion, Electric****Electric shock**

- Resuscitation from electric shock. JI Gen  
 Elec R 22:487 Je '19

**Electric shops**

- Better merchandising—its methods and advantages. J: J. Casey. JI Elec R 75:78-81 JI 12 '19  
 Dealer's relation to the public in merchandising. J. R. Tomlinson. Elec R 75:288-9 Ag 16 '19  
 Developing new business. W. S. Byrne. J Elec 43:296-8 O 1 '19  
 Distinction and system in the retail business. JI J Elec 43:206 S 1 '19  
 Electricity in local products week. C. M. Heintz. JI J Elec 43:251-2 S 15 '19  
 Featuring electrical household supplies during summer weather. W. B. Stoddard. JI Elec R 75:287-8 Ag 16 '19  
 How the dealer can meet the problems caused by rising prices. Elec R 72:473-4 Mr 16 '18  
 How to successfully operate an electrical store. R. E. Flower. Elec R 73:227-8 Ag 10 '18  
 Just Jones starts an electrical store. J. H. Moseley. JI J Elec 43:294-6 O 1 '19  
 Making a success of an electrical store. H. W. Kimball. JI J Elec 43:166-8 Ag 15 '19  
 Merchandising methods of Sterling electric company. Elec R 73:424 S 14 '18  
 Motion-picture advertising for electrical dealers. E. A. Dench. Elec R 72:296 F 16 '18  
 Points on conducting an electrical repair business. C. J. Briner. Elec R 75:798-9 N 8 '19  
 Practical suggestions for the electrical dealer. M. V. Rutherford. JI Elec R 73:39-41 JI 13 '18  
 Publicity problem of electrical dealer. C. A. Gauss. Elec R 73:46-8, 83-6 JI 13-20 '18  
 Semi-downtown electrical store. JI J Elec 42:571-3 Je 15 '19  
 System in handling repairs. G: A. Schneider. J Elec 42:303-4 Ap 1 '19  
 Ten commandments of appliance selling for electrical dealers. Elec R 73:585 O 12 '18  
 Washing machine service station. JI J Elec 43:448-9 N 15 '19

See also Electric railroads—Shops

**Electric shovels**

- Canada rushing huge Niagara development as war conservation measure. JI diags plan map Eng N 81:801-5 O 31 '18  
 Electric shovels in underground mines. JI Eng & Min J 106:1125-6 D 28 '18; Sci Am 120:468 My 3 '19  
 Electric shovels prove their value in Cincinnati. JI Elec Ry J 51:534 Mr 16 '18  
 Excavation methods and equipment on construction of  $8\frac{1}{4}$  mile Niagara power canal. JI Eng & Contr 50:572-4 D 18 '18

**Electric shovels—Continued**

- Loading out coal with electric shovels. W. B. Brennan. *Il Coal Age* 14:1018-19 D 5 '18  
 Operating cost of electric shovels in underground mining. *Il Eng & Contr* 50:486-7 N 20 '18; *Iron Age* 102:1281 N 21 '18  
 Roller frame under electric shovel eliminates delays in moving up. *Il Eng & Contr* 48:510 D 19 '17  
 Swing-type mine shovel. *Il Iron Tr R* 63:1124 N 14 '18  
 Underground mining with electric shovels. E. J. Witthoff. *Il diags Coal Age* 14:1016-17 D 5 '18

**Electric signals**

- Anaconda company's bell and buzzer signal system. R. H. Richards. *diags Eng & Min J* 106:453 S 7 '18  
 Audible electric signals in industrial plants; abstracts. V. Karapetoff. *Il Int Marine Eng* 24:466-8 J1 '19; *J Elec* 48:66-7 J1 15 '19; *Textile World* 55:3707+ Je 14 '19; *Iron Age* 103:1715 Je 26 '19; *Elec R* 74:946 Je 7 '19; *Elec W* 73:1394-5 Je 28 '19; *Eng & Min J* 108:304 Ag 23 '19; *Eng & Contr* 52:430-1 O 15 '19  
 Audible signal to indicate discontinuance of load. R. L. Dyke. *diag Elec R* 75:579-80 O 4 '19  
 Audible signals in the foundry. V. Karapetoff. *diags Iron Tr R* 65:894-5 O 2 '19  
 Circuit-breaker signal for hand-operated board. L. E. Wood. *Il diag Elec W* 70:1103-4 D 8 '17  
 Code calling in factories. V. Karapetoff. *diag Ind Management* 58:306-8 O '19  
 Construction of a bell-ringing transformer for signaling apparatus. G. F. DeSilver. *diags plan Coal Age* 15:2-3 Ja 2 '19  
 80-volt, 19-cycle circuit solves signal problem. *diag Elec W* 74:838-9 O 18 '19  
 Electric buzzer raises. C. T. Rice. *Eng & Min J* 106:454 S 7 '18  
 Electrical signalling and control on railways. C. M. Jacobs. *diags Inst E E J* 56:136-42; Discussion. 142-52, 199-204, 344-7 F-Mr, My '18  
 Heavy overload indicated before circuit breaker opens. H. A. Dodge. *diag Elec W* 73:1396 Je 28 '19  
 Interlocked electrical hoist signal system. *diag Elec R* 72:1004-5 Je 15 '18  
 Mine electric signaling practice. T. Croft. *diags Coal Age* 16:308-12 Ag 21 '19  
 Safety features in switching apparatus. M. M. Samuels and F. N. Bechoff. *diags Elec W* 71:656-9 Mr 30 '18  
 Signal for indicating wattmeter supply. M. S. Montgomery. *Il Elec R* 73:550 O 5 '18  
 Signal lights on shipboard. *Elec R* 73:385, 468 S 7, 21 '18  
 Signals from central stations to customers. P. Trichard. *Elec W* 71:1381 Je 29 '18  
 Switch and signal system for freight elevator. *diags Elec W* 74:806 O 11 '19  
*See also* Electric alarms; Electric railroads—Signals; Interlocking plants; Mine signals; Railroads—Signals

**Electric signs**

- Electric bulletins from a typewriter. *Il Sci Am* 119:442 N 30 '18  
 Electric sign ruling by fuel administration. Dec. 3. *Elec W* 70:1114 D 8 '17; Same. *Elec R* 71:1020-1 D 15 '17  
 Electric signs. P. L. Raymond. *Il diags Sibley J* 32:87-91, 183-6+ Mr, S '18  
 Rates cut to meet government sign regulations; Doherty managers adjust schedules. *Elec R* 71:1060 D 22 '17

**Electric smelting. See Electric furnaces; Smelting, Electric****Electric sparks**

- Observations on current discharge across gap. C. R. Behringer. *Power* 48:463 S 24 '18  
 Quenched spark; abstract. V. Pieck. *Elec W* 72:73 J1 13 '18  
 Spark lengths in gases and vapors. *Sci Am S* 85:147 Mr 9 '18  
 Sparking power of magnetos. H. F. Geist. *diags Automotive Ind* 40:949-53 My 1 '19  
*See also* Electric arc

**Electric standards**

- Collection of data on telephone interference factor. *Am Inst E E Pro* 38:59-61 F '19  
 Conservation by standardization. W. H. Merrill. *Elec R* 74:178 F 1 '19  
 Line safety code. *J Elec* 42:487-8 My 15 '19  
 Review of work of sub-committee on wave shape standard of the standards committee. H. S. Osborne. *Il diags Am Inst E E Pro* 38:1-28 Ja '19; Abstract. *Elec W* 73:425-6 Mr 1 '19

**Electric starters. See Airplane engines—Starting devices; Automobiles—Starting devices; Electric motors—Starting devices****Electric stations. See Electric plants (central stations)****Electric steel. See Steel metallurgy****Electric stores. See Electric shops****Electric stoves**

- Comparisons of electric range performance. *Il Elec R* 72:545-7 Mr 30 '18  
 Electric ranges and water heating. *Elec W* 73:1093-4 My 24 '19  
 Hughes automatic electric range. *Il Elec R* 75:757 N 1 '19  
 Interesting cost data on 1200 electric ranges. *Elec W* 73:843 Mr 29 '19  
 Low installation costs for electric range. *Elec R* 73:416-17 S 14 '18  
 Proper wiring installations for electric ranges. chart *Elec R* 75:329-30 Ag 23 '19  
 Rutenber electric range. *Il Elec W* 71:698 Mr 30 '18  
 Rutenber electric table stove. *Il Elec R* 72:81 Ja 12 '18  
 Study of electric range efficiency. R. G. Kloeffler. *Il chart Elec W* 71:357-9, 408-10 F 16-23 '18

**Electric substations**

- Adapting existing lines to increased loads. E. B. Hook, Jr. *Il map Elec W* 71:39-41 Ja 5 '18  
 Adjusting substation capacity to the load line at the Cedar avenue substation of the Cleveland (Ohio) railway. *Elec Ry J* 52:462 S 14 '18  
 Building a railway to Hog Island. *Il diags Elec Ry J* 52:824-9 N 9 '18  
 Chicago, Milwaukee & St Paul electrification in Washington. W. A. Scott. *Il Elec R* 74:16-18 Ja 4 '19  
 Columbus (O.) remote control substation has several novel features. *Il Elec Ry J* 52:665-6 O 12 '18  
 Columbus railway, light & power co.'s Canal street substation. E. W. Clark. *Il Elec R* 74:670-1 Ap 26 '19  
 Construction of outdoor substation at Madera. Cal. L. J. Moore. *Il diags Elec W* 71:718-20 Ap 6 '18  
 Designing and operating the substation for maximum efficiency. *Il diags plan Elec Ry J* 51:700-4 Ap 13 '18; Discussion. G. H. McKelway. 52:624-5 O 5 '18  
 Economical substation built on right-of-way. *Il Elec W* 72:1082 D 7 '18  
 Electric traction on the Central Argentine railway. *Il diags Engineer* 126:343-4 O 25 '18  
 Electricity supersedes steam pumps in Los Angeles. *Il Elec R* 73:723-5 N 9 '18  
 Elements of a successful outdoor substation. A. Alsaker. *Elec Ry J* 53:731-2 Ap 12 '19  
 Engineering charges on outdoor substations. *Elec W* 73:82 Ja 11 '19  
 Fireproof compartments for transformer units. *Il Elec W* 71:414 F 23 '18  
 Fireproof construction for substations. C. A. Elliott. *Elec Ry J* 54:487 S 6 '19  
 Form of outdoor substation for heavy loads in city limits. *Il Elec R* 75:797 N 8 '19  
 Heating of substations. R. von Fabrice. *Power* 48:129-30 J1 23 '18  
 How scattered industrial load is served in Iowa. *diags Elec W* 73:131 Ja 18 '19  
 Increasing coal mine efficiency. C. E. Stuart. *Il Coal Age* 14:357-60 N 7 '18  
 Isolating high-tension cables in substations. *diag plan Elec W* 72:746 O 19 '18  
 Keeping up the trolley voltage. C. W. Place. *Elec Ry J* 54:27-8 J1 5 '19

**Electric substations—Continued**

Large outdoor substation at Canton, Ohio. diag plan Elec W 72:347 Ag 24 '18  
 Large underground synchronous substation. R. P. Hines. il diag plan Coal Age 14:434-6 S 5 '18  
 Limited space requires compact substation. diag Elec W 74:130 JI 19 '19  
 Metering practice for 33,000-volt outdoor station. C. P. Garman. il Elec W 73:1332 Je 21 '19  
 Modern outdoor substation. M. M. Samuels. il diag plans Elec W 72:1068-73 D 7 '18  
 Modern substations of large anthracite distribution system. il diag plan Coal Age 14:850-2 N 7 '18  
 New type of outdoor substation to meet severe service requirements. H. W. Young. il Coal Age 15:306-7 F 13 '19  
 Nisqually substation at Tacoma, Washington. il J Elec 43:257-8 S 15 '19; Same. Elec R 75:769-70 N 8 '19  
 Outdoor distribution substations in war times. R. E. Cunningham. il Elec W 72:642-3 O 5 '18  
 Outdoor mine substation with brick meter housing. il Elec W 73:640 Mr 29 '19  
 Outdoor mine substations. H. W. Young. diag Coal Age 14:891 N 14 '18  
 Outdoor station solves high-water problems. il Elec W 72:938 N 16 '18  
 Outdoor substation. Elec R 72:837-8 My 18 '18  
 Outdoor substation for supplying power to a coal mine. H. W. Young. il Coal Age 16:307 Ag 21 '19  
 Outdoor substation in war service. E. B. Meyer. il diag plan Elec W 72:537-41 S 21 '18  
 Outdoor substations for industrial loads. il Elec Ry J 50:1129-30 D 22 '17  
 Outdoor substations for intercounty development. il diag plans map Elec W 73:884-7 My 3 '19  
 Outdoor substations in connection with coal-mining installations. H. W. Young. il diag Am Inst Min Bul 163:1883-94 S '19; Same. Coal Age 16:712-16 O 30 '19; Same. Elec R 75:595-8 O 11 '19  
 Permanence in outdoor substations. S. B. Hood. il diag Elec W 72:925-30 N 16 '18  
 Power generation. A. B. Stitzer. charts Elec Ry J 54:sup72-6 O 11 '19  
 Protection of large industrial substation. diag Elec W 73:132 Ja 18 '19  
 Ready-made outdoor substation. il Elec W 71:1062-3 My 18 '18  
 Salient features of Cleveland industrial substations. il plan Elec R 74:816 My 17 '19  
 Selection of apparatus for railway converter substations. C. F. Lloyd. diag plans Elec R 74:538-41 Ap 5 '19  
 Simplicity marks Michigan's largest hydro-electric development. il diag Elec R 74:167-70 F 1 '19  
 Some elements in a satisfactory substation building. C. F. Lloyd. il diag plans Elec Ry J 54:832-4 N 1 '19  
 Standard outdoor substation. J. T. Bronson. il diag Gen Elec R 21:640-51 S '18  
 Steel riser station of permanent design. diag Elec W 73:226 F 1 '19  
 Steel tower outdoor substation for industrial loads. diag Elec R 72:730 Ap 27 '18  
 Sturdy substation for serving small towns. il Elec W 72:209 Ag 3 '18  
 Substation equipment for St Paul's new electrification. Elec Ry J 51:1198 Je 22 '18  
 Substation for industrial plant; ring-feeder system used in station erected by Public service company of northern Illinois. Elec R 72:186 F 2 '18  
 Substation operation a woman's job. H. J. Burton. il Elec W 73:30-2 Ja 4 '19  
 Substation operators trained in fifteen days. il Elec Ry J 53:919-20 My 10 '19  
 Substation renders the power system flexible. Elec Ry J 52:447 S 14 '18  
 Substation short-circuits. R. F. Gooding. diag Elec J 16:61-5 F '19  
 Substation withstands floods periodically. P. C. Petersen. il Elec W 73:846 Ap 26 '19  
 Substations designed to permit future changes. il Elec W 74:874-5 O 25 '19

Substations for Y-connected systems. A. V. Taylor. il Elec W 74:172-5 JI 26 '19  
 Two-circuit substation tap. il Elec R 72:926 Je 1 '18  
 Uniquely situated underground substation. il plan Elec R 72:686-7 Ap 20 '18  
 Well-lighted and well-ventilated substation of Kansas City railways. S. H. Grauten. il diag plan Elec Ry J 53:326-7 F 15 '19

**Cost**

Actual construction cost of industrial substation. Elec W 72:747 O 19 '18  
 Distribution of cost in outdoor substations. H. W. Young. diag Elec W 73:1393 Je 28 '19  
 Estimated total cost of semi-outdoor substation. Elec W 71:621 Mr 23 '18

**Electric substations, Automatic**  
 Application of the automatic railway converter substation. C. S. Burlingham. il Sibley J 32:157-61 JI '18  
 Automatic operation is discussed at Schenectady. Elec W 73:490 Mr 8 '19  
 Automatic re-closing device for automatic substations. B. F. Pearson. il diag Elec R 72:731-2 Ap 27 '18  
 Automatic substation. C. Dorticcos. Elec Ry J 52:157-8 JI 27 '18  
 Automatic substation from an economic standpoint. il Elec R 75:104-5 JI 19 '19  
 Automatic substation has come to stay. W. C. Slade. Elec Ry J 52:651-4 O 12 '18  
 Automatic substation of new type on Ohio electric railway. R. J. Wensley. il diag Elec Ry J 51:707-9 Ap 13 '18  
 Automatic substations installed by, or on order from the General electric company. Elec Ry J 53:54 Ja 4 '19  
 Automatic substations on the North Shore line. C. H. Jones. il charts diag map plans Elec Ry J 53:84-90 Ja 11 '19  
 Automatically operated synchronizing station. diag Elec W 71:153 Ja 19 '18  
 Automatically remote-controlled synchronous-motor-generator substation. W. T. Snyder. il diag Elec R 73:407-9 S 14 '18  
 Railway automatic sub-station at Torrance. il J Elec 43:470 N 15 '19  
 Savings effected by automatic substations. H. E. Davis. il chart plan Elec Ry J 51:692-5 Ap 13 '18  
 Simplified diagram of automatic substation circuits. Aurora, Elgin & Chicago railroad. Elec Ry J 53:104 Ja 11 '19  
 Simplifying the automatic substation circuit diagram. diag Elec Ry J 52:979 N 30 '18  
 Sources of economy in automatic substation control. C. F. Lloyd. Elec Ry J 53:922-3 My 10 '19  
 Space saved by double-deck arrangement in automatic substation. diag Elec Ry J 52:118-19 JI 20 '18  
 Standard automatic substation equipment. R. J. Wensley. il diag Elec J 16:218-22 My '19  
 Two-unit automatic substation. W. C. Slade. il diag plan map Elec Ry J 52:1038-44 D 14 '18  
 Why the automatic substation saves materials and labor. C. F. Lloyd. il Elec Ry J 51:705-6 Ap 13 '18  
 Year of the automatic substation at Butte. E. J. Nash. il diag Elec Ry J 53:565-7 Mr 22 '19; Same. Gen Elec R 22:552-5 JI '19

**Electric substations, Portable**  
 Large portable substation, Long Island R.R. il diag plan Ry R 63:911-12 D 28 '18; Same. Elec R 73:781 N 16 '18; Same cond. Elec W 73:84 Ja 11 '19  
 Largest portable substation yet produced. B. H. Lytle. il diag Elec Ry J 52:467-8 S 14 '18  
 Portable substation. Elec R 72:720 Ap 27 '18  
 Portable substation for serving emergency loads equipped by Portland (Ore.) railway, light & power company. il Elec W 71:726 Ap 6 '18  
 Portable substation serves sudden load increase. F. B. Lewis. Elec W 74:77 JI 12 '19  
 Semi-automatic portable substation built at St Louis. il diag Elec Ry J 52:1051-3 D 14 '18

- Electric subways.** See **Electric conduits; Subways (conduits)**
- Electric supplies.** See **Electric industries; Electric shops**
- Electric switchboards.** See **Switchboards**
- Electric switches**
- Air and oil-break switches for outdoor service. H. W. Young. *Elec R* 75:796-7 N 8 '19
- Alternating-current magnetic contactor. *Il Elec W* 72:330 Ag 17 '18
- Automatic knife switch. *Il Elec W* 71:490 Mr 2 '18; *Elec R* 72:438 Mr 9 '18
- Automatic moment switches for porch and hall lights. *diag Elec R* 72:209 F 2 '18
- Automatic time switch. *Elec R* 73:20 JI 6 '18
- Automatic track switches release men for other work. R. C. Cram. *Il diags Elec Ry J* 52:686-93 O 19 '18
- Benziniform in high-tension oil-break switches. M. Vogelsang. *Sci Am S* 88:194-5 S 27 '19
- Blackburn-Smith inclosed tank switch. *Il Power* 49:388 Mr 18 '19
- Burke horn-gap switches. *Il Elec R* 71:1037 D 15 '17
- Caskey-Dupree combination switch. *diags Automotive Ind* 37:882 N 15 '17
- Compro inclosed switches and meter protective device. *Il Elec R* 71:1036 D 15 '17
- Concrete brick for high-tension cells. E. B. Meyer. *Il Elec W* 72:977-8 N 23 '18
- Crouse-Hinds safety-first switches. *Il Textile World* 53:4043 Mr 2 '18
- C-H inclosed float switch. *Il Elec R* 72:488 Mr 16 '18
- Developments in oil switches for remote control of outdoor lighting circuits. *Il Elec R* 75:370 Ag 30 '19
- Developments in the electrical industry during 1918. J. Liston. *Il diags Gen Elec R* 22:33-40 Ja '19
- Direct-current magnetic switches. *Il Elec W* 72:90-1 JI 13 '18
- Emergency lighting switches. D. R. Hibbs. *diags Power* 47:197 F 5 '18
- European high-voltage switchgear. W. A. Coates. *Il Elec J* 16:243-8 Je '19
- 5000-kva., 100,000-volt new-type air-break switch. G. T. Southgate. *Il diags Elec W* 74:407-9 Ag 23 '19
- Frequent causes of oil-switch troubles. F. A. Allner and A. Bauhan. *Elec W* 73:1393 Je 28 '19
- G. E. back-of-board type field switches. *Il Elec Ry J* 50:1085 D 15 '17; *Elec R* 73:342 Ag 31 '18
- G. E. combined fuse and disconnecting switch for outdoor service. *Il Elec R* 72:740-1 Ap 27 '18; *Elec W* 71:907 Ap 27 '18
- G. E. improved safety-first inclosed-lever switch. *Il Elec W* 70:1225 D 22 '17; *Eng & Min J* 104:1049 D 15 '17; *Metal Ind* 15:497 N '17
- G. E. low-tension dead-front switch panel. *Il Elec R* 72:1098-9 Je 29 '18; *Iron Tr R* 63:263 Ag 1 '18
- G. E. safety-first induction-motor pedestal. *Il diags Elec R* 73:512-13 S 28 '18; *Iron Tr R* 63:722-3 S 26 '18; *Elec W* 72:520 S 14 '18; *Coal Age* 14:862 N 7 '18
- G. E. safety first steel switching cabinet. *Il Elec R* 73:555 O 5 '18; *Coal Age* 14:742 O 17 '18; *Power* 48:526 O 8 '18; *Ind Management* 56:431-2 N '18
- G. E. wall-type switching unit. *diags Elec R* 73:673 O 26 '18; *Coal Age* 14:863 N 7 '18
- Inexpensive remote-control switch for street lighting. *Il Elec W* 71:309 F 9 '18
- Inexpensive voltmeter switch. J. J. Nolan. *diag plan Power* 50:73 JI 8 '19; *Same. Coal Age* 16:350-1 Ag 28 '19
- Installing disconnecting switches. *Il Power* 49:293, 740 F 25, My 13 '19
- Krantz safety inclosed switches. *Il Elec W* 71:698-9 Mr 30 '18; *Elec R* 72:1055 Je 22 '18; *Coal Age* 14:554-5 S 19 '18; *Power* 47:868 Je 18 '18
- Large oil-break switches made by British Thomson-Houston company; abstract. *Elec W* 72:214-15 Ag 3 '18
- Maco safety switch for industrial use. *Il Elec W* 72:328 Ag 17 '18
- Mechanical blocks for blocking different types of oil switches. *diags Elec R* 75:713 O 25 '19
- Meyers safety switches. *diag Elec W* 71:1115 My 25 '18
- Mine signal pull switches. *Il Coal Age* 13:675 Ap 13 '18
- Modern bus and switch structures. C. D. Gray and M. M. Samuels. *Il diags Elec W* 73:788-92, 831-3 Ap 19-26 '19
- Mounting loom-motor switches in pairs. *Il Elec W* 71:517-18 Mr 9 '18
- New hospital call switch. *Il Elec R* 74:238 F 8 '19; *Elec W* 73:298 F 8 '19
- New line of outdoor load and disconnect switches. *Il Elec R* 75:251-3 Ag 9 '19
- New oil switch used to start and stop full fashioned knitting machines. *Il Textile World* 55:35-4 Ja 4 '19
- New vertical-break horn-gap switch. *Il Elec R* 73:871 N 30 '18
- Oil switch for slip-ring motors. *Il Iron Tr R* 64:771 Mr 20 '19; *Iron Age* 103:825 Mr 27 '19
- Opinion on high-tension switching and protection. *Elec W* 72:353-4 Ag 24 '18
- Paragon time switches. *Il Elec R* 72:781 My 4 '18
- Points to consider in the design of terminals. F. Bechoff. *diags Elec W* 71:256-7 F 2 '18
- Safety features in switching apparatus. M. M. Samuels and F. N. Bechoff. *diags Elec W* 71:656-9, 1075-8; 72:878-80 Mr 30, My 25, N 9 '18
- Sectionalizing cable-junction box. *Il Elec R* 71:1118 D 29 '17; *Elec Ry J* 50:1171 D 29 '17; *Elec W* 71:74 Ja 5 '18
- Special switches made by Pacific electric manufacturing co. *Il J Elec* 43:284 S 15 '19
- Standard outdoor substation. J. T. Bronson. *Il diags Gen Elec R* 21:640-51 S '18
- Sub-cell disconnecting switch. *Il Elec R* 72:131 Ja 19 '18
- Switches for high tension transmission. *Il J Elec* 43:283-4 S 15 '19
- Switchgear standardization. C. C. Garrard. *diags Inst E E J* 56:213-28 Ap '18; *Abstract. Elec W* 71:732 Ap 6 '18; *Discussion. Inst E E J* 56:228-46, 436-42 Ap, Je '18
- Tendency toward outdoor switching apparatus; abstract. H. G. MacDonald. *Elec W* 71:940 My 4 '18
- Tests on oil switches; abstract. C. C. Garrard. *Elec W* 71:1220 Je 8 '18
- Time-limit overload protective plugs for motor switch. *Il Elec R* 73:906-7 D 7 '18
- Time switch controls large off-peak loads. *diag Elec W* 74:77 JI 12 '19
- Use of three-way switches reduces current consumption. *diag Elec R* 74:276-7 F 15 '19
- Voltmeter switch for paralleled generators. *diags Elec W* 74:837 O 18 '19
- Washers for aligning switch movement. C. M. Charland. *diag Elec R* 73:510-11 S 28 '18
- Westinghouse line switches. *Il Coal Age* 14:863 N 7 '18
- Westinghouse safety-first knife switch. *Il Power* 47:80 Ja 15 '18
- Westinghouse type WK-53 house-entrance safety switch. *Il Elec R* 75:922 N 29 '19
- See also **Electric apparatus and appliances; Electric controllers; Switchboards**
- Electric testing**
- Accurate timing in electrical tests. F. A. Kartak. *Il diags Elec W* 73:672-5 Ap 5 '19
- Artificial load for testing. *Il Elec W* 71:646 Mr 23 '18
- Circuits tested with telephone receivers. H. S. Rich. *diag Elec W* 74:530 S 6 '19
- Convenient testing outfit. J. M. Woodruff. *diag Power* 48:280 Ag 20 '18
- Curing electric troubles. *Il diag plan Motor Age* 35:22-4, Mr 20 '19
- Esterline duplex indicating instruments. *Il Elec R* 73:711-12 N 2 '18
- Fuse and circuit tester. *Il Elec W* 72:186-7 JI 27 '18
- Home-made high-potential test set. *diag Elec Ry J* 51:864 My 4 '18

**Electric testing—Continued**

Phase and fault testing by means of lamp signals. F. Gillooley. diags Elec R 74:617-19 Ap 19 '19

Spark recorder used in testing apparatus. F. W. Springer. diag Elec W 72:1129-30 D 14 '18

See also Dynamometer; Electric furnaces—Testing; Electric fuses—Testing; Electric laboratories; Electric lines—Testing; Electric measurement; Electric meters—Testing; Electric motors—Testing; Electric resistance; Electric transformers—Testing; Insulation—Testing

**Electric tractors**

Calculating performance of industrial tractors. A. Pace. Elec W 74:795-7 O 11 '19

Electric crane tractor. II Sci Am 119:318 O 19 '18

Electric tractors and trucks in freight house service. II Ry R 62:245-54 F 16 '18

Electric tractors in government service. Elec R 72:1013 Je 15 '18

Electric tractors in municipal service, Wiesbaden, Germany; abstract. Elec W 71:367 F 16 '18

Electric tractors prove successful in large packing plant. II Elec R 74:1032-4 Je 28 '19

Electric trucks and tractors in the iron and steel industry. B. J. Dillon. II Elec R 75:518-20 S 27 '19

Electric trucks and tractors meeting war problems. II Elec R 72:1012-13 Je 15 '18

Electrical plowing and mechanical agriculture in France. diags Elec R 74:985-7 Je 14 '19

Eliminating trap car service. II Ry Age 64:1089 Ap 26 '18

Experiments in the use of electric power for field work on the farm. J. H. Davidson and F. E. Boyd. II diag Gen Elec R 21:130-3 F '18

Field for industrial electric trucks and tractors. II Elec R 74:791-5 My 17 '19

Freight handling by tractors found economical. II Eng N 81:720-1 O 17 '18

Industrial heavy-duty tractor. II Iron Tr R 62:1424 Je 6 '18; Elec W 71:1239 Je 8 '18; Mach 24:960-1 Je '18; Ind Management 56:67-8 JI '18

Industrial tractors for solving freight terminal congestion. II diag plan Elec R 73:588-90 O 12 '18

Karry-Lode industrial trucks, tractors and trailers. II Automotive Ind 39:242-3 Ag 8 '18

Making the electric industrial tractor more efficient. G. A. Hughes and R. H. Pool. II diags Elec R 74:382-3 Mr 8 '19

Power trucks meet labor shortage. El. C. Kreutzburg. II Iron Tr R 62:1550-1 Je 20 '18

Shop haulage system of new design. II Iron Tr R 64:760-3 Mr 20 '19; Same. Foundry 47:176-9 Ap 1 '19

Storage battery trucks, tractors and locomotives. II Ry Age 64:1472 Je 21 '18

Three-wheel tractor. II Ry Mech Eng 92:475-6 Ag '18

Trackless train on New York piers. II Int Marine Eng 23:289-91 My '18

Tractor made from rebuilt Ford expedites terminal work. II Elec Ry J 53:61-2 Ja 4 '19

Tractors help a railroad. II Elec R 73:587 O 12 '18

Tractors reduce service cost at machinery plant, Minneapolis steel & machinery co. II diag Eng N 82:908-9 My 8 '19

Transportation by power trucks. R. Traut-schold. II Ind Management 56:97-101 Ag '18

Use tractor-truck system. El. L. Howe. II Iron Age 102:135 JI 18 '18

See also Electric locomotives; Electric trucks; Electric vehicles

**Electric transformers**

Abnormal voltages within transformers. L. F. Blume and A. Boyajian. II diags Am Inst E E Pro 38:211-48 F '19; Abstract. Elec R 74:367 Mr 1 '19; Abstract. Elec W 73:428 Mr 1 '19

Aluminum transformer; abstract. M. Vidmar. Elec W 71:209-10 Ja 26 '18

American transformer for motion-picture service. II Elec W 72:334-5 Ag 3 '18

Banking of distribution transformers. P. O. Reyneau and H. Cole. Elec R 72:948-9 Je 8 '18; Abstract. Elec W 72:119 JI 20 '18

Booster transformers save installation cost. W. Buchanan. diags Elec W 74:359 Ag 16 '19

Characteristic features of transformer installations. G. B. Schneeberger. Elec W 73:1330 Je 21 '19

Circuit of the current transformer. F. J. Gillooly. diags Elec R 74:943-6 Je 7 '19

Constant-potential transformer used as a series transformer. H. Mulford. diag Power 49:255-6 F 18 '19

Construction of a bell-ringing transformer for signaling apparatus. G. F. DeSilver. diags plan Coal Age 15:2-3 Ja 2 '19

Core-type transformers for furnace control. II Elec W 73:922 My 3 '19

Cores and coils for transformers. A. Palme. II diags Power 50:212-15, 254-6 Ag 5-13 '19

Current-transformer connections. W. R. Woodward. II diags Power 47:616-18 Ap 30 '18

Dessauer's high-tension transformer; abstract. E. Walter. diags Elec W 74:366 Ag 16 '19

Determination of safe loading of distributing transformers. B. M. Smith. Elec R 74:760-1 My 10 '19

Device for rewinding new-type transformers. F. de Muth. diag Elec W 74:886 O 25 '19

Disconnecting potheads to allow transformer changes. diag Elec W 74:705 S 27 '19

Distributing transformer service record. Elec R 74:599-600 Ap 12 '19

Economical loading of transformer banks. Elec W 72:737-8 O 19 '18

Effects of operation on transformer performance. Elec W 74:302 Ag 9 '19

Electrical swindling scheme. C. Hering. diag Elec W 71:524 Mr 9 '18

Emergency service for alloy-steel company; rotary-converter transformer reconnected to give desired voltage. diags Elec W 72:986 N 23 '18

Engineering evolution of electrical apparatus. C. F. Scott. diags Elec J 16:28-30 Ja '19

Essentials of transformer practice. E. G. Reed. diags Elec J 16:31-2, 66-8, 96-8, 145-7, 216-18, 267-8, 301-3 Ja-JI '19

From two- to three-phase with standard transformers. E. C. Sears. diag Elec W 71:361 F 16 '18

Graphical representation of phase angle error of current transformers. Elec R 72:845 My 13 '18

Induction—transformers—interpoles. H. H. Bliss. II diags J Elec 43:369-70 O 15 '19

Initial current rush of transformers; abstract. M. Vidmar. Elec W 73:135 Ja 18 '19

Instrument voltage transformers. W. R. Woodward. II diags Power 49:562-4 Ap 15 '19

Insulation of distribution transformers. A. C. Farmer. II diags Elec J 16:223-7 My '19

Isolating the neutral of transformer banks. Elec W 71:1088-9 My 25 '18

Large power transformers. A. G. Ellis and J. L. Thompson. diags Inst E E J 57:547-71; Discussion. 571-91 Ag '19

Lea-Bel transformer for tungsten-lamp projection. II Elec W 72:91 JI 13 '18

Lead-burning transformer for small storage batteries. II Power 49:979 Je 24 '19

Loading a bank of dissimilar transformers. H. B. Dwight. diag Elec W 74:230-1 Ag 2 '19

Making a small low-voltage transformer. Elec R 72:389-90 Mr 2 '18

Measurement of load on distributing transformers. II Elec R 75:366 Ag 30 '19

Method of connecting and operation of autotransformers. J. D. Bernard. diag Elec R 75:33-4 JI 5 '19

Method of determining proper loading of distributing transformers. F. A. Robbins. Elec R 74:562-3 Ap 5 '19; Same. Elec W 73:887-9 My 3 '19

**Electric transformers—Continued**

Operating details of banking transformers. diags Elec R 72:605-6 Ap 6 '18  
 Operation at Holtwood; caring for the main transformers. C. H. Bromley. *Il Power* 50:8-9 Jl 1 '19  
 Operation at low frequency causes transformer burn-out. J. A. Horton. *Elec W* 74:21 Jl 5 '19  
 Phantom circuit for current transformers. M. Graham. *Il Elec R* 72:1049 Je 22 '18  
 Principles of booster transformers. C. M. Jansky. diags Elec R 75:341-4 Ag 30 '19  
 Radiator tank transformers. H. O. Stephens and A. Palme. *Il diags plans Gen Elec R* 21:556-9 Ag '18  
 Reconnecting transformers to change voltage ratio. diags Elec W 74:576 S 13 '19  
 Relation of transformer design to load factor; abstract. S. D. Sprong. *Elec W* 72:119 Jl 20 '18  
 Residual magnetism cause of uncommon starting trouble. F. B. Johnson. *Elec R* 75:667-8 O 18 '19  
 Salesman's assistance in selecting transformer sizes. A. G. Drury. *Elec W* 71:1276 Je 15 '18  
 Secondary connections for constant-current transformers. L. Arnold. diags *Gen Elec R* 22:632-3 Ag '19  
 Shall transformers be banked in a distributing system? M. E. Grah. *diag Elec R* 72:507-9 Mr 23 '18; Discussion. *Elec W* 71:673-4 Mr 30 '18  
 60,000-kw. transformer; abstract. *Elec W* 73:955 My 10 '19  
 Size of transformers for induction motors. J. B. Gibbs. diags *Power* 49:756-9 My 20 '19  
 Some characteristics of transformer oils. O. H. Eschholz. *diag Elec J* 16:74-6 F '19  
 Special transformers provide for overloads. *Elec W* 74:129-30 Jl 19 '19  
 Standard ratings of three-phase transformers. *Elec W* 73:641 Mr 29 '19  
 Standardization of constant potential transformers. J. Liston. chart *Il Gen Elec R* 21:32-9 Ja '18  
 Static transformers for use with electric furnaces; abstract. *Elec W* 74:534 S 6 '19  
 Successful operation of secondary networks. S. B. Hood. *diag Elec W* 71:199-201 Ja 26 '18  
 Tertiary windings in transformers. J. F. Peters. diags *Elec J* 16:476-80 N '19  
 Three-phase to two-phase transformation. J. B. Gibbs. diags *Elec J* 16:103-6 Mr '19  
 Transformer connections eliminating auto-starters. diags *Elec W* 71:933-4 My 4 '18  
 Transformer losses in large rural distribution systems; abstract. H. Roth. *Elec W* 71:782 Ap 13 '18  
 Transformer specifications for synchronous converter service. *Elec R* 74:395 Mr 8 '19  
 Transformers and connections to electric furnaces. J. F. Peters. *Il diags Elec J* 16:397-9 S '19  
 Transformers for electric furnace. *Il Chem & Met Eng* 20:600 Je 1 '19  
 Transformers for electric welding. W. S. Moody. *Gen Elec R* 21:935-7 D '18  
 Transformers for induction motors. J. B. Gibbs. diags *Eng & Min J* 107:1076-8 Je 21 '19  
 Use of transformer with series alternating-current motor; abstract. M. Ernst. *Elec W* 72:405 Ag 31 '18  
 Voltage transformations with auto-transformers; abstract. E. C. Reed. diags *Elec W* 74:29 Jl 5 '19  
 Wagner type distribution transformers. *Il J Elec* 43:481-2 N 15 '19  
 Westinghouse 14,000-kva. single-phase transformer. *Il Elec R* 72:610-11 Ap 6 '18; *Elec W* 71:906 Ap 27 '18  
*See also Electric current rectifiers*

**Cooling**

Arrangement for cooling transformers in substation. *diag Elec W* 72:1029 N 30 '18  
 Forced cooling increases capacity. H. E. Wagner. *diag Elec R* 72:283 F 16 '18

Increasing transformer capacity by circulating oil. C. H. Shepherd. *Il plan Elec W* 71:560-2 Mr 16 '18  
 Methods of cooling transformers. A. Palme. *Il diags Power* 46:854-9 D 25 '17  
 Outdoor water-cooled transformers. R. Von Fabrice. *plan Power* 48:198-9 Ag 6 '18  
 Pertinent factors governing water supply to large water-cooled transformers. H. K. Brown. *diag Elec R* 72:245-6 F 9 '18  
 Stoppage and leaks in transformer coils. J. Adams. *J Elec* 43:264 S 15 '19; Same. *Elec R* 75:623 O 11 '19

**Cost**

Cost comparison of transformer types. B. C. Dennison. diags *Elec W* 73:1152-5 My 31 '19

**Failures**

Oil leakage causes transformer failure. F. Miller. *Il Elec R* 72:431 Mr 9 '18  
 Sleet and dusty bushings cause transformers to burn out. *Elec R* 72:524 Mr 23 '18

**Inspection**

Transformer inspection as economic measure. *Il diag Elec W* 71:875-8 Ap 27 '18  
 Vulnerable parts of distributing transformers. A. M. Abbott. *Elec R* 73:260 Ag 17 '18

**Mounting**

Economical transformer mounting. L. A. Sims. *Il Elec R* 73:582 O 12 '18  
 Relocation of transformers as means of saving space. *Il Elec W* 73:1276-7 Je 14 '19; Same. *Elec R* 74:1005 Je 14 '19  
 Safe and reliable mounting for transformers. *Il Elec R* 72:282 F 16 '18  
 Simplified mounting for pole type transformer banks. W. H. Kuntz. *Il Elec R* 72:638 Ap 13 '18  
 Standardization of transformer mounting. W. C. Blackwood. *Il diags Elec W* 73:578-81 Mr 22 '19  
 Transformer hoisting device. *Il Elec R* 73:740 N 9 '18  
 Transformers of the same bank on different poles. *Il Elec W* 71:1143 Je 1 '18  
 Two 150-kva. transformers mounted on a single pole. *Il Elec W* 73:689-90 Ap 5 '19

**Protection**

Insuring protection of current transformers. V. Karapetoff. *Elec W* 73:478-4 Mr 8 '19  
 Maintenance of air-blast transformers. W. E. Bryan and P. C. Varble. *Il plan Elec Ry J* 54:424-6 Ag 30 '19  
 Phases of protecting distributing transformers. S. F. Erickson. *Il Elec R* 72:187-91 F 2 '18  
 Reducing the hazards of transformer cutouts. H. P. Wallace. *Elec R* 73:703 N 2 '18

**Repair**

Repair of damaged coils in transformers. G. A. Her. *Elec W* 73:584 Mr 22 '19  
 Safeguarding use of tools round large oil-filled transformers. M. S. Montgomery. *Elec R* 72:204 F 2 '18

**Tanks**

Color of transformer case as affecting capacity. H. M. Daman. *Elec R* 73:138-9 Jl 27 '18  
 Electric arc welding in tank construction. R. E. Wagner. *Il diags Gen Elec R* 21:899-911 D '18; Abstract. *Eng & Min J* 107:743 Ap 26 '19  
 New form of tank for static transformers. W. S. Moody. *Il diag Gen Elec R* 22:756-9 O '19; Same. *Elec R* 75:651-3 O 18 '19  
 Oil-cooled transformer cases. *Il Power* 48:238 Ag 13 '18  
 Welding transformer tanks by the electric arc process. E. Oberg. *Il Mach* 24:398-403 Ja '18

**Temperature**

Combating the breathing effect of large outdoor transformers. J. R. Hilton. *Elec R* 74:432 Mr 15 '19  
 Hottest spot temperature in transformers. A. Still. diags *Elec W* 72:113-14 Jl 20 '18

**Electric transformers—Temperature—Continued**  
Temperature indicator for transformer winding. V. M. Montsinger and A. T. Childs. *diags Gen Elec R 21:396-401 Je '18*

#### Testing

Board for the testing of current transformers. *diags Elec W 74:884 O 25 '19*  
Current transformer ratio and phase error by test ring method. H. S. Baker. *diags Am Inst E E Pro 37:1173-83 S '18*; Same. *Elec R 73:766-9 N 16 '18*  
Field testing of instrument transformers. H. M. Crothers. *diags Elec W 73:516-19; 74:119-21 Mr 15, JI 19 '19*  
Method for testing current transformers. F. B. Silsbee. *diags U S Bur Stand Bul 14:317-29 Je 17 '18*  
Simple method of testing current transformers. *diags Elec R 72:103-6 Ja 19 '18*  
Testing instrument transformers for polarity. C. W. Bates. *diags Elec W 74:290-1 Ag 9 '19*

#### Transportation

Novel method of shipping large Westinghouse transformers. *diags Power 47:258 F 19 '18*

#### Electric transmission

Adapting existing lines to increased loads. E. B. Hook, Jr. *diags Elec W 71:39-41 Ja 5 '18*  
Aerial cable construction for electric power transmission. E. H. Meyer. *diags Am Inst E E Pro 37:561-70 Je '18*  
Aluminum-iron-rope cable for high-tension transmission lines; abstract. *Elec W 71:153 Ja 19 '18*  
Annual report of the Transmission and distribution committee. *Am Inst E E Pro 38:906-10 JI '19*  
Automatically operated synchronizing station. *diags Elec W 71:153 Ja 19 '18*  
California 220,000-volt—1100-mile—1,500,000-kw. transmission bus. R. W. Sorensen, H. H. Cox and G. E. Armstrong. *maps Am Inst E E Pro 38:1027-38 S '19*; Same. *J Elec 43:202-5 S 1 '19*; Same. *Elec R 75:477-80 S 20 '19*; Excerpt. *Elec W 74:743-5 O 4 '19*  
Determining stray power of a transmission line. D. D. Ewing. *Elec Ry J 51:95-7 Ja 12 '18*  
Division of wattless load between stations operating in parallel; abstract. G. Brecht. *Elec W 74:479 Ag 30 '19*  
Economic design of high-tension transmission lines; abstract. G. Horstmann. *Elec W 72:1232 D 28 '18*  
Effect of a tie-line between two substations. H. B. Dwight. *diags Elec R 73:966-8 D 21 '18*  
Electric surges in transformer coils; abstract. W. Rogowski. *Elec W 72:895 N 9 '18*  
Electrical characteristics of transmission circuits. W. Nesbit. *chart diags Elec J 16:279-87, 314-26, 385-96, 485-9, 515-19 JI-S, N-D '19*  
Electrical transmission of power in and about coal mines. S. W. Farnham. *Coal Age 16:48-51 JI 10 '19*  
Engineering evolution of electrical apparatus. C. F. Scott. *diags Elec J 16:28-30 Ja '19*  
Feasibility of 220,000-volt transmission discussed. *Elec W 74:17 JI 5 '19*  
General equations of the electric circuit. C. P. Steinmetz. *Am Inst E E Pro 38:249-318 Mr '19*  
Graphic determination of distribution economics. G. M. Armbrust. *diags Elec R 74:416-18 Mr 15 '19*  
Graphical determination of line constants. T. A. Wilkinson. *charts (supp) diags Elec W 71:557-8 Mr 16 '18*  
High-tension loop gives doubled reliability. H. C. Dean. *plan Elec W 74:805 O 11 '19*  
Installing high-tension lines. *Coal Age 16:73 JI 10 '19*  
Latest developments in the electric transmission of power. P. M. Lincoln. *J Fr Inst 187:365-6 Mr '19*  
Limits of power transmission by alternate current; abstract. M. D. Dobrowolsky. *Elec W 74:422-3 Ag 23 '19*

Long cable span in Norwegian power plant. *Munic J 44:399 My 11 '18*

Long-distance transmission in Germany; abstract. F. Niethammer. *Elec W 71:626 Mr 23 '18*

Long-line phenomena and vector locus diagrams. E. Velander. *diags Elec W 73:212-16 F 1 '19*

Methods of increasing capacity of existing transmission lines. E. C. Stone. *diags Elec R 75:562-6 O 4 '19*

Phasing out of high-tension lines; abstract. E. C. Stone. *Elec W 70:1203 D 22 '17*

Problems of 220-kv. power transmission. A. E. Silver. *diags Am Inst E E Pro 38:751-814 Je '19*; Excerpts. *Elec R 75:52-5 JI 12 '19*

Prorating line loss. *Elec W 72:976 N 23 '18*

Sag calculation for iron-wire lines. M. D. Leslie. *Elec W 72:196-7 Ag 3 '18*

Sag-temperature calculations of transmission lines on steep grades. A. Still. *diags J Fr Inst 185:509-15 Ap '18*; Same. *Elec R 73:945-7 Je 8 '18*

Simplifying transmission-line calculations. T. A. Wilkinson. *chart Elec W 71:244-8 F 2 '18*

Some problems in the operation of power plants in parallel. E. C. Stone. *diags Am Inst E E Pro 38:973-96 Ag '19*; Abstract. *Elec R 74:315 F 22 '19*

Special transmission-line problems. *diags Elec W 71:919-22 My 4 '18*

Split-conductor cable—balanced protection. W. H. Cole. *diags Am Inst E E Pro 37:793-816 JI '18*; Appendix. C. A. Adams. *37:817-20 JI '18*; Same cond. *Elec W 71:1370-1 Je 29 '18*

Standardized specifications for transmission line railroad crossings; recommendations and chart of Bureau of standards. *Elec R 73:377-9 S 7 '18*

Synchronous condensers in high-tension system. J. W. Andree. *diags map Elec W 74:564-7 S 13 '19*

Theory of the transient oscillations of electrical networks and transmission systems. J. R. Carson. *Am Inst E E Pro 38:407-89 Mr '19*

Transmission-line computations. A. E. Kennelly. *Elec W 73:356-7 F 22 '19*

Transmission-line construction of Duquesne light company. T. R. Hay. *diags Elec R 73:643-6 O 26 '18*

Transmission-line river crossing of Toledo railways & light company. *diags Elec R 72:185-6 F 2 '18*

Transmission of electric power; expense of delivering current to the mill. A. Walton. *Textile World 56:2202 O 11 '19*  
220,000-volt transmission an immediate possibility. *Elec W 73:1368-71 Je 28 '19*

*See also* Electric conductors; Electric conduits; Electric distribution; Electric driving; Electric lines; Electric plants; Electric plants—Interconnection; Electric power; Electric switches; Hydroelectric plants; Voltage regulation

**Electric transmission lines.** *See* Electric lines

**Electric treatment.** *See* Electrotherapeutics

#### Electric trucks

Automobile electric kitchen. *diags Elec R 72:816 My 11 '18*

Battery rental service. *Elec R 72:814 My 11 '18*

Chicago central station meets transportation emergency. *diags Elec R 75:245 Ag 9 '19*

Connecting charge-controlling ampere-hour meter for truck. *diags Elec R 75:75 JI 12 '19*

Crescent motor-driven truck reduces labor cost. *diags Iron Tr R 63:151-2 JI 18 '18*; *Mach 24:1149 Ag '18*

Developments in electric trucks at Hartford, Conn. *diags Elec W 73:795-6 Ap 19 '19*

Electric commercial vehicle. *Engineer 125:312-13 Ap 12 '18*

Electric deliveries for the Black Diamond. A. J. Marshall. *diags Elec R 73:70-1 JI 13 '18*

Electric truck for coal and ash handling. *Elec R 72:1013 Je 15 '18*

Electric truck performance in New York. *diags Elec R 73:427-8 S 14 '18*



**Electric trucks—Continued**

Electric truck reduces cost of coal handling. *Il Elec R 73:1017-18 D 28 '18; Same. Elec W 73:86 Ja 11 '19; Same. Iron Tr R 64:210 Ja 16 '19*

Electric truck runs between Chicago and Cleveland. *Il Elec R 72:649 Ap 13 '18*

Electric trucks and tractors meeting war problems. *Il Elec R 72:1012-13 Je 15 '18*

Electric trucks and transportation. *E. E. LaSchum. Elec R 74:931-3 Je 7 '19*

Electric vehicle a factor in transportation engineering. *Il Elec R 72:479-82 Mr 16 '18*

Electric vehicle as a war measure. *J. H. McGraw. Il Elec W 71:1361-3 Je 29 '18*

Electric vehicle economical for coal delivery. *Il Elec R 72:923-5 Je 1 '18*

Elwell Parker storage battery truck and tractor. *Il Iron Age 101:325 Ja 31 '18*

Elwell-Parker type WB electric truck. *Il Am Mach 48:347 F 21 '18*

Extremely long, useful life of electric trucks. *A. J. Marshall. Elec R 74:909 My 31 '19*

Federal and municipal transportation. *Elec W 73:1095-6 My 24 '19*

Helping the electric truck in Chicago. *Il Elec R 72:650-2 Ap 13 '18*

How New York Edison uses electric trucks. *Elec R 72:302-3 F 16 '18*

How the electric truck releases men for productive work. *F. C. Myers. Il Ind Management 55:277-80 Ap '18*

Long intercity haul with electric truck. *Il Elec W 71:883 Ap 27 '18*

Medium-service electric truck. *Il Elec W 71:906 Ap 27 '18; Int Marine Eng 23:314-15 My '18*

Model C Lansing truck. *Il Ind Management 55:333 Ap '18*

Norwegian government adopts electric trucks. *Elec R 73:451 S 21 '18*

Self-dumping electric coal-delivery truck. *Il Elec W 70:1149 D 15 '17*

Self-loading electric truck. *Il Ind Management 55:156-7 F '18*

Trucks and tractors and proper application. *Il Elec W 73:1097-8 My 24 '19*

*See also Motor trucks*

**Cost of operation**

Cost of operating municipal Edison electric motor tipping trucks, Newcastle, England. *F. W. Sykes. Eng & Contr 50:110 Jl 31 '18*

Costs of the operation of electric vehicles in municipal service. *S. L. Pearce. Eng & Contr 50:107-8 Jl 31 '18*

Electric truck operating costs. *E. E. LaSchum. Il Textile World 56:2009+ O 4 '19*

Electric truck operating costs. *A. J. Marshall. Elec R 72:958 Je 8 '18; Same. Good Roads n s 16:53 Ag 10 '18*

Electrics in express service. *Good Roads n s 18:168 O 1 '19*

Hauling wood electrically. *Elec R 73:426 S 14 '18*

Light delivery van costs. *Elec R 73:587 O 12 '18*

Operating costs of a two-ton electric truck. *Elec R 72:478 Mr 16 '18*

Refuse collection and disposal in Hampstead. *Munic J 47:124 Ag 23 '19*

Tabulation of the costs of using electric truck. *Elec W 71:1144 Je 1 '18*

**Specifications**

Technical specifications of 31 electric commercial vehicle chassis listed on the American market for the 1918 season; tabulation. *Automotive Ind 37:810-11 N 1 '17*

**Electric trucks, industrial**

Baker crane hoist type of industrial truck. *Il Iron Age 102:575 S 5 '18*

Baker electric trucks and tractors. *Il Ind Management 55:510 Je '18*

Clark tractor. *Il Metal Ind 17:470 O '19*

Concrete roadway system in a shop yard. *C: E. Parks. Il Ry Age 64:111-14 Ja 11 '18*

Concrete roadways for shops of the A. T. & S. F. Ry., at Topeka, Kan. *C. M. Buck. Il diags plan Ry R 62:568-73 Ap 20 '18; Same cond. Eng N 80:1038-40 My 30 '18*

Cutting the cost of cupola charging with an electric elevating platform truck equipped with a beam scale. *Il Iron Age 100:1411 D 13 '17*

Electric equipment for steam railroads. *Il Ry Age 64:897-8 Ap 5 sec 1 '18*

Electric tractors and trucks in freight house service. *Il Ry R 62:245-54 F 16 '18*

Electric trucks and tractors. *F: B. Fink. Ry Age 67:924-6 N 7 '19*

Electric trucks and tractors in printing plants. *B. J. Dillon. Il Elec R 75:895-7 N 29 '19*

Electric trucks and tractors in the iron and steel industry. *B. J. Dillon. Il Elec R 75: 518-20 S 27 '19*

Electric trucks in station service. *Il Ry Age 64:726 Mr 22 '18*

Electric trucks in storehouse service. *Il Ry Age 63:1091-3 D 14 '17*

Field for industrial electric trucks and tractors. *Il Elec R 74:791-5 My 17 '19*

Freight handling at the Panama canal. *Il Int Marine Eng 23:26-7 Ja '18*

Frictionless freight handling. *Il Sci Am 118: 73 Ja 19 '18*

Handling freight faster with fewer men. *F. C. Myers. Il Ry Age 63:1039-42 D 7 '17*

Handling traffic in manufacturing plants. *Il Automotive Ind 37:1101-3 D 20 '17*

Hunt industrial electric truck. *Il Elec W 71:646 Mr 23 '18*

Industrial electric trucks and tractors in machine shops. *B. J. Dillon. Il Elec R 75: 683-5 O 25 '19*

Industrial floor trucks and tractors. *Il Elec W 71:282 F 2 '18*

Industrial truck for handling slabs. *Il Iron Age 101:690-1 Mr 14 '18*

Industrial truck with new features. *Il Am Mach 50:1015 My 22 '19*

Industrial trucks in freight congestion relief. *F. C. Myers. Il Elec W 70:1186-8 D 22 '17*

Industrial trucks with standardized parts. *Il Ry Age 66:1067 Ap 25 '19*

Karry-Lode industrial trucks, tractors and trailers. *Il Automotive Ind 39:242-3 Ag 8 '18*

Labor substitute for the warehouse. *D. L. Darnell. Il Elec R 75:441-2 S 13 '19*

Link between motor trucks and industrials. *A. Van Vlissingen, Jr. Factory 22:458-9 Mr '19*

Mail delivery in a large factory. *C. L. Edholm. Il Am Mach 48:295 F 14 '18*

Saving \$200 a day in inter-shop haulage. *R. M. Kinny. Il Factory 22:926-9 My '19*

Standardized industrial trucks. *Il Iron Age 101:1067 Ap 25 '18*

Timely economy of self-propelled trucks. *S. P. Munroe. Il Textile World 54:65-6, 531+ Jl 6, Ag 3 '18*

Transportation by power trucks. *R. Traut-schold. Il Ind Management 56:97-101 Ag '18*

Use of electrical equipment on San Francisco water front. *C: W. Geiger. Il Elec R 74:977-81 Je 14 '19*

Use of industrial electric trucks and tractors by railroads. *B. J. Dillon. Il Elec R 74:1069-73 Je 28 '19*

Use of industrial electric trucks and tractors in warehouses. *B. J. Dillon. Il Elec R 75: 345-8 Ag 30 '19*

Using basements and subways for factory trucking. *P: F. O'Shea. Il diag Factory 23: 1285-9 D '19*

**Electric units**

Digest of the relations between the electrical units, and of the laws underlying the units. *E: Bennett. diags Wis U Bul Eng S 8:335-425 no 6 '17*

*See also Electric standards*

**Electric utilities**

Chicago situation explained; sanitary district and the Edison company. *Power 48:422-3 S 17 '18*

Construction, extension and upkeep policies of central stations. *Elec R 74:335-7 Mr 1 '19*

Electric and gas utilities in 1917 and 1918. *W. H. Hodge. Elec R 72:15 Ja 5 '18; Same. Gas Age 41:39 Ja 1 '18*

**Electric utilities—Continued**

Electric utilities in the war program. Elec W 71:1174-6 Je 8 '18  
 Increasing demand factor of residence consumers. H. B. Gear. Elec W 72:9-10 Jl 6 '18  
 Interconnection of power systems. Il maps Am Inst E E Pro 37:1297-1333 D '18  
 N. E. L. A. convention. Elec R 74:831-41 My 24 '19  
 Point of view. S. M. Kennedy. Il J Elec 43:350-2 O 15 '19  
 Promising outlook for Eastern companies. Il diag maps Elec W 73:984-91 My 17 '19  
*See also* Electric lines; Electric plants (central stations); Electric rates; Electric service, Rural; Electric vehicles and the central station; Power factor; also Association of Edison Illuminating companies

**Accounting**

Central-station accounting in war time. W: Schmidt, Jr. Elec W 72:64 Jl 13 '18  
 Collecting statistics from customers' accounts. G. R. Kenny. Elec W 71:774-5 Ap 13 '18  
 Collection, billing and meter-reading economy. R. J. Hole. Elec W 73:691-2 Ap 5 '19  
 Combination gas and electrical billing. Elec W 71:468 Mr 2 '18  
 Method employed for analyzing of business by Rochester company. Elec W 71:261 F 2 '18  
 N. E. L. A. accounting sessions. Elec R 74:843 My 24 '19  
 Preparation of data in connection with rate cases. C. R. Bitting. Elec Ry J 54:sup29-30 O 11 '19  
 Separation of costs in a combined steam-heating and electric plant. H. W. Meyer. cases. C. R. Bitting. Elec Ry J 54:sup29-30  
 Uniform classification of accounts; with discussion. Elec W 73:1099-1101 My 24 '19

**Advertising**

Advertising methods for central stations. L. D. Gibbs. Elec W 74:477 Ag 30 '19  
 California co-operative campaign shows results. Elec W 73:284 F 8 '19  
 Economics of central-station advertising. R. S. Hale. Elec R 75:408-9 S 6 '19; Same cond. Elec W 74:661-2 S 20 '19  
 Human interest advertising sells stock. Elec R 73:1014-16 D 28 '18  
 Innovation in advertising on customers' statements. Elec W 71:936-7 My 4 '18  
 Newer aspects of advertising by central stations. L. D. Gibbs. Elec R 75:349-51 Ag 30 '19  
 Potential publicity. S. M. Kennedy. Il J Elec 43:450-2, 499-501 N 15-D 1 '19

**Contracts**

Contract standardized for all classes of service. Elec W 74:662 S 20 '19  
 Engineering advice in making electric power contracts. A. L. Johnston, Jr. Ind Management 54:366-9 D '17; Discussion. T: R. Hay. 55:138-9 F '18  
 Existing legal status of contracts for power. L. E. Eastman. Elec W 71:1044 My 18 '18  
 Interesting provisions of arsenal service contract. Elec W 71:1091-2 My 25 '18  
 Power contract terms made in Pasadena, Cal., between city and Southern California Edison company. Elec W 71:946-7 My 4 '18  
 Power-factor clauses in contracts. W. Brown. Elec W 72:1164-5 D 21 '18  
 Special contract for housing of employees. Elec W 71:1092-3 My 25 '18

**Costs**

Central-station rates in theory and practice. H. E. Eisenmenger. Elec R 75:47-51, 94-7, 138-43, 183-7, 231-6, 266-9, 304-7, 352-5, 388-91, 434-7, 478-6, 518-17, 555-8, 599-602 Jl 12-O 11 '19

**Employees**

Central-station employee relations. F. A. Farnsworth, Jr. Il Elec W 71:1199-1202 Je 8 '18  
 Commonwealth Edison employs women meter readers. Elec R 73:374-5 S 7 '18  
 Employees' instructions that make for courtesy. Elec W 74:660 S 20 '19

How women are trained to become meter readers. Il Elec W 72:604 S 28 '18  
 Shall the employees be taken over with the plant? Elec W 70:1201 D 22 '17  
 Short course for metermen brings good results. Elec R 74:472 Mr 22 '19; Same. Elec W 73:581 Mr 22 '19  
 Success with girls hired as meter readers. Elec W 71:572-3 Mr 16 '18  
 Woman substation operators a notable success. Il diag Elec W 72:545-8 S 21 '18  
*See also* Electric utilities—Salesmen

**Finance**

Boston Edison operations under the war conditions. Elec W 72:760 O 19 '18  
 Central-station industry in the war period. T. C. Martin. Elec R 72:8-9 Ja 5 '18  
 Commonwealth Edison coal mines of great advantage. S: Insull. Elec W 73:438 Mr 1 '19  
 Condition of electric utilities in the war. Elec W 71:873-4 Ap 27 '18  
 Effect of daylight saving on central-station income. Elec W 72:939 N 16 '18  
 Effect of the high cost of doing business upon Detroit Edison co. H. A. Snow. Elec R 73:777-9 N 16 '18  
 Effects of war conditions on cost and quality of electric service. L. S. Goodman and W: B. Jackson. Am Inst E E Pro 37:23-39 Ja '18; Same cond. Elec R 72:107-11 Ja 19 '18; Abstract. Elec W 71:165 Ja 19 '18; Excerpts. Elec Ry J 51:75-6 Ja 12 '18; Excerpts. Power 47:134-5 Ja 22 '18; Discussion. Elec R 72:114-16 Ja 19 '18; Elec W 71:165-7, 269 Ja 19, F 2 '18  
 Need of adequate rates. L. K. Comstock. Elec W 73:1322-3 Je 21 '19  
 New security issues of electric utilities. Elec W 73:530-1 Mr 15 '19  
 New York public service commission to eliminate appraisal of electric plants in rate increases. Elec R 72:1042 Je 22 '18  
 Pacific gas & electric company sells stock worth \$8,203,000 locally. Elec W 71:1315-16 Je 22 '18  
 Plea made for higher rates in Indianapolis. Elec W 71:1334 Je 22 '18  
 Popular subscription to \$750,000 bonds in two weeks: Central Hudson gas & electric co., Poughkeepsie, N.Y. Elec W 73:898 My 3 '19  
 St Louis valuation nearly equal to the securities. Elec W 74:815-16 O 11 '19

*See also* Electric utilities—Accounting; Electric utilities—Line extension; Electric utilities—Valuation

**Franchises**

Absolute monopoly of territory upheld by New York public service commission, Second district. Gas Age 40:578 D 15 '17

**Law**

Court decisions on accidents from over-charged service wires. C. C. Sherlock. Elec R 72:868-9 My 25 '18  
 Liability of central-station company for failure of electric power. C. C. Sherlock. Elec R 74:216-17 F 8 '19  
 Texas passes law to provide against stealing or diversion of electric current. Elec R 71:1022 D 15 '17

*See also* Electric utilities—Regulation

**Line extension**

Customers to pay excess over 1914 cost on line extensions. Elec W 72:846 N 2 '18  
 Extensions of lines in war-time. A. Dow. Elec W 72:13-14 Jl 6 '18  
 Financing extensions of line in war and peace. Elec W 73:792 Ap 19 '19  
 Line extensions in medium and small sized communities. B. F. Cherry. Elec R 75:364-5 Ag 30 '19  
 Line extensions under war conditions. Elec R 72:1092 Je 29 '18  
 Methods of financing extensions of lines. R. Thurman. Elec W 72:404 Ag 31 '18  
 Short extensions are financed by customers. Elec W 72:845-6 N 2 '18

**Electric utilities—Line extension—Continued**

War-line construction costs financed by customers. Elec W 73:182 Ja 25 '19

**Management**

Added income without added capital. J: G. Learned. Elec R 72:1047 Je 22 '18  
Building a sales department. Il J Elec 43:353-4 O 15 '19  
Classification of sales department expenses. Elec W 71:1325 Je 22 '18  
Commercial policies of central-stations. Elec R 74:788-90 My 17 '19  
Credit department's relations with customers. Elec W 71:53-4, 633-4 Ja 5, Mr 23 '18  
Delivery of high-tension service to large consumers. R. Collier. Il Elec R 75:392-6 S 6 '19; Excerpts. Elec W 74:518-21 S 6 '19  
Detection and remedy of current theft from central stations. T: R. Hay. Elec R 74:588-9 Ap 12 '19  
Discussion on rule of Illinois commission covering methods of handling customers' accounts. Elec W 71:729 Ap 6 '18  
Economic aspects of summer load. Il Elec W 71:1084-7, 1134-6 My 25-Je 1 '18  
Factory lighting—a central-station problem. O. R. Hogue and J. J. Kirk. Il Elec R 75:725-7 N 1 '19  
Flat-rate customers changed to meter basis. Elec W 72:651 O 5 '18  
Force behind the sales force. A. Drury. Il J Elec 43:355-6 O 15 '19  
Foundation force for holding meter department. J. T. Kermode. Elec W 73:534-5 Mr 15 '19  
Free lamp renewal policy re-established. Elec W 73:181-2 Ja 25 '19  
Gas and electricity being merchandising specialties must be sold accordingly. C. A. Magee. Am Gas Eng J 107:527-30 D 8 '17; Same. Gas Age 40:564-70 D 15 '17  
How one central station encourages economy. Elec W 71:363-4 F 16 '18  
Important lamp-renewal innovation by Commonwealth Edison company. Elec R 72:270-1 F 16 '18  
Iowa meeting brings full discussion of management. Elec W 73:1406-7 Je 28 '19  
Lighting and appliance business; attractive publicity, intelligent solicitation, honest advertisements and service required to secure maximum of this business. T: R. Hay. Elec W 70:1107-8 D 8 '17; Same abr. Am Gas Eng J 107:553-4 D 15 '17  
Lobby of new building for the Minneapolis General electric company was constructed to help carry out company policy. Il Elec W 71:102-3 Ja 12 '18  
Making a market for the central stations. L. W. Alwyn-Schmidt. Elec W 74:223-4, 320-1 F 1, 15 '19  
Merchandising methods of central stations. W. S. Heald. Elec R 74:585-7 Ap 12 '19  
Methods of selling appliances on the installment plan. Elec R 72:634-5 Ap 13 '18  
Montana power company's sales and service methods. Il Elec R 73:504-5 S 28 '18  
New-business program for coming six months. Elec W 71:103 Ja 12 '18  
New plan of service-charge schedules for power loads. Elec W 72:893-4 N 9 '18  
New York companies discontinue lamp service. Elec W 72:117-18 Ji 20 '18  
Operations of land and tax department. Elec W 72:211-12 Ag 3 '18  
Organizing operating staff to meet emergencies. E. P. Peck. Elec W 71:29-80 Ja 5 '18  
Protection against thieving customers. C. W. Ward. Elec W 72:1037 N 30 '18  
Rendering monthly bills to consumers. Elec W 70:1248 D 29 '17  
Sales manager's situation in war time. Elec W 71:882-3 Ap 27 '18  
Summer power for isolated plants saves money. Elec R 74:684-5 Ap 26 '19  
Temporary receipts for guarantee deposits. Elec W 71:573 Mr 16 '18  
Ten vital points for electric range sales. F. J. Allen. Elec W 71:1327 Je 22 '18  
Utility serves large single-phase loads. Elec W 74:136 Ji 19 '19

War proves strength of budget and expense plan. Elec W 73:229 F 1 '19

Why electric service must be maintained. F. H. Bernhard. Il Elec R 72:405-8 Mr 9 '18  
Yorkshire local section: chairman's address. W. Lang. Inst E E J 56:19-22 D '17

See also Electric utilities—Employees; Electric utilities—Line extension

**Public relations**

Advertising to precede any increase in rates; publicity plan of Kansas City company. Elec W 72:856 Ag 24 '18  
Breeding germs of municipal-plant agitation. C. S. Dowling. Elec R 72:367-8 Mr 2 '18  
Kind of publicity for increased rates. L. W. Morrow. Elec W 71:1277 Je 15 '18  
Making public-relations capital from taxes paid. Elec W 70:1246 D 29 '17  
Man in the street. S. M. Kennedy. J Elec 42:417-21 My 1 '19; Abstract. Elec W 73:1273-9 Je 14 '19  
Point of view. S. M. Kennedy. Il J Elec 43:350-2 O 15 '19  
Public policy on the Pacific coast. Il Elec W 73:1126-7 My 24 '19  
Report of Public policy committee. J: A. Britton. J Elec 42:479-83 My 15 '19  
Value of courtesy. S. M. Kennedy. Il J Elec 43:401-4 N 1 '19  
Value of publicity to the electrical industry. W. H. Onken, Jr. J Elec 43:477-8 N 15 '19  
Winning the public to your side. Elec R 71:1108-9 D 29 '17

**Rates**

See Electric rates

**Records**

Columbus system of customers' records. Elec W 74:307, 365 Ag 9-16 '19  
Meter records of utility in city of 3000 people. Elec W 71:938 My 4 '18  
Numbering of pole line structures. diags Elec R 73:526-8 O 5 '18  
Recording system for distribution equipment. Elec W 72:1230 D 28 '18  
Records of customers kept in Columbus, Ohio. Elec W 74:81 Ji 12 '19  
System for recording power installations. Elec W 72:450 S 7 '18  
Tabulating troubles on transmission line. Elec W 72:401 Ag 31 '18  
Transformer record card used by western company. Elec W 70:1151 D 15 '17

**Regulation**

Address to the Irish centre. C. H. Wordingham. Inst E E J 57:421-5 Je 19  
Commission ruling governs priority in service curtailment. Elec R 75:204-5 Ag 2 '19  
Cost of extensions for power service. Elec W 74:38 Ji 5 '19  
Electricity restricted in England. Elec W 71:1177-8 Je 8 '18  
Government control of water power and electrical distribution abroad. L. W. Schmidt. Power 47:505-8 Ap 9 '18  
Indiana commission formulates rules for extensions. Elec R 75:491-2 S 20 '19  
Origin of electric rate control. C: W. McKay. Elec R 74:796-8 My 17 '19  
Service extension problems in California. J. F. Pollard. Elec W 70:1095-7 D 8 '17  
Sliding scale of return with combined services. Elec Rv J 53:684 Ap 5 '19  
War power problems met by California commission. Elec W 71:998-9 My 11 '18  
Wisconsin commission service rating system. Elec W 72:598 S 28 '18

**Sales departments**

See Electric utilities—Management

**Salesmen**

Sales department's relations with customer. F. A. Coffin. Elec W 71:311 F 9 '18  
Why women can sell electrical household appliances. A. A. Tietz. Elec R 72:644 Ap 13 '18

**Statistics**

See Electric plants (central stations)—Statistics

**Electric utilities—Continued****Valuation**

- Engineering data necessary for an electric rate determination. B. H. Peck. chart W Soc E J 23:1-20; Discussion. 20-7 Ja '18  
Origin of electric rate control. C: W. McKay. Elec R 74:796-8 My 17 '19  
Practice in making electric utility appraisals. C: W. McKay. Elec R 75:226-30, 428-33 Ag 9, S 13 '19  
Reproduction cost as applied to the appraisement of electric utilities. C: W. McKay. Elec R 74:1074-7 Je 28 '19  
Washington water power co.'s valuation. Power 48:179 JI 30 '18

**Terminology**

- Terms used in rate case defined. C: W. McKay. Elec R 74:934-6 Je 7 '19

**Wages**

- Advancing cost of central-station labor. Elec W 72:301 Ag 17 '18  
Round-table discussion of labor problem in Iowa by central-station men. Elec W 72:309 Ag 17 '18

**War service**

- Economic steps taken by Vienna electric service company; abstract. Elec W 70:1109 D 8 '17  
How lighting interests can best serve the nation. F. H. Bernhard. Il Elec R 73:355-9 S 7 '18  
How the South handled war-time loads. Il maps Elec W 73:1022-30 My 17 '19  
In league with the government. C. L. Edgar. Elec W 71:1186-7 Je 8 '18  
Nationalization of electric power production proposed in Great Britain. Elec R 72:11 Ja 5 '18  
Niagara Falls a war-load center. maps Elec W 73:996-1000 My 17 '19  
Present war production made possible by utilities. Il Elec W 72:541-4 S 21 '18  
Spirit of war in the Central West. Il Elec W 71:31-4 Ja 5 '18  
War conservation of power and light. C: E. Stuart. Elec W 71:1181-3 Je 8 '18; Same. Elec R 72:1034-6 Je 22 '18; Same cond. Power 47:927-8 Je 25 '18  
War expansion of Washington's utilities. Elec W 71:1179-80 Je 8 '18  
War load felt greatly around Pittsburgh. maps Elec W 73:992-5 My 17 '19  
War service of the Commonwealth Edison company. L: A. Ferguson. Il diags Elec R 74:889-92 My 31 '19; Same cond. Elec W 73:1230-1 Je 7 '19  
War-time service problems in New England. Il maps Elec W 73:1007-19 My 17 '19

**Electric vehicles**

- Average annual cost of maintaining and operating electric vehicles averaging 10,000 miles per year. Elec W 71:990 My 11 '18  
Electric that has many gas car features. Il diag Automotive Ind 41:170-1 JI 24 '19  
Electric vehicle as a war measure. J. H. McGraw. Elec W 71:1264 Je 15 '18  
Electric vehicle growth under the conditions of war. A. J. Marshall. Elec W 71:60 Ja 5 '18  
Electric vehicle in Spain. Elec R 73:426-7 S 14 '18  
Electric vehicles make records in snow drifts. Il Elec W 71:365 F 16 '18  
Electricity as a war fuel. Elec R 72:482 Mr 16 '18  
Fresh deal for the electric car; getting more miles out of a gallon of gasoline. Il diag Sci Am 121:418-19 O 25 '19  
Improving electric-vehicle performance during winter. K. Rutherford. Elec R 71:717-19 O 27 '17; Same. Sci Am S 85:70-1 F 2 '18  
Interesting features of an electric vehicle of 1898. J. G. Mitchell. Il Elec R 72:483-4 Mr 16 '18  
Long distance traveling via electric vehicles. Elec R 73:428 S 14 '18

N. E. L. A. first and second vehicle sessions. Elec R 74:842 My 24 '19

Needed legislation and standardization. Elec W 73:1096-7 My 24 '19

New electric automobile contains many novel features. Il diag Elec R 75:315-16 Ag 23 '19  
S. A. E. Standards committee in busy session. Automotive Ind 38:141 Ja 10 '18

Unusual type of electric vehicle drive. Il diag Elec W 74:163 JI 19 '19

Work of the electric vehicle committee of Great Britain. Elec R 73:230 Ag 10 '18

See also Electric buses; Electric tractors; Electric trucks; Garages, Electric; Motor cars (railroad)—Storage battery; Storage batteries; Unicycle

**Electric vehicles and the central station**

- Isolated plant operates electrics on central station service; Silver State laundry, Denver, Colo. Il Elec R 72:813 My 11 '18  
New electric truck service ready in Chicago. Il Elec R 71:1091-4 D 29 '17; Abstract. Elec W 70:1247-8 D 29 '17

Electric washing machines. See Washing machines, Electric

**Electric water heaters**

Everhot water heater. Il Am Mach 51:739 O 16 '19

Heating liquids by electricity: the past, the present and the future; with discussion. H. O. Swoboda. Il diags Eng Soc W Pa 34:537-74 N '18

Heating water by means of electrolysis. Il Sci Am 120:552+ My 24 '19

**Electric waves**

Application of harmonic analysis to the theory of synchronous machines. W. V. Lyon. diags Am Inst E E Pro 37:1121-57 S '18

Diffraction of electric waves by the earth. Sci Am S 88:195 S 27 '19

Electric waves from ocean tides. Sci Am 120:68 Ja 25 '19

Electric waves; the dynamics of wave motion. W. S. Franklin and M. McNutt. diags W Soc E J 22:589-622 N '17

General equations of the electric circuit. C: P. Steinmetz. Am Inst E E Pro 38:249-318 Mr '19

Order and amplitude of harmonics in voltage wave forms with indicating instruments. L. F. Curtis. Il diag Am Inst E E Pro 38:947-58 Ag '19

Surges in coils with alternating current; abstract. W. Rogowski. Elec W 73:1333-4 Je 21 '19

Transient phenomena in electrical supply systems. E. W. Marchant. bibliog diags Inst E E J 56:445-55; Discussion. 455-71 JI '18

See also Electric currents, Alternating; Wireless telegraph

**Electric welding**

Adequacy of welding in constructing hulls of ships. H. M. Hobart. Gen Elec R 21:840-3 D '18

Advantages of spot welding. G. A. Hughes and R. H. Pool. Il diags Elec W 73:734-5 Ap 12 '19

Alternating-current arc welder tested during war. Elec W 74:655 S 20 '19

A.C. arc welding and cutting. Il Automotive Ind 39:241 Ag 8 '18; Elec W 72:578 S 21 '18

Alternating-current arc-welding apparatus. Il Am Mach 49:545 S 19 '18; Iron Age 102:625 S 12 '18

Alternating-current arc-welding machine. Il diag Mach 24:1058 JI '18

Alternating-current arc welding machine. Il Int Marine Eng 23:720-1 D '18

A. C. system of arc welding. Il diags Engineer 128:213-14 Ag 29 '19

American institute of electrical engineers midwinter convention. New York. Elec R 74:350-1 Mr 1 '19; Elec W 73:422-4 Mr 1 '19

Application of electric power to shipyards. J. F. Nielson. Inst E E J 57:57-61 D '18

Application of electric welding to shipbuilding. Mach 25:492 F '19

Application of electric welding to steel shipbuilding. H. A. Hornor. chart diags Eng Soc W Pa 34:641-70; Discussion. 671-6 Ja '19

**Electric welding—Continued**

- Arc-welding high-speed tool tips. *il* Am Mach 49:756 O 24 '18
- Arc welding in railroad shops. B. C. Tracy. *il* diags Gen Elec R 21:387-98 D '18
- Arc welding in shipyards. W. L. Roberts. *il* Gen Elec R 21:860-4 D '18
- Arc welding makes good in the foundry. R. E. Kinkead. Iron Tr R 65:985-6 O 9 '19; Same. Foundry 47:752 O 15 '19
- Arc-welding systems. O. A. Kenyon. diags Elec W 73:167-71 Ja 25 '19
- Arc welding with a portable rheostat. *il* Eng & Min J 106:224-5 Ag 3 '18
- Butt welding of some non-ferrous metals. E. F. Collins and W. Jacob. *il* Gen Elec R 21:958-61 D '18
- Comparative characteristics of arc welders. J. F. Lincoln. Elec W 72:1119-20 D 14 '18; Same cond. Elec Ry J 52:1145-6 D 28 '18
- Compare electric welding methods; American and British practice. S. V. Goodall. diags Marine R 49:123-31 Mr '19
- Comparison of forge, oxy-acetylene and electric welding. H. James. Mach 24:471-2 Ja '18
- Constant-energy arc-welding set. P. O. Noble. *il* diags Gen Elec R 21:938-40 D '18
- Does striking the arc in electric welding injure the material? *il* Elec R 71:1077 D 22 '17; Abstract. Elec Ry J 50:1130 D 22 '17; Discussion. Elec Ry J 51:97 Ja 12 '18; Elec R 72:371 Mr 2 '18
- Effects of the chemical composition of welding electrodes. J. S. Orton. *il* Am Mach 51:625-6 S 25 '19
- Efficient serving of an electric welding load. Elec W 74:23 Ji 5 '19
- Electric arc welder. *il* Automotive Ind 40:1233 Je 5 '19
- Electric arc welding. F. A. Anderson. *il* diags Mech Eng 41:452-4 My '19
- Electric arc welding. F. A. Anderson. *il* J Elec 42:219-21, 437-9 Mr 1, My 1 '19
- Electric arc welding. A. M. Candy. *il* diags Am Inst E E Pro 37:1159-71 S '18
- Electric arc welding. R. E. Kinkead. Power 48:791-2 N 26 '18; Abstract. Iron Age 102:930 O 10 '18
- Electric arc welding applied to cast iron. B. W. Bowers. diag plan Foundry 46:158-9 Ap '18
- Electric arc welding; British institution of civil engineers discusses three papers by experts. Elec R 74:628 Ap 19 '19
- Electric arc welding; committee report. Ry Age 65:808-9 N 8 '18
- Electric arc welding in aircraft construction. R. E. Kinkead. Aviation 6:628 Ji 15 '19
- Electric arc welding in mines. J. G. Kjellgren. *il* Coal Age 16:52-3 Ji 10 '19
- Electric arc welding in shipbuilding. Engineer 126:162-3 Ag 23 '18; Same. Sci Am S 86:230 O 12 '18
- Electric arc welding in tank construction. R. E. Wagner. *il* diags Gen Elec R 21:899-911 D '18; Abstract. Eng & Min J 107:743 Ap 26 '19
- Electric arc welding methods; abstracts. H. L. Unland. *il* Elec Ry J 54:343-4 Ag 16 '19; Iron Age 104:365-7 Ag 7 '19; Ry Mech Eng 93:483-4 Ag '19
- Electric butt welding; abstracts. J. B. Clapper. Elec W 72:265 Ag 10 '18; Iron Age 102:931 O 10 '18
- Electric equipment for steam railroads. *il* Ry Age 64:897-8 Ap 5 sec 1 '18
- Electric railway improvement co.'s welding apparatus. *il* Am Mach 49:41 Ji 4 '18
- Electric seam welding. P. T. Van Bibber. *il* diags Am Mach 50:575-80 Mr 27 '19
- Electric welding. H. A. Currie. *il* Ry Age 67:926-8 N 7 '19
- Electric welding. T. T. Heaton. Engineer 127:101, 127-8 Ja 31-F 7 '19
- Electric welding—a new industry. H. A. Hornor. *il* diags Am Inst E E Pro 37:1185-95 O '18
- Electric welding and its application to shipbuilding. O. Kjellberg. *il* diags Engineer 128:442-4, 472-3 O 31-N 7 '19
- Electric welding and our shipbuilding program. D. B. Rushmore. Gen Elec R 21:828-9 D '18
- Electric welding and welding appliances. *il* Engineer 127:145-6, 172-3, 197-8, 220-2, 241-3, 267-8, 296-9, 318-22, 352-4, 375-8, 394-6, 421-2, 444-6, 471-8 F 14-Mr 16 '19
- Electric welding as applied to ship building. C. A. Adams. W Soc E J 24:119-27 Mr '19; Abstract. Elec W 73:96 Ja 11 '19; Discussion. W Soc E J 24:127-31 Mr '19
- Electric welding as applied to steel ship construction. Eng & Contr 50:308-9 S 25 '18
- Electric welding at the Erie works, General electric company. H. Lemp and J. H. Brown, Jr. *il* Gen Elec R 21:915-18 D '18
- Electric welding depends largely upon materials and their application. R. S. Kennedy. Elec R 73:702 N 2 '18
- Electric welding for shipbuilding. W. S. Abell. Sci Am S 87:79-80 F 1 '19
- Electric welding in navy yards. H. G. Knox. *il* Gen Elec R 21:849-59 D '18
- Electric welding in ship construction. H. J. Cox. *il* Int Marine Eng 24:42-6, 95-9 Ja-F '19; Same cond. Mech Eng 41:439-44 My '19; Excerpt. Gen Elec R 21:864-70 D '18
- Electric welding in shipbuilding. Engineer 125:329 Ap 12 '18
- Electric welding in shipbuilding. C. A. Adams. Gen Elec R 21:836-9 D '18
- Electric welding in the building of ships. Elec W 71:683 Mr 30 '18
- Electric welding load. J. Hood. *il* J Elec 42:361-3 Ap 15 '19
- Electric welding nomenclature and symbolism. chart diags Ry R 63:702-7 N 16 '18
- Electric welding of high-speed steel and stellite in tool manufacture. P. T. Van Bibber. *il* diags Am Mach 50:425-32 Mr 6 '19
- Electric welding problems. Engineer 127:203-4 F 28 '19
- Electric welding stops leaks in girth seams. R. A. Grise. Power 47:402-3 Mr 19 '18
- Electric welding tests being made by Emergency fleet corporation. A. J. Mason. Elec R 72:801-2 My 11 '18; Same. Elec W 71:993 My 11 '18; Same. Am Mach 48:1012 Je 13 '18; Same cond. Eng N 80:950 My 16 '18; Same cond. Am Soc M E J 40:495 Je '18; Same cond. Met & Chem Eng 18:656 Je 15 '18
- Electric welds. E. E. Thum. *il* diags Chem & Met Eng 19:301-8 S 15 '18
- Electrical and mining engineers get together on welding. Elec Ry J 53:370-1 F 22 '19
- Electrically-welded barge. *il* Engineer 126:122-3 Ag 9 '18; Same. Eng & Contr 50:416 O 30 '18; Abstract. Metal Work 90:184 Ag 16 '18; Abstract. Am Arch 114:261-2 Ag 28 '18
- Electrically welded freight car. J. A. Osborne. *il* Gen Elec R 21:912-15 D '18
- Electrically welded gondola car. *il* Ry R 63:833-4 D 14 '18
- Electrically welded steam lines. H. R. Woodrow. diags Power 49:322 Mr 4 '19
- Equipment accessories desirable in electric arc welding. diags Elec Ry J 53:93-5 Ja 11 '19
- Erico portable bonding and welding apparatus. W. E. Huber. *il* Coal Age 14:100-1 Ji 20 '18
- Experiments of Lloyd's register on application of electric welding to shipbuilding. Eng & Contr 50:420-2 O 30 '18
- Factors affecting arc welding. O. S. Eschholz. Elec Ry J 52:20 Ji 6 '18
- Features of arc welding development. O. A. Kenyon. diags Elec R 73:963-5 D 21 '18
- Features of electrical apparatus designed for welding. *il* Elec R 73:984-6 D 21 '18
- First electrically welded boat. J. Liston. *il* plan Gen Elec R 21:844-8 D '18
- Ford methods in ship manufacture. F. E. Rogers. *il* diags Ind Management 57:370-1 My '19
- Fusion in arc welding. O. S. Eschholz. *il* diags Am Inst E E Pro 38:319-27 Mr '19; Same. Power 49:504-6 Ap 1 '19; Excerpts. Foundry 47:384 Je 15 '19
- German electric welding process; abstracts. Am Mach 48:172 Ja 24 '18; Sci Am 118:204 Mr 2 '18

**Electric welding—Continued**

- Homemade arc welding outfit. diag Coal Age 13:2 Ja 5 '18
- Improved arc-welding tool facilitates changing electrodes. *Il Elec Ry J 52:1014 D 7 '18; Elec R 73:1024-5 D 28 '18; Ry Mech Eng 92:685 D '18*
- Innovations in electric welding. diags Elec R 72:225 F 9 '18
- Institution of mechanical engineers meeting; abstracts of papers. Engineer 127:108-9 Ja 31 '19
- Large ship to be built by electric welding for the United States government. Iron Age 102:1025 O 24 '18
- Large spot-welding machine. *Il diags Engineer 127:588-9 Je 13 '19*
- Latest practice in electric arc welding. Elec Ry J 52:1097 D 21 '18
- Liberty engine welding plant. O. A. Kenyon. *Il diags Elec W 74:396-9 Ag 23 '19*
- Lincoln portable arc welding machine. *Il Iron Age 102:688 S 19 '18; Elec R 73:556-7 O 5 '18; Iron Tr R 63:952 O 24 '18; Power 48:635 O 29 '18*
- Lloyd's technical committee thoroughly investigating application of electric welding to shipbuilding. Int Marine Eng 23:530 S '18
- Low cost of electric heat shown. Elec R 73:179 Ag 3 '18
- Making the old track last a little longer. P. N. Wilson. *Il Elec Ry J 52:1053-4 D 14 '18*
- Manganese special work repaired by welding. J. M. Scott. *Il diags Elec Ry J 53:1227-8 Je 21 '19; Same abr. Eng & Contr 52:68 JI 16 '19*
- Metal electrode welding. D. Treat. Elec Ry J 51:665 Ap 6 '18
- Metallic electrode arc welds. O. S. Eschholz. *Il diag Ry Mech Eng 92:416-19 JI '18; Same. Eng & Min J 106:1081-3 D 21 '18; Same. Iron Age 102:1390-1 D 5 '18; Same. Am Mach 50:215-17 Ja 30 '19; Same. Elec Ry J 53:280-2 F 8 '19; Same. Int Marine Eng 24:749-52 N '19; Same cond. Elec W 72:883-5 N 9 '18; Same cond. Power 48:872-3 D 17 '18; Abstract. Am Soc M E J 41:55-6 Ja '19*
- Metallurgical problems met in electric arc welding. Elec Ry J 53:241-2 F 1 '19
- Metallurgy of the arc weld. W. E. Ruder. *Il Gen Elec R 21:941-6 D '18*
- Microstructure of iron deposited by electric arc welding. G. F. Comstock. *Il Am Inst Min E Bul 145:43-50 Ja '19; Discussion. 149:849-53 My '19*
- Mining equipment. F. K. Howard. Coal Age 14:913-14 N 14 '18
- Modern welding by use of electricity. *Il diag Elec R 73:959-62 D 21 '18; Same. Sci Am S 87:143-4 Mr 1 '19*
- New electrode holder for arc welding. *Il Iron Age 102:1314 N 28 '18*
- New methods of electric welding; patents. Elec R 72:624 Ap 13 '18
- New type of electrically-welded joint successful. *Il Elec Ry J 53:182-3 Ja 25 '19*
- New type of portable arc welder. *Il Chem & Met Eng 20:436 Ap 15 '19*
- Notes on electric welding. H. K. Porter. Eng & Min J 106:914 N 23 '18
- Notes on welding systems. J. Caldwell. Sci Am S 85:182 Mr 23 '18
- 140-lb. welding outfit for rail bonds and arc welding. *Il Elec Ry J 51:580 Mr 23 '18*
- Operators and instructors necessary for electric arc welding. diags Elec Ry J 53:191-2 Ja 25 '19
- Oxy-acetylene and electric welding and cutting processes in locomotive works. A. F. Dyer. Eng & Contr 49:93-4 Ja 23 '18; Same. Ry R 62:197-9 F 9 '18; Same cond. Ry Mech Eng 92:571-2 O '18
- Pacific electric spot-welder. *Il Mach 24:757-8 Ap '18*
- Part of electric welding in repairing the damaged German ships. E. P. Jessop. *Il Iron Age 101:50-4 Ja 3 '18*
- Parts of vessel to which application of electric welding has been considered and approved by American bureau of shipping and Lloyds. Int Marine Eng 23:528 S '18
- Penetration and overlap indicate weld quality. Elec W 73:483 Mr 8 '19
- Personal element in arc welding. Power 49:737-8 My 13 '19
- Planning a welding system; abstracts. E. Wunamaker. Iron Age 102:1003 O 17 '18; Elec W 72:361 Ag 24 '18
- Plastic-arc system of welding. J. O. Smith. *Il Coal Age 15:1162-6 Je 26 '19; Excerpta. Ry R 64:898-90 Ja 14 '19; Abstract. Power 49:351-4 Mr 11 '19*
- Plastic-arc welding outfit. *Il Iron Age 104:638 S 4 '19*
- Plastic-arc welding system. *Il diag Engineer 128:56-7. 60 JI 18 '19*
- Portable transformer used for electric arc welding. *Il Elec Ry J 52:704 O 19 '18*
- Practical data upon electric spot welding. G. A. Hughes and R. H. Pool. *Il Elec W 72:742-4 O 19 '18*
- Proper selection of arc-welding equipment. R. H. Fenkhausen. Elec W 73:1163 My 31 '19
- Quasi-arc system of electric welding. Automotive Ind 41:200 JI 31 '19
- Recent developments in machines for electric spot welding as a substitute for riveting. J. M. Weed. *Il Gen Elec R 21:928-34 D '18*
- Reclamation of electric railway track by welding and grinding by the Connecticut company. H. J. Tippet. *Il Elec Ry J 53:773-6 Ap 19 '19*
- Reducing current surging of spot welder. Elec R 73:302 Ag 24 '18
- Repairing German vandalism on interned vessels by electric welding. E. P. Jessop. *Il Int Marine Eng 23:122-7 Mr '18*
- Repairing gold dredges by use of arc welders. H. G. Newton. *Il Elec W 74:26 JI 5 '19*
- Research in spot welding of heavy plates. W. L. Merrill. *Il Gen Elec R 21:919-22 D '18*
- Restoration of truck frames by electric welding. J. M. Calder. diag Elec Ry J 53:586-7 Mr 22 '19
- Review of electric arc welding. J. A. Seeds. *Il diags Gen Elec R 21:881-6 D '18*
- Rivetless ship a possibility. Elec W 71:1046 My 18 '18
- Selecting an arc welding equipment. J. W. Ham. Gen Elec R 21:967-8 D '18
- Selecting electrodes and holders for electric arc welding. *Il diags Elec Ry J 53:146-7 Ja 18 '19*
- Semi-automatic arc-welding machine. H. D. Morton. *Il Am Mach 51:789-94 O 30 '19*
- Spot welding and some of its applications to ship construction. H. A. Winne. *Il diags Gen Elec R 21:923-7 D '18*
- Spot welding railroad tinware. *Il Ry Mech Eng 93:151-3 Mr '19*
- Strength and elasticity of electrically welded joints. W. S. Abell. Eng & Contr 51:468 Ap 30 '19
- Structures in steel fusion welds. S. W. Miller. *Il Am Inst Min E Bul 134:391-408 F '18; Same cond. Iron Tr R 62:713-18 Mr 21 '18; Discussion. Am Inst Min E Bul 136:720-4; 137:1023 Ap-May '18; Excerpt. Iron Tr R 62:1365-6 My 30 '18*
- Study of electric welding aids in our shipbuilding. C. A. Adams. Elec W 72:455-6 S 7 '18
- Study of the joining of metals. J. A. Capp. *Il Gen Elec R 21:947-56 D '18*
- Suggestion for simplifying construction of fabricated stern frame of Hog Island ships by application of electric welding. W. T. Bonner. diags Int Marine Eng 24:344-5 My '19
- Taylor machine for heavy spot welding. *Il Iron Age 100:1423 D 13 '17*
- Thomson electric seam welding machine. *Il Iron Age 101:261 Ja 24 '18*
- Thomson electric spout-welding machine. *Il Am Mach 48:170 Ja 24 '18*
- Those damaged German ships. Power 47:602 Ap 23 '18
- Training arc welders. O. H. Eschholz. *Il diags Elec W 74:692-6, 750-2 S 27-O 4 '19; Bibliography. 74:752 O 4 '19*
- Training of electric welders. H. A. Hornor. *Il diags Gen Elec R 21:876-81 D '18*

**Electric welding—Continued**

- Transformer arc welder manufactured by Gibbs instrument co. *Il* Iron Age 103:1653 Je 19 '19
- Transformers for electric welding. W. S. Moody. *Gen Elec R* 21:935-7 D '18
- Troubles in electric welding operations. H. B. Craft and C. I. Crippen. *Elec W* 73:1394 Je 28 '19
- Use and misuse of arc welding apparatus. H. L. Unland. *Elec Ry J* 54:756-7 O 18 '19
- Welded rail joints. M. Schreiber. *Il* diags *Elec Ry J* 51:190-2 Ja 26 '18
- Welding a ship together electrically. *Elec R* 73:495 S 28 '18
- Welding as a process in ship construction. S. V. Goodall. *Am Inst E E Pro* 38:329-35 Mr '19; Same. *Gen Elec R* 22:213-16 Mr '19
- Welding cast iron with the electric arc. *Il* diags *Ry Age* 64:1247-9 My 17 '18
- Welding methods at Columbus shops. *Il* diags *Ry Mech Eng* 92:473-4 Ag '18
- Welding mild steel. H. M. Hobart. *Il* diags *Am Inst E E Pro* 38:561-609 Ap '19; Same *abr.* *Am Inst Min E Bul* 146:517-61 F '19; Same *cond.* *Gen Elec R* 22:445-60 Je '19; Discussion. *Am Inst Min Bul* 148:752-60; 149:810-49; 150:981-5 Ap-Je '19
- Welding ship's parts together. J. G. Dudley. *Il* *Int Marine Eng* 23:359-60 Je '18
- Welding split gears to axle. *Coal Age* 16:73, 336 Jl 10, Ag 21 '19
- Welding tight joints electrically. T. E. Murray, Jr. *Iron Tr R* 65:234-5 Jl 24 '19
- Welding tool vs. the sledge; how interned German liners wrecked by Prussian vandalism were repaired. H. C. Estep. *Il* *Iron Tr R* 62:57-72 Ja 3 '18
- Welding transformer tanks by the electric arc process. E. Oberg. *Il* *Mach* 24:398-403 Ja '18
- Welding wrought iron and steel. H. L. Unland. *Elec Ry J* 54:581-2 S 20 '19
- Westinghouse portable outlet panels for electric welding service. *diag* *Elec Ry J* 50:1171 D 29 '17; *Elec R* 71:1120 D 29 '17; *Elec W* 70:1273 D 29 '17; *Mach* 24:464 Ja '18; *Ry R* 62:104 Ja 19 '18; *Iron Age* 101:145 Ja 10 '18; *Am Mach* 48:81 Ja 10 '18

**Bibliography**

- Bibliography of electric welding. W. F. Jacob. *Gen Elec R* 21:652-8 S '18

**Rates**

- Making proper rates for electric welding. C. I. Crippen. *Elec W* 73:1173-4 My 31 '19

**Electric wire and wiring**

- Attaching conductors to fishing wires and pulling-in lines. T. Croft. *Il* *Elec R* 74:72-3, 113-14, 155-6 Ja 11-25 '19
- Best practice in service and meter wiring. E. B. Meyer. *Il* diags *Elec R* 72:59-63 Ja 12 '18
- Change in I. E. E. wiring rules. *Inst E E J* 56:sup22 My '18
- Characteristics of iron and steel conductors. C. E. Oakes and P. A. B. Sahm. *Elec W* 72:150-1, 249-52 Jl 27, Ag 10 '18
- Clearances of transmission line conductors. *diags* *Elec R* 74:231 F 8 '19
- Conserving material for interior wiring. *Elec R* 73:548 O 5 '18
- Construction developments for medium-voltage lines. D. F. Parrott. *diags* *Elec R* 74:703-8 My 8 '19
- Data on installation of induction motors. *Elec W* 73:742 Ap 12 '19
- Determination of economical power circuits. P. O. Reyneau. *diag* *Elec W* 73:471-3 Mr 8 '19; Discussion. W. F. Butcher. 73:902 My 3 '19
- Determining wire combinations to be installed in conduit. V. H. Tousley. *Elec R* 74:277-8 F 15 '19
- Difficulties with iron-wire transmission. M. D. Leslie. *map* *Elec W* 70:715-16 O 13 '17; Discussion. 70:957, 1252-3 N 17, D 29 '17
- Effective splices. *diags* *Motor Age* 34:30 D 12 '18
- Efficient methods for pulling wires into conduit. E. M. Lothrop. *diags* *Elec R* 74:435 Mr 15 '19

- Electric fire hazard. T. H. Day. *Am Ind* 18:34 Ja '18
- Electrical installation in San Francisco's City Hall. *Il* *Elec R* 74:661-7 Ap 26 '19
- Electrical study course—three-wire systems from two generators. *diags* *Power* 49:208-10 F 11 '19
- Electrical study course—two-wire and three-wire systems. *diags* *Power* 49:174-6 F 4 '19
- Electrical study course—two-wire versus three-wire system. *diags* *Power* 49:247-9 F 18 '19
- Essential features of contract forms for house wiring. *Elec R* 74:819 My 17 '19
- Facts about conduit fishing. T. Croft. *diags* *Elec R* 73:303-4, 339-40, 381-2, 420-1, 465-6, 509-10, 551-2 Ag 24-O 5 '18
- Finding the size of wire. C. F. Scott. *Elec J* 16:275 Jl '19
- Fire caused by defective electrical installations. M. King. *Power* 46:874 D 25 '17
- Fishing wire in conduit. *Elec R* 71:1031-2 D 15 '17
- Fixture hanger for old-house wiring. *Il* *Elec R* 72:351 F 23 '18
- Ground connections for electrical systems. O. S. Peters. *bibliog* *diags* U S Bur Stand Tech Pa 108:1-224 '18
- Identifying the meters and cutouts at distribution centers. *diag* *Elec R* 74:1098 Je 28 '19
- Importance to public of inspection of interior wiring. W. S. Boyd. *Elec R* 73:670-2, 706-8 O 26-N 2 '18
- Improvements in industrial plant operation; Lodge & Shipley machine tool company, Cincinnati. E. E. George. *Il* *Elec W* 73:1207-9 Je 7 '19
- Installation of convenience outlets is of timely importance. *Elec R* 73:53-5 Jl 13 '18
- Installation of inside high-tension wiring and motors; rules issued by Louisiana fire prevention bureau. *plan* *Elec R* 71:1028-9 D 15 '17
- Installing wiring which will not be used immediately. S. M. Hall. *Elec R* 74:156-7 Ja 25 '19
- Insuring against disagreements over wiring. *Il* *Elec W* 72:735-7 O 19 '18
- Interesting electrical features of Chicago's evangelistic tabernacle. *Il* *plan* *Elec R* 72:716-17 Ap 27 '18
- Iron wire for transmission lines. W. T. Ryan. *Elec R* 72:713-15 Ap 27 '18
- Iron-wire transmission for rural extensions. L. P. Perry. *diags* *Elec W* 70:713-15 O 13 '17; Excerpts. *J Fr Inst* 185:155-6 Ja '18
- Layout for a station with two bus potentials. *plan* *Elec W* 73:71 Ja 11 '19
- Locomotive electric headlight wiring. *diags* *Ry Mech Eng* 93:100-2 F '19
- Long spans permitted by steel wires a saving. L. M. Klauber. *diags* *Elec W* 71:86-7 Ja 12 '18
- Method of wiring bells which permits easy repairing. W. F. Perry. *Elec R* 73:981 D 21 '18
- Methods of terminating heavy conductors. R. F. Mitchell. *diags* *Elec R* 73:304 Ag 24 '18
- Modern mine-wiring practice. T. Croft. *diags* *Coal Age* 16:480-5 S 18 '19
- New tool for making joints in small wires. C. H. Willey. *diags* *Elec R* 73:947 D 14 '18
- Objections to weatherproof wires for the higher voltages. *Elec R* 74:394 Mr 8 '19
- Peculiar wiring trouble. E. W. Miller. *diag* *Power* 47:628 Ap 30 '18
- Plan for equalization of wire strain at corners. *diags* *Elec W* 70:1245 D 29 '17
- Power-house wire tower allows outlet for feeders. H. S. Rich. *diag* *Elec W* 74:527 S 6 '19
- Practical lessons in electricity. H. H. Bliss. *Il* *J Elec* 42:541-2 Je 1 '19
- Proper wiring installations for electric ranges. *chart* *Elec R* 75:329-30 Ag 23 '19
- Pulling conductors into conduits. T. Croft. *diags* *Power* 49:846-8 Je 8 '19
- Pulling in conductors with a crane. T. Croft. *diags* *plans* *Power* 50:136-7 Jl 22 '19
- Pulling in heavy cable. *Elec R* 73:1023 D 28 '18

**Electric wire and wiring—Continued**

- Reels to prevent conductors kinking when being installed. T. Croft. *diag* Power 50:503-4 S 23 '19
- Rules for electric wiring in mines issued by West Virginia engineering co. Coal Age 13: 968-9 My 25 '18
- Rules for wiring exit sign and emergency lighting. Elec R 75:579 O 4 '19
- Sag calculation for iron-wire lines. M. D. Leslie. Elec W 72:196-7 Ag 3 '18
- Series-parallel wiring for 110- or 220-volt service. J. A. Campbell. *diag* Power 50:544 S 30 '19
- Simple 110- to 220-volt lamp bank. R. A. Phillips. *diag* Power 50:417 S 9 '19
- Simple support for crane contact wires. G. F. Miles. *diag* Elec R 73:741-2 N 9 '18
- Station control wiring at Rochester railway light co. Elec R 74:867 My 24 '19
- Steel conductors for series circuits. L. M. Klauber. Elec W 71:1313-15 Je 23 '18
- Suspension of the rule calling for marking of wires to facilitate polarity identification. Elec W 72:268 Ag 10 '18; Same. Elec R 73: 222 Ag 10 '18
- Systems of wiring in textile mills. *diag* Textile World 53:3591 F 2 '18
- Use of iron transmission wires for alternating-current railroads; abstract. W. Kummer. Elec W 71:420-1 F 23 '18
- Use of smaller wires in conduit discussed; report of Wiring committee of N. E. L. A. Elec R 74:1099 Je 28 '19
- Use of three-way switches reduces current consumption. *diag* Elec R 74:276-7 F 15 '19
- Useful hints and kinks in construction and maintenance work. M. J. Moriarty. Elec R 71:1072 D 22 '17
- What the "electrify your home" campaign has accomplished. Elec R 74:722-3 My 3 '19
- Wire and fuse sizes for induction motors. Elec R 74:232-4 F 8 '19
- Wiring of mines. J. L. Ball. *il* Coal Age 15: 1040-1 Je 5 '19
- Wiring chart for 110-125-volt house lighting. Elec R 74:399 Mr 8 '19
- Wiring diagram of Millers Ford. Elec R 73: 608 O 19 '18
- Wiring of farm buildings for lighting. chart Elec R 73:67-8 JI 13 '18
- See also* Electric cables; Electric conductors; Electric conduits; Electric distribution; Electric inspection; Electric lighting; Electric lines; Electric railroads—Wiring; Electric transmission; Insulation; Telegraph; Telephone; Thermocouple wire; Trolley wire; also National electrical code; National electrical safety code

**Bibliography**

- Structural service department; electricity within and around buildings. Am Inst Arch J 6:316-18 Je '18

**Cost**

- Brooklyn company resumes house-wiring campaigns. Elec W 73:642-3 Mr 29 '19
- Interesting features of English house-wiring problem. J. W. Beauchamp. Elec R 75:453-4 S 13 '19

**Safety devices**

- New code rule will require polarized wiring. Elec R 71:987 D 8 '17
- Rules for wiremen. J Elec 42:62-3 Ja 15 '19

**Standards**

- Standardization of wiring accessories. Elec W 73:1092-3 My 24 '19
- Standardized flexible distributing systems in industrial plants. B. Jones. *il* *diag* plan Gen Elec R 21:176-87, 285-99 Mr-Apr '18
- Standardized industrial lighting systems. H. L. Cornelison. *diag* Elec W 74:459-61 Ar 30 '19
- Standardizing the tying of wires to insulators. *diag* Elec W 72:163 JI 27 '18

**Tables, calculations, etc.**

- Estimating the wiring of existing buildings on outlet basis. Elec R 74:841-3 Mr 1 '19

- Helpful hints on estimating old house wiring. R. A. Le Comte. Elec R 74:645-6 Ap 19 '19

- Special wire tables facilitate feeder calculations. H. E. Davis. Elec Ry J 52:884-5 N 16 '18

- Electric wiring. *See* Electric wire and wiring
- Electrical association, Minnesota. *See* Minnesota electrical association

- Electrical code, National. *See* National electrical code

- Electrical codes. *See* Electric engineering—Laws and regulations; National electrical code; National electrical safety code

- Electrical credit association, National. *See* National electrical credit association

- Electrical estimators' association
- Estimators teach contractors principles of scientific estimating. Elec R 73:868-9 N 30 '18

- Organization and work. Elec R 73:263-4 Ag 17 '18

- Report on estimating labor costs compiled by the association of Chicago. *diag* plans Elec R 73:125-31 JI 27 '18

- Electrical inspectors, Western association of. *See* Western association of electrical inspectors

- Electrical manufacturers' export association
- Organization, New York city, March 18. Elec R 74:466-7 Mr 22 '19; Elec W 73:590 Mr 22 '19

- Electrical safety code, National. *See* National electrical safety code

- Electrical safety conference
- Organization. Elec W 73:649 Mr 29 '19

- Electrical supplies, Associated manufacturers of. *See* Associated manufacturers of electrical supplies

- Electrical supply jobbers' association
- Convention, Cleveland, Dec. 9-11. Elec W 72: 1137-8 D 14 '18

- Fall meeting of Atlantic division, Philadelphia, Sept. 17. Elec W 74:714-15 S 27 '19

**Electricians****Examinations**

- Examination for supervising electrician. J Elec 42:257, 533 Mr 15, Je 1 '19

**Electricians' tools**

- Handy tools for the maintenance man. J. A. Perry. *diag* Elec R 74:818-19, 868-9, 913-14, 962-4 My 17-Je 7 '19

**Electricity**

- Active power and reactive power; abstract. J. B. Pomey. Elec W 71:989 My 11 '18

- British gas industry; comparison of gas and electricity in fuel economy. Am Gas Eng J 110:377-80 My 3 '19

- Dynamical theory of electric engines. L. B. Atkinson. *diag* Inst E E J 57:1-28 D '18

- Electrical phenomena illustrated by motion-picture films. *diag* Elec R 73:365 S 7 '18

- Fundamental relations between direct- and alternating-current circuits. T. Croft. *diag* Coal Age 14:770-2 O 24 '18

- Generation of electrical energy. Coal Age 14: 697 O 10 '18

- Glance at early electrical literature. Elec W 73:supl-11 Je 21 '19

- Graphical method for the construction of electrostatic fields. S. J. Crooker. J Fr Inst 185:131-5 Ja '18

- Maximum coal economy as a world problem. A. Delamarre. Gas Age 42:10-13 JI 1 '18

- Mechanics and electricity. W. S. Franklin. *diag* Sci Am S 87:252-4 Ap 19 '19

- New physics. A. C. Crehore. J Elec 43:466-8 N 15 '19

- Our useful servants: magnetism and electricity. J. A. Fleming. Sci Am S 85:116 F 23 '18

- Practical course in elementary electricity. H. H. Bliss. *il* J Elec 42:271-2, 299-300, 389-91 Mr 15-Apr 15 '19

- Practical lessons in electricity. H. H. Bliss. *il* J Elec 42:492-4, 541-2, 588-90; 43:171-3 My 15-Je 15, Ag 15 '19



**Electricity—Continued**

What electricity has done to help humanity. J. C. McQuiston. Elec R 75:649-50 O 18 '19

See also Armatures; Atmospheric electricity; Commutation (electricity); Corona; Dielectrics; Electrons; Inductance; Induction coils; Insulation; Ionization; Lightning; Magnetism; Radioactivity; Stray currents; Telegraph; Telephone; Thermoelectricity; Wireless telegraph; X rays; also headings beginning Electric and Electro; also the subdivision Electric equipment under various headings, e.g. Foundries—Electric equipment, Hospitals—Electric equipment, Hotels—Electric equipment, Ships—Electric equipment, Theaters—Electric equipment

**Cost**

See Power cost

**Distribution**

See Electric distribution

**Industrial applications**

See Electric driving; Electric heating. Industrial; Electric power; Electricity in mining

**Rates**

See Electric rates

**Terminology**

A.I.E.E. committee proposes standard relay nomenclature. Elec W 73:1323 Je 21 '19; Same. Elec R 74:1096 Je 28 '19

**Electricity, Injuries from**

Court decisions on accidents from over-charged service wires. C. C. Sherlock. Elec R 72:868-9 My 25 '18

Decreasing electrical hazards. C. A. Laufer. Factory 21:282+ Ag '18

Hints for line foremen in case of accidents. W. C. Pearce. Elec W 71:52 Ja 5 '18

Safety for the household. Il U S Bur Stand Circ 75:10-44 '18

**Electricity, Static**

Adventure with static. B. J. Randall. Power 49:251 F 13 '19

Chapman electric neutralizer. Il diag Textile World 53:3705 F 9 '18

Electrical phenomenon. H. S. Whiteley. diag Power 47:232 F 12 '18; Discussion. 47:594 Ap 23 '18

Electrification of textile fibers. S. A. Shorter. Textile World 53:6019; 54:55 Je 8, Jl 6 '18

Eliminating static electricity in printing and weaving. Il Sci Am 120:146 F 15 '19

Simple ways to minimize static troubles. A. Gemmell. diags Elec R 71:1116 D 29 '17

Static electricity and its effect on induction motors. L. E. Wood. diag Am Mach 51: 65-6 Jl 10 '19; Same. Elec W 74:362 Ag 16 '19

Electricity in agriculture. See Electricity on the farm

Electricity in foundries. See Electric furnaces; Foundries—Electric equipment

Electricity in horticulture. See Electrohorticulture

Electricity in hospitals. See Hospitals—Electric equipment

**Electricity in mining**

A.-C. vs. D.-C. current in mines. Coal Age 15: 372, 1053-4; 16:117-19, 161-3 F 20, Je 5, Jl 17-24 '19

Automatic circuit breakers save labor in coal mines. Il Elec W 72:208-9 Ag 3 '18; Same. Coal Age 14:349 Ag 22 '18

Automatic reclosing circuit breakers in mine service. E. C. Raney. Il diags Coal Age 15:800-2 My 1 '19

Changing from isolated to central station power. F. Huskinson. Il diags Coal Age 14: 14-15 Jl 6 '18

Coal mine electrification. Elec R 73:293-4 Ag 24 '18

Coal operator and central station. Coal Age 15:485 Mr 13 '19

Combined feed cable and trolley wire hanger. R. W. Mayer. Il Coal Age 13:1184-5 Je 29 '18

**Economy of electricity over steam for power**

purposes in and about mines. R. E. Hobart. Il Am Inst Min E Bul 134:213-21 F '18; Same. Coal Age 13:532-6 Mr 23 '18; Discussion. Am Inst Min E Bul 136:811-17 Ap '18

Effect of strike upon central-station supply to coal mines. Elec R 75:903-5 N 29 '19

Efficiency engineering for coal mines. C. H. Elsom. Coal Age 13:53-6 Ja 12 '18

Electric generation by Diesel engine. E. J. Richards. Il J Elec 42:167-9 F 15 '19

Electric hoist at Alaska colliery. Il plan Coal Age 13:672-3 Ap 13 '18

Electric mine haulage. T. O. Hughes. Coal Age 14:233-4 Ag 1 '18

Electric power for mining in Yavapai county, Arizona. Il map Eng & Min J 105:1113-16 Je 22 '18

Electrical distribution in mines. E. Steck. Coal Age 16:3 Jl 3 '19

Electrical labor-saving devices in coal mining. G. Bright. Il Coal Age 14:116-20 Jl 20 '18

Electrical manufacturers may look to metal mining for greater output. W. A. Scott. Il Elec R 73:119-20 Jl 27 '18

Electrical transmission of power in and about coal mines. S. W. Farnham. Coal Age 16:48-51 Jl 10 '19

Electrically interlocked car haul and car feeder. R. P. Hines. Il diag Coal Age 14: 300-2 Ag 15 '18

Electricity in coal-mining operations. F. Huskinson. Il Elec R 73:1-4, 81-2, 245-7, 287-9, 494-5 Jl 6, 20, Ag 17-24, S 28 '18

Electricity saves labor in coal mining. Il Elec R 73:939-40 D 14 '18

Electrification of a Durham colliery. Il diags plan Engineer 126:136-8, 152-4, 160 Ag 16-23 '18

Elimination of power losses. G. Bright. Coal Age 14:1021-4 D 5 '18; Discussion. 15:27-8, 460 Ja 2, Mr 6 '19

Extending the electric operation of coal mines. Elec W 71:839 Ap 20 '18

Homemade trolley supports. R. Z. Virgin. diags Coal Age 12:1002 D 15 '17

Hydroelectric development in Iron Mountain region. Il Elec R 72:1027-8 Je 22 '18

Illinois coal mine electrified throughout. Il diags Elec W 73:1372-4 Je 28 '19

Importance of good ground connections. J. J. Nolan. diag Coal Age 15:653 Ap 10 '19

Increasing coal mine efficiency. C. E. Stuart. Il Coal Age 14:820-3, 857-60 O 31-N 7 '18

Installing high-tension lines. Coal Age 16: 73 Jl 10 '19

Large coal mine adopts electric power for hauling. W. P. Potter. Il Elec R 74:631 Ap 19 '19

Large underground synchronous substation. R. P. Hines. Il diag plan Coal Age 14:434-6 S 5 '18

Mason turbine blasting machine. Il Coal Age 13:677 Ap 13 '18

Mine electric lighting. T. Croft. Coal Age 16:8 Jl 3 '19

Mine-type motors. L. C. Mosley. Il Gen Elec R 22:348-51 My '19; Same cond. Coal Age 16:6-8 Jl 3 '19

Modern mine-wiring practice. T. Croft. diags Coal Age 16:480-5 S 18 '19

Modern substations of large anthracite distribution system. Il diag plan Coal Age 14: 850-2 N 7 '18

Moffat brothers' mine. W. P. Potter. Il Coal Age 16:53-4 Jl 10 '19

Outdoor substations in connection with coal-mining installations. H. W. Young. Il diags Am Inst Min Bul 153:1883-94 S '19; Same. Coal Age 16:712-16 O 30 '19; Same. Elec R 75:595-8 O 11 '19

Plant of the Williams Pocahontas coal co. G. S. Jaxon. Il diags plan Coal Age 14:1106-9 D 19 '18

Positive cutout for trolley lines. F. Huskinson. diag Coal Age 12:835 N 17 '17; Same. Eng & Min J 105:291 F 9 '18

Power plant at the mine. R. B. Mateer. map J Elec 42:76-7 Ja 15 '19

Power required in electric haulage. Coal Age 12:865, 987-8 N 17, D 8 '17

**Electricity in mining—Continued**

- Progress in the electrification of mine hoists. R. S. Sage. *Il Gen Elec R* 22:332-41 My '19;  
Same. *Coal Age* 16:770-6 N 13 '19  
Progress of electricity in coal mining. F. Huskinson. *Il Coal Age* 14:892-7 N 14 '18  
Rules for electric wiring in mines issued by West Virginia engineering co. *Coal Age* 13:968-9 My 25 '18  
Safety switch boxes. *diags Coal Age* 13:275 F 9 '18  
St Vincent mine of the Mount Pleasant by-product coal co. P. B. Rule. *Il diag plan Coal Age* 16:264-7 Ag 14 '19  
Selection of an electric system. T. Croft. *diags Coal Age* 16:178-84 J1 31 '19  
Selection of power for mine service. E. Steck. *Coal Age* 16:534-5 S 25 '19  
Selection of the electrical system, voltage and frequency for mine service. T. Croft. *Coal Age* 15:658-9 Ap 10 '19  
Selling energy to coal mines for motor service. H. W. Young. *Elec W* 73:953-4 My 10 '19  
Thoughts on mine electricity and electricians. M. S. Beddow. *Coal Age* 16:399-400 S 4 '19  
Use of electric power in the mining of anthracite coal. J. B. Crane. *Il Am Inst E E Pro* 37:1197-1202 O '18  
Use of electricity on gold dredges. *Il Elec R* 73:881-3 D 7 '18  
Wiring at mines. J. L. Ball. *Il Coal Age* 15:1040-1 Je 5 '19

*See also* Electric shovels; Locomotives, Mine; Mine signals; Mining machinery  
**Electricity in refrigeration.** *See* Ice—Manufacture

**Electricity in the home**

- Electricity in the household. *Il Gen Elec R* 22:154-95 Mr '19  
Principal arguments for electric cooking and heating appliances and data on the coal that they conserve. *Elec R* 73:545-7 O 5 '18  
*See also* Dishwashing machines, Electric; Electric bells; Electric cooking; Electric heating; Electric lighting; Electric stoves; Electric water heaters; Washing machines, Electric

**Electricity on ships.** *See* Ship propulsion, Electric; Ships—Electric equipment; Submarine boats—Electric equipment

**Electricity on the farm**

- Accessory and resale possibilities in farm lighting industry. G. W. Hill. *Elec R* 74:709-10 My 3 '19  
Alco 110-volt farm power and lighting plant. *Il Elec R* 73:1024 D 28 '18; *Motor Age* 35:25 Ja 9 '19  
Analysis of the farm lighting field. *Dom Eng* 88:438-9 S 6 '19  
Contractor-dealer should no longer neglect farm lighting business. G. W. Hill. *Elec R* 73:852-4 N 30 '18  
Delco-light, a complete light and power plant. *Il Motor Age* 35:39 Ja 30 '19  
Electric house-lighting systems. D. S. Hatch. *Il Motor Age* 34:7-10 D 19 '18  
Electric house lighting systems offer big field for plumbing and heating contractors. J. F. Andrews. *Il Dom Eng* 86:210-12 F 1 '19  
Electric light and power for the farmer. *Il diags Sci Am* 119:11+ J1 6 '18  
Electric lighting plants among the essentials on the modern farm. G. W. Hill. *Elec R* 74:137-9 Ja 25 '19  
Electrical chicken farm. *Il Sci Am* 119:153 Ag 24 '18  
Electricity and agriculture; abstract. H. Cahen. *Elec W* 70:1204 D 22 '17  
Electricity helps progressive Iowa farmer. *Il Elec R* 75:71-2 J1 13 '19  
Electricity raises rice to save wheat. *Elec W* 72:449-50 S 7 '18  
Electricity speeding up farm work in Idaho. C. O. Crane. *Il Elec R* 72:284-6 F 16 '18  
Engineless farm-lighting plants. *Elec W* 73:922 My 3 '19  
Experiments in the use of electric power for field work on the farm. J. H. Davidson and F. E. Boyd. *Il diag Gen Elec R* 21:130-3 F '18

- Farm lighting as a field for small storage batteries. G. W. Hill. *Elec R* 74:297-8 F 22 '19  
Farm lighting plants. C. H. Griffith. *Dom Eng* 88:447-8 S 6 '19  
Farm-lighting plants. S. Miller. *Elec R* 73:182-3 Ag 3 '18  
Farm lighting plants being sold by electrical contractors. *Il Elec R* 73:187-8 Ag 3 '18  
Farm-lighting plants made by American and Cushman. *Il Motor Age* 35:27 Ja 16 '19  
Farm-lighting specification tables. *Motor Age* 36:53 O 23 '19  
How to build business in farm lighting equipment. *Il Dom Eng* 87:232-6 My 10 '19  
How to make farm service business pay. A. H. Latimer. *Elec W* 74:135 J1 19 '19  
Hundred million dollar field open; researches in the field of farm lighting and power systems. *Dom Eng* 86:427-9 Mr 8 '19  
Independent electric plants for farmers. *Il Metal Work* 91:787-9 Je 20 '19  
Lighting plant capacity increased to 3 kw. P. M. Heldt. *Il diags Automotive Ind* 41:370-4 Ag 21 '19  
Marco chain-drive light and power plant. *Il Elec W* 73:250-1 F 1 '19  
Mayhew farm-lighting plants. *Elec R* 72:535 Mr 23 '18; *Elec W* 72:378 Ag 24 '18  
Owen automatic lighting and power unit. P. M. Heldt. *Il diags Automotive Ind* 39:806-9 N 7 '18  
Ruralite farm-lighting plant. *Il Elec R* 72:128-9 Ja 19 '18  
Service starts at the factory. B. M. Ikert. *Il Motor Age* 36:7-9 Ag 14 '19  
Three farm-lighting plants; Acorn, Aero-thrust and Alamo. *Il Motor Age* 34:43 D 26 '18  
Use of electricity on dairy farms to increase production. *Il Elec R* 73:995-7 D 28 '18  
Western electric farm lighting equipment. *Il Elec R* 73:591-2 O 12 '18  
Willis-Light uses air-cooled Knight car; new farm lighting outfit embodies many new features of construction. *Il Motor Age* 36:26 N 13 '19  
Wiring of farm buildings for lighting. *chart Elec R* 73:67-8 J1 13 '18

*See also* Electrohorticulture

**Electricity supply**

- Availability of energy for heat and power; abstract. J. Blizard. *Elec W* 71:834 Ap 20 '18  
Fuel shortage and the remedy. M. Harris. *Am Mach* 48:412 Mr 7 '18  
Sources of energy supply. P. M. Downing. *Mech Eng* 41:267 Mr '19

**Belgium**

- Electrical future of Belgium. A. H. Bridge. *Elec R* 73:413-14 S 14 '18

**California**

- Interchange of energy in California crisis. *Elec W* 72:616 S 28 '18

**France**

- Electrical developments for American army. R. K. Tomlin, jr. *Il Elec W* 72:532-6 S 21 '18;  
Same cond. *Power* 48:448-50 S 24 '18

**Germany**

- Electrical developments in the Central Empires. *Elec W* 72:352 Ag 24 '18

**Great Britain**

- Address to the Irish centre. C. H. Wordingham. *Inst E E J* 57:421-5 Je '19  
British home office discusses electricity bill. *Elec W* 74:92-3 J1 12 '19  
British policy of electric power supply. *Elec R* 74:260-1 F 15 '19  
Coal and electricity in double harness; what England is doing to work out the problem of fuel conservation. *Sci Am* 118:408+ My 4 '18  
Electric power supply. S. L. Pearce. *Engineer* 127:104 Ja 31 '19  
Electric power supply and coal conservation in England; abstract. *Elec W* 71:885 Ap 27 '18

**Electricity supply—Great Britain—Continued**

- Electric power supply during the great war. A. B. Gridley and A. H. Human. *Inst E E J* 57:406-15, 541-6 My, Ag '19; Excerpt. *Elec R* 75:866 N 22 '19
- Electric power supply in Great Britain. L. Gaster. *Illum Engr* 10:303-4 D '17
- Electrical engineers on the English supply bill. *Elec W* 74:432 Ag 23 '19
- Electricity supply and the economy of coal. *Engineer* 124:540 D 21 '17
- England's plans for supplying electricity. *Elec W* 73:1228-9, 1288-9 Je 7-14 '19
- Future of British electricity supply; recommendations of the Board of trade electric power supply committee. *Elec R* 72:1079 Je 29 '18; Same. *Power* 48:166 J1 30 '18; Excerpt. *Engineer* 125:498-9 Je 7 '18
- Future of electric power supply; conference of the Incorporated municipal electrical association. *Engineer* 125:560-1 Je 28 '18
- Growth of electricity supply in the United Kingdom. *Elec R* 73:998-9 D 28 '18
- London's electricity supply. A. H. Bridge. *Elec R* 73:19 J1 6 '18
- National electric supply. *Engineer* 125:493-4 Je 7 '18
- National electricity supply in Great Britain; abstract. *Elec W* 71:1278 Je 15 '18
- Status of electricity supply in Great Britain. P. Dawson. *Elec W* 74:541 S 6 '19

**Ireland**

- Electricity supply in Dublin and the surrounding districts. W. Tatlow. *Inst E E J* 56:113-18; Discussion. 118-20 Ja '18

**Netherlands**

- Visit to Holland. *Inst E E J* 57:sup34-8 Ag '19

**Spain**

- Spain plans national transmission network. G. F. Paul. *map Elec W* 74:122-3 J1 19 '19

**United States**

- Electric power supply for war industries. R. J. McClelland. *map Elec W* 72:100-5 J1 20 '18
- Electrification of railroads. See Railroads—Electrification
- Electrochemical analysis**
- Electrometric titrations, with special reference to the determination of ferrous and ferric iron. J. C. Hostetter and H. S. Roberts. *diags Am Chem Soc J* 41:1337-57 S '19
- Improved electro-analysis apparatus; rapid determination of the constituents in copper alloys. J. L. Jones. *il diags Metal Ind* 16:483-5 N '17
- New and rapid apparatus for electrochemical analyses. J. T. King. *il diag Chem & Met Eng* 21:25-9 J1 1 '19
- Rapid electrolytic copper assay without rotating cathode. R. G. Place. *Chem & Met Eng* 20:452 My 1 '19
- Electrochemical industries**
- America's supremacy in electrochemistry. F. J. Tone. *Chem & Met Eng* 19:357 S 24 '18; Same. *Textile World* 54:1449 S 28 '18
- Central stations and the manufacture of electrochemical products. C. A. Winder. *Met & Chem Eng* 18:354-6 Ap 1 '18; Abstract. *Elec W* 71:521 Mr 9 '18; Discussion. H. M. St John. *Met & Chem Eng* 18:621-2 Je 15 '18
- Developing our electrochemical resources. C. G. Schluederberg. *Elec J* 16:3-6 Ja '19
- Electricity releases chemistry's power. J. M. Matthews. *il Gen Elec R* 21:727-50 N '18
- Electrochemical development at Shawinigan, Can. *il Elec R* 71:1050-1 D 22 '17
- Electrochemical industries at Shawinigan Falls, Canada. H. C. Randall. *il Chem & Met Eng* 19:561-5 O 1 '18
- Electrochemical industries in Tennessee. L. C. Glenn. *Met & Chem Eng* 18:455-6 My 1 '18
- Electrochemical industry essential to winning the war. C. G. Schluederberg. *Met & Chem Eng* 18:437 My 1 '18
- Electrochemical progress necessary to war. C. G. Fink. *Elec R* 72:412 Mr 9 '18

- Electrochemistry and national economy; industries of the Appalachian South. C. G. Fink. Met & Chem Eng 18:581-2 Je 1 '18**
- Future of electrochemistry and metallurgy on the Pacific coast. J. W. Beckman. *Chem & Met Eng* 19:30-2 J1 1 '18
- Future of the American electrochemical industry. S. W. Maher. *Met & Chem Eng* 18:513-14 My 15 '18
- Government ownership of water power in relation to electrochemical industry. F. A. J. FitzGerald. *Chem & Met Eng* 21:95-8 J1 15 '19
- Importance of electrochemistry. J. W. Richards. *Elec R* 74:988-92 Je 14 '19; Abstract. *Elec W* 73:1279 Je 14 '19
- Production of electrometallurgical or electrochemical products per kilowatt-year. *Met & Chem Eng* 18:447 My 1 '18
- Relation of the chemical industry of Niagara Falls to the water works. J. A. Kienle. *il diag Am Water Works Assn J* 6:496-513; Discussion. 514-17 S '19
- Transition period in electrochemical and electrometallurgical industries in France. *Elec R* 74:1032 Je 21 '19
- Water power—our electrochemical salvation. C. A. Winder. *il map Gen Elec R* 21:110-15 F '18

**See also Electrometallurgy**

- Electrochemical society, American. See American electrochemical society

**Electrochemistry**

- Automatic chemist. *diags Sci Am* 120:548 My 24 '19
- Electric power for nitrogen fixation. E. K. Scott. *diag Am Inst E E Pro* 37:779-92 J1 '18; Same cond. *Chem & Met Eng* 19:411-14 S 25 '18; Abstract. *Elec W* 71:1368 Je 29 '18
- Electrochemistry in its human relations. F. J. Tone. *Chem & Met Eng* 20:413-15 Ap 15 '19; Abstract. *Elec R* 75:192-4 Ag 2 '19
- Electrochemistry in war. *Sci Am* 119:312 O 19 '18
- Elements of electro-chemistry. J. Haas, jr. *Metal Ind* 16:161-2, 315-16, 405-7, 550-1; 17:277-9, 420-4 Ap, J1, S, D '18, Je, S '19
- Fall meeting of the American electrochemical society, Atlantic City. *Chem & Met Eng* 19:609-15 O 15 '18
- Producing synthetic gasoline by electrochemical means. L. B. Cherry. *diag Power* 46:847-8 D 18 '17; Abstract. *Sci Am S* 86:320 N 16 '18
- Products of the electric furnace and the electrolytic cell. *Chem & Met Eng* 19:756 D 1 '18

**See also Chemistry, Physical; Dissociation; Electric batteries; Electrochemical analysis; Electrochemical industries; Electrodes; Electrolysis; Electrolytes; Electrometallurgy; Electromotive force; Electroplating**

**Terminology**

- Sign of potentials. O. P. Watts. *J Fr Inst* 186:757-8 D '18
- Electroculture of plants. See Electrohorticulture
- Electrodeposition of metals. See Electrometallurgy; Electroplating
- Electrodes**
- Apparent dielectric strength of varnished cambric. A. E. Kennelly and R. J. Wiseman. *diags plans Elec W* 70:1138-41 D 15 '17; Abstract. *J Fr Inst* 185:143-5 Ja '18
- Composition of electrodes. *il diag Iron Age* 104:503-4 Ag 21 '19
- Cooled bottom electrode; patent. *diag Met & Chem Eng* 18:315 Mr 15 '18
- Corrosion of electrode supports. *Eng & Min J* 105:837 My 4 '18
- Effects of the chemical composition of welding electrodes. J. S. Orton. *il Am Mach* 51:625-6 S 25 '19
- Electric furnaces for the production of steel and ferro-alloys. J. A. Seeds. *il diags plan Gen Elec R* 21:767-80 N '18
- Electric welding. T. T. Heaton. *Engineer* 127:101 Ja 31 '19

**Electrodes—Continued**

- Electrodes for caustic cells; patent. C. W. Marsh. *diag Chem & Met Eng* 21:210 Ag 15 '19
- Electrodes for electric furnaces: their manufacture, properties, and utilization. J. Escard. *diags Gen Elec R* 21:664-71, 781-92 O-N '18
- Features of arc welding development. O. A. Kenyon. *diags Elec R* 73:963-5 D 21 '18
- Gas-fired electrode annealing furnace. *diags plan Engineer* 126:560 D 27 '18
- Hydrogen overvoltage. D. A. MacInnes and L. Adler. *diags Am Chem Soc J* 41:194-207, 2013-19 F, D '19
- Increasing life of electrodes. *Iron Tr R* 65:31 JI 3 '19
- Lead electrode. F. H. Getman. *bibliog Am Chem Soc J* 40:611-19 Ap '18
- Lead standard cell and a determination of the potential of the lead electrode. W. E. Henderson and G. Stegeman. *Am Chem Soc J* 40:84-9 Ja '18
- Manufacture of carbon electrodes. *Il Sci Am* 120:492+ My 10 '19
- Manufacture of carbon electrodes; patent. *diag Engineer* 126:108 Ag 2 '18
- Manufacture of carbon electrodes for electro-metallurgical purposes. *Il Chem & Met Eng* 19:179-84 Ag 15 '18
- Metallurgical problems met in electric arc welding. *Elec Ry J* 53:241-2 F 1 '19
- Nitrogen fixation furnaces. E. K. Scott. *diags Chem & Met Eng* 19:714-15 N 15 '18; Same. *Gen Elec R* 21:797-9 N '18
- Occlusion of hydrogen and oxygen by metal electrodes. E. A. Harding and D. P. Smith. *diags Am Chem Soc J* 40:1508-31 O '18; Discussion. 41:1887-98 D '19
- Potential of the bromine electrode; the free energy of dilution of hydrogen bromide; the distribution of bromine between several phases. G. N. Lewis and H. Storch. *diags Am Chem Soc J* 39:2544-54 D '17
- Potentials of the bismuth-bismuthoxychloride and the copper-cuprous-chloride electrodes. A. A. Noyes and M. Chow. *Am Chem Soc J* 40:739-63 My '18
- Potentials of the zinc and cadmium electrodes. W. G. Horsch. *diag Am Chem Soc J* 41:1787-1800 N '19
- Preventing oxidation of electrodes. *diags Foundry* 47:467 JI 15 '19
- Processes within the electrode which accompany the discharge of hydrogen and oxygen; abstract. D. P. Smith. *Chem & Met Eng* 19:609 O 15 '18
- Review of electric arc welding. J. A. Seede. *Il diags Gen Elec R* 21:881-6 D '18
- Searchlight electrodes. W. H. Hardman. *Il Gen Elec R* 22:685-8 S '19
- Selecting electrodes and holders for electric arc welding. *Il diags Elec Ry J* 53:146-7 Ja 18 '19
- Electrodynamics**
- Theory of electrodynamics. *Sci Am S* 85:323 My 25 '18
- See also Inductance
- Electroalvanizing.** See Galvanizing
- Electrograph**
- Electric bulletins from a typewriter. *Il Sci Am* 119:442 N 30 '18
- Electrohorticulture**
- Armor-plated seed fertilized by electricity. *Sci Am* 119:167 Ag 31 '18
- Effect of electric stimulus upon potato production. *diag Elec R* 74:140-1 Ja 25 '19
- Electricity in agriculture. *Sci Am S* 86:19 JI 13 '18
- Electrification of seeds. C. A. Mercier. *Il Sci Am* 120:142-3 F 15 '19
- Electroculture; abstract. *Elec W* 71:316 F 9 '18
- Electroculture at Chester, England; abstract. S. E. Britton. *Elec W* 71:783 Ap 13 '18
- Electroculture of crops. I. Jorgensen and W. Stiles. *Sci Am S* 85:366-8 Je 3 '18
- Nitrification of the soil by electricity. R. D. McCreery. *J Fr Inst* 185:647-8 My '18; *Elec R* 72:932 Je 1 '18
- Position of electro-culture. *Engineer* 125:144, 177 F 15, Mr 1 '18

Theory of electro culture. R. D. McCreery. *Sci Am* 120:530 My 17 '19

**Electrolysis**

- Alternating current electrolysis. H. B. Weiser. *Met & Chem Eng* 18:548-9 My 15 '18
- Behavior of the hydronitrogens and their derivatives in liquid ammonia; electrolytic nitridation of various anodes in a solution of ammonium trinitride. A. W. Browne, M. E. Holmes and J. S. King. *Am Chem Soc J* 41:1769-76 N '19
- Distilling liquids by the electrolytic method. *Il Sci Am* 118:172 F 23 '18
- Electricity used in oxygen and hydrogen making. *Il Elec R* 74:909-10 My 31 '19
- Electrolysis and batteries. H. H. Bliss. *Il diags J Elec* 43:120-1 Ag 1 '19
- Electrolysis of solutions of the rare earths. L. M. Dennis and A. B. Ray. *Am Chem Soc J* 40:174-81 Ja '18
- Electrolytic and electrothermic processes and products. *diags Gen Elec R* 21:756-66 N '18
- Electrolytic caustic soda-chlorine cells. K. Horine. *chart Chem & Met Eng* 21:69-72 JI 15 '19
- Electrolytic deposition of alloys, iron and iron-nickel at ordinary temperature and high hydrogen pressure; abstract. R. Kremen and H. Bregmesser. *Elec W* 72:216 Ag 3 '18
- Electrolytic zinc. C. A. Hansen. *Am Inst Min E Bul* 135:615-43 Mr '18; Abstract. *Met & Chem Eng* 18:481-3 My 1 '18
- Elements of electro-chemistry. J. Haas, jr. *Il Metal Ind* 17:277-9 Je '19
- Heating water by means of electrolysis. *Il Sci Am* 120:552+ My 24 '19
- Modern welding and cutting; oxygen and hydrogen by the electrolytic method. E. Viall. *Il diags plans Am Mach* 50:733-7 Ap 17 '19
- New commercial application of electrolysis; coating small decorative articles with metal. *Elec R* 73:320 Ag 31 '18
- Oxy-hydrogen gas—its uses at the J. I. Case threshing machine company, manufacturers of tractors and farm implements. C. Kandel. *Il plan Am Gas Eng J* 111:219-22 S 13 '19
- Phenomena of electrolytic migration. *Sci Am S* 85:59 Ja 26 '18
- Purification of gallium by electrolysis, and the compressibility and density of gallium. T. W. Richards and S. Boyer. *Am Chem Soc J* 41:133-4 F '19
- Zorzi system for the electrolytic production of hydrogen and oxygen; abstract. G. Carrara. *Elec W* 72:311 Ag 17 '18
- See also Electrochemical analysis; Electrolytes; Electrolytic corrosion; Electrometallurgy; Pickling (metals); Sewage disposal—Electrolytic treatment
- Electrolysis of pipes.** See Electrolytic corrosion
- Electrolytes**
- Activities of the ions of strong electrolytes. D. A. MacInnes. *Am Chem Soc J* 41:1086-92 JI '19
- Comparison of the activities of two typical electrolytes. G. A. Linhart. *Am Chem Soc J* 39:2601-5 D '17
- Electrolytic conductivity in non-aqueous solutions; relations between the conductivity of the solute and several physical properties of the solvent. H. J. M. Creighton. *J Fr Inst* 187:313-18 Mr '19
- Electrolytic conductivity in non-aqueous solutions; the electrical conductance of trimethyl-para-tolyl-ammonium iodide in water and several organic solvents. H. J. M. Creighton and D. H. Way. *diags J Fr Inst* 186:675-98 D '18
- Equivalent conductance of electrolytes in dilute aqueous solution. E. W. Washburn; H. J. Welland. *diags Am Chem Soc J* 40:106-58 Ja '18
- Planck's formula for the potential difference between solutions and the values of certain important cells. H. A. Fales and W. C. Vosburgh. *diag Am Chem Soc J* 40:1291-1316 S '18

**Electrolytes—Continued**

Role of complex salts as electrolytes in plating and refining baths. R. S. Dean and M. Y. Chang. *Il diag Chem & Met Eng* 19:83-5 JI 15 '18

*See also* Electric batteries; Electrochemistry; Electrodes; Electrolysis; Electrolytic cells

**Electrolytic cells**

Allen-Moore cell in the pulp and paper mill. F. H. Mitchell. *Il Chem & Met Eng* 21:370-5 S 15 '19

Influence of magnetic field and mechanical stirring on potential difference of electrolytic cell; abstract. T. Mashimo. *Elec W* 72: 170 JI 27 '18

Nelson electrolytic chlorine cell. C. F. Carrier, jr. *Il Chem & Met Eng* 21:133-6 Ag 1 '19

**Patents**

Electrolytic caustic soda-chlorine cells. K. Horine. *chart Chem & Met Eng* 21:69-72 JI 15 '19

**Electrolytic corrosion**

Bureau of standards studies return circuit conditions in Milwaukee. E. R. Shepard. *Il plan Elec Ry J* 53:770-2 Ap 19 '19

Drainage if necessary vs. negative feeder electrolysis protection. D. W. Roper. *diags map Elec Ry J* 52:1003-7 D 7 '18

Electrolysis has damaged pipelines claims Brazil gas company. *Am Gas Eng J* 109:593-4 D 23 '18

Electrolysis mitigation. *Sci Am S* 86:46-7, 58 JI 20-27 '18

Electrolysis of condenser tubes. *Elec Ry J* 52:706 O 19 '18

Electrolysis—troubles caused thereby and remedies which may be applied. A. F. Ganz. *diags Stevens Ind* 34:241-74 O '17

Fuel administration interests itself in electrolysis in natural gas mains. F. H. West. *Il Am Gas Eng J* 110:22-3 Ja 11 '19

Is pipe drainage a cure for electrolysis? E. Miller; D. W. Roper. *Elec Ry J* 53:701-2 Ap 5 '19

Reinforced concrete versus salt, brine and sea-water. H. J. M. Creighton. *Il Chem & Met Eng* 19:618-23 O 15 '18

Report of American water works association's representatives on American committee on electrolysis. *Am Water Works Assn J* 6:585-9 S '19

Service connections in New Orleans. *Munic J* 45:210 S 14 '18

Structural service department; electrolysis. *Am Inst Arch J* 6:320 Je '18

Underground construction and electrolysis. *Elec W* 73:1086-7 My 24 '19

Water works operation; electrolysis. *Il Munic J* 45:188-9, 201-4, 226-7 S 7-21 '18

What is the cure for condenser tube corrosion? H. L. Smith. *Elec Ry J* 52:283-5 Ag 17 '18

*See also* Corrosion and anti-corrosives

**Electrolytic pickling.** *See* Pickling (metals)

**Electrolytic refining.** *See* Electrometallurgy

**Electromagnetic hypothesis of the kinetics of heterogeneous equilibrium, the structure of liquids, and cohesion.** W. D. Harkins and H. H. King. *Am Chem Soc J* 41:970-92 Je '19

**Electromagnetic induction.** *See* Induction (electricity)

**Electromagnetism**

Applications of electromagnetic theory to matter. A. C. Crehore. *Am Inst E E Pro* 37: 283-315 Ap '18

Law of the inverse squares. T. Powell. *Sci Am S* 85:75 F 2 '18

Radio instruments and measurements. *diags U S Bur Stand Circ* 74:6-18 '18

*See also* Electromagnets; Inductance; Magnetization

**Electromagnets**

Construction of 120- and 240-volt electromagnets and solenoids. H. W. Townsend. *diags Power* 49:888-90 Je 10 '19

Critical review of the bibliography on unbalanced magnetic pull in dynamo-electric machines. A. Gray and J. G. Pertsch. *bibliog diags Am Inst E E Pro* 37:1061-8 S '18

Cutler-Hammer hand magnet. *Il Elec R* 72: 890 My 25 '18; *Elec W* 71:1166 Je 1 '18; *Am Mach* 48:1121-2 Je 27 '18

Electrical study course—forms of field magnets. *diags Power* 47:152-4 Ja 29 '18

Electromagnetic die ball. *diags Am Mach* 50:548-50 Mr 20 '19

Electromagnets—transformation of energy. H. K. Bliss. *Il diag J Elec* 42:440-1 My 1 '19

How to build low-voltage direct-current electromagnets and solenoids. H. W. Townsend. *diags Power* 49:806-7 My 27 '19

How to make an electromagnet. *diags Motor Age* 34:34-6 S 26 '18

Large electromagnet in Sweden. *Sci Am S* 85: 55 Ja 26 '18

Magnetic pull in electric machines. E. Rosenberg. *diags Am Inst E E Pro* 37:1069-1113 S '18

Solenoids and electromagnets; principles, proportions, and applications in various kinds of machines. C. A. Clark. *charts diags Mach* 24:811-17 My '18

*See also* Armatures; Chucks; Magnetic; Commutators; Induction coils; Solenoids

**Electromagnets, Lifting.** *See* Lifting magnets

**Electrometallurgy**

American electric steel by the Triplex process. *Il (supp) diags Engineer* 127:126-7 F 7 '19

Blowing air into electric furnace steel. C. M. Carmichael. *Iron Tr R* 63:726 S 26 '18

Commercial testing of metallurgical electric furnaces. H. M. St John. *Chem & Met Eng* 21:377-92 S 15 '19

Construction and operation of an electrolytic copper refinery. J. E. McAllister. *plan Eng & Min J* 106:337-41 Ag 24 '18

Details of the electrolytic zinc process; patents. *Met & Chem Eng* 18:549-50 My 15 '18

Electric carbon tool steel; details of British practice in a 3-ton Heroult furnace. J. A. Holden. *Iron Age* 101:1222-3 My 9 '18

Electric furnace. F. Rowlinson. *Il diags Sci Am S* 88:132-3 Ag 30 '19

Electric furnaces produce sound steels. J. A. Mathews. *Iron Tr R* 63:152-3 JI 18 '18

Electric pig iron after the war. R. Turnbull. *Chem & Met Eng* 20:178-9 F 15 '19

Electric pig iron from steel scrap. R. Turnbull. *Iron Age* 102:1026-7 O 24 '18

Electric process of iron and steel making expands markedly in Canada. *Iron Tr R* 62: 673 Mr 14 '18

Electric production of carbon-free alloys. E. F. Northrup. *Il diag Chem & Met Eng* 21:258-9 S 1 '19

Electric steel castings. R. F. Flinterman. *Met & Chem Eng* 18:610 Je 1 '18

Electric steel development. D. F. Campbell. *Iron Age* 102:685 S 19 '18

Electric steel making. A. V. Farr. *Il Mach* 25: 40-2 S '18; Same cond. *Automotive Ind* 39: 97-9 JI 18 '18; Same cond. *Iron Age* 102:74-6 JI 11 '18; Same cond. *Am Mach* 49:753-5 O 24 '18

Electric steel refining. *Iron Age* 102:89 JI 11 '18

Electrodeposition of gold and silver from cyanide solutions. S. E. Christy. *Il diags U S Bur Mines Bul* 150:1-162 '19

Electrolytic antimony from stibnite. D. J. Demorest. *Eng & Min J* 105:10 Ja 5 '18

Electrolytic deposition of zinc. H. E. Broughton. *Il Chem & Met Eng* 20:155-62 F 15 '19

Electrolytic iron and nickel-iron. *Sci Am S* 86:298 N 9 '18

Electrolytic iron manufacture in France by the Burgess process. *Eng & Min J* 106:333 Ag 24 '18

**Electrometallurgy—Continued**

- Electrolytic refining of silver and gold. G. G. Griswold. *II Eng & Min J* 107:788-90 My 3 '19; Same. *Chem & Met Eng* 20:382-3 Ap 15 '19
- Electrolytic zinc. C. A. Hansen. *Am Inst Min E Bul* 135:615-43 Mr '18; Abstract. *Met & Chem Eng* 18:481-3 My 1 '18; Discussion. *Am Inst Min E Bul* 142:1528-33; 143:1638-41 O-N '18
- Electrolytic zinc. C. A. Hansen. *diags Am Inst Min Bul* 152:1247-81 Ag '19
- Electrometallurgical treatment of nickel ores in New Caledonia; abstract. M. Sabathier. *Chem & Met Eng* 20:646 Je 15 '19
- Electrometallurgy of molybdenum; abstract. J. Escard. *Chem & Met Eng* 20:645 Je 15 '19
- Future of electric steel. J. A. Mathews. *Iron Age* 102:884 O 10 '18
- High grade electric steel; pure metal in quantity by a new process. *II Sci Am* 119: 51 JI 20 '18
- Hydrometallurgy and the electrolytic precipitation of zinc. F. D. James. *II Mo U Sch Mines & Met Bul tech ser* 4:1-26 Ag '17
- Importance of electrometallurgy. V. H. Manning. *Met & Chem Eng* 18:441 My 1 '18
- Maintenance of high ampere efficiency in electrolytic copper refining. M. H. Merriam and M. A. Mosher. *diags Eng & Min J* 106:95-9 JI 20 '18
- Making electric steel for roller bearings. E. K. Hammond. *II diag Mach* 25:318-26 D '18
- Manipulating slags in electric steel furnaces; patent. *Iron Age* 101:1202 My 9 '18
- Manufacture of electric tool steel. E. A. Suverkrop. *II Am Mach* 48:351-8 F 28 '18
- Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *Am Inst Min E Bul* 140:1321-73 Ag '18; Excerpts. *Iron Age* 102: 624-5, 747, 786-7 S 12, 26 '18; Excerpts. *Eng & Min J* 106:405-9 Ag 31 '18; Abstract. *Chem & Met Eng* 19:281-2 S 15 '18; Discussion. *Am Inst Min E Bul* 143:1651-4 N '18
- Obtaining metals electrolytically with circulating electrolytes; patent. *diag Chem & Met Eng* 20:597 Je 1 '19
- Pig iron, ferros and sponge iron at Heroult. *Chem & Met Eng* 20:613-15 Je 15 '19
- Power data for electrolytic zinc. G. H. Clevenger and F. S. Mulock. *diag Chem & Met Eng* 20:supp F 15 '19
- Production of electrometallurgical or electrochemical products per kilowatt-year. *Met & Chem Eng* 18:447 My 1 '18
- Silicomanganese supply is assured. *II Iron Tr R* 63:87-8 JI 11 '18
- Treatment of complex speisses. P. Papenordt. *diags Chem & Met Eng* 21:30-3 JI 1 '19
- Triplex process of making electric steel. T. W. Robinson. *II plans Iron Age* 101:1471-6 Je 6 '18; Same cond. *Iron Tr R* 62:1432-8 Je 6 '18; Same cond. *Chem & Met Eng* 19:15-20 JI 1 '18; Discussion. *Iron Age* 101:1476-7 Je 6 '18
- See also Cyanide process; Electric furnaces; Electrolysis; Electrolytic corrosion; Electroplating; Electrotyping; Magnetic separation of ores; Smelting; Electric
- Study and teaching**
- Laboratory electro-deposition plant. C. R. Hayward. *II diags Chem & Met Eng* 20:240 Mr 1 '19
- Electrometer**
- Three devices for use in electrometry; abstract. E. H. Kennard. *Elec W* 71:783 Ap 13 '18
- Electromotive force**
- Comparison of the activities of two typical electrolytes. G. A. Linhart. *Am Chem Soc J* 39:2601-5 D '17
- Electrical study course—simple method of adding voltages. *diags Power* 50:306-7 Ag 19 '19
- Electrochemical behavior of nickel. *Sci Am S* 87:135 Mr 1 '19
- Electromotive force and free energy of dilution of lithium chloride in aqueous and alcoholic solutions. J. N. Pearce and F. S. Mortimer. *Am Chem Soc J* 40:509-23 Mr '18
- Free energy of dilution of sulfuric acid. M. Randall and O. E. Cushman. *Am Chem Soc J* 40:393-7 F '18
- Influence of heat treatment on the electrical and thermal resistivity and thermoelectric potential of some steels. E. D. Campbell and W. C. Dowd. *Met & Chem Eng* 18:86-90 Ja 15 '18
- New standard of current and potential. C. T. Alcott. *II diags Am Inst E E Pro* 37:83-9 F '18
- Planck's formula for the potential difference between solutions and the values of certain important cells. H. A. Fales and W. C. Vosburgh. *diag Am Chem Soc J* 40:1291-1316 S '18
- Potential of the bromine electrode; the free energy of dilution of hydrogen bromide; the distribution of bromine between several phases. G. N. Lewis and H. Storch. *diags Am Chem Soc J* 39:2544-54 D '17
- Potentials of the zinc and cadmium electrodes. W. G. Horsch. *diag Am Chem Soc J* 41:1787-1800 N '19
- Potentiometers for thermoelement work. W. P. White. *diags Am Inst Min Bul* 153:1763-72 S '19; Discussion. 156:3187-8 D '19
- Report on electromagnetic induction. S. J. Barnett. *Am Inst E E Pro* 38:1151-69 O '19
- Simple method of measuring emfs. accurately. F. Wenner, P. D. Foote and E. E. Welbel. *diags Elec W* 71:559-60 Mr 16 '18
- Thermoelectric standard cell. C. A. Hoxie. *II diag Am Inst E E Pro* 37:57-64 F '18
- Electrons**
- Applications of electromagnetic theory to matter. A. C. Crehore. *Am Inst E E Pro* 37: 283-315 Ap '18
- Arrangement of electrons in atoms and molecules. I. Langmuir. *diags Am Chem Soc J* 41:868-934 Je '19; Same. *Gen Elec R* 22: 505-16, 587-600, 789-804 JI-Ag, O '19; Abstract. *J Fr Inst* 187:359-62 Mr '19; Abstract. *Mech Eng* 41:772-3 S '19
- Bohr's atomic hypothesis. *Sci Am S* 87:176 Mr 15 '19
- Electricity and matter. *Sci Am S* 87:354-5 Je 7 '19
- Electron theory. W. A. Noyes. *diags J Fr Inst* 135:59-74 Ja '18
- Electronic constitutions of acetoacetic and citric acids and some of their derivatives. M. T. Hanke and K. K. Koessler. *Am Chem Soc J* 40:1726-32 N '18
- Fundamental relations between direct- and alternating-current circuits. T. Croft. *diags Coal Age* 14:770-2 O 24 '18
- Langmuir postulates. E. Hendrick. *diags Chem & Met Eng* 21:73-81 JI 15 '19; Same. *Sci Am S* 88:210-11, 246-7+ O 11, 25 '19
- Radiation and the electron. R. A. Millikan. *diag Sci Am S* 86:60-1, 74 JI 27-Ag 3 '18
- Radiation from system of electrons. *Sci Am S* 85:375 Je 15 '18
- Resonance and ionization potentials for electrons in cadmium vapor. J. T. Tate and P. D. Foote. *diag U S Bur Stand Bul* 14: 479-86 Je 24 '18
- Scattering of alpha rays as evidence on the Parson magneton hypothesis. D. L. Webster. *Am Chem Soc J* 40:375-9 F '18
- Unipolar induction and electron theory; abstract. G. B. Pegram. *Elec W* 71:522-3 Mr 9 '18
- See also Electric discharges thru gases; Ions; Radioactivity
- Electroplating**
- American electro-platers' society convention; a description of the metal plating and finishing shops of Philadelphia. G. Goodfellow. *Metal Ind* 17:257-65 Je '19
- Antimony plating from the fluoride bath and the testing of other antimony baths. F. C. Mathers, K. S. Means and B. F. Richard. *II Metal Ind* 15:197-9 My '17
- Applications of electroplating. *Sci Am* 120: 313 Mr 29 '19

**Electroplating—Continued**

- Brittleness in electroplated steel. T. S. Fuller. Iron Tr R 62:669-71 Mr 14 '18
- Casket hardware electro-plating and finishing. H. Mills. Metal Ind 16:19 Ja '18
- Description of St Louis, Missouri; with some mention of its electro-plating industries. H. H. Williams. II Metal Ind 15:237-43 Je '17
- Determining weight of deposit. L. C. Wilson. II Metal Ind n s 12:206-7, 335-7, 505-6; 13: 152-4, 277-8, 506-7; 14:122-3, 378-9; 15:117-18 My, Ag, D '14, Ap, Jl, D '15, Mr, S '16, Mr '17
- Education and the plating industry. W. Blum. Metal Ind 17:216-17 My '19
- Electro-plating and its relation to the manufacture of phonographs and phonographic records. S. Herrick. II Metal Ind 16:20-1, 173-4, 269-70 Ja, Ap, Je '18
- Electro-plating engineering. C. B. Willmore. diags Metal Ind 16:117-19, 209-11, 364-5, 466-7 Mr, My, Ag, O '18
- Electro-plating generators. F. S. Taylor. Metal Ind 15:294-8 Jl '17
- Electro-plating on iron from copper sulphate solution and a remarkable case of pitting in electro-plating. O. P. Watts. II Metal Ind 17:164-7 Ap '19
- Electroplatings of copper upon iron. O. P. Watts and others. II Chem & Met Eng 20: 383-4 Ap 15 '19
- Elements of electro-chemistry. J. Haas, jr. Metal Ind 16:161-2, 315-16, 405-7, 550-1; 17: 277-9, 420-4 Ap, Jl, S, D '18, Je, S '19
- Experiments with the copper cyanide plating baths. F. C. Mathers. Metal Ind 16:359-60 Ag '18
- Lead plating. Metal Ind 16:410-11, 468 S-O '18
- Measuring the ohmic resistance of plating solutions. C. W. Hell. diag Metal Ind 15: 253-5 Je '17
- Metal plating; a compilation of tables showing the time required to deposit a given thickness of metal. W. G. Knox. Metal Ind 17:269-71, 372-4 Je, Ag '19
- Methodical experimental work in electro-plating. J. Haas, jr. Metal Ind 17:467-9 O '19
- Military applications of electroplating. W. Blum. Metal Ind 16:498-9 N '18
- National alternating rotating plating barrel. II Metal Ind 16:569-70 D '18
- Order and method in the plating shop. plan Metal Ind 16:557-8 D '18
- Planning a metal finishing department. diag Metal Ind 17:5-6 Ja '19
- Plating calculations. Metal Ind 17:370 Ag '19
- Plating room layout. diag Metal Ind 17:371 Ag '19
- Pointers for the plater when buying equipment. E. P. Later. Foundry 47:76-8, 167-9 F, Ap 1 '19
- Preparing metal parts for electro-plating. E. P. Later. Foundry 46:331-3, 353-5 Jl-Ag '18
- Progress in electro-plating. C. H. Proctor. II Metal Ind 16:114-15 Mr '18
- Rack insulation. W. H. Weber. Metal Ind 15: 194 My '17
- Review of the plating industry for 1918. C. H. Proctor. Metal Ind 17:15-17 Ja '19
- Role of complex salts as electrolytes in plating and refining baths. R. S. Dean and M. Y. Chang. II diags Chem & Met Eng 19:83-5 Jl 15 '18
- Theory and practice as they may be applied to electro-plating. H. B. North. Metal Ind 15:92-4 F '17
- Utilization of waste metals in the plating department; with discussion. C. C. Martel. Metal Ind 16:215-17 My '18
- Wartime production methods; manufacture and finishing of die cast metal parts. C. Pack. Metal Ind 16:120-1 Mr '18
- What is the matter with my nickel solution? E. P. Later. Foundry 46:213-15 My '18
- Work of the Bureau of standards on electro-plating. W. Blum. Metal Ind 16:76 F '18

Wrong conditions corrected by education. H. J. Hawkins. Metal Ind 16:314 Jl '18

See also Electrometallurgy; Nickel plating; Silver plating

**Standards**

- Government standards for electro-plating; report of a conference on electro-plating of military materials held at the Bureau of standards. Metal Ind 16:165-6 Ap '18
- Shall we have commercial standards of electro-deposits and government marks of karat alloys? C. H. Proctor. Metal Ind n s 15:17-18 Ja '17
- Electrostatic effects on airships. G. S. Fulcher. Aviation 7:174-6 S 15 '19
- Electrostatics**
- Experiments on tribo-electricity. Sci Am S 85:167 Mr 16 '18
- Instability of electrified liquid surfaces. Sci Am S 84:414 D 29 '17
- See also Condensers (electricity); Electric discharges; Electrotherapeutics
- Electrotechnical commission, international.** See International electrotechnical commission
- Electrotherapeutics**
- Diathermy; the use of the electrical current to raise the temperature of the body in the treatment of disease. E. P. Cumberbatch. Inst E E J 56:349-51 Je '18; Same cond. Sci Am S 86:30 Jl 13 '18; Discussion. Inst E E J 56:358-66 Je '18
- Motor-operated therapeutic machine. II Elec R 72:391 Mr 2 '18; Elec W 71:490-1 Mr 2 '18
- See also Radiotherapy
- Electrotyping**
- Copper electrotyping. S: Wein. Metal Ind 16:84 F '18
- Standardization of generators for electrotyping. F. T. Taylor. II Metal Ind 17:323-5 Jl '17
- Elements, Chemical.** See Chemical elements
- Elem!**
- Tabanuco gum or Porto Rican elemi. Sci Am S 87:201 Mr 29 '19
- Elephant Butte dam**
- Comparison of the Elephant Butte and Arrowrock dams. J. E. Sater. Concrete 11:183 D '17
- Elevated railroads**
- Coasting results on the Chicago Elevated. H. A. Johnson. Elec Ry J 54:277-9 Ag 9 '19
- Iron not weakened by service in elevated railway for thirty-five years. G. H. Pegram. diag Eng N 80:646-7 Ap 4 '18
- Movable towers concrete deck of Philadelphia Elevated. II Eng N 82:50-2 Ja 2 '19
- Rebuilding an elevated railway under regular schedule traffic. F. W. Gardiner and S. Johannesson. map Elec Ry J 51:320-2 F 16 '18
- See also Boston Elevated railway
- Cost**
- Cost of erecting structural steel for Manhattan Elevated railway improvements. Eng & Contr 49:90-1 Ja 23 '18
- Overhead and time cost to erect elevated railway. A. P. Roscoe. Eng N 82:1164-6 Je 12 '19
- Elevator gates**
- Making an elevator gate safe. Factory 19:234 Ag '17
- Elevators**
- Care of hydraulic elevators. W. T. Osborn. Power 47:163-4 Ja 29 '18
- Controlling apparatus for elevators and other devices. H. Goodnow. diag Coal Age 16:406-7 S 4 '19
- Elevator drum shaft broke. R. A. Cultra. diag Power 47:776 My 28 '18
- Elevators on mine-laying fleet made possible steady flow of mines to launching deck. II Int Marine Eng 24:293-4 Ap '19
- Inspection and installation of elevator cables. D. A. Manson. II diags Power 50:374-6 S 2 '19

**Elevators—Continued**

- Install operatorless freight elevators. *Il* Iron Tr R 65:1392-3 N 20 '19  
 Modern terminal. *Il* Sci Am 121:390-1 O 18 '19  
 Points on textile mill elevators. Textile World 54:635 Ag 3 '18  
 Slide axes in slots to change direction in moving inclined elevators. *Il* Eng N 80:732 Ap 11 '18  
 Stopping leak in elevator piping. A. J. Dixon. *diag* Power 50:270 Ag 12 '19  
*See also* Canal lifts; Hoisting machinery

**Law**

- Excerpts from elevator laws of New York state and New York city. E: A. Smith. Power 50:572-4 O 7 '19

**Elevators, Electric**

- Car-switch elevator control. *Il* Elec R 73:591 O 12 '18; Elec W 72:722 O 12 '18  
 Electric and elevator equipment of the Hotel Pennsylvania, New York. C: E. Knox. *Il* Power 49:708-12 My 13 '19  
 Electric elevator equipment for Milwaukee athletic club. *Il* Elec R 74:386 Mr 8 '19  
 Factors governing elevator drive. C. E. Clewell. *Il* *diags* Elec W 72:340-3 Ag 24 '18  
 Future possibilities of push button control for electric elevators. A. Marks. *Il* Am Arch 116:187-94 Ag 6 '19  
 Geared and gearless traction elevator machines. R. H. Whitehead. *Il* *diags* Power 49:680-2 My 6 '19  
 Increasing demand for the electric elevator. Elec W 74:800 O 11 '19  
 Maintenance of electric elevators. C: W. Naylor. Power 47:403-4 Mr 19 '18  
 New features in electric elevator control. C. W. Geiger. *Il* Elec R 72:776 My 4 '18  
 Operating costs of electric elevators. C: W. Naylor. *diag* Power 47:188-9 F 5 '18  
 Operation and maintenance of elevators—arrangement of cables. R. H. Whitehead. *diags* Power 47:764-7 My 28 '18  
 Operation and maintenance of elevators—care and lubrication. R. H. Whitehead. *Il* Power 47:833-4 Je 11 '18  
 Operation and maintenance of elevators—geared traction machines. R. H. Whitehead. *Il* Power 47:900-3 Je 25 '18  
 Operation and maintenance of elevators—winding-drum machines. R. H. Whitehead. *Il* Power 47:40-3 Ja 8 '18  
 Operation of a gearless traction elevator. R. H. Whitehead. *Il* *diags* Power 49:474-8 Ap 1 '19; Abstract. Mech Eng 41:473-4 My '19  
 Squirrel-cage elevator-motor control. *Il* Elec R 73:632 O 19 '18  
 Switch and signal system for freight elevator. *diags* Elec W 74:806 O 11 '19  
 Westinghouse control for elevators. Iron Tr R 63:729 S 26 '18; Power 48:634-5 O 29 '18

**Bibliography**

- Structural service department; electric elevators and dumbwaiters. Am Inst Arch J 6:318-19 Je '18

**Elevators, Grain. See Grain elevators****Elizabeth, New Jersey**

- Industrial housing developments in America; triumphing over the gridiron plan. L. Veller. *Il* plans Arch Rec 44:48-58 Jl '18

**Elk**

- Wild game as a war weapon; neglected means of increasing and conserving our meat supplies. E. C. MacMechen. *Il* Sci Am 118:88-9 Ja 26 '18

**Elliptic gearing. See Gearing, Elliptic****Elliptical bars**

- Weight of elliptical bars per running inch. W. C. Tryon. *diags* Foundry 47:262a My 1 '19

**Ellis Island**

- Growth of Ellis Island. Sci Am 120:427+ Ap 26 '19

**Elm**

- Utilization of elm. W. D. Brush. *Il* maps U S Agric Bul 683:1-43 '18

**Elmira, New York****Water supply**

- Operation of an American or rapid water filtration plant for twenty years at Elmira. J. M. Caird. Am Water Works Assn J 6: 409-21 S '19

**El Paso, Texas****Rapid transit**

- Introduction of safety cars. *Il* Elec Ry J 52: 552-3 S 28 '18

**Embankments**

- Construction of 18,000 ft. of 42 ft. top width, 21 ft. high embankment by hydraulic dredge method. *Il* Eng & Contr 49:477-8 My 15 '18  
 Methods and cost of riprapping embankment by wire bag method. L. E. Foster. *diags* Eng & Contr 51:180 F 12 '19; Same. Eng N 82: 301 F 6 '19  
 Molten slag is hauled by rail for making embankments. *diag* Eng N 81:267-8 Ag 8 '18  
 More fill in railroad embankment below than above ground. *diag* Eng N 80:1174 Je 20 '18  
*See also* Earthwork; Levees; Railroads—Earthwork; Rivers; Sea walls

**Embargo**

- Adjusting lumber trade to the embargo order. Am Lumberman 2263:51 S 28 '18  
 Embargo placed on imports. Eng & Min J 104:1008 D 8 '17  
 Export embargo opposed; wool stock graders recommend free shipments on woolen rags. Textile World 53:6365 Je 29 '18  
 Government control of foreign trade. Sci Am 118:214 Mr 9 '18  
 Latest developments in embargo situation. Am Lumberman 2262:43 S 21 '18  
 National wholesalers' association investigates embargo. Am Lumberman 2263:50 S 28 '18  
 New embargo instructions and car service bulletins. Ry Age 64:915-16 Ap 5 sec 1 '18  
 Revise export list as conservation measure. Automotive Ind 38:794 Ap 18 '18  
 Text of the President's export and import proclamation. Automotive Ind 38:431 F 21 '18  
 U. S. conserves supplies by export ban. Automobile 37:605 O 4 '17

**Embroidering machines**

- Embroidery by wholesale. *Il* Sci Am S 87:116 F 22 '19

**Emergency employment committee. See Council of national defense—Emergency employment committee****Emergency fleet corporation. See United States shipping board emergency fleet corporation****Emerson, William Ralph**

- Appreciation. C: A. Rich. Am Arch 112:475-6 D 26 '17

**Emery wheels**

- Observations on emery wheels in shops. S. B. Welcome. Mach 25:252-3 N '18

**See also Grinding wheels****Eminent domain**

- Review of the movement for excess condemnation of public improvements. Eng & Contr 50:324-6 O 2 '18  
 Set-back lines; power to establish them from a legal standpoint. W: J. Locke. Munic J 45:487-8 D 21 '18  
 Taking land for pipe lines is a public use. Gas Age 43:187 F 15 '19

**See also Public utilities; Right of way****Emissivity. See Radiation****Employees**

- Co-operative spirit holds employees in Flint industries; Industrial fellowship league. *Il* chart Automotive Ind 38:772-3+ Ap 18 '18  
 Coverage of the compensation acts. C. C. Sherlock. Am Mach 50:319-21 F 13 '19  
 Efficiency hints for shop workers; employees' research club. G: F. Card. chart Am Mach 49:573-4 S 26 '18  
 Employees' engineering club. F. O. Wells. Ind Management 57:443-5 Je '19  
 Employees' responsibility in secret processes; Supreme court decision. Met & Chem Eng 18:64 Ja 15 '18



**Employees—Continued**

Helping employees to become executives. F. E. Weakly. *Factory* 20:638-9 Ap '18  
 Helping people to help themselves. J. E. Carbery. *Textile World* 53:2493-4 D '17  
 How physical training helps factory executives. D. G. Stanbrough. *Ind Management* 56:20-1 Jl '18  
 Increasing dividends through personnel work. T. T. Read. *Am Inst Min E Bul* 130:1833-48 O '17; Same cond. *Iron Tr R* 61:880-3 O '17; Same cond. *Iron Age* 100:1058-60 N '17; Discussion. *Am Inst Min E Bul* 133:111-17 Ja '18  
 Legal duties of employees. C. C. Sherlock. *Mach* 24:1006 Jl '18  
 Life in a large manufacturing plant. C. M. Ripley. *Gen Elec R* 20:661-70, 754-64, 829-38, 906-14, 968-78; 21:82-91, 202-15, 300-12, 517-24, 579-84 Ag '17-Ja, Mr-Apr, Jl-Ag '18  
 Men wanted—who will get ahead. *Am Mach* 47:1147 D '17  
 Pull together. F. B. Van Doren. *Il Elec W* 73:368-9 F '22 '19  
 Reasons for industrial discontent. I. Fisher. *Coal Age* 13:1066-7 Je 8 '18  
 Tagging faithful employees. *Factory* 22:259 F '19  
 What the public schools mean to the employer. H. Tipper. *Automotive Ind* 41:129-30 Jl '17 '19  
*See also* Ability tests; Apprentices; Arbitration, Industrial; Benefit societies; Bonus system; Efficiency, Industrial; Electric railroads—Employees; Employment management; Employment systems; Foremen; Industrial betterment; Industrial management; Labor and laboring classes; Labor contracts; Medical service, Industrial; Organization in industry; Physical examinations; Railroads—Employees; Shipyards—Employees; Street railroads—Employees; Suggestion boxes; Welfare work in industry

**Rating**

Dangers in rating employees. R. W. Kelly. *Ind Management* 58:35-42 Jl '19  
 Efficiency of a man; rating schedule for division engineers of the Kentucky department of public roads. R. Wiley. *Good Roads* n 16:50 Ag 10 '18  
 Rating each workman according to merit. W. D. Stearns. *Factory* 23:297-9 Ag '19  
*See also* Ability tests  
 Employees, Disabled. *See* Cripples; Disabled—Rehabilitation  
 Employees, Government. *See* Government employees  
 Employees, Selection of. *See* Ability tests; Employment systems  
 Employees, Testing of. *See* Ability tests  
 Employees, Training of  
 Aims and standards in industrial Americanization. C. H. Paull. *Ind Management* 57:148-51 F '19  
 Breaking in green help. *Am Mach* 48:572 Ap 4 '18  
 Breaking in the new worker. H. N. Clarke. *Ind Management* 57:496-8 Je '19  
 Breaking in vs. industrial training. C. T. Clayton. *Am Ind* 19:22-3 Ja '19  
 Choosing and training the man for the high position. T. J. McGill. *J Elec* 43:11-12 Jl '19  
 Community guarantees for piece prices. J. C. Spence. *Am Mach* 50:793-7 Ap 24 '19  
 Community vestibule school a growing factor in American industry. *Am Gas Eng J* 109:583-6 D '18  
 Crucial week for the green employee. *Sci Am* 120:44 Ja 11 '19  
 Developing executive ability among employees. R. Elsmann. *Am Gas Eng J* 110:65-6 Ja 25 '19  
 Eastman kodak co.'s training shop. *Il Mach* 25:246-7 N '18  
 Education a plant efficiency factor. J. K. Lamoree. *Iron Age* 104:296-7 Jl 31 '19

Education—the financial and social barometer. R. Z. Virgin. *Coal Age* 14:446-7 S 5 '18  
 Efficient training department in a large plant. *Am Mach* 51:420-1 Ag 28 '19  
 Employers, let the industrial training section aid you. *Automotive Ind* 38:1143 Je 13 '18  
 Experience in training mechanical operators. *Il Iron Age* 102:551-3 S 5 '18  
 Factory school as an Americanizing force. T. A. Levy. *Am Ind* 20:23-4 S '19  
 How best to educate power-plant operators. W. E. East. *Elec W* 72:687-8 O 12 '18; Same. *Power* 48:683 N 5 '18  
 How we trained 5000 women to do precision work on fuses and instruments. C. U. Carpenter. *Il Ind Management* 55:353-7 My '18; Abstracts. *Iron Age* 101:1057 Ap 25 '18; *Am Gas Eng J* 108:419 My 4 '18  
 Increasing efficiency of foreign employees. A. P. Gwiazdowski. *Am Mach* 49:650 O 10 '18  
 Industrial education; report of committee of National association of manufacturers. *Am Ind* 18:9-10 Je '18  
 Industrial training for foundry workers. H. E. Miles. *Am Ind* 20:40-1 N '19  
 Industrial training in war time. E. E. MacNary. *Il chart Gen Elec R* 21:871-5 D '18  
 Installing a training department in the Buffalo factory of the Curtiss aeroplane and motor corporation. J. W. Russell. *Il Ind Management* 57:177-82 Mr '19  
 Intensive training for workers. *Am Ind* 19:19 Mr '19  
 Intensive training in an aircraft plant; Curtiss company's school. F. L. Glynn. *Il Automotive Ind* 39:362-5 Ag 29 '18; *Am Ind* 19:22-5 S '18  
 Intensive training of shipyard labor. H. H. Tukey. *Il Ind Management* 57:452-6 Je '19  
 Life in a large manufacturing plant; departmental schools and general educational facilities of General electric company. C. M. Ripley. *Gen Elec R* 21:202-15 Mr '18  
 Machinery versus trained brains. L. Hreblianovich. *Ind Management* 58:198-200 S '19  
 Making a job of training labor. H. H. Tukey. *Il Am Mach* 50:829-32 My 1 '19  
 Making machinists to order. M. C. Smith. *Am Mach* 49:627-8 O 3 '18  
 Mastering power production. W. N. Polakov. *Il Ind Management* 55:485-90 Je '18  
 Motor company's shop training for women. F. L. Prentiss. *Il Iron Age* 102:1453-5 D 12 '18  
 New experiences in training factory workers. H. E. Miles. *Il charts Am Ind* 19:32-4 My '19  
 Operation at Holtwood, Pa. C. H. Bromley. *Il diag Power* 49:450-4 Mr 25 '19  
 Packard training schools for employees. D. G. Stanbrough. *Il Ind Management* 56:378-82 N '18  
 Part time industrial training. *Am Ind* 19:18-19 Ag '18  
 Partial list of training rooms in factories. *Am Ind* 19:17 Ag '18  
 Possibilities in training factory help. J. F. Johnson. *Ind Management* 58:221-4 S '19  
 Preliminary training for women workers. F. H. Colvin. *Il diags Am Mach* 49:1067-70 D 12 '18  
 Preparing industry for reconstruction demands. C. T. Clayton. *Il Am Mach* 51:19-22 Jl 3 '19  
 Principles of employing labor. E. H. Fish. *Ind Management* 57:277-81 Ap '19  
 Saving on the cost of labor. F. L. Glynn. *Am Ind* 19:18-19 F '19  
 School for Brooklyn rapid transit substation operators. *Il Elec R* 74:701-2 My 3 '19  
 Shop training school for girls. P. F. O'Shea. *Il diags Ind Management* 58:213-15 S '19  
 Teaching foremen human factors. J. Calder. *Iron Tr R* 64:1030 Ap 17 '19  
 Training a mining organization in efficiency methods. C. A. Mitke. *Eng & Min J* 105:200-1 Ja 26 '18  
 Training department—past and future. J. C. Spence. *Iron Age* 103:237-9 Ja 23 '19

**Employees, Training of—Continued**

- Training employees. E. A. Barnes. Eng & Contr 51:398-9 Ap 16 '19; Same cond. Am Mach 50:1110-11 Je 5 '19
- Training for factory executives. D. G. Stanbrough. II Ind Management 57:175-6 Mr '19
- Training for the building of machine tools. E. A. Kraus. II Am Mach 51:353-6 Ag 21 '19
- Training in industrial plants, a manual of theory and practice. Am Ind 20:25 O '19
- Training instructors according to the Gisholt idea. F. H. Colvin. II Am Mach 48:645-7, 813-19 Ap 18, My 16 '18
- Training men and boys in a shop school. A. N. Hook. Am Mach 49:567-9 S 26 '18
- Training men for shop work. II Mach 24: 1095 Ag '18
- Training men for the shipyards. F. F. Pease. Am Mach 49:109-11 Jl 18 '18
- Training men instead of stealing them. F. H. Colvin. II Am Mach 48:1035-9 Je 20 '18
- Training munition workers in England. H. Schofield. II Mach 25:222-6 N '18
- Training of operatives for war emergencies. Am Ind 18:32-3 Ap '18
- Training of women as machine operators. J. V. Hunter. Am Mach 49:565-6 S 26 '18
- Training of workmen for positions of higher responsibility. F. C. Stanford. Am Inst Min E Bul 134:309-15 F '18; Excerpt. Iron Tr R 62:382-3 F '18; Discussion. Am Inst Min E Bul 134:315-20; 136:888-91 F, Ap '18
- Training 150 operators per week; vestibule school of the Remington arms co. plan Automotive Ind 39:277-80 Ag 15 '18
- Training operators at Winchester plant. W. E. Freeland. II Iron Age 103:178-9 Ja 16 '19
- Training school for machine operators established by the Timken roller bearing co., Canton, Ohio. II Iron Age 102:1011-12 O 24 '18
- Training schools in factories. A. Sinsheimer. Automotive Ind 38:818-20 Ap 25 '18
- Training shipyard workers. J. A. Pratt. Am Mach 48:420-3 Mr 7 '18
- Training shop workers. Factory 21:892+; 22: 272-+. 504+, 1010+, 1286-+; 23:168+, 410+, 1166+, 1424+ F-Mr, N '18, My-Ag, N-D '19
- Training that promotes production. C. T. Clayton. Ind Management 57:311-13 Ap '19
- Training the woman war worker. E. K. Hammond. II Mach 25:15-17 S '18
- Training the worker for the new era. H. Godfrey. Textile World 55:2535 Ap 26 '19
- Training 350,000 men for the shipyards: how the fleet corporation met the problem. J. W. Parry. Eng N 82:53-6 Ja 2 '19
- Training women in an airplane plant. J. W. Russell. II Mach 25:593-5 Mr '19
- Training workers for the shipyards. R. V. Rickord. II Int Marine Eng 24:38-42 Ja '19
- Upgrading in the training department of the Sperry gyroscope company. M. R. Lott. II Ind Management 58:100-3 Ag '19
- Vestibule school of Lincoln motor co. J. M. Eaton. II Ind Management 56:452-5 D '18
- Vestibule schools for the unskilled. H. E. Miles. Ind Management 56:10-12 Jl '18
- Vestibule schools, with special reference to the Norton grinding company's training department; abstracts. J. C. Spence. Iron Age 101:1541 Je 13 '18; Am Soc M E J 40:pt 1, 559-60 Jl '18; Am Ind 18:24-5 My '18; Automotive Ind 39:5-7 Jl 4 '18; Mach 24:1161 Ag '18
- War as a supreme test of efficiency. E. N. Hurley. Coal Age 13:1060 Je 8 '18
- War emergency education in a Wisconsin motor plant. F. L. Glynn. Am Ind 18:31-2 Ja '18
- War-time methods of training workers. A. Pittman. II Factory 21:635-9 O '18
- Where England gets her women workers; the factory school which promises to supply the skilled labor of the future. II Sci Am 118: 520+ Je 8 '18
- Who make the best foremen? II Factory 23: 293-6 Ag '19

See also Apprentices; Corporation schools; Industrial education; Technical reading

**Employees, Transportation of**

- Carrying Seattle's shipbuilders. II map Elec Ry J 52:966-7 N 30 '18
- Electric railways help win the war. A. M. Taylor. chart map Elec Ry J 53:12-14 Ja 4 '19
- Getting employees to a distant plant. II diag Automotive Ind 39:200-1 Ag 1 '18
- How Public service railway is helping build ships in Newark vicinity. II map plans Elec Ry J 734-9 O 26 '18
- Public service railway does war work at Camden and Gloucester. II plan map Elec Ry J 52:919-22 N 23 '18
- Putting car wheels under shipbuilders. II chart map Elec Ry J 52:186-92 Ag 3 '18
- Transportation work of the United States housing corporation. G. F. Wells. II Elec Ry J 53:7-11 Ja 4 '19
- Transporting shipyard workers at Quincy, Mass. W. B. Conant. II Elec Ry J 54:61-2 Jl 12 '19
- Employees' benefit societies.** See Benefit societies
- Employees representation in industry.** See Industrial management—Employee representation
- Employees' welfare.** See Employment management; Industrial betterment; Welfare work in industry
- Employers' liability**
- Abnormal movement of machinery. C. C. Sherlock. Am Mach 49:578-80 S 26 '18
- Appliances in mining operations. C. C. Sherlock. Coal Age 16:319-20 Ag 21 '19
- Bursting grinding wheels. C. C. Sherlock. Am Mach 49:767-9 O 24 '18
- Change of appliances. C. C. Sherlock. Power 48:887 D 17 '18
- Compensation for accidents caused by pneumatic tools. C. C. Sherlock. Mach 25:212-13 N '18
- Dangerous floor openings. C. C. Sherlock. Power 48:401 S 10 '18
- Dangerous tools and appliances. C. C. Sherlock. Am Mach 49:705-7 O 17 '18
- Defective fire escapes. C. C. Sherlock. Mach 24:536 F '18
- Determining accident liability. C. C. Sherlock. Iron Tr R 65:1384-5 N 20 '19
- Explosion of chemicals; common law liability. C. C. Sherlock. Chem & Met Eng 21:83-4 Jl 15 '19
- Fixing responsibilities for accidents. C. C. Sherlock. Iron Tr R 64:702-3 Mr 13 '19
- Injuries caused by slippery floors. C. C. Sherlock. Power 48:790 N 26 '18
- Injuries from belts. C. C. Sherlock. Am Mach 49:1037-9 D 5 '18
- Injuries from molten metal. C. C. Sherlock. Iron Age 102:1262-3 N 21 '18
- Injuries from rolling objects. C. C. Sherlock. Eng & Min J 106:477 S 14 '18
- Injury from flying objects. C. C. Sherlock. Am Mach 49:625-7 O 3 '18
- Injury through exposed cogwheels. Power 48: 152 Jl 30 '18
- Law relating to the use of tools. C. C. Sherlock. Iron Age 103:427-8 F 13 '19; Same. Am Gas Eng J 110:142-3 F 15 '19
- Laws of guarding machinery. C. C. Sherlock. Am Mach 49:76-8 Jl 11 '18
- Laws regarding insufficient lighting. C. C. Sherlock. Am Mach 49:381-2 Ag 29 '18
- Legal decisions on mine shaft accidents. C. C. Sherlock. Eng & Min J 106:341 Ag 24 '18
- Legal liability of employers for lack of ventilation. Dom Eng 88:3 Jl 5 '19
- Liability in case of boiler explosions. B. B. Banger. II Power 48:701-2 N 12 '18
- Liability in case of boiler explosions. C. C. Sherlock. Power 48:648-9 O 29 '18
- Liability in case of bursting water gages. C. C. Sherlock. Power 48:612-13 O 22 '18
- Liability in the use of simple tools. C. C. Sherlock. Am Mach 49:939-40 N 21 '18
- Liability of employee to his employer for negligence and resulting damage to plumbing fixture. Dom Eng 85:206+ N 9 '18
- Liability of mine operators. C. C. Sherlock. Coal Age 13:1159-60 Je 22 '18

**Employers' liability—Continued**

- Liability of third parties. C. C. Sherlock. Inland Ptr 61:591-2 Ag '18  
 Malingering and loafing. C. C. Sherlock. Eng & Min J 105:549 Mr 23 '18  
 Mine foreman's relation to employees. A. L. H. Street. Eng & Min J 106:442 S 7 '18  
 Paying claims for employees' acts. C. C. Sherlock. Iron Tr R 65:499-500 Ag 21 '19  
 Poisonous fumes and vapors. C. C. Sherlock. Power 48:672-3 N 5 '18  
 Responsibility to employees in municipal plant. Elec W 70:1215 D 22 '17  
 Risk assumed by fireman of a power plant. Power 48:91 JI 16 '18  
 Safety laws and the responsibilities of operators. C. C. Sherlock. Eng & Min J 106:831 N 9 '18  
 Strains and overexertion. C. C. Sherlock. Am Mach 48:863-5 My 23 '18  
 Sufficient help and employers' liability. C. C. Sherlock. Mach 25:333-4 D '18  
 Violation of industrial rules. C. C. Sherlock. Ind Management 55:178-9 Mr '18  
 What constitutes storage of coal? A. L. H. Street. Coal Age 13:9 Ja 5 '18

See also Accidents, Industrial; Disabled—Rehabilitation; Negligence; Workmen's compensation

**Employment agencies**

- Employment activities of the Boston society of civil engineers and the Western society of engineers. Eng N 80:183 Ja 24 '18  
 Employment service as a means of public education. D. D. Leacohier. Ind Management 57:318-21 Ap '19  
 Employment service plan. Iron Age 102:1329-30 N 28 '18  
 Engineering societies employment bureau. Eng & Min J 106:1005-6 D 7 '18  
 How the U.S. Department of labor is helping to win the war. L. F. Post. Ind Management 55:6-8 Ja '18  
 Operating an employment bureau for civil engineers. C. S. Rindsfoos. Eng N 82:278-9 F 6 '19; Same. Eng & Contr 51:297 Mr 19 '19

See also United States—Employment service

**Employment committee, Emergency. See Council of national defense—Emergency employment committee****Employment management**

- Absences—how to reduce them. Factory 21:231-3 Ag '18  
 Adjusting the employment department to the rest of the plant. D. T. Farnham. II Ind Management 58:201-5 S '19  
 Advertising the boss. E. Markle. Factory 22:1032+ My '19  
 American form of government used as model of new system adopted by American multi-graph co. Iron Age 103:743-5 Mr 20 '19  
 Appreciation means much. E. C. Spring. Elec Ry J 53:475-6 Mr 8 '19  
 Are you creating centers of quiet unrest by neglecting your salaried workers? H. Tipper. Automotive Ind 41:682-3 O 2 '19  
 Beginnings of labor maintenance service in a small plant. M. L. Morris. Ind Management 56:205-8 S '18  
 Capitalizing feelings in industry. W. Williams. Iron Tr R 61:1268-9 D 13 '17  
 Classification of employment management functions. R. W. Kelly. chart Ind Management 57:476-7 Je '19  
 Controlling a shop system. W. T. Edwards. Am Mach 50:981 My 15 '19  
 Convention of National employment managers' association. Ind Management 57:489-503f Je '19  
 Co-operative management. A. F. Johnson. Int Marine Eng 22:428-30 O '17; Discussion. W. D. Forbes. 23:4-5 Ja '18  
 Courtesy in employment. A. B. Wadleigh. Ind Management 58:72 JI '19  
 Creative work for employees. R. B. Wolf. Textile World 54:2323+ N 9 '18  
 Developing ambition and confidence in employees. G. Wehrle. Gas Age 43:129-31 F 1 '19

- Developing pride and interest in the job. W. R. Basset. Factory 22:693-6 Ap '19  
 Diagnosing labor ills. W. Lamkie. Ind Management 55:502 Je '18  
 Directing your employees' latent abilities into right channels. W. A. Rockenfield. Mach 26:39-40 S '19  
 Duties of the employment manager. C. W. Moon. Mach 25:443-7 Ja '19  
 Employer and money. L. L. Warren. Ind Management 56:424-5 N '18  
 Employment department, Hog Island shipyard. Am Mach 49:1071-5 D 12 '18  
 Employment manager's job. D. A. Henderson. Ind Management 58:76-7 JI '19  
 Employment of labor; Hog Island shipyard; abstracts. D. R. Kennedy. Am Soc M E J 40:1030-1 D '18; Int Marine Eng 24:108-9 F '19; Iron Tr R 63:1411-12 D 19 '18  
 Engineering of man power. Am Soc M E J 41:27-31 Ja '19  
 Enlisting labor in production. L. W. Schmidt. II Am Mach 50:253-6 F 6 '19  
 Factory management in garment trades. M. Gordon. Ind Management 58:230-5 S '19  
 Fallacy of the one-man-one-job system in industry. H. Tipper. Automotive Ind 41:580-1 S 18 '19  
 Fill your draft vacancies by hiring more women for your plant. M. C. Lynch. II Iron Tr R 62:205-12 Ja 17 '18  
 Finding the way to satisfy the creative instinct in workers. F. A. Kellor. Am Gas Eng J 110:70, 72-4, 76-9 Ja 25 '19  
 Foreman and employment office. A. Schelmer. Am Mach 50:432 Mr 6 '19  
 Fundamental factors in sound industrial relations. H. T. Waller. II Ind Management 56:367-71 N '18  
 Gaining and holding the interest of the workers. B. L. Van Schaick. Am Mach 51:399-400 Ag 28 '19  
 Getting men to keep on doing their best. Factory 23:62 JI '19  
 Getting together. W. J. Kibby. Ind Management 56:237 S '18  
 Guiding the creative instinct. W. R. Basset. Factory 22:449-52 Mr '19  
 Handling employees. F. Meron. Iron Age 102:611 S 5 '18  
 Handling women workers. II Factory 20:540+; 21:352+, 576+, 704+, 1116+; 22:78+, 848+, 1342+, 1406+ Mr, Ag-O, D '18-Ja, Je, D '19  
 Hire-and-keep employment plans. Factory 23:188+ JI '19  
 Horse sense in human relations. D. R. Kennedy. Ind Management 57:68 Ja '19; Discussion. B. Fisher. 57:323-4 Ap '19  
 How employers keep their men. R. H. Butz. II Metal Ind 15:336-7 Ag '17  
 How I deal with men. J. N. Willys. Factory 21:221-4 Ag '18  
 How I freed our men from loan sharks. Factory 22:459-61 Mr '19  
 How Jim and Bill manage themselves. J. Leitch. II Factory 21:1047-50 D '18  
 How the employer may control the changing demands of radical labor. H. Tipper. Automotive Ind 41:784-5 O 16 '19  
 How we investigate absences and why. Factory 21:438-9 S '18  
 Human element in mill operation. Textile World 54:3219 D 28 '18  
 Human element in the machine shop; abstracts. J. Hartness. Ind Management 57:413-15 My '19; Am Mach 50:551-2 Mr 20 '19  
 Human element in the mill. H. K. Moore. Chem & Met Eng 19:146-50 Ag 1 '18  
 Human factor in the operation of industry. H. R. Seager. Mech Eng 41:886-7 N '19  
 Human touch in supervision. E. C. Clarke. Elec Ry J 52:1048-50 D 14 '18  
 "I quit—I no like job"; why a go-between earns his salary. E. S. Blodgett. Factory 22:473-6 Mr '19  
 Important phase of the employment question. J. J. Hartley. Mach 25:1067 JI '19  
 Important phases of the labor problem. M. W. Alexander. Iron Age 102:1258-61, 1322-5 N 21-28 '18  
 Industrial democracy. E. Sheldon. Am Mach 49:201-2 Ag 1 '18

**Employment management—Continued**

- Industrial democracy not a panacea; meeting of National association of employment managers. *Iron Age* 103:1442-4 My 29 '19
- Industrial personnel relations. A. H. Young. *Mech Eng* 41:581-6 Jl '19
- Installing employment methods. W. A. Sawyer. charts. *Ind Management* 57:7-11 Ja '19
- Johnson starts to reform his system. J. R. Godfrey. *Am Mach* 50:991-2 My 22 '19
- Keeping the good will of the employee. H. D. Murphy. *Am Mach* 48:17-18 Ja 3 '18
- Keeping the workers contented and increasing production. H. C. Skumer. *Motor Age* 36:7-8 O 30 '19
- Keeping track of registered men. C. F. Young. *Am Mach* 49:410 Ag 29 '18
- Keeping workers contented in a one-factory town. F. A. Hatch. *Il Factory* 23:515-17 S '19
- Keeping workers well shod. *Il Factory* 23:501 S '19
- Labour administration. E. T. Elbourne. *Engineer* 126:322-3 365-7, 388-90, 432-5, 453-4, 478-80, 504-6, 548-50 O 18, N 1-5, 22-D 13, 27 '18
- Labor turnover and a remedy. W. H. Wein-gar. *Am Mach* 50:497-9 Mr 13 '19
- League of labor and capital. C. S. Robinson. *Iron Age* 103:683-4 Mr 13 '19
- Looking at labor turnover expense from new angle—accident hazard. A. H. Young. *Am Gas Eng J* 110:232-4 Mr 15 '19
- Management policies that built a ship in 29 days. J. R. Russell. *Factory* 22:786+ Ap '19
- Manpower problems. *Iron Tr R* 63:1357-9 D 12 '18
- Modern industrial relations department. E. C. Gould. *Iron Age* 102:831-2 O 3 '18; Same cond. *Iron Tr R* 63:784-5 O 3 '18
- Negro and his opportunity. R. W. Immel. *Ind Management* 58:75-6 Jl '19
- New industrial relations. J. C. Smith. *Iron Age* 102:845 O 3 '18
- Organization of an employment department. E. Szepesi. *Textile World* 55:459+ Ja 11 '19
- Pass this on to your men. *Factory* 21:1200+; 22:374+, 1304+ D '18, F, Je '19
- Personal element—a discussion of one phase of industrial unrest and a suggested remedy. P. B. McDonald. *Eng N* 83:809-10 O 30 '19
- Planning for the labor factor in production after the war. R. W. Kelly. *Textile World* 54:2325+ N 9 '18
- Principles governing the employment relation in industry. *Eng & Contr* 52:472-4 O 22 '19
- Principles of employing labor. E. H. Fish. *Ind Management* 57:81-5, 203-7, 277-81, 373-7, 478-82 F-Je '19
- Proceedings of the Employment managers' conference, Rochester, N.Y., May 9-11, 1918. U S Bur Labor Statistics Bul 247:1-249 '19
- Promotion of ambitious workers. *Coal Age* 16:375-6, 628 Ag 28, O 9 '19
- Propaganda in industrial relations. L. L. Warren. *Ind Management* 55:197-8 Mr '18
- Record card for shop employees. G. D. Hal-sey. *Ind Management* 58:331-3 O '19
- Reducing the labor turnover. W. C. Nisbet. *Ry Mech Eng* 93:265-8 My '19
- Securing the cooperation of your employees. W. A. Rockenfield. *Mach* 25:1128-9 Ag '19
- Shop democracy and dividends. J. R. God-frey. *Am Mach* 50:586 Mr 27 '19
- Significant changes in business management. *Am Mach* 49:191-3 Ag 1 '18
- Solving problems of the personnel. C. D. Dyer, Jr. *Iron Tr R* 65:896 O 2 '19
- Spotlight on employment problems. *Iron Tr R* 64:1436-7 My 29 '19
- Standardized occupations and rates at East Pittsburgh plants of Westinghouse co. W. D. Stearns. *Ind Management* 55:408-10 My '18; *Iron Tr R* 63:547-50 S 5 '18
- Standardizing the job. M. R. Lott. chart *Fac-tory* 23:1290-2 D '19
- Suggestion for a seniority index. P. Jones. *Ry Age* 66:384 F 14 '19
- Superintendence of women. Mrs H. E. Hues-tis. *Ind Management* 55:280 Ap '18
- Team system is thought to be best labor solution. H. W. Bromley. *Elec W* 72:298 Ag 17 '18
- That powerful three per cent. G. E. Holmes. *Ind Management* 58:281 O '19
- Transfer and promotion of employees. *Iron Age* 103:1518-19 Je 5 '19
- Under new management—harmonizing. C. M. Horton. *Ind Management* 55:312-14 Ap '18
- Under new management—judging men. C. M. Horton. *Ind Management* 55:225-7 Mr '18
- Use of non-financial incentives in industry. R. B. Wolf. *Am Soc M E J* 40:1035-8 D '18; *Abstract. Int Marine Eng* 24:109 F '19; *Discussion. Am Soc M E J* 41:29-30 Ja '19
- Washington making preparations against industrial unrest; employment management introduced in all departments. M. Schuyler. *Eng N* 80:294-6 F 14 '18
- What the employment department stands for. K. J. Hines. *Ind Management* 58:337-8 O '19
- Where the men settle their own troubles. W. Pitt. *Il Factory* 22:29-31 Ja '19
- Why employment departments fail. J. H. Richardson. *Ind Management* 57:412-13 My '19
- Why men leave their jobs. H. P. Dutton. *Ind Management* 56:147-8 Ag '18
- Why we have no trouble with our men. G. M. Verity. *Iron Tr R* 63:321-2 Ag 8 '18
- See also Employees; Employment man-agers; Employment systems; Factory man-agement; Industrial betterment; Industrial management; Industrial relations; Labor turnover; Lunch rooms; Medical service; Industrial; Organization in industry; Rest periods; Welfare work in industry
- Employment managers**
- Educating employment managers. B. Fisher. *Iron Age* 101:1347 My 23 '18
- Employing the employment manager. *Ind Management* 56:145-6 Ag '18
- Employment manager—a new factor in in-dustrial relationship. E. D. Jones. *Am Gas Eng J* 109:361-4 O 19 '18; Same. *Int Marine Eng* 23:612-14 N '18; Same. Sibley J 33:20-2+ N '18; Excerpts. *Am Mach* 49:799-800 O 31 '18
- Employment manager and foreman. R. W. Kelly. *Ind Management* 55:65-6 Ja '18
- Employment manager and the reduction of labor turnover. T. T. Read. chart *Am Inst Min E Bul* 134:295-307 F '18; *Abstract. Metal Work* 89:857 Je 28 '18; Excerpts. *Iron Tr R* 62:331-2 F 7 '18; *Discussion. Am Inst Min E Bul* 136:881-7 Ap '18
- Employment managers and bolshevism. L. F. Fuld. *Ind Management* 58:73-5 Jl '19
- Employment managers and the United States employment service. B. Emmet. *Ind Management* 58:248 S '19
- First epoch of a new profession. M. Bloom-field. *Ind Management* 56:62-3 Jl '18
- Getting the foreman's cooperation. W. F. Johnson. *Ind Management* 58:143-4 Ag '18
- Government to train employment managers. *Am Arch* 114:369 S 25 '18
- Place of the employment manager. M. R. Kift. *Ind Management* 58:336-7 O '19
- Relations between the employment manager and foreman. C. E. Fouhy. *Ind Manage-ment* 58:334-6 O '19
- Safety as the employment executive should see it. S. J. Williams. *Ind Management* 57:501-3 Je '19
- Selecting the employment manager. P. Brasher. *Am Mach* 49:677-8 O 10 '18
- Selecting the employment manager. M. C. Smith. *Am Mach* 49:1137-8 D 19 '18
- Taking stock of ideals: a war measure. M. B. Gillson. *Ind Management* 55:235 Mr '18
- Task of the employment manager. *Ind Man-agement* 58:252 S '19
- Training schools for employment managers. E. D. Jones. *Arch Rec* 44:384 O '18
- Training women at Case school. *Iron Age* 102:199 Jl 25 '18
- U.S. training employment experts. *Iron Tr R* 63:574 S 6 '18
- What is an employment manager? *Am Mach* 49:154 Jl 25 '18
- What the employment department should be in industry. H. S. Dennison. U S Bur La-bor Statistics Bul 227:77-81 '17

**Employment managers—Continued**

Who and what is the employment manager? C. T. Clayton. *Am Mach* 49:798-9 O 31 '18; *Same. Am Ind* 19:13 N '18; *Same abr. Chem & Met Eng* 19:727-8 N 15 '18

**Employment managers, National association of.** See National association of employment managers

**Employment managers' associations**

**Progress of employment managers' associations.** M. Bloomfield. *U S Bur Labor Statistics Bul* 227:10-12 '17

**Employment managers' conference, Philadelphia, Pennsylvania**

Proceedings of the conference, Philadelphia, Pa., April 2-3, 1917. *U S Bur Labor Statistics Bul* 227:1-210 '17

**Employment managers' conference, Rochester, N.Y.**

Proceedings of the Employment managers' conference, Rochester, N.Y., May 9-11, 1918. *U S Bur Labor Statistics Bul* 247:1-249 '19

**Employment service, United States.** See United States—Employment service

**Employment systems**

**American vs. British ideals; selection of the fit vs. system of seniority and precedence.** *Coal Age* 14:138 JI 20 '18

**Applying army methods of selecting men for industry.** P. N. Golden. *diags Am Mach* 51:409-11 Ag 28 '19

**Basis for selection of employees.** N. D. Hubbell. *Ind Management* 55:498-9 Je '18

**Does the employment really employ?** J. L. Curley. *Ind Management* 57:153-4 F '19

**Duties of the employment manager.** C. W. Moon. *Mach* 25:443-7 Ja '19

**Employing a bookkeeper.** T. P. Bowman. *Motor Age* 34:10-11 O 3 '18

**Employing help.** T. P. Bowman. *Motor Age* 34:11 S 26 '18

**Employment blanks used by the Equitable life assurance company.** *J Elec* 42:250 Mr 15 '19

**Employment department organization of Thomas A. Edison interests.** M. M. Jones. *Ind Management* 55:374-9 My '18

**Employment department routine of the Curtiss aeroplane & motor corp.** C. E. Fouhy. *II plan Ind Management* 56:412-16 N '18

**Employment in small plants.** A. L. Adams. *Ind Management* 55:324-5 Ap '18

**Employment methods as followed by the Norton companies.** E. H. Fish. *Am Soc M E J* 40:pt 1, 558-9 JI '18

**Employment of mine labor.** W. H. Noone. *Coal Age* 13:979-80 My 25 '18

**Employment office methods.** R. Morrison, jr. *Ind Management* 57:499-501 Je '19

**Employment problem of the U. S. Naval aircraft factory.** F. G. Coburn. *II Ind Management* 57:359-65 My '19

**Employment system of Cincinnati planer co.** A. J. Schneider. *Mach* 25:622-3 Mr '19

**Employment system of the Lake carriers' association.** P. F. Brissenden. *U S Bur Labor Statistics Bul* 235:1-58 '18

**Employment window.** R. Waldo. *diags Mach* 25:217-18 N '18

**Extreme methods in employing.** C. M. Horton. *Ind Management* 57:145-8 F '19

**Extreme methods in employing.** N. W. MacDonald. *Ind Management* 57:322-3 Ap '19

**First epoch of a new profession.** M. Bloomfield. *Ind Management* 56:62-3 JI '18

**Function of employment bureau not to definitely engage anyone to fill a position, but to secure suitable applicants, so head of department can make best selection.** R. Elsmann. *Am Gas Eng J* 109:289-90 S 28 '18

**Getting the employee.** R. Elsmann. *Am Gas Eng J* 110:437-8 My 24 '19

**Hire-and-keep employment plans.** *Factory* 21:1074+; 22:128+, 578+, 820-1; 23:188+, 392+, 584+, 1176+, 1330+ D '18-Ja, Mr-Apr, JI-S, N-D '19

**Hiring, discharge and transfer; a symposium.** *Ind Management* 58:153-9, 242-6 Ag-S '19

**Hiring in and hiring out.** R. A. Montague. *Am Mach* 50:955-7 My 15 '19

**How a medium-sized plant solves its labor problems.** H. E. Sloan. *Mach* 25:11 S '18

**How to get help.** N. D. Hubbell. *Ind Management* 55:68-9 Ja '18

**How to handle an employment department.** A. J. Schneider. *Am Mach* 50:684 Ap 10 '19

**Human side of employing.** M. R. Kift. *Ind Management* 58:72-3 JI '19

**Interviewing and selecting.** M. M. Jones. *Ind Management* 57:66-7 Ja '19

**Is it wise to hire the repeater?** L. Blakey. *diags Ind Management* 57:390-9 My '19

**Labour administration.** E. T. Elbourne. *Engineer* 126:280-2 O 4 '18

**Labor factors in our shipping program.** R. W. Kelly. *II Ind Management* 55:210-17 Mr '18

**Labor problem of the small manufacturing plant.** *Mach* 24:1046 JI '18

**Labor-saving methods for employment offices.** R. W. Kelly. *II Ind Management* 55:146-7 F '18

**Little aids in selection of personnel.** G. E. Holmes. *Iron Tr R* 65:25-6 JI 3 '19

**Methods of an employment office.** C. S. Rossy. *Ind Management* 56:149 Ag '18

**Minimum turnover in machine-shop labor;**

**Bullard machine tool co.'s labor policy and wage classification plan.** S. H. Bullard. *Iron Age* 102:204-6 JI 25 '18

**My hire-and-keep employment methods.** F. W. Gilbert. *II Factory* 20:848-9 My '18

**New problem in employment.** M. Richards. *chart Ind Management* 57:152-3 F '19

**Opportunities for advancement.** *Factory* 20:304 F '18

**Organization and scope of the employment department.** N. D. Hubbell. *U S Bur Labor Statistics Bul* 227:97-113 '17

**Our duty as employers.** J. J. Hartley. *Am Mach* 50:698 Ap 10 '19

**Physical employment department.** G. L. Hostetter. *Ind Management* 57:157 F '19

**Placing the new employee.** *Iron Age* 103:1289 My 15 '19

**Placing the right man in the right job.** W. D. Stearns. *Mach* 26:30-3, 136-9 S-O '19

**Pontiac centralizes its employment of labor.** C. J. Shower. *Automotive Ind* 39:53-4 JI 11 '18

**Principles of employing labor.** E. H. Fish. *Ind Management* 57:277-81 Ap '19

**Putting round pegs in round holes.** G. K. Parsons. *Ind Management* 56:330-1 O '18

**Recommendations and references.** J. M. Hadley. *Ind Management* 58:138 Ag '19

**Records that match the man to the job.** E. H. Bickley. *Factory* 21:28-30 JI '18

**Securing and holding railroad bridge and building crews.** W. E. Alexander; J. P. Wood. *Eng & Contr* 49:64-5 Ja 16 '18

**Selecting and training interviewers.** R. W. Kelly. *Ind Management* 57:263-70 Ap '19

**Selection and placing of workers.** H. C. Metcalf. *Ind Management* 57:495-6 Je '19

**Selection and promotion of utility employees.** A. Williams. *Elec W* 72:1036 N 30 '18

**Selection problem of Cheney bros.** H. L. Gardner. *U S Bur Labor Statistics Bul* 227:120-5 '17

**Service department of a shipyard.** S. W. Wakeman. *Int Marine Eng* 23:37-9 Ja '18

**Simple employment plan.** J. H. Richardson. *Ind Management* 56:511-12 D '18

**Stop hiring and firing; train and adjust.** H. E. Miles. *Am Ind* 18:30-1 Mr '18

**Successful employment department.** R. Waldo. *Ind Management* 56:507-8 D '18

**Suggestion to the employment man.** A. J. Chamberlain. *Am Mach* 49:86-7 JI 11 '18

**Taking the guesswork out of employment.** A. Fischer. *II Factory* 23:1057-8 N '19

**Testing applicants for factory positions.** J. F. Johnson. *Ind Management* 58:109-10 Ag '19

**Use of charts in the employment department.** R. Waldo. *Mach* 25:500 F '19

**Using the men past 45.** V. T. J. Gannon. *II Factory* 20:421-3 Mr '18

**Visible index for application forms.** E. B. Morgan. *II Ind Management* 58:246-8 S '19

**War emergency courses in employment department practice.** R. W. Kelly. *Ind Management* 55:410-12 My '18

**Westinghouse employment department.** J. C. Bower. *Mach* 26:243-6 N '19

**Employment systems—Continued**

- What an industrial census can do; results of an experiment of the Miller lock co. D. Wolf. *Ind Management* 56:213-16 S '18
- What I learned by turning job hunter. D. Wolf. *Factory* 23:1283-5 D '19
- Work of the employment and service department of the Clothcraft shops. M. B. Gillson. *U S Bur Labor Statistics Bul* 227:139-52 '17
- Working out a theory in shop management; employing older men. *Am Mach* 49:145-7 JI 25 '18

*See also* Applications for positions; Employees; Employment agencies; Employment management; Labor turnover; Physical examinations; United States—Employment service

**Emulsification**

- Emulsification of mineral lubricating oils. P. H. Conradson. *Il Power* 48:649-50 O 29 '18
- Emulsification of water and of ammonium chloride solutions by means of lamp black. W. C. Moore. *Am Chem Soc J* 41:940-6 Je '19
- Emulsifying the oils used in making japan bases. W. P. Devey. *Sci Am S* 86:105 Ag 17 '18

**Emulsions**

- Emulsion lubrication of cutting tools. J. A. De Cew. *Am Mach* 49:433-4 S 5 '18; Abstracts. *Am Soc M E J* 40:865 O '18; *Automotive Ind* 40:59 Ja 9 '19
- Gelation of the natural emulsoids. S. C. Bradford. *Sci Am S* 86:154-5 S 7 '18
- Investigations concerning oil-water emulsion. A. W. McCoy, H. R. Shidel and E. A. Trager. *Il diags Am Inst Min Bul* 152:1513-37 Ag '19; Discussion. 156:3168-72 D '19

**Emus**

- Emu in captivity. L. S. Crandall. *Il Sci Am S* 86:36 Ja 19 '18

**Enamel and enameling**

- Electric enameling ovens at Ford plant. *Il Elec R* 71:407-8 S 8 '17; Same cond. *Automobile* 37:620 O 11 '17
- Electrically-heated ovens; construction and operation of enameling ovens. *Il Iron Age* 103:188-9 Ja 16 '19; Same cond. *Metal Ind* 17:137-8 Mr '19
- Enameling and baking. *Metal Work* 91:271 F 28 '19
- Enameling oven design with relation to safety. R. A. Shaw. *Automotive Ind* 37:836 N 8 '17
- How high-grade enameling is done. E. C. Kreutzberg. *Il Iron Tr R* 63:1290-1 D 5 '18
- Manufacture of enamel-lined apparatus. E. P. Poste. *Chem & Met Eng* 19:400 S 25 '18

**Enamel ware**

- Acid test on enamel ware. W. D. Collins. *J Ind & Eng Chem* 11:757-9 Ag '19

**Enemy aliens**

- Safeguarding your plant from the enemy. A. Van Vliissingen, Jr. *Il plan Factory* 20:1061-5 Je '18

**Enemy property**

- Alien enemies and enemy property. *Automotive Ind* 39:144 JI 25 '18
- Alien-enemy act and what constitutes an alien enemy. *Am Mach* 49:181 JI 25 '18
- Alien property custodian appoints directors for New Jersey mills. *Textile World* 63:4567 Ap 6 '18
- Alien property custodian protecting American industries. J. H. Choate, Jr. *Elec R* 74:955 Je 7 '19
- Alien property custodian seizes metal concerns. *Chem & Met Eng* 19:117 Ag 1 '18
- All German-owned industries to go under hammer. *Eng N* 81:516-17 S 12 '18
- Enemy concerns doing business in U.S. E. E. Pratt. *Textile World* 63:5203 My 4 '18
- Enemy property. *Sci Am* 118:184 Mr 2 '18
- Ownership of chemical concerns probed by alien property custodian. *Chem & Met Eng* 19:128 Ag 1 '18
- Report of alien property custodian on the metal industry. *Chem & Met Eng* 20:313-17 Ap 1 '19; *Eng & Min J* 107:532-4 Mr 22 '19

- Report of the alien property custodian on the chemical industry. *J Ind & Eng Chem* 11:352-65 Ap '19; Excerpts. *Chem & Met Eng* 20:264-5 Mr 15 '19

**Energy. See Free energy; Power****Engine houses. See Fire houses; Roundhouses****Engineer troops. See United States—Army—Engineer troops****Engineering**

- American society of mechanical engineers 38th annual meeting. *Am Soc M E J* 40:1-73 Ja '18; *Am Mach* 47:1097-9 D 20 '17; *Elec W* 70:1115-18 D 8 '17; *Eng N* 79:1122-5 D 13 '17; *Iron Age* 100:1424-7+ D 13 '17
- Art, architecture and engineering. J. Pennell. *Am Arch* 116:346-8 S 10 '19
- Engineering feats of the ancients. G. H. Pegram. *Sci Am S* 85:347 Je 1 '18
- Engineer's opportunity. S. A. Redding. *Gen Elec R* 21:585-6 Ag '18
- Importance of a correct definition of engineering. *Eng & Contr* 52:400 O 8 '19
- Links in the history of engineering. R. Jenkins. *Engineer* 124:493; 125:311-12, 446-6, 486, 488-9, 492; 126:52, 333-4, 534-6; 127:471, 536-7; 128:507-8 D 7 '17, Ap 12, My 24, Je 7, JI 19, O 18, D 20 '18, My 16, 30, N 21 '19
- Notes on engineering progress in Britain. H. M. Hobart. *Am Inst E E Pro* 37:supl52-7 My '18
- Other side of the decimal point. T. K. Webster, Jr. *Am Mach* 49:387-8 Ag 29 '18
- Sense of art in engineering. *Engineer* 127:406-7, 443-4 Ap 25, My 9 '19; Excerpts. *Eng & Contr* 52:146-8 JI 30 '19
- Some wild engineering I have known. D. Wesson. *Chem & Met Eng* 20:512-13 My 15 '19
- Year's progress in the power field. *Il Power* 47:2-9 Ja 1 '18

*See also* Aeronautics; Aqueducts; Arches; Architecture; Blasting; Breakwaters; Bridges; Building; Building materials; Canals; Chemical engineering; Civil engineering; Curve plotting; Curves; Dams; Drainage; Dredging; Drilling and boring (earth and rocks); Earthwork; Efficiency, Industrial; Electric engineering; Embankments; Engineers; Engines; Foundations; Girders; Grouting; Harbors; Haulage; Hydraulic engineering; Irrigation; Machinery; Marine engineering; Masonry; Mechanical drawing; Mechanical engineering; Mechanical handling; Mechanics; Mensuration; Military engineering; Mining engineering; Municipal engineering; Railroad engineering; Railroads—Construction; Reclamation of land; Reservoirs; Rivers; Roads; Sanitary engineering; Sea walls; Standards; Engineering; Steam engineering; Steam engines; Strains and stresses; Strength of materials; Subways; Surveying; Tunnels and tunneling; Ventilation; Walls; Water supply engineering; also headings beginning Engineering

**Bibliography**

- Engineering index. See monthly numbers of Mechanical engineering
- Esthetics of engineering; bibliographical notes. F. Weitenkampf. *Arch Rec* 45:366-9 Ap '19
- One thousand technical books; a selected list with annotations emphasizing especially elementary practical books. H. L. Cowing. comp. 128p '19 A. L. A.

**Study and teaching**

- Power plant course at Wentworth institute, Boston. C. H. Beers. *Il Power* 46:862-4 D 25 '17

**See also Engineering education****Tables, calculations, etc.**

- Application of mechanical differentiation to engineering problems. A. Elmendorf. *J Fr Inst* 185:269-76 F '18
- Easily memorized method for finding safe beam loads. M. E. Hibbs. *Eng N* 83:116 JI 17 '19

**Engineering**—Tables, calculations, etc.—*Cont.*  
 Mechanical devices help overcome engineer shortage. R. A. Brown. Eng N 82:342-3 F 18 '19

See also Bessel's functions

#### Terminology

See Technical terms

#### China

Age-long engineering works of China. M. Smith. Engineer 127:72 Ja 24 '19

#### Greece

Engineering opportunities in Greece. Engineer 128:30-1 JI 11 '19

#### United States

Engineering activities of the Twin Cities. F. C. Shenehon. Eng N 82:1251-4 Je 26 '19

Engineering, Civil. See Civil engineering

Engineering, Electric. See Electric engineering

Engineering, Hydraulic. See Hydraulic engineering

Engineering, Marine. See Marine engineering  
 Engineering, Mechanical. See Mechanical engineering

Engineering, Military. See Military engineering  
 Engineering, Mining. See Mining engineering

Engineering, Municipal. See Municipal engineering

Engineering, Railroad. See Railroad engineering  
 Engineering, Sanitary. See Sanitary engineering

Engineering, Steam. See Steam engineering

Engineering advertisers' association of Chicago Organization. Elec R 75:512 S 27 '19

#### Engineering colleges

Engineering schools of Liège. C. Clifton. Engineer 127:497 My 23 '19

Norwich the oldest civil engineering institution in the country? P. C. Ricketts. Eng N 81:1091-2 D 12 '18

See also Engineering laboratories; also Massachusetts Institute of technology

#### War service

Engineering colleges and the war. F. H. Rindge, Jr. Mach 24:763 Ap '18

Engineering school and the war. A. F. Barnes. Eng & Contr 49:71-2 Ja 16 '18

Engineering students and the war; a letter from President Wilson. Munic J 44:349 Ap 27 '18

Massachusetts Institute of technology in war. Elec W 71:406-7 F 23 '18

Special education in time of war. C. S. Howe. Am Soc M E J 40:21-3 Ja '18

War and engineering colleges. F. H. Rindge, Jr. Iron Age 101:1606 Je 20 '18

#### Engineering contracts

Supreme court fixes responsibility of contracts. Eng N 81:1167-8 D 26 '18

See also Building contracts; Contracts; Contracts, Letting of

#### Engineering council

Announcements by National service committee. Am Inst E E Pro 38:166-8 My '19 [sec 1]

Centralized activities of national engineering societies. A. D. Flinn. Elec R 73:254-6 Ag 17 '18; Abstract. Eng & Contr 49:620-1 Je 19 '18

Conservation of technical engineers urged; resolutions of Engineering council. Elec R 73:953 Je 8 '18; Same. Am Mach 48:1080a Je 20 '18; Same. Eng & Min J 105:1055 Je 8 '18; Same. Eng & Contr 50:85-6 JI 24 '18

Creates special committees on licensing. Eng N 80:1247 Je 27 '18

Engineering council getting in touch. Eng N 81:551 S 19 '18

Engineering council seeks to unite branches of profession. A. D. Flinn. Eng N 80:551-3 Mr 21 '18; Same. Eng & Contr 49:512-13 My 22 '18

Engineering council's war committee of technical societies. R. N. Inglis. Am Soc M E J 40:402-3 My '18

Extracts from annual report. Mech Eng 41:408-9 Ap '19

Federation of strong local societies needed for engineering unity. C. E. Drayer. Eng N 80:452-4 Mr 7 '18; Discussion. C. W. Baker. 80:625-6 Mr 28 '18

1st annual meeting. Feb. 21. Eng N 80:430 F 28 '18; Am Mach 48:488 Mr 21 '18; Munic J 44:216 Mr 9 '18; Am Soc M E J 40:320 Ap '18

Giving credit where credit is due. E. A. Van Deusen. Eng N 82:585-6 Mr 20 '19

Growing activities. Elec R 72:723-4 Ap 27 '18; Same. Am Inst E E Pro 37:sup147-9 My '18

Hydroelectric development; statement prepared by Engineering council. Am Inst E E Pro 37:sup41-5 F '18; Same. Elec R 72:150-2 Ja 26 '18; Same cond. Elec Ry J 51:177-8 Ja 26 '18; Same cond. Elec W 71:202-3 Ja 26 '18; Same cond. Eng N 80:160-2 Ja 24 '18; Same cond. Power 47:236-7 F 12 '18

National service committee of Engineering council. Elec W 73:186 Ja 25 '19

New officers. Elec W 71:472 Mr 2 '18

Officers and committees for 1918; progress, field and aims. Am Inst E E Pro 37:sup107-9 Ap '18

Opposes a bill to abolish bonus payments. Eng & Contr 50:51-2 JI 17 '18

Opposes clause in pending army and navy bills. Elec R 72:764-5 My 4 '18

Present activities and need of volunteers to aid committees. Elec W 72:55 JI 18 '18

Some of the things the Engineering council may accomplish. Eng & Contr 50:138 Ag 7 '18

Three new committees. Eng N 80:880 My 2 '18

Urges more pay for railroad men. Eng N 80:465 Mr 7 '18

#### Engineering education

Army engineers praised by the secretary of war. N. D. Baker. Eng N 79:1177 D 20 '17

Broadening the scope of technical education. Am Arch 116:217 Ag 13 '19

Broader foundation demanded for engineering education. F. Bass. Eng N 81:582-3 S 26 '18

Business training for the engineer. A. Marston. Eng & Min J 108:189-90 Ag 2 '19; Same. Eng & Contr 52:248 Ag 27 '19; Same cond. Eng N 83:187 JI 24 '19

Business training recommended for engineers. Am Mach 51:37 JI 3 '19; Same. Coal Age 16:65-6 JI 10 '19; Same. Power 50:79-80 JI 8 '19

Case system changes in engineering curricula, and business training for engineers; symposium. Eng N 83:183-7 JI 24 '19

Chinese students and American training. M. A. Oudin. Gen Elec R 22:782-4 O '19

Democratizing French engineering. F. Mil-toun. Iron Tr R 64:704-5 Mr 13 '19

Economics for engineers recommended by the committee on economics of the American society for the promotion of engineering education. Eng & Contr 49:89 Ja 23 '18

Education and training of municipal and county engineers; discussion. Eng & Contr 51:447-8 Ap 30 '19

Education of a petroleum engineer. J. H. Feigar. Mech Eng 41:816-17 O '19

Educational training for minor engineering positions. J. M. Goodall. Eng N 82:482-3 Mr 6 '19

Engineer in foreign service. L. S. Rowe. Am Soc M E J 41:31-2 Ja '19

Engineering degrees open to all who can pass examinations. G. W. Forsberg. Eng N 81:507 S 12 '18

Engineering education. G. F. Swain. Eng & Min J 107:566 Mr 29 '19

Engineering education affected by war experience. C. R. Mann. Eng N 81:1068-70 D 12 '18

Engineering educators' opinions reflect past and predict future conditions. Eng N 82:41-4, 138-43 Ja 2, 16 '19

Engineering educators take significant action at 27th annual meeting of S. P. E. E. Eng N 83:48+ JI 3 '19

**Engineering education—Continued**

Engineering graduates and industrial demands. L. W. W. Morrow. Eng N 79:1109-12 D 13 '17

Engineering, Latin, and Greek. Eng & Min J 107:887-8 My 17 '19

Engineering student: a onestring player. R. Matthews. Sibley J 32:85-7 Mr '18

Engineers in training. R. T. Hill. Met & Chem Eng 17:698-700 D 15 '17; Discussion. 18:279-81, 336-7 Mr 15-Apr 1 '18

Engineers of tomorrow. J. A. L. Waddell. Iron Tr R 62:219-20 Ja 17 '18

Essentials of engineering education. J. Flodin. Ind Management 58:312 O '19

Exhibit board educates students in current news at Northwestern university, Evanston, Ill. Il Eng N 79:1210-11 D 27 '17

Functions of the engineer: his education and training. W. A. J. O'Meara. diags Inst E E J 57:225-39 Mr '19; Discussion. 239-57, 315-21, 465-70 Mr-Apr, Je '19

Hays school of combustion. Power 50:443 S 9 '19

How educational reconstruction should develop. L. W. W. Morrow. Eng N 82:827-9 Ap 24 '19

Increased attendance at technical schools urged. Eng & Contr 50:203 Ag 21 '18

Latin and Greek as preparation for engineering. M. E. Cooley. Eng N 82:930 My 8 '19

Less theory and more horse sense in structural engineering courses. E. Godfrey. Eng & Contr 51:575-7 My 28 '19

Let the founder societies become post graduate schools of engineering. Eng & Contr 51:502 My 14 '19

More English, not Greek and Latin. W. G. Raymond. Eng N 82:1176-7 Je 12 '19

Non-essentials of engineering education. E. H. Fish. Ind Management 58:46 J1 '19; Discussion. C. N. Young. 56:216 S '19

Objects of structural engineering courses. H. J. Burt. Eng & Contr 50:385 O 28 '18

Objects of structural engineering courses. H. P. Gillette. Eng & Contr 51:431-2 Ap 23 '19

Opinions of practicing engineers on teaching economics to engineering students. Eng & Contr 51:687-8 Je 25 '19

Organisation of engineering training—conference. Illum Engr 10:265-6 O '17

Practicing engineers suggest lines of progress in engineering education; symposium. Eng N 82:473-7 Mr 6 '19

Present-day conditions are forcing the engineer to assume new responsibilities. C. R. Mann. Eng N 80:208-9 Ja 31 '18; Same. Met & Chem Eng 18:133-4 F 1 '18; Same. Am Mach 48:216-7 F 7 '18; Same. Power 47:217-18 F 12 '18

Progress in engineering education. Eng N 83:3 J1 3 '19

Raise the standard of engineering education. H. E. Clifford. Elec W 73:595 Mr 22 '19

Reaction in engineering education. J. K. Finch. Eng N 83:285-6 Ag 7 '19

Relation of the engineering profession to engineering education. F. Bass. Ry R 64:797-9 My 31 '19

Safety and welfare work in the engineer's education; with discussion. G. H. Follows. Am Soc M E J 40:pt 1, 545-8 J1 '18

Selected engineering students will be exempt from draft. Eng N 79:1130-1 D 13 '17

Shall the case method be generally used in teaching engineering? H. S. Pritchett. Eng & Contr 50:557-8 D 11 '18

Short courses for engineering graduates. J. O. Kammerman. Power 49:731-2 My 13 '19

Society for the promotion of engineering education convene at Boston. Elec W 72:1139-41 D 14 '18; Eng N 81:1098-9 D 12 '18

Teaching human engineering in the college curriculum. F. H. Rindge, jr. Am Mach 48:713-15 Ap 25 '18

Theory, experience, or both? H. Senior. Am Mach 51:765-6 O 23 '19

Three-year study of engineering education; abstracts. C. R. Mann. Eng N 81:742-51 O 24 '18; Elec Ry J 52:731 O 26 '18; Elec W 72:783-8 O 26 '18; Power 48:646-7 O 29 '18; Am Soc M E J 40:1060-1 D '18

Training in Latin and Greek not best for engineers. R. Hering. Eng N 82:1272-4 Je 26 '19

Two-year engineering course urged by British engineer. E. J. Silcock. Eng N 81:353-4 Ag 22 '18

University training for engineers. E. C. W. Elliot. Elec W 73:683-4 Ap 5 '19

Value of the "American machinist" as a college textbook. J. A. De Turk. Am Mach 48:531-2 Mr 28 '18

War-time changes in education at three institutions. Eng N 81:354 Ag 22 '18

Wide difference of opinion as to what are the essentials of engineering education. M. S. Ketchum. Am Gas Eng J 109:77-8 J1 27 '18

*See also* Apprentices; Electric engineering—Study and teaching; Engineering—Study and teaching; Engineering colleges; Engineering laboratories; Industrial education; Technical education

**Engineering ethics**

Engineer's creed. Am Arch 114:657-8 N 27 '18

Ethics of highway engineering. W. C. Riddick. Good Roads n s 15:177-8+ Mr 30 '18

Ownership of plans and state engineer's right to practice defined. Eng N 83:365 Ag 21 '19

Public interest as the bed rock of professional practice; discussion of the objects of engineering societies and their obligations to the public. M. L. Cooke. Am Soc M E J 40:382-3 My '18; Discussion. 40:749-55 S '18

Steps toward an ethical standard for engineers. D. Gaeher. Eng N 81:446 S 5 '18

*See also* Engineers—Public relations; Professional ethics

**Engineering experiment stations**

Engineering experiment station legislation. P. V. Stephens. Am Inst E E Pro 38: 170-3 My '19 [sec 1]

*See also* Engineering laboratories

**Engineering foundation**

Annual report for 3d year, ending February 28, 1918. Am Inst E E Pro 37:sup143-4 My '18

**Engineering Institute of Canada**

Annual meeting, Ottawa, Feb. 11-13. Mech Eng 41:301-2 Mr '19

New life apparent in Engineering Institute of Canada. Eng N 83:823-4 O 30 '19

**Engineering journals. See Engineering periodicals****Engineering laboratories**

Engine test laboratory; special building of tractor manufacturing plant for experimental development of engines. Il diag plan Automotive Ind 38:868-9 My 2 '18

Engineering equipment at Hong-Kong university. Il plans maps Engineer 125:136-8, 168-9, 199-200 F 15-22, Mr 8 '18

Testing laboratory at the Fiat works. Il Engineer 125:555-6, 558 Je 28 '18

*See also* Electric laboratories; Metallurgical laboratories

**Engineering law. See Boilers—Laws and regulations; Building laws and regulations; Engineers—Licenses; Plumbing laws and regulations****Engineering libraries**

Life in a large manufacturing plant; departmental schools and general educational facilities of General electric company. C. M. Ripley. Gen Elec R 21:214-15 Mr '18

*See also* Engineering societies' library, New York

**Engineering literature**

*See also* Engineering libraries; Engineering periodicals; Pamphlets

**Bibliography**

Ready reference books for the engineer. R. Canavan. Eng N 82:578-9 Mr 20 '19

Some reference books of value to engineers. L. B. Krause. J Elec 42:31-2 Ja 1 '19

Engineering materials. *See* Building materials; Concrete; Iron; Steel; Strength of materials



**Engineering notation.** See Symbols

**Engineering periodicals**

Editorial conference of business papers in Washington on Dec. 13. Elec Ry J 50:1162-3 D 29 '17

Enemy technical periodicals available. Eng & Min J 108:525 S 21 '18; Same. Chem & Met Eng 19:517 S 28 '18

See also Trade papers

**Engineering research**

Research in progress. See monthly numbers of the Mechanical engineering (formerly Journal of American society of mechanical engineers)

Work of the National research council. H. M. Howe. Iron Age 102:1023-5 O 24 '18; Same. abr. Am Inst Min E Bul 144:1715-19 D '18

See also Electric research; Industrial research; Laboratories; Mining research; Scientific research

**Engineering societies**

Alfred D. Flinn selected as secretary for joint activities of engineering societies. Eng N 79:1219 D 27 '17; Same. Power 47:31 Ja 1 '18

Apathy in National society a cause of unionization. F. Lavis. Eng N 82:882-3 My 1 '19

Appointment of Alfred D. Flinn to the secretaryship of the Engineering council. Am Soc M E J 40:165-6 F '18

Centralized activities of national engineering societies. A. D. Flinn. Elec R 73:254-6 Ag 17 '18

Cleveland plan of engineering cooperation. Am Soc M E J 41:182 F '19

Consolidating the American engineering professions. A. D. Flinn. Eng & Min J 107:13-15 Ja 4 '19; Same. Eng N 82:81-3 Ja 9 '19; Same. Am Mach 50:159-61 Ja 23 '19; Same. Eng & Contr 51:222-4 F 26 '19

Consolidation of engineering societies discussed. Iron Age 103:891 Ap 3 '19

Co-ordination of scientific publication. Engineer 125:402+ My 10 '18

Engineering civic federation; proposed organization. W. L. Saunders. chart Eng N 82:756-7 Ap 17 '19

Engineering council now almost forgotten; Council of engineering societies on national public works, organized 1886. Eng N 80:806-8 Ap 25 '18

Engineering societies' committees on aims and organization. A. N. Talbot. Am Soc M E J 41:17 Ja '19; Same. Eng & Contr 51:89-90 Ja 22 '19

Engineering societies in the national defense. G. Dunn. Am Soc M E J 40:17-21 Ja '18

Engineering societies' war activities. Elec W 71:18-20 Ja 5 '18; Excerpt. Ind Management 55:121 F '18

Federation of American engineering societies proposed. W. E. Bullock. Eng N 82:584-5 Mr 20 '19

Federation of strong local societies needed for engineering unity. C. E. Drayer. Eng N 80:452-4 Mr 7 '18; Discussion. C. W. Baker. 80:625-6 Mr 28 '18

Formation of technical sections is suggested. A. N. Talbot. Eng N 82:175-6 Ja 23 '19

Friendly possibilities of engineering societies. P. N. Moore. Am Arch 115:150-1 Ja 22 '19

German union of technical and scientific societies. R. Hadfield. J Ind & Eng Chem 10:575-80 Jl 18; Excerpts. Am Inst Min E Bul 140:sup51-4 Ag '18

How an engineering society should be conducted. Heat & Ven 16:55-6 Ag '19

How the local engineering society can be of service to the public. W. S. Wolner. Eng & Contr 52:277-8 S 3 '19

Joint conference committee of four national societies outlines plan for comprehensive national body. Eng N 83:835+ O 30 '19

Joint council of the engineering societies of San Francisco. Elec W 72:510 S 14 '18; Same. Eng N 81:558 S 19 '18

Lessons from professional organization in England. Eng N 82:699-700 Ap 10 '19

Let the founder societies become post graduate schools of engineering. Eng & Contr 51:502 My 14 '19

Local section problem. W. W. De Berard. Eng N 80:1240-1 Je 27 '18

Local society management demands more consideration. C. E. Drayer. Eng N 80:301-3 F 14 '18

Local society the fighting unit. Eng N 81:256-7 Ag 8 '18

Membership and functions of local engineering associations. C. W. Hunt. Eng N 83:87-8 Jl 10 '19; Discussion. K. B. Knudsen. 83:237 Jl 31 '19

National and local societies. W. H. Hoyt. Eng N 81:463-4 S 5 '18

National engineering societies and the National research council. G. E. Hale. Am Inst E E Pro 37:1223-36 O '18; Same. Am Soc M E J 40:825-9 O '18

National engineering societies increased membership 100 per cent in 10 years. Eng & Contr 52:174 Ag 6 '19

Northeastern Pennsylvania engineers have big banquet. Coal Age 13:241-3 F 2 '18

Progress in engineering society organization in 1918. Eng N 82:171 Ja 23 '19

Public interest as the bed rock of professional practice; discussion of the objects of engineering societies and their obligations to the public. M. L. Cooke. Am Soc M E J 40:382-3 My '18; Discussion. 40:749-55 S '18

Public work of Engineering association of Nashville during the past year. Eng N 80:423-4 F 28 '18

Reciprocity between national and local societies; directors of Cleveland engineering society and A. A. E. agree on joint membership plan. C. E. Drayer. Eng N 81:217-18 Ag 1 '18

Report of A. S. H. V. E. committee on engineering co-operation. Am Soc Heat & V E 23:393-406 '17

Should there be a federation of the 270 engineering and technical organizations? Eng & Contr 49:424 My 1 '18

State engineering society as the guardian of the business interests of the engineer. J. W. Cunningham. Eng & Contr 51:473-4 My 7 '19

Suggests combination of national engineering societies. C. W. Haas. Eng & Contr 52:211-12 Ag 20 '19

Technical societies of Chicago form joint war committee. Iron Tr R 63:32 Jl 4 '18

United States Chamber of scientists proposed for engineers. J. F. Le Baron. Eng N 82:1276 Je 26 '19

War activities of our technical societies. C. W. Rice. Sci Am 118:586+ Je 29 '18

Western sections of national societies. R. Sibley. map J Elec 42:28-9 Ja 1 '19

See also Electric engineering societies; Plumbers' associations; Professional associations; also names of societies, e.g. American institute of mining and metallurgical engineers, American society of mechanical engineers, Colorado engineering council, Indian society of engineers, Joint council of engineering societies of California, National electric light association

Engineering societies employment bureau

Engineering societies establish employment bureau. Power 48:862 D 10 '18; Eng & Min J 106:1005-6 D 7 '18; Elec R 74:146 Ja 25 '19

Engineering societies' library, New York

Making the library serve your purpose. Am Soc M E J 40:285-6 Mr '18

Report for 1917. Am Inst E E Pro 37:sup70-1 Mr '18

Engineering society of western Massachusetts

Organization. Mech Eng 41:637 Jl '19

Engineering standards. See Standards, Engineering

Engineering standards committee, American.

See American engineering standards committee

Engineers

Address to graduating student engineers.

E. W. Rice, jr. Gen Elec R 21:403-7 Je '18

American engineers kidnapped by Chinese bandits. Eng N 82:665-7 Ap 3 '19

American sales engineering in the export field. S. T. Henry. Mach 25:351-2 D '18

Architect versus the engineer. Eng & Contr 50:496-7 N 27 '18

**Engineers—Continued**

- As others see us. R. Hering. Eng N 83:525-6 S 11 '19
- Broader service for engineers. D. S. Kimball. Iron Tr R 62:785-6 Mr 28 '18
- Call for state supervision of engineering. C. T. Johnston. Eng N 80:43 Ja 3 '18
- Classification of engineering positions in state, county and city service. Eng & Contr 52:278-9 S 3 '19
- Conservation of technical engineers urged; resolutions of Engineering council. Elec R 72:953 Je 8 '18; Same. Am Mach 48:1080a Je 20 '18; Same. Eng & Min J 105:1055 Je 8 '18; Same. Eng & Contr 50:85-6 JI 24 '18
- Co-operation between engineers, architects and construction men. Eng & Contr 52:257 Ag 27 '19
- Definitions of engineering. C. C. Williams. Eng & Contr 51:51-2 Ja 15 '19
- Designing engineer. J. W. Wunsch. Mach 24:501 F '18
- Distinguished engineers of New England. Power 47:431-4 Mr 26 '18
- Does the engineer make a good railroad operator? C. W. Stark. Eng N 81:796-7 O 31 '18
- Draft high school graduates to fill engineering colleges. C. R. Richards. Eng N 80:1199-1200 Je 20 '18; Same. Eng & Contr 50:94 Je 24 '18
- Duties of the engineer, his past accomplishments, and the outlook for the future. F. S. Curtis. Eng & Contr 51:685-7 Je 25 '19
- Duty to your profession; writing down the results of your experiences. Am Arch 115:153-4 Ja 22 '19
- Engineer as a physical economist. C. P. Keyser. Eng N 82:885 My 1 '19
- Engineer—his opportunities and responsibilities. J. B. Fisk. J Elec 43:69-71 JI 15 '19
- Engineering defined. C. C. Williams. Eng & Contr 51:47 Ja 8 '19
- Engineering educators discuss student shortage. Power 48:72 JI 9 '18
- Engineering of today. H. J. Burt. Eng & Contr 48:514-16 D 19 '17
- Engineer's creed. Eng & Contr 50:453 N 6 '18
- Engineers have own labor problem? C. S. Duke. Eng N 80:1011-12 My 23 '18
- Engineers' place in the sun. Heat & Ven 15:24-5 JI '18
- Engineers, professional or otherwise. C. J. Mason. Power 46:874-5 D 25 '17
- Engineer's relation to sales distribution. Elec W 72:172-3 JI 27 '18
- Functions of the engineer: his education and training. W. A. J. O'Meara. diag Inst E E J 57:225-39 Mr '19; Discussion. 239-57, 315-21 Mr-Apr '19
- How an individual engineer can help improve conditions for the profession. H. P. Eddy. Eng & Contr 51:322-3 Mr 26 '19
- How many engineers are there in America? Eng & Contr 50:563 D 18 '18
- How shall proper recognition of the engineering profession be obtained? W. W. K. Sparrow. Eng & Contr 51:387-8 Ap 16 '19; Same. Ry R 64:668-70 My 3 '19; Same abr. Munic Eng 56:152-4 Ap '19
- Illinois chief engineers meet at Dunning. Power 49:339-40 Mr 4 '19
- Imagination and the engineer. E. Llewellyn. Coal Age 13:2-3 Ja 5 '18
- Immediate needs of the engineering profession. J. C. Patterson. Munic Eng 57:122-3 S '19
- Is it worth while attempting to define engineering? Eng & Contr 51:2-3 Ja 1 '19
- Metallurgical information required by engineers. C. F. Jenkin. Engineer 127:325-6 Ap 4 '19; Same. Eng & Contr 52:150-1 JI 30 '19
- Movement calculated to improve the employment conditions of all engineers in public service. H. C. McClure; E. A. Ziesloft; E. A. Fisher. Munic Eng 56:215-16 Je '19
- Objects of the American association of engineers. Eng & Contr 49:47-8 Ja 9 '18
- Opportunities for Chicago engineers to work together. C. E. Drayer. Eng N 82:328 F 13 '19
- Opportunities for the trained engineer. L. W. Alwyn-Schmidt. Power 50:182-3 JI 29 '19
- Opportunities in the engineering field. Ry R 63:518-19 O 5 '18
- Professional engineers and union labor. T. P. Morrissey. Eng N 82:834-5 Ap 24 '19
- Public works and the city engineer. Munic J 44:274-5 Ap 6 '18
- Qualifications and opportunities for engineer salesmen in export field. S. T. Henry. Eng & Contr 50:505-6 N 27 '18
- Reconstruction and the engineer. C. M. Spofford. Boston Soc C E J 6:139-44 Ap '19
- Relations between engineers and contractors. J. F. O'Rourke. Eng & Contr 51:297-8 Mr 19 '19
- Relations of the engineer to the contractor. S. M. Swaab. Munic Eng 53:178-9 N '17
- Report of A. S. H. V. E. committee on engineering co-operation. Am Soc Heat & V E 23:393-406 '17
- Shall engineering be a profession or a trade? Ry Age 66:1081-2 My 2 '19
- Socialism, unionism and the engineer. J. P. Channing. Eng & Contr 49:640-2 Je 26 '18
- Status of technical students, with particular reference to those in architecture. E. Lorch. Am Inst Arch J 6:404-5 Ag '18
- Under new management—the fallacy of engineering discussion. C. M. Horton. Ind Management 55:21-3 Ja '18
- Unrecognized resource. Sci Am 118:518 Je 8 '18
- What is an engineer? A. W. Allen. Eng & Min J 106:962-3 N 30 '18; Same. Eng & Contr 51:22-3 Ja 1 '19
- What shall an engineer read in general literature? R. Fleming. Eng & Contr 51:561 My 28 '19
- What the war has done for engineers, and the part engineers have to play in reconstruction. R. E. B. Crompton. Engineer 127:41-2 Ja 10 '19; Excerpts. Eng & Contr 52:517-18 O 29 '19
- What the war means to the engineer. E. J. Mehren. W Soc E J 23:306-16 Ap '18
- What will engineers pay to improve their status? Eng N 83:492-3, 720-2, 894-5 S 11, O 16, N 13 '19
- Who is an engineer? Eng & Contr 50:516-17 D 4 '18
- Why do most practicing engineers study so little? Eng & Contr 52:481-3 O 29 '19
- See also Civil engineers; Engineering ethics; Engineering societies; Highway engineers; Locomotive engineers; Marine engineers; Mechanical engineers; Military engineers; Mining engineers; Municipal engineers; Railroad engineers; Steam engineers; United States—Army—Engineer troops

**Education**

See Engineering education

**Fees**

- How raise status and pay of engineers? Eng N 82:106 Ja 9 '19
- Mahoning Valley engineers' schedule of fees. Eng & Contr 51:76 Ja 22 '19
- Professional fees and their collection. F. F. Sharpless. Eng & Min J 105:189-90 Ja 26 '18
- St Paul committee proposes minimum fees for engineers. Eng N 80:174-5 Ja 24 '18
- Specific fees for engineering services recommended. E. T. Perkins. Eng N 80:365 F 21 '18; Eng & Contr 49:269-70 Mr 13 '18

**Licenses**

- Comparison of various existing and proposed license laws. Eng N 82:423-30 F 27 '19
- Engineers' license bill; act passed by Colorado legislature. Eng & Min J 108:49 JI 12 '19
- Engineers' license laws. Eng & Contr 50:570-1 D 18 '18
- Graded licenses in Ontario. Power 48:215 Ag 6 '18

**Engineers—Licenses—Continued**

How the engineers of Iowa got a registration law. J. H. Dunlap. Eng N 82:1073-4 My 29 '19

Intelligent statutory regulation of engineering practice needed. Eng N 80:89-90 Ja 10 '18

Licensing bill proposed by American association committee. Eng N 82:462-3 Mr 6 '19

Licensing laws in Oregon and Idaho—proposed Ohio bill. Eng N 82:616-18 Mr 27 '19

Licensing of civil engineers. L. K. Sherman. Eng & Contr 51:340 Ap 2 '19

Michigan engineers' registration law. Eng N 83:697-8 O 9 '19

Proper aim of licensing laws. A. Meyer. Eng N 80:730 Ap 11 '18

Registration law in Michigan passes legislature. Eng N 82:889 My 1 '19

Registration of professional engineers, California. J Elec 42:125-7 F 1 '19

Registration of professional engineers in Oregon. J Elec 43:364-5 O 15 '19

See also Aeronautic engineers—Licenses

**Public relations**

Aims and opportunities of the profession. I. N. Hollis. Mech Eng 41:302-4 Mr '19

Awakening recognition of the engineer; abstracts. F. S. Keith. Eng N 79:1206-7 D 27 '17; Eng & Contr 48:640-1 D 26 '17

Broader opportunities for the engineer. C. T. Main. Am Soc M E J 41:6-11 Ja '19; Excerpt. Ry R 64:51-2 Ja 11 '19

Civic duties and opportunities of the engineer. H. C. Parmelee. Eng & Min J 108:318-20 Ag 23 '19; Excerpts. Eng & Contr 52:364 S 24 '19

Economic duties of the engineer. W. R. Ingalls. Eng & Min J 107:184-90 Ja 25 '19; Same abr. Eng N 82:292-5 F 6 '19; Excerpt. Eng & Contr 51:193-4 F 19 '19

Engineer and the community. E. H. Sniffin. Elec J 16:249-51 Je '19

Engineer as a citizen; a symposium on his civic responsibility; abstracts. Mech Eng 41:448-51+ My '19; Am Inst Min Bul 149:sup12-20 My '19; Chem & Met Eng 20:377-8 Ap 15 '19

Engineer as a social force in the new democracy. G. C. Whipple. Boston Soc C E J 5:143-62 Ap '18; Same cond. Eng N 80:599-601, 648-50 Mr 28-Ap 4 '18

Engineer in politics. F. D. Bradley. Eng & Min J 108:583-5 O 4 '19

Engineer in politics. W. A. Stinchcomb. Munic J 46:388-9 My 31 '18; Same. Eng & Contr 51:695 Je 25 '19; Same. Eng N 82:1214 Je 19 '19; Same. Munic Eng 56:214-15 Je '19; Same. Ry R 64:952-3 Je 21 '19

Engineer in public affairs discussed in Chicago. Power 50:82 Jl 8 '19

Engineer the ideal link between capital and labor. M. E. Cooley. Elec W 73:839 Ap 26 '19

Engineer's public duty. Power 47:168 Ja 29 '18

Engineer's relation to public opinion. S. Miller. Eng & Min J 107:616-17 Ap 5 '19

Engineer's relation to the community; abstracts. W. H. Finley. Eng N 82:364-5 F 20 '19; Eng & Contr 51:224 F 26 '19

How can engineers be of the greatest use to civilization? W. O. Platt. Mech Eng 41:613 Jl '19

Place and duty of the engineer in the social structure. G. H. Pegram. Eng N 80:116 Ja 17 '18

Present and future position of the engineer. E. T. Perkins. Eng & Contr 49:75 Ja 23 '18

Present-day conditions are forcing the engineer to assume new responsibilities. C. R. Mann. Eng N 80:208-9 Ja 31 '18; Same. Met & Chem Eng 18:133-4 F 1 '18; Same. Am Mach 48:246-7 F 7 '18; Same. Power 47:217-18 F 12 '18

Public and the engineer. C. Hansel. Eng N 83:646-7 O 2 '19

Recognition of engineers through self-improvement and service. I. Randolph. Ry R 64:712 My 17 '19

Resolutions by A.S.M.E. committee on public relations. F. H. Newell. Am Soc M E J 40:877-8 O '18

Society activities; why engineers as a body are not usually invited to discuss public matters. E. E. Sands. Eng N 81:637 O 3 '18

Universal public service in peace and war. I. N. Hollis. Am Soc M E J 40:11-7 Ja '18

**Salaries**

Activities and aims of engineers and draftsmen's union. T. S. Ford. Eng & Contr 51:588-9 Je 4 '19; Same. Eng N 82:1218-19 Je 19 '19

Activities of engineers' union, local no. 1, visualized by correspondent. H. Berlin. Eng N 83:386-7 Ag 21 '19

Actual case shows something wrong with engineers' remuneration. W. S. Harvey. Eng N 83:143-4 Jl 17 '19

American association of engineers urges Chicago mayor to recommend salary increases for engineers in city's employ. R. W. Shelmire. Munic Eng 56:9 Ja 19; Excerpt. Eng & Contr 51:17 Ja 1 '19

Are services paid what they are worth? Eng N 82:1219-22 Je 19 '19

Chicago chapter, A. A. E., adopts schedule of salaries. Eng N 82:1005-6 My 22 '19

Classification and compensation of engineers. Mech Eng 41:632 Jl '19

Classification and compensation of engineers; letter from chairman of committee. Mech Eng 41:851 O '19; Excerpts. Am Inst Min Bul 154:sup30-1 O '19

Classification of state, county and municipal salaries. Eng N 83:352 Ag 21 '19

Compensation for electric railway engineers; report of a committee to the American association of engineers. Elec Ry J 53:960 My 17 '19

Compensation in minor engineering positions. K. P. Armstrong. Eng N 82:736-7 Ap 10 '19

Compensation of railroad engineers; report of a committee to the American association of engineers. Ry R 64:722-4 My 17 '19

Engineering council condemns low salaries. Coal Age 16:16-17 Jl 3 '19; Excerpt. Heat & Ven 16:51-2 Ag '19

Engineering salaries adjusted to cost of living. W. A. Stinchcomb. Eng N 81:238 Ag 1 '18

Engineers' and bartenders' salaries. W. Newbrough. Eng N 81:506 S 12 '18

Engineer's salary versus laborer's wage. Eng N 82:931, 1075 My 8, 29 '19

How the American association of engineers aided engineers in St Louis municipal service in effort to improve their condition. Munic Eng 56:216-18 Je '19

More comment on engineers' salaries. Eng N 82:297-9 F 6 '19

Pay of railway technical engineers. Eng & Contr 51:186-7 F 19 '19

Pay of technical engineers and draftsmen in St Louis. Heat & Ven 16:63 My '19

Pay of the engineer in Canada. Eng & Contr 50:309-10 S 25 '18

Pecuniary rewards of technical engineers. Eng & Contr 51:436 Ap 30 '19

Progress by engineering council's compensation committee. Eng N 82:1198-9 Je 19 '19

Proposed schedule of engineers' salaries. Munic J 46:389 My 31 '19

Proposed schedule of salaries for engineers in state highway service. Munic Eng 57:200-1 N '19; Same. Eng & Contr 52:396 O 1 '19; Same. Eng N 83:677 O 2 '19

Recommended compensation for engineers. Eng & Contr 51:208 F 26 '19

Remuneration of engineers in China. Engineer 128:184-5 Ag 22 '19

Salaries of engineers. Eng & Contr 52:131 Jl 30 '19

Salary schedule for road and municipal engineers. Eng & Contr 51:591 Je 4 '19

Schedule of monthly salaries for technical engineers recommended by American association of engineers. Eng N 82:345 F 13 '19

Shall engineers be paid overtime? H. P. Gillette. Eng & Contr 51:251-2 Mr 19 '19

Suggestions as to what the Canadian engineering institute can do to secure better salaries for engineers. H. A. Goldman. Eng & Contr 51:580-1 My 28 '19

**Engineers—Salaries—Continued**

Three openings to one graduate. Eng N 83:625-7 S 25 '19  
 Young co. classification of Dominion of Canada employees criticised. Eng N 83:622-4 S 25 '19

See also Railroad engineers—Salaries

**Societies**

See Engineering societies

**War service**

American-built docks in France completed by Pacific coast engineers. R. K. Tomlin, Jr. il diags plan Eng N 81:208-16 Ag 1 '18  
 American engineers in service; list of more than three hundred electrical and mechanical engineers with commissions of captain or higher. Elec W 71:20-3 Ja 5 '18

Conditions and requirements of warfare. J. E. Cassidy. Am Soc M E J 40:pt 1, 551-3 Jl '18; Excerpts. Eng & Contr 50:289-90 S 18 '18

Engineer and the war. M. E. Cooley. Eng & Contr 50:93 Jl 24 '18

Engineer in war. O. N. Solbert. Am Soc Heat & V E 23:341-5 '17

Engineering societies in the national defense. G. Dunn. Am Soc M E J 40:17-21 Ja '18

Engineers and the war. W. M. Black. Am Inst E E Pro 37:1049-60 Ag '18; Excerpts. Elec W 72:59 Jl 13 '18

15 per cent of America's engineers in active military service. Eng & Contr 49:515 My 22 '18

Liaison of divisional engineers with the other troops. Eng & Contr 49:188-91 F 20 '18

Military service for engineering students. Elec W 70:1211-12 D 22 '17

Need for specialists in the present war. A. Morize. Am Soc M E J 40:pt 1, 554-5 Jl '18

Specialized training of technicians. A. L. Whiston. Am Soc M E J 40:pt 1, 553-4 Jl '18

Training engineer officers for the army at Camp Lee. F. C. Wight. il Eng N 81:12-15 Jl 4 '18

What are engineering societies doing to secure universal exemption of engineering students from draft? Eng & Contr 49:352-3 Ap 10 '18; Discussion. A. D. Flinn. 49:451 My 8 '18

Engineers, Locomotive. See Locomotive engineers

Engineers, Marine. See Marine engineers

Engineers, Mechanical. See Mechanical engineers

Engineers, Railroad. See Railroad engineers

Engineers as witnesses

Engineering testimony. Gas Age 43:192-3 F 15 '19

Engineers' society of western Pennsylvania

87th annual meeting, Pittsburgh, Jan. 15. Eng Soc W Pa 34:supl-13 F '18

**Engines**

Effect of unbalanced forces in reciprocating engines. diags Int Marine Eng 23:429 Jl '18

Mechanical equipment of industrial buildings. C. L. Hubbard. Power 49:362-5 Mr 11 '19

See also Air engines; Airplane engines; Automobile engines; Blowers; Crankpins; Crankshafts; Diesel engines; Farm engines; Fire engines; Fuel; Gas and oil engines; Governors (machinery); Heat engines; Locomotives; Marine engines; Mechanical engineering; Newcomen engine; Pistons; Pumping machinery; Pumps; Steam engines; Steam turbines; Tractors; Turbines

**England****Description and travel**

Aftermath in Paris and London. M. R. Lamb. Eng & Min J 107:324-5 F 15 '19

**Industries and resources**

How the war has taught England cooperation. W. Patten. Am Mach 48:411-12 Mr 7 '18

**England and the United States**

English-speaking peoples. T. A. Rickard. Am Inst Min E Bul 148:637-48 Ap '19

**English channel**

English Channel train ferry bridge of 120-foot span. P. J. Risdon. il diags Eng N 83:666-8 O 2 '19

Plans for English channel train ferries. Int Marine Eng 24:513 Ag '19

Proposed cross-channel train ferry. Engineer 125:499 Je 7 '18; Same. Sci Am S 86:176 S 14 '18

Railroad ferry service between England and France. il Sci Am 120:21 Ja 11 '19; Ry Age 66:509-10 F 28 '19

**English Channel tunnel**

Defenses of the proposed English Channel tunnel. diags Eng & Contr 49:542-3 My 29 '18

English Channel tunnel; story of the agitation for a channel tunnel from 1802 to 1919. plans Sci Am 120:398-9+ Ap 19 '19

**English language**

Divergent views of good English. F. H. Teall. Inland Ptr 60:792 Mr '18

Good English in literature. F. H. Teall. Inland Ptr 62:169-60 N '18

See also Americanisms

**Grammar**

Essentials of English grammar. F. H. Teall. Inland Ptr 63:550 Ag '19

Grammar of English grammars. F. H. Teall. Inland Ptr 61:711-12 S '18

**Study and teaching**

Better Americans, better workers—at slight expense. C. A. Livingston. il Factory 23:1302-4 D '19

Development of Americanization project. C. H. Paull. il Ind Management 57:213-17 Mr '19

Printing as a device for teaching the English language. F. K. Phillips. il Inland Ptr 62:431-2 Ja '19

**English language (for foreigners)**

Making Americans out of the foreign born. S. Rea. il Am Lumberman 2256:49 Ag 10 '18;

Same. Am Mach 49:673-6 O 10 '18; Same abr. Ry R 62:693-5 My 11 '18

Open an English school for foreigners. Coal Age 13:974 My 25 '18

**Engraving**

Art of engraving and embossing. il Metal Ind n s 14:160-2, 330-1, 507-9; 15:119-20; 16:458-9, 554-5 Ap, Ag '16, D, Mr '17, O, D '18

Inventor of steel-engraving was an American. Inland Ptr 63:403-4 Jl '19

Making and destroying paper money. C. H. Claudy. il Sci Am S 86:200-2 S 23 '18

See also Color printing; Etching; Etchings; Lithography; Photoengraving; Wood engraving

Ensilage. See Silage

**Entropy**

Entropy diagram for gasoline; abstract. J. Rey. diags Am Soc M E J 40:501-2 Je '18

Entropy of the elements and the third law of thermodynamics. G. N. Lewis and G. E. Gibson. Am Chem Soc J 39:2554-81 D '17

**Environment**

Heredity, environment, and civilization; factors controlling human behavior as illustrated by the natives of the southwestern United States. A. L. Kroeber. Sci Am S 86:210-12 O 5 '18

**Enzymes**

Action of enzymes upon starches of different origin. H. C. Sherman, F. Walker and M. L. Caldwell. Am Chem Soc J 41:1123-9 Jl '19

Action of pancreatic enzymes upon casein. H. C. Sherman and D. E. Neun. Am Chem Soc J 40:1138-45 Jl '18

Attempt to filter the enzymes of milk. J. Piccard and M. Rising. diags Am Chem Soc J 40:1275-81 Ag '18

Nitrogenous auxoamylases. E. W. Rockwood. Am Chem Soc J 39:2745-52 D '17

**Enzymes—Continued**

Relation of light to health. C: E. D. Sajous. *Illum Eng Soc* 13:370-2 no 7 '18; Same. *Sci Am S* 87:4 Ja 4 '19

*See also* Diastase; Fermentation

**Epidemics**

Epidemiology and recent epidemics. S. Flexner. *Sci Am S* 88:234-5 O 25 '19

**Equation of state**

Equation of state for liquids and vapors; the vapor phase of ethyl ether. F: G. Keyes and W: A. Felsing. *diags Am Chem Soc J* 41:589-619 Ap '19

**Equilibrium**

Biological effects of centrifugal action; a study of the causes of disturbances of equilibrium. H. Clément. *Sci Am S* 85:258-9 Ap 27 '18

**Equilibrium, Chemical.** *See* Chemical equilibrium

**Erbium**

Observations on the rare earths; the separation of yttrium from erbium; the ratio  $\text{Er}_2\text{O}_3$ : $\text{ErCl}_3$ . E: Wickers, B. S. Hopkins and C. W. Balke. *Am Chem Soc J* 40:1615-19 N '18

**Ergot**

Ergotism; an interesting human and animal disease caused by a fungus. A. A. Hansen. *Il Sci Am* 118:590 Je 29 '18

**Ericsson, John**

Recollections of Ericsson. *por Mech Eng* 41:260-1 Mr '19

**Erie (Pennsylvania) lighting company**

Northwest Pennsylvania's newest station. J. B. Scott. *Il diags plan Elec W* 74:60-3, 400 J 12, Ag 23 '19

**Erie railroad**

Report, 1917. *map Ry Age* 65:202-3 Ag 2 '18

**Erinoid**

Insulating properties of erinoid. *J Fr Inst* 188:430-1 S '19

**Erosion**

Causes of erosion of river banks. *diags map plans Eng & Contr* 52:123-5 J 30 '19

Lake Michigan's encroachment on its coast. H. Maxwell. *Il map Sci Am* 120:687-+ 28 '19

Old erosion surface in Idaho: is it eocene? J: L. Rich. *biblog map Econ Geol* 13:120-36 Mr '18; Discussion. D. C. Livingston. 13:486-92 S '18

Progressive erosion in a dredged drainage channel. C. E. Ramser. *Il diag Eng N* 82:876-7 My 1 '19

Range preservation and its relation to erosion control on western grazing lands. A. W. Sampson and L. H. Weyl. *Il diag U S Agric Bul* 675:1-35 '18

**Erwin, Tennessee**

Industrial housing developments in America; a colony in the Blue Ridge mountains at Erwin. L. Veiller. *Il plans Arch Rec* 43:547-59 Je '18

**Escalators**

Park Place subway station escalators. *Il Sci Am* 120:567 My 31 '19

*See also* Moving platforms

**Escapements.** *See* Clocks—Escapements

**Esch railroad bill.** *See* Railroads and state—United States—Esch bill

**Esperanto**

Case for Esperanto. R. M. Bailey. *Sci Am* 117:475 D 22 '17

Common language of commerce. W. R. Daingerfield. *J Elec* 43:414-15 N 1 '19

Esperanto as an international language. W. R. Daingerfield. *Il J Elec* 43:159-60 Ag 15 '19

Esperanto facts. *Sci Am* 118:87 Ja 26 '18

International language for modern engineers. *Eng N* 82:156-7, 442 Ja 16, F 27 '19

**Essential industries finance corporation**

Bankers announce plan to aid utilities. *Elec Ry J* 52:590 S 28 '18; *Munic J* 45:273 O 5 '18

**Essential oils**

Distribution and characters of some of the odorous principles of plants. F: B. Power. *J Ind & Eng Chem* 11:344-52 Ap '19

*See also* Flavoring extracts; Perfumery; Wintergreen

**Esterification**

Configurations of organic compounds and their relation to chemical and physical properties. A. Michael. *Am Chem Soc J* 40:1699 N '18

Studies in esterification; the esterification of benzoic and the toluic acids by methyl, ethyl and propyl alcohols. R. Freas and E. E. Reid. *Am Chem Soc J* 40:569-78 Mr '18

**Esters**

Addition of nitromethane to unsaturated esters. E. P. Kohler and H. Engelbrecht. *Am Chem Soc J* 41:764-70 My '19

Addition of sodium acetoacetic ester to the aromatic mustard oils. D: E. Worrall. *Am Chem Soc J* 40:415-23 F '18

Bromination and bromine derivatives of certain  $\alpha$ -ketonic esters. E. P. Kohler and H. Gilman. *Am Chem Soc J* 41:683-92 Ap '19

Effect of sodium on mixtures of malonic and succinic esters. G. E. K. Branch and H. E. H. Branch. *Am Chem Soc J* 40:1708-13 N '18

Identification of acids; phenacyl esters. J. B. Rather and E. E. Reid. *Am Chem Soc J* 41:75-83 Ja '19

Preparation and hydrolysis of esters derived from the substituted aliphatic alcohols. G: R. Bancroft. *Am Chem Soc J* 41:424-31 Mr '19

Propionic and butyric esters of tribromotertiary-butyl alcohol (brometone). T. B. Aldrich. *Am Chem Soc J* 40:1948-50 D '18

**Estonia**

Estonia; commercial and industrial conditions in the new state. *Am Ind* 20:28-9 Ag '19

**Estimates**

Estimators teach contractors principles of scientific estimating. *Elec R* 73:868-9 N 30 '18

Methods for cost estimating. M. McKune. *Il Metal Ind* 16:167-8 Ap '18

Payment for estimating. *Am Arch* 116:427-9 S 24 '19

Payment for estimating. *Heat & Ven* 16:56-7 N '19

Removing the risk from estimates. L. B. West. *Concrete* 13:87-8 S '18

Report on estimating labor costs compiled by the Electrical estimators' association of Chicago. *diags plans Elec R* 73:125-31 J 1 27 '18

Should estimates for work be paid for? *Metal Work* 91:37-8 Ja 3 '19

*See also* Building—Estimates; Concrete construction—Estimates; Heating—Estimates

**Etching**

Deep etching and rail and forging defects. F. M. Waring and K. E. Hoffmann. *Il Iron Age* 104:13-14 J 1 3 '19; Same. *Ry R* 65:11-12 J 1 5 '19; Same cond. *Iron Tr R* 64:1357-8 Jo '19; Excerpts. *Ry Age* 67:17-18 J 1 4 '19; Abstract. *Eng N* 83:15 J 1 3 '19; Discussion. *Iron Age* 104:14-16 J 1 3 '19; *Iron Tr R* 65:43-4 J 1 8 '19; *Ry R* 65:12-15 J 1 5 '19; *Eng N* 83:15 J 1 3 '19

Etching agents. S. W. Miller. *Metal Ind* 15:530 D '17

Etching and etching fluids. A. Schlemmer. *Mach* 25:516 F '19

Etching solutions and their uses. E. G. Jarvis. *Metal Ind* 17:170-1 Ap '19

Macro-etching and macro-printing. J. C. W. Humphrey. *Il Iron Age* 104:293-4 J 1 31 '19; Abstract. *Eng N* 82:1207-8 Je 19 '19

New methods of etching show hitherto undiscovered characteristics of rail steel. *Sci Am S* 88:41 J 1 19 '19

Progress in study of rail quality. *Eng N* 82:610-11 Mr 27 '19

Warning—dangerous etching fluid. *Mach* 24:702 Ap '18

*See also* Engraving

**Etchings**

Architectural etching. F. Weitenkamp. *Il Arch Rec* 44:550-7 D '18

**Etchograph**

Brewster etchograph for marking steel tools. *Il Mach* 24:70-1 S '17; *Iron Age* 100:421 Ag 23 '17; *Elec R* 71:821 N 10 '17; *Sci Am* 117:334 N 3 '17; *Metal Work* 88:772 D 28 '17

**Ether**

Double compounds of the metallic halides with ether. *Sci Am S* 85:251 Ap 20 '18  
Equation of state for liquids and vapors; the vapor phase of ethyl ether. F. G. Keyes and W. A. Felsing. *diags Am Chem Soc J* 41:589-619 Ap '19

**Ether (of space)**

Ether ball. N. Johannsen. *diag Sci Am S* 85:314 My 18 '18

Ether ball. E. Woolard. *Sci Am S* 86:331 N 23 '18

Relations of matter and ether. C. Morris. *Sci Am S* 85:402 Je 29 '18; *Discussion. E. Woolard. 86:76 Ag 3 '18*

*See also Air*

**Ethers**

Cyclic ethers from o-allyl phenols; methylene coumaranes. R. Adams and R. E. Rindfuss. *Am Chem Soc J* 41:648-65 Ap '19

Paraffin ethers; patent. *Met & Chem Eng* 18:40-1 Ja 1 '18

**Ethics, Engineering.** *See Engineering ethics*

**Ethics, Professional.** *See Professional ethics*

**Ethnology**

*See also Anthropology; Cave dwellers*

**China**

Origins of the Chinese. *Sci Am S* 85:405 Je 29 '18

**Ethyl thiolglycolate**

Some metallic derivatives of ethyl thiolglycolate. C. A. Rouiller. *Am Chem Soc J* 41:777-81 My '19

**Ethylene**

Modified method for the analysis of mixtures of ethylene and acetylene. W. H. Ross and H. L. Trumbull. *diags Am Chem Soc J* 41:1180-9 Ag '19

**Ethylene chlorohydrin**

Ethylene chlorohydrin and  $\beta,\beta$ -dichloroethylsulfide. M. Gomberg. *Am Chem Soc J* 41:1414-31 S '19

**Eucalyptol**

Dichloroamine T. and chlorinated eucalyptol 1,2. R. B. Krauss and E. Crede. *Am Chem Soc J* 39:2720-2 D '17

**Eucalyptus**

Tall trees of Tasmania. *Il Am Lumberman* 2319:66 O 25 '19

**Eucalyptus oil**

Eucalyptus-oil production in Australia. *Eng & Min J* 106:349 Ag 24 '18

**Eulachon**

Eulachon—a delicious food fish. *Sci Am S* 86:335 N 23 '18

**Europe**

*See also Roads—Europe*

**Economic conditions**

After-war European industrial activity. E. S. Carman. *Mech Eng* 41:778-9 S '19

Impressions of socialism in Europe. H. Hoover. *Am Inst Min Bul* 154:sup11-18 O '19

**Industries and resources**

Electrical conditions in European countries. S. Q. Hayes. *Elec W* 71:843 Ap 20 '18

**European war, 1914-**

Address: what are we fighting for? W. H. Taft. *Am Soc M E J* 40:5-11 Ja '18; Same abr. *Am Mach* 47:1127-31 D 27 '17; Same abr. *Power* 46:342-6 D 18 '17

Conditions and requirements of warfare. J. E. Cassidy. *Am Soc M E J* 40:pt 1, 551-3 J1 '18; Excerpts. *Eng & Contr* 50:289-90 S 18 '18

Cost, losses and gains of the war. R. E. Whittlosey. *Am Arch* 114:287-8 S 4 '18

Dates on which the various belligerents declared war. *Eng & Min J* 105:187 Ja 26 '18

Need for specialists in the present war. A. Morize. *Am Soc M E J* 40:pt 1, 554-5 J1 '18

Retrospect of the year 1917; the world war. *Sci Am* 118:6-7 Ja 5 '18

Savings vs. savagery. R. Kipling. *Am Inst Min E Bul* 141:sup14-17 S '18

What military successes will bring peace? *Bldg Age* 40:459 S '18

Whose war is it? *Eng & Min J* 105:611 Mr 30 '18

**Aerial operations**

Airman's story. C. H. Claudy. *Il Sci Am* 120:426+ Ap 26 '19

America's ace of aces; Rickenbacher's record of twenty-six planes and how he made it. D. Beecroft. *Il Motor Age* 35:7-10 F 13 '18

Bombing work of the British independent air force. *Automotive Ind* 40:426-7 F 20 '19

Captain Eddie Rickenbacher, ace of aces, returns. D. Beecroft. *Motor Age* 35:15+ F 6 '19

Extracts from von Richthofen's diary. *Il Automotive Ind* 39:827-30, 878-81+ N 14-21 '18

Flying Yanks down first enemy planes. *Motor Age* 33:14-15 Je 30 '18

German versus British flyers. *Il Motor Age* 34:22-4 Ag 8 '18; Same. *Automotive Ind* 39:226-8 Ag 8 '18

Résumé of allied airplane bombing. *Automotive Ind* 39:476 S 12 '18

**Armistice**

Receiving the German railway equipment. *Il Ry Age* 66:1831-3 Je 27 '19

**Belgium**

Road to freedom through an empty barrel; story of a Belgian refugee. *Il Sci Am* 119:145 Ag 24 '18

**Campaigns and battles**

End of the world war. O. B. Mitcham. *maps Sci Am* 119:496+ D 21 '18

From the trenches to open warfare; how the Von Hutier method of attack broke the deadlock on the western front. *Il Sci Am* 119:68-9+ J1 27 '18

Gates of Asia; some of the problems of the campaigns in the East. T. M. Maguire. *Sci Am S* 85:226-7 Ap 13 '18

Strategic moves of the war. *Sci Am* 117:454+, 494+, 118:54, 86, 130, 166, 210, 254, 342, 380+, 430, 478+, 522, 566+, 118:8+, 88+, 126, 166+, 210, 250+, 292+, 334+, 374+ D 15, 29 '17, Ja 12, 26, Fr 9, 23, Mr 9, 23, Ap 13, 27, My 11, 25, Je 8, 22, J1 6, 20, Ag 3, 17, 31, S 14, 28, O 12, 26, N 9 '18

**Cartoons**

French architectural students in the war; atelier gazettes. R. D. Kohn. *Il Am Inst Arch J* 6:110-13 Mr '18

**Casualties**

Casualties for a big offensive. *Sci Am* 118:469 My 18 '18

Why Germany is losing the war; the remorseless draining of her reservoir of man-power. *Il Sci Am* 117:449+ D 15 '17

**Causes**

La guerre pour le mineral de fer. *Sci Am S* 86:279 N 2 '18

**Cost**

Common errors in estimating the cost of the war. *Eng & Contr* 51:26-7 Ja 8 '19

Cost of the war. *Metal Ind* 16:563 D '18

Hundred and forty millions for engineer equipment. *Eng N* 80:532 Mr 14 '18

Monetary cost of the war. *Sci Am* 120:647+ Je 21 '19

Twenty billion dollars estimated expenditures of war department for year beginning July 1. *Iron Age* 101:1422 My 30 '18

Twenty-four billion dollars. *Power* 48:578 O 15 '18

*See also European war—Finance*

## European war—Continued

## Destruction of property

- Briey and Lens—a personal glimpse. H. C. Estep. *Il Iron Tr R* 64:569-72 F 27 '19
- Destruction of historic buildings as revealed by the official French war photographs. T. E. Tallmadge. *Il plan Arch Rec* 42:248-58, 458-67; 43:131-47 S, N '17, F '18
- Devastation wrought by the great war in Belgium, Serbia and Italy. D. T. Pierce. *Eng N* 82:627-31 Mr 27 '19
- French problem of reconstruction. C. H. Claudy. *Il Sci Am* 120:397+, 456 Ap 19, My 3 '19
- Gas business on the battle front of Europe. J. E. Bullard. *Il Gas Age* 43:190-2 F 15 '19
- How Germans looted an American plant. P. Randall. *Iron Tr R* 63:787-8 O 3 '18
- Visit to the British front in September. H. M. Wright. *Il Sci Am* 86:344-5 N 30 '18
- Wanton destruction of railways by the Germans. P. O. Buttrick. *map Ry Age* 67:13-15 Jl 4 '19

See also Venice—Protection of art treasures

## Economic aspects

- After-the-war prospects in England. J. A. Hunter. *Textile World* 53:2959 Ja 12 '18
- After-war prospects for American machine tools in France. C. E. Carpenter. *Am Mach* 48:146-8 Ja 24 '18
- Business after the war. F. P. Wood. *Ind Management* 55:61 Ja '18
- Business of war. I. F. Marcossou. *Am Mach* 48:960-6 Je 6 '18
- Can shell-scarred battlefields be cultivated? *Sci Am* 118:126 F 9 '18
- Conditions after the war. C. Lundberg. *Iron Age* 102:285 Ag 1 '18
- Effect of the war on the world's shipping. *Il Sci Am* 121:51+ Jl 19 '19
- Export-trade problems. R. S. Alter. *Am Mach* 48:791-4 My 9 '18; Same cond. *Automotive Ind* 38:907-8+ My 9 '18
- Foreign trade after the war; abstracts. E. M. Herr. *Iron Tr R* 62:1042-3 Ap 25 '18; *Elec R* 72:755-6 My 4 '18
- Foreign trade after the war; information issued by the Guaranty trust co. *Am Mach* 48:585-7 Ap 4 '18
- Foreign trade outlook as affected by war. J. A. Farrell. *Iron Age* 101:1087-9 Ap 25 '18; *Excerpts. Ry Age* 64:1063-4 Ap 26 '18
- German trade and the war. C. D. Snow and J. J. Kral. *U S Bur For & Dom Com misc ser* 65:1-236 '18
- Germany aims to rob Italy of steel. *Il Iron Tr R* 62:1614-17 Je 27 '18
- Germany and the manganese and iron of the Ukraine. *Iron Age* 101:701 Mr 14 '18
- Germany still covets French iron mines. *Iron Tr R* 63:612-13 S 12 '18
- Germany wants Lorraine ore. M. Knecht. *Iron Tr R* 63:169 Jl 18 '18
- Germany wants to keep Briey mines. *Iron Tr R* 62:1043-4 Ap 25 '18
- Germany's designs on French iron ore; abstracts. *Sci Am* 86:123 F 23 '18; *Iron Tr R* 62:1044 Ap 25 '18
- Governments must help trade after war. G. E. Roberts. *Automobile* 37:683-5 O 18 '17
- Harvest of the battlefields; how fortunes in old metal will be garnered from the war zone. F. J. Koch. *Il Metal Ind* 16:8-10 Ja '18
- How to win the war. F. A. Vanderlip. *Ten World* 53:2951+ Ja 12 '19
- International price comparisons. W. C. Mitchell, M. L. Goldsmith and F. K. Middaugh. *bibliog War Industries Board Price Bul* 2:1-395 '19 25c
- Junk men of the war; what becomes of the wreckage of the battlefield. *Il Sci Am* 86:264-6 Ap 27 '18
- Kaiser must yield mineral spoils. F. Miltoun. *map Iron Tr R* 63:148-9 Jl 18 '18
- Key to peace in iron of Lorraine. S. Paige. *map Iron Tr R* 63:673-5 S 19 '18
- Looking forward: problems and opportunities after the war. F. H. Sisson. *Am Mach* 48:669-70 Ap 18 '18

Manchester local section: chairman's address. C. J. Beaver. *Inst E E J* 56:33-41 D '17

Message to German business men. *Power* 47:138 Ja 22 '18

- Metals prove backbone of warfare; plan for concerted export trade effort under Webb bill. E. A. S. Clarke. *Iron Tr R* 62:1064-5 Ap 25 '18
- New iron sources opened to the Teutonic powers. *Dom Eng* 82:497 Mr 30 '18
- Opportunities in France. H. G. Harms. *Concrete* 11:171-3 D '17
- Post-war lumber prospects. F. V. Dunham. *Am Lumberman* 2242:40 My 4 '18
- Post-war problems. J. Rattray. *Am Mach* 48:1095 Je 27 '18
- Powerful foreign trade combinations of Europe. P. H. Middleton. *Ry Age* 64:884-7 Ap 5 sec 1 '18
- Price-bidding in war times. R. C. McCrea. *Chem & Met Eng* 19:71-6 Jl 15 '18
- Public war experiences and their effect on the future. W. H. McGrath. *J Elec* 43:347-9 O 15 '19
- Utilize the non-essential industries. S. H. Bunnell. *Iron Age* 101:603-5 Mr 7 '18
- Viewpoint of war service committee. F. Yardly. *Am Mach* 48:1096-7 Je 27 '18
- War by civilians. A. Wright. *Elec R* 73:169-70 Ag 3 '18
- War conditions as applied to twist drills, reamers, etc. R. T. Lane. *Am Mach* 48:1097 Je 27 '18
- War converges on French iron ore. F. Miltoun. *Iron Tr R* 62:543+ F 28 '18
- War credits. *Sci Am* 120:406+ Ap 19 '19
- Where Germany is obtaining indispensable supplies. *Il Sci Am* 85:276 My 4 '18
- Where will Germany get copper? *Metal Ind* 16:178 Ap '18
- World market for American railway supplies. A. Stephens. *Ry Age* 64:838-42 Ap 5 sec 1 '18

See also European war—Labor problems

## Finance

- American and German finances. *Am Gas Eng* J 109:98 Ag 3 '18; Same. *Am Arch* 114:205 Ag 14 '18
- American industry, finance and trade. *Am Lumberman* 2278:29-30 Ja 11 '19
- Detail of war expenditures for the year ending June 30, 1918. G. W. Fuller. *Eng & Contr* 49:632 Je 26 '18
- World's money markets, now and after the war. G. Faish. *Ry Age* 64:933-4 Ap 5 sec 2 '18

See also European war—Cost; War finance; War loans

## France

- France's rôle in the world war. *Il Sci Am* 120:138-9 F 15 '19
- Liaison of divisional engineers with the other troops. *Eng & Contr* 49:188-91 F 20 '18
- Yanks feted in French war plant of André Citroën. F. Miltoun. *Il Iron Tr R* 63:443+ Ag 22 '18

## Germany

- Fight for public opinion; meeting of the German offensive on American soil. G. Creel. *Il Sci Am* 118:298 Ap 6 '18
- How Germans looted an American plant. P. Randall. *Iron Tr R* 63:787-8 O 3 '18
- How Huns destroyed Belgian plants. *Iron Tr R* 62:1177-8 My 9 '18
- Kaiser blackmails German industry. H. Thysen. *Iron Tr R* 62:1367-8 My 30 '18
- War behind the front. *Sci Am* 118:162 F 23 '18
- War protection for industrial plants. T. W. Gregory. *Ind Management* 55:177-8 Mr '18

## Great Britain

- Can England be invaded? *Sci Am* 118:518 Je 8 '18
- Great Britain at war. J. B. Walker. *Il Sci Am* 119:434-5 N 30 '18
- Great Britain pays the price. *Sci Am* 119:122 Ag 17 '18

**European war—Great Britain—Continued**

Notes on a war-time trip to Europe. H. C. Parmelee. *Il Chem & Met Eng* 20:124-34 F 1 '19

**Historiography**

History of the war. *Sci Am* 120:332 Ap 5 '19

**Italy**

Teleferica; the military cableways of the Italian Alps. *Il Sci Am* 119:46+ J1 20 '18

**Japan**

Japan and the war. A. Kinnosuke. *Il Sci Am* 118:190 Mr 2 '18

**Labor problems**

Aligning many industries on a war basis. *Iron Age* 102:516-17 Ag 29 '18

Answering the war labor question; how the Rochester plan was shaped to meet the emergency of procuring maximum war production with a minimum of available munition workers. J. T. Hutchings. *Iron Tr R* 63:150-1 J1 18 '18; Same cond. *Elec W* 71:1255 Je 15 '18

Aspects of the labor situation. H. A. Nicholl. *Elec Ry J* 52:159-61 J1 27 '18

British solve war labor problem. J. Horton. *Iron Tr R* 63:212-14 J1 25 '18

Business problems during and after the war. E. H. Gary. *Iron Age* 101:137-9 Ja 10 '18

Diluting skilled labor. G. H. Baillie. *Automotive Ind* 37:895-6 D 6 '17

Dilution of labor; report of Ministry of munitions of Great Britain. *Am Ind* 13:33-4 Ap '18

Facts assembled on war labor problems at conference of industrial and efficiency engineers; abstracts. *Iron Age* 101:876-81 Ap 4 '18; *Iron Tr R* 62:861-3 Ap 4 '18

Farm labor problem. C. Ousley. *U S Agric Circ* 112:1-10 '18

Federal control of industrial relations. *Am Ind* 18:10-12 Ap '18

Federal employment agency to supply rail-way labor. *Ry R* 62:612 Ap 27 '18

Government regulates woods labor conditions. *Am Lumberman* 2236:46 Mr 23 '18

How the U.S. Department of labor is helping to win the war. L. F. Post. *Ind Management* 55:6-9 Ja '18

Idle labor in war time. T. J. Foley. *Ry Age* 64:1124 My 3 '18

Important developments relating to labor and capital. *Met & Chem Eng* 18:393-5 Ap 15 '18

Industrial city meets war demands in modern manner: Rochester, N.Y. practically pools its labor. *Eng N* 80:705-6 Ap 11 '18

Iron, steel, and engineering industries in 1917. *Engineer* 125:23-4 Ja 11 '18

Labor conditions in cotton industry. *Textile World* 53:4328 Mr 23 '18

Labor in Great Britain after the war. H. W. Garrod. *Am Mach* 48:199-200 Ja 31 '18

Labor problem and export trade after the war. E. N. Hurley. *Automotive Ind* 39:234 Ag 8 '18

Labor shortage in the maintenance department. *Ry Age* 64:865-7 Ap 5 sec 1 '18

Labor supply after the war. G. W. Tupper. *Textile World* 53:3449 Ja 26 '18

Liberal England's message to America. S. K. Ratcliffe. *Iron Age* 101:1140 My 2 '18

Lumbermen pledged to assist in saving crops. *Am Lumberman* 2242:51 My 4 '18

Making up the labor shortage. D. N. Crowthait, Jr. *Ind Management* 55:412-13 My '18

Michigan now short 10,000 men. *Automotive Ind* 39:437 S 5 '18

Mobilizing labor for war purposes; plan of Council of national defense being installed by Department of labor. charts *Iron Age* 101:450-1 F 14 '18

Open doors of France to Orient's tollers; thousands of Asiatics aid in war plants. F. Miltoun. *Il Iron Tr R* 63:949-51 O 24 '18

Perils of America's labor market; a labor priority board needed. E. A. Kellor. *Textile World* 53:2962+ Ja 12 '18; Same. *Am Ind* 18:20-2 F '18

Priority system for labor recruiting. *Iron Age* 102:6-7 J1 4 '18

Problem of women in war industry. C. E. Knoeppel. *Ind Management* 55:385-7 My '18;

Excerpts. *Iron Tr R* 62:924-7 Ap 11 '17

Program of war labor administration. *Mach* 24:611 Mr '18

Readjustment and operation of industry in England since 1914. *Mach* 24:568-9 F '18

Shipbuilding and labor problems. C. Pies. *Iron Age* 101:860-2 Ap 4 '18

Shipping situation. *Sci Am* 118:142 F 16 '18

Shipyard labor problem. M. Bloomfield. *Int Marine Eng* 23:272 My '18

Shortages of material and labor discussed at convention of the American wood preservers' association, Chicago. *Ry Age* 64:277-8 F 1 '18

Some knotty labor problems. R. Mawson. *Mach* 24:1166 Ag '18

Standardizing wages in munition and other plants. *Iron Age* 101:1328-9 My 23 '18

Teaching the worker to feel the war. C. A. Eaton. *Il Sci Am* 119:190-1+ S 7 '18

United States public service reserve. *Mach* 24:614 F '18

Wages and the war. F. R. Daniels. *Mach* 24:1130 Ag '18

War and the labor problem. *Elec Ry J* 51:1181-2 Je 22 '18

War as a supreme test of efficiency. E. N. Hurley. *Coal Age* 13:1058-61 Je 8 '18

War emergency courses in employment department practice. R. W. Kelly. *Ind Management* 55:410-12 My '18

War labor problems grow more difficult. *Iron Age* 102:952-3 O 17 '18

Work of Advisory council on labor of greatest importance to industry. *Eng N* 80:275-6 F 7 '18; Same. *Power* 47:240 F 12 '18

Workers for the shipyards. *Am Mach* 48:343-4 F 21 '18; Same. *Int Marine Eng* 23:99-100 Mr '18

Your biggest foundry problem—manpower. H. C. Estep. *Il Foundry* 46:443-50 O '18

See also Munition workers; United States

—Labor, Department of; United States—

National war labor board; United States

—Employment service; War labor conference board

**Maps**

War map of the western fronts. *Sci Am* 118:303 Ap 6 '18

**Medical and sanitary affairs**

Antiseptics; work done for the British medical research committee in the pathological department, Edinburgh university. T. Rettle. *Sci Am* S 85:202-3 Mr 30 '18

How better medical care increases the strength of our army. *Sci Am* 119:116 Ag 10 '18

Infectivity of trench fever. *Sci Am* S 86:27 J1 13 '18

Medical problems of air service. *Automotive Ind* 39:26 J1 4 '18

Odd ways of transporting wounded soldiers. *Il Sci Am* 119:168 Ag 31 '18

Our war hospitals in France. E. F. Stevens. *Il diag plans Arch Rec* 43:257-84 Mr '18

Preventing frosted feet by use of oil. A. F. Yarrow. *Sci Am* 118:409 My 4 '18

Treatment of war wounds by sulphate of magnesium. *Sci Am* S 86:99 Ag 17 '18

Trench fever. *Sci Am* 118:587 Je 29 '18

With scalpel and drug; work of the General medical board of the Council of national defense. C. H. Claudy. *Sci Am* 119:365+ N 2 '18

See also Hospital cars; Hospital trains; Sterilization

**Military equipment**

Mine safety appliances in warfare. F. H. Trego. *Coal Age* 14:504-5 S 12 '18

See also Armies—Equipment; Automobiles

in war and army service; Motor trucks,

Military; Motor trucks in war and army service

**Naval operations**

Analysis of British warship losses. P. A. Hisslam. *Sci Am* 118:189 Mr 2 '18



European war—Naval operations —*Continued*  
Dardanelles naval success. Engineer 125:76  
Ja 25 '18

French naval policy and the lessons of the  
great war. R. W. Neeser. Sci Am 120:  
573 My 31 '19

Jellicoe on the grand fleet. Sci Am 120:424  
Ap 26 '19

Motor boats sink battleships; how two motor  
boats penetrated a screen of destroyers and  
sank Austrian dreadnoughts. Il Sci Am 118:  
581+ Je 29 '18

Naval expedition against Zeebrugge and Ost-  
end. Engineer 125:385-6 My 3 '18

Naval incidents. Engineer 126:89-90 Ag 2 '18

Naval situation. Engineer 125:478 My 31 '18

North sea mine barrage. R. R. Belknap. Il  
diags map Sci Am 120:250-1, 283-9 Mr 15-22  
'19

Splendid Italian naval exploit. Engineer 125:  
527 Je 21 '18

Vindictive at Zeebrugge. Il Engineer 125:380-  
1 My 3 '18

*See also* European war—Submarine opera-  
tions

#### Periodicals

*See* European war—Trench newspapers

#### Personal narratives

American engineer in France. Munic J 45:  
227-9, 247-8 S 21-28 '18

Army electrical work in the advance areas  
in France. O. F. Allen. Il map Gen Elec  
R 22:568-86 Ag '19

Business of war. I. F. Marcosson. Am Mach  
48:960-6 Je 6 '18

Canadian engineers in France of stern stuff.  
Ry Age 64:862 Ap 5 sec 1 '18

Doings of the eleventh (railway) engineers  
over there. R. W. Raymond. Am Inst E E  
Pro 37:sup110-12 Ap '18

Fighting the Hun above the clouds. R. C.  
Farrow. Am Lumberman 2245:39 My 25 '18

Letter from the western front. J. C. Curtiss.  
Am Mach 48:113-16 Ja 17 '18

Letters from an American architectural stu-  
dent in France. E. R. Purves. Am Inst Arch  
J 5:564-9, 644-6; 6:117-20, 255-9, 312 N-D '17,  
Mr, My-Je '18

Letters from overseas. Ry Age 64:357, 546 F  
15, Mr 15 '18

Lumberman tells of American troops abroad.  
Am Lumberman 2234:54 Mr 9 '18

Lumbermen-soldiers tell of Tuscania sinking.  
Am Lumberman 2236:43+; 2236:47 Mr 16-23  
'18

Paris not perturbed by bombardment. R. K.  
Tomlin, Jr. Eng N 80:1064-5 My 30 '18

Welfare work among the soldier-lumbermen  
in France. H. A. Templeton. Am Lumber-  
man 2263:1+ S 28 '18

#### Prisoners and prisons

German prisoners and concrete. J. B. Woods.  
Il Concrete 15:23-4 Jl '19

#### Relief work

Travelling army auxiliary. Il Sci Am 120:  
575 My 31 '19

#### Statistics

Our technical achievements in the great war.  
Sci Am 121:312+ S 27 '19

#### Submarine operations

Anti-U-boat operations of the French navy.  
Il Sci Am 119:333+ O 26 '18

British navy defines submarine situation. Sci  
Am 118:71 Ja 19 '18

Eight months of U-boat warfare. L. M. Pas-  
sano. Int Marine Eng 23:114-16 Mr '18

Geddes and Persius on the U-boat. Sci Am  
118:142 F 16 '18

German submarines. E. Geddes. Engineer  
125:206 Mr 8 '18

Germany brings the war to our coasts. Il Sci  
Am 118:547 Je 15 '18

New move against the submarines. Engineer  
125:407 My 10 '18

Submarine campaign in 1917. Engineer 125:12  
Ja 4 '18

U-boats off our coasts. Sci Am 119:146 Ag  
24 '18

Work of British submarines. Engineer 125:  
363-4 Ap 26 '18

#### Trench newspapers

French architectural students in the war;  
atelier gazettes. R. D. Kohn. Il Am Inst  
Arch J 6:110-13 Mr '18

#### United States

America must use her machine power. H:  
Ford. Am Mach 48:635-6 Ap 11 '18

Army of 5,000,000 men. Sci Am 118:404 My 4  
'18

Building the American war machine. C. M.  
Pepper. Iron Age 101:1-10 Ja 3 '18

Chemistry in warfare. N. D. Baker. J Ind &  
Eng Chem 11:921-3 O '19

Fifteen months of war preparation. Sci Am  
119:44 Jl 20 '18

One year of war; some details of our military  
contribution to the allied cause. N. D. Baker.  
Il Sci Am 118:296-7+ Ap 6 '18

Our technical achievements in the great war.  
diags map Sci Am 121:112-13, 134-5, 160,  
183-9+, 208-9, 232-3+, 255+, 284+, 312+  
Ag 2-8 27 '19

United States nitrate plant no. 2. Muscle  
Shoals, Alabama. Arch & Bldg 51:71-2, pl  
137-40 S '19

War to cost thirty-six billions for first two  
years. Eng & Min J 104:1050 D 15 '17

What we must do to win the war. E. W.  
Rice, Jr. Gen Elec R 21:407-11 Je '18

*See also* United States—Army—Expedi-  
tionary force

European war and architecture  
Architecture after the war. C. H. Blackall.  
Am Arch 113:739-43 Je 5 '18; Same. Eng N  
80:1238-40 Je 27 '18

School of experience. Am Arch 113:828 Je 19  
'18

European war and art  
Art and the war. Am Arch 114:169 Ag 7 '18

European war and science  
Science in the war; a resumé of the work  
done by the Bureau of standards. C. H.  
Claudy. Sci Am 120:653+ Je 21 '19

Evans, Oliver, 1755-1819  
Inventor and mechanic. J. M. Whitham. por  
Power 48:777-8 N 26 '18

Evanston, Illinois

#### Architecture

Architectural history of a western town.  
T: E. Tallmadge. Il Am Arch 115:443-51 Mr  
26 '19

Evaporation  
Chart for finding factor of evaporation. F.  
Szabo. Power 48:702-3 N 12 '18

Chart for finding the factor of evaporation.  
G. H. Sheasley. Power 49:406 Mr 18 '19

Evaporation from surfaces of crystals. Sci  
Am S 85:374 Je 15 '18

Evaporation from water surfaces. R. B.  
Sleight. Eng & Contr 49:31-3 Ja 9 '18

Factor of evaporation generating super-  
heated steam. Power 47:273 F 19 '18

General aspects of evaporation and drying.  
H. K. Moore. Met & Chem Eng 18:128-33,  
186-92 F 1-15 '18

Laboratory apparatus for rapid evaporation.  
E. C. Merrill and C. O. Ewing. Il J Ind &  
Eng Chem 11:230 Mr '19

Physics of the air. W. J. Humphreys. J Fr  
Inst 185:517-38 Ap '18

Problems of evaporation; abstract. H. Jef-  
freys. Am Soc M E J 40:425 My '18

Results of evaporative test of three water-  
tube boilers. Power 49:323 Mr 4 '19

Some problems in evaporation and drying.  
P. B. Sadtler and F. M. deBeers. Met &  
Chem Eng 18:543-4 My 15 '18

Temperature of evaporation. W. H. Carrier.  
Am Soc Heat & V E 24:25-46; Discussion.  
46-50 '18

*See also* Distillation; Drying; Drying ap-  
paratus; Evaporators

- Evaporation, Latent heat of**  
Vapor tensions of the metals. J. W. Richards. J Fr Inst 187:581-98 My '19
- Evaporators**  
Duties of newly trained marine engineers on merchant vessels. C. H. Willey. diags Int Marine Eng 23:34-6 Ja '18  
Evaporation apparatus; patent. diag Met & Chem Eng 18:374 Ap 1 '18  
Evaporator for acid liquids. E. Hart. diags J Ind & Eng Chem 10:555 Jl '18  
Little evaporator for distilling sea water. diag Int Marine Eng 23:143 Mr '18; Same. Power 47:366 Mr 12 '18; Same. Met & Chem Eng 18:655 Je 15 '18  
System of regenerative evaporation. W. L. De Baufre. 11 diags Am Soc M E J 40:746-9 S '18  
Test of regenerative evaporating apparatus; abstract. M. C. Stuart. diags plan Am Soc M E J 40:425-7 My '18  
Test of Reilly multicoil evaporator (submerged type); abstract. H. T. Dyer. Am Soc M E J 40:425 My '18  
Theory and practice in the design of multiple evaporators for sugar factories. A. L. Webre. diags J Ind & Eng Chem 10:191-8 Mr '18  
Useful chart showing cost of evaporating water in the steam boiler. Elec Ry J 54:586 S 20 '19
- Evening and continuation schools**  
Dayton part-time extension (continuation) school for apprentices. C. G. Sharkey. Am Ind 20:26-7 O '19  
Evening schools. Am Mach 48:200-1 Ja 31 '18  
New Zealand school work-shop. J. Peddle. 11 Mach 24:1005-6 Jl '18
- Everett, Washington**  
Rapid transit  
Everett and Bellingham have 100 per cent safety operation. 11 Elec Ry J 52:554-6 S 28 '18
- Evidence, Expert. See Expert evidence**
- Evolution**  
Evolution and sexuality. E. Rabaud. Sci Am S 88:102-3+ Ag 16 '19  
Law of irreversible evolution; critical notes upon Dollo's famous hypothesis. B. Petrovievich. Sci Am S 88:86-7+ Ag 9 '19  
Problem of the method of evolution. H. S. Jennings. Sci Am S 88:178-9, 198-9 Mr 23-30 '18  
See also Color of animals; Color of plants; Heredity; Variation (biology)
- Examinations. See Accounting—Examinations; Mining engineering—Examinations; Sheet metal work—Examinations**
- Examinations, Physical. See Physical examinations**
- Excavating machinery**  
American excavating and back-filling machine. 11 diags Engineer 128:412, 418 O 24 '19  
British excavating machinery. A. E. Collins. 11 diag Eng & Contr 52:492-3 O 29 '19  
Cost data on drag-line operation for coal mine. L. W. Nickel. 11 Elec R 72:101-2 Ja 19 '18; Same. Coal Age 13:323-4 F 16 '18; Abstract. Eng N 80:742 Ap 11 '18  
Drag-line bucket loads within its own length. 11 diags Eng N 80:677-8 Ap 4 '18  
Drag line excavator and back filler has many uses. 11 Eng & Contr 50:291 S 18 '18; Eng N 81:650 O 3 '18  
Dragline mounted on scow for river channel excavation. 11 Eng & Contr 51:667 Je 18 '19  
Draglines twice handle spoil from Dayton flood channel. 11 diags map Eng N 81:814-17 O 31 '18  
Electrically operated ditcher effects big saving. C. W. Ford. 11 Elec Ry J 52:960-1 N 30 '18  
Motor-driven drag line. Iron Tr R 63:723-4 S 26 '18  
New mining and tunneling machine. 11 Eng & Contr 49:100 Ja 30 '18
- New model P. & H. excavator with side wheel. 11 Munic Eng 56:142 Ap '19  
New type of ditcher effects economies. 11 Ky Age 66:511 F 28 '19  
Portable corduroy traction drag-line excavator for general use. 11 Munic Eng 55:116-17 S '18  
Self powered machine for shallow excavating and loading. diag Eng & Contr 49:106 Ja 30 '18  
Spaulding self-loading excavator. 11 Eng & Contr 49:114 Ja 30 '18  
Special drag finished channel slopes dug by dragline excavator. E. L. Zull. diags plan Eng N 83:96 Jl 10 '19  
Tailing excavator at the plant of the New Cornelia copper co., Ajo, Ariz. F. Moeller. 11 Am Inst Min E Bul 140:1229-34 Ag '18; Discussion. 143:1670-2 N '18  
U. S. Reclamation service specifications for electrically operated dragline excavators. Eng & Contr 49:69-71 Ja 16 '18  
Western elevating grader. 11 Munic J 45:358 N 2 '18  
See also Dredges; Electric shovels; Mining machinery; Rock drills; Shoveling machines; Steam shovels; Trenching machinery
- Excavation**  
Bracing eliminated in sheeting octagonal excavation. W. K. Knauff. diag plan Eng N 82:541-2 Mr 13 '19  
Comparison of excavation haulage by motor trucks, industrial railways and teams. diags plan Eng N 81:993-6 N 28 '18  
Digging holes with a pile driver. 11 Sci Am 118:357+ Ap 20 '18  
Ditching with dynamite in wet soil. Munic J 44:264 Mr 30 '18  
Draglines twice handle spoil from Dayton flood channel. 11 diags map Eng N 81:814-17 O 31 '18  
Drilling and blasting in construction of Hall-fax ocean terminals railway. B. H. Smith. Eng & Contr 50:480-1 N 20 '18  
Dynamite helps creek gravel excavation. Concrete 11:sup51 D '17  
Excavation methods and equipment on construction of  $8\frac{1}{2}$  mile Niagara power canal. 11 Eng & Contr 50:572-4 D 18 '18  
Excavation methods on the Miami conservancy project. G. L. Teeple. 11 Eng & Contr 52:61-3 Jl 16 '19  
How to reduce risks in earthwork. H. P. Gillette. Eng & Contr 52:67-8 Jl 16 '19  
Increased demand for excavation and dredging indicated in reconstruction plans. map Eng N 81:sup217 O 31 '18  
Methods of shifting pontoons for walking dragline excavators. A. S. Fry. 11 Eng N 82:1227-8 Je 19 '19  
Piecework faster than day labor on hand excavation. E. N. Bryan. Eng N 82:727 Ap 10 '19  
See also Blasting; Dredging; Earthwork; Excavating machinery; Hydraulic excavation; Shaft sinking; Shoveling; Steam shovels; Street openings; Subways; Subways (streets); Trenches; Trenching machinery; Tunnels and tunneling; Water, Underground
- Cost**  
Cost data on drag-line operation for coal mine. L. W. Nickel. 11 Elec R 72:101-2 Ja 19 '18; Same. Coal Age 13:323-4 F 16 '18  
Cost of drag line excavator operation on drainage construction. Eng & Contr 49:200 F 20 '18  
Cost of machine trenching under difficult conditions for water mains and services at Erie, Pa. E. W. Humphreys. 11 Munic Eng 54:189-90 My '18  
Drainage works of the Rio Grande irrigation project. J. L. Burkholder. 11 map Eng N 83:543-9 S 18 '19  
Electrically operated ditcher effects big saving. C. W. Ford. 11 Elec Ry J 52:960-1 N 30 '18  
Labor cost of excavating in stiff white clay. Eng & Contr 49:477 My 15 '18

**Excavation—Cost—Continued**

Overhead and time cost of pit and trench excavation. A. P. Roscoe. Eng N 83:89-90 J1 10 '19

Piece work versus day labor in hand excavation. E. N. Bryan. Eng & Contr 52:319-20 S 17 '19

Steam shovel work in road construction. Eng & Contr 50:446 N 6 '18

Trench excavator cuts cost of duct line between tracks. Eng N 81:195 J1 25 '18

Trenching machine work. W. W. Brush. Am Water Works Assn J 4:521-4; Discussion. 524-31 D '17

See also Mining costs

**Excess profits tax**

Argument on tax revision; suggestions for changes in revenue bill to benefit knitters. Textile World 54:3209+ D 28 '18

Computation of excess profits and income taxes. J Account 25:199-202 Mr '18

Excess profits regulations explained. Am Lumberman 2230:42 F 9 '18; Excerpts. Ry Age 64:326-7 F 8 '18

Federal taxes and the manufacturer. G. R. Webster. Am Mach 49:1196-7 D 26 '18

Intangible values and war tax. C. W. McKay. Ind Management 55:129-33 F '18

Internal revenue bureau rulings as to excess profits tax law. Iron Age 101:136 Ja 10 '18

Lesson from the excess profit tax law. Dom Eng 82:297+ F 23 '18

Materials and prices. Engineer 127:88 Ja 24 '19

Memorandum on war excess profits tax. Eng & Min J 104:1042-5 D 15 '17

Operation of the British excess profits duty law. M. E. Peloubet. J Account 27:17-22 Ja '19

Regulations dealing with the war excess profits tax. J. B. Niven. J Account 25:203-24 Mr '18

Relation of invested capital to excess profits tax. S. G. Rusak. J Account 28:273-85 O '19

Returns of affiliated corporations for excess profits and war profits taxes. W. B. Gower. J Account 26:327-32 N '18

Standing timber's relation to invested capital. Am Lumberman 2226:34-5 Ja 12 '18

Suggestions for assessment of excess profits; brief submitted to the War excess profits tax committee by American Institute of accountants. J Account 25:1-6 Ja '18

Trying to solve the great national puzzle; excess profits tax. G. F. Creveling. Iron Tr R 62:2-7 Ja 3 '18

War revenue act and its relation to taxpayers. D. C. Roper. Am Ind 18:13-15 Ja '18; Same. Foundry 46:37-9 Ja '18

War revenue act of 1917. D. C. Roper. Am Ind 18:11-13 D '17

Work of the excess profits tax investigator. R. C. Cranch. J Account 27:161-70 Mr '19

**Executives**

Developing executive ability among employees. R. Elsman. Am Gas Eng J 110:65-6 Ja 25 '19

Executives. R. Bloom. Am Mach 50:87-8 Ja 9 '19

Executives I have worked with. H. Emerson. Ind Management 58:105-9 Ag '19

Industrial manager. Ind Management 55:504-5 Je '18

Putting it up to the president. L. Bernstein. Ind Management 56:46-7 Ja '18

Spirit of the organization. W. J. Kibby. Ind Management 56:117-18 Ag '18

Success of any enterprise is founded on its fearless, thinking, creating man power. C. H. Gaunt. Am Gas Eng J 108:513-15 Je 1 '18

Training for factory executives. D. G. Stanbrough. Ind Management 57:175-6 Mr '19

Training minor executives in a large shoe factory. R. W. Kelly. Ind Management 56:316-19 O '18

Under new management—the manager; the new era executive will stand out as a man among men. C. M. Horton. Ind Management 56:113-16 Ag '18

Value of an understudy. R. Elsman. Am Gas Eng J 110:167 F 22 '19

See also Efficiency, Industrial; Employment management; Factory management; Foremen; Industrial management; Office management

Exemption from military service. See Military service

Exhaust fans. See Fans, Exhaust

Exhaust gas. See Automobile engines—Exhaust; Gas and oil engines—Exhaust

Exhaust steam

Commercial value of exhaust steam. F. C. Ruck. Power 48:614-15 O 22 '18

Conservation of coal by saving exhaust steam in the textile industries. W. B. Hoyt. Metal Work 91:837-8 Je 27 '19; Same. Dom Eng 88:105-6 J1 19 '19

Exhaust from steam pump. diag Coal Age 15:826-7, 876-7, 964-5, 1097-8, 1179 My 1-8, 22 Je 12, 26 '19

Exhaust steam at high back pressures. C. Field. diags plan Chem & Met Eng 20:18-24 Ja 1 '19

Exhaust steam in water gas machines. R. L. Greene. II diags plan Gas Age 44: 1-5 J1 1 '19

Exhaust-steam turbine installations at coal mines. E. I. Roberts. Coal Age 13:1049-52, 1101-6 Je 8-15 '18

Exhaust steam waste. Sci Am S 85:74 F 2 '18

Factory steam for heating. Metal Work 89:415 Mr 29 '18

Locomotive feed water heating. H. S. Vincent. diags Ry Mech Eng 92:645-9 D '19

Maintenance of a proper heat balance. R. N. Ehrhart. diags Power 48:692-4 N 12 '18

Real help for the heating contractor. II diags Metal Work 90:712-14 D 27 '18

Saving steam in industrial heating systems. diag U S Bur Mines Tech Pa 221:1-13 '19; Same cond. Power 50:156-8 J1 22 '19

Use for exhaust steam in summer; feed boilers by exhaust steam injector. Power 48:521 O 8 '18; Discussion. J. W. Connolly. 48:753 N 19 '18

Utilizing the heat in a pound of coal. H. L. Alt. Heat & Ven 15:15-19 Ja '18

Waste and abuse of steam. H. W. Ballou. Heat & Ven 15:46-7 Ja '19

Exhaust systems. See Waste removal

Exhaustion. See Fatigue

**Exhibitions**

British scientific products exhibition, London, August 12-September 7, 1918. Illum Engr 11:171-6 J1 '18

British scientific products 2d exhibition, Westminster. Engineer 128:38-9, 65-6 J1 11-18 '19; Illum Engr 12:183-7 J1 '19

Exhibition of British science products, Manchester. Engineer 127:19 Ja 3 '19

Holland's third industries fair. plan Engineer 127:244-5, 272-3, 295-6, 323-4 Mr 14-19 Ap 4 '19

Shipping, engineering, and machinery exhibition. II diag Engineer 128:331-2, 352, 354-5, 380-2, 403-6 O 3-24 '19

See also Lyons fair; New York international exposition; also subdivision Exhibitions under names of subjects. e.g. Aeronautics—Exhibitions, Automobiles—Exhibitions, Electric industries—Exhibitions

**Exits**

Exits, fire alarms and drills. II diags Textile World 56:929+ Ag 16 '19

Panic safeguarding of exits. R. S. Conant. II Arch & Bldg 50:sup17-18 Ag '18

**Expansion (heat)**

Applications of physical chemistry in the coal-tar industry. W. J. Huff. J Ind & Eng Chem 10:1016-19 D '18

New process for measuring the expansion of liquids. Sci Am 121:84 J1 26 '19

Preliminary determination of the thermal expansion of molybdenum. L. W. Schad and P. Hidnert. U S Bur Stand Sci Pa 332:31-40 '19

**Expansion (Heat)—Continued**

Thermal expansion of alpha and of beta brass between 0 and 600° C in relation to the mechanical properties of heterogeneous brasses of the Muntz metal type. P. D. Merica and L. W. Schad. *U S Bur Stand Bul* 14:571-90 *Jl* 12 '19

**Expansion joints.** See Concrete construction—Expansion joints; Pavements, Concrete—Expansion joints; Pipe joints

**Expense distribution.** See Cost accounting

**Expert evidence**

Testimony of engineers in technical litigation. D. R. Shearer. *Eng N* 80:90-1 *Ja* 10 '18

**Explorations, Aeronautic**

Aero radio surveying and mapping. J. H. Hammond, Jr. *diags Flying* 8:160-1-*Mr* '19  
Captain Bartlett's Arctic expedition. *Flying* 7:1148-9 *Ja* '19

**Exploring by airplane.** E. A. Dime. *Sci Am* 120:337-*Ap* 5 '19

Roosevelt memorial expedition to explore the Arctic by aeroplane. *Il map Flying* 8:48-9 *F* '19

**Explosions**

Ammonia oil separator explodes. *Power* 47:674-5 *My* 7 '18

Blast furnace breakouts, explosions, and slips, and methods of prevention. F. H. Willcox. *diags U S Bur Mines Bul* 130:1-280 '17; *Excerpts. Iron Age* 100:1300-3 *N* 29 '17; *Excerpts. Iron Tr R* 61:1332-4, 1377-80; 62:149-53 *D* 20-27 '17, *Ja* 10 '18

Blast-furnace explosions. B. B. Hood. *Il diags plan Eng & Min J* 108:47-9 *Jl* 12 '19  
Course of reaction in explosions of dilute CS<sub>2</sub>-air mixtures. G. R. Stewart and J. S. Burd. *J Ind & Eng Chem* 11:130-3 *F* '19  
Eight million cu. ft. of manufactured gas burned in a few seconds, lighting up all London. H. Townsend. *Il Am Gas Eng J* 110:551-4+ *Je* 28 '19

Enameling oven design with relation to safety. R. A. Shaw. *Automotive Ind* 37:836 *N* 8 '17

Explosion of chemicals; common law liability. C. C. Sherlock. *Chem & Met Eng* 21:83-4 *Jl* 15 '19

Explosion of chemicals; workmen's compensation acts. C. C. Sherlock. *Chem & Met Eng* 21:131-2 *Ag* 1 '19

Explosions within meters at Ford City, Canada, caused by air mixture forced into main by compressor serving rivet furnace. *Am Gas Eng J* 109:504-7 *N* 30 '18

Piezo-electricity and its application. J. J. Thomson. *diags Sci Am S* 87:412-13 *Je* 28 '19

Salvaging the railway facilities at Halifax. N.S. F. B. Tapley. *Il map Ry Age* 64:1231-4 *My* 17 '18

See also Aluminum dust; Boiler explosions; Coal dust; Coal mines and mining—Accidents and explosions; Dust explosions; Explosives; Flywheel explosions; Inflammable mixtures; Mine accidents; Mine explosions; Safety lamps; Sewer explosions; Tanks. Steel—Failures

**Explosions, Mine.** See Mine explosions

**Explosives**  
Antimony sulfide as a constituent in military and sporting arms primers. A. S. Cushman. *J Ind & Eng Chem* 10:376-83 *My* '18

Characteristics and care of explosives. *Eng & Min J* 106:66-7 *Jl* 13 '18

Classification of explosives for miners' use. R. W. Mayer. *Coal Age* 13:658 *Ap* 13 '18

Coal, explosives, war. H. J. Broughton. *Il Coal Age* 14:158-61, 214-16, 258-61 *Jl* 25-*Ag* 8 '18

Explosives and miscellaneous investigations. *U S Bur Mines Bul* 178-D:89-95 '19

Explosives efficiency. S. R. Russell. *Concrete* 12:sup36-9 *Ap* '18

Highest possible explosives. *Sci Am* 118:238 *Mr* 30 '18

Initial priming substances for high explosives. G. B. Taylor and W. C. Cope. *U S Bur Mines Tech Pa* 162:1-24; *Bibliography.* 25-30 '17

Liquid oxygen as an explosive. *J Fr Inst* 185:158-9 *Ja* '18

List of licensed foremen who will issue explosives. *Coal Age* 12:1018-19 *D* 15 '17

Making explosives safe. C. B. Willis. *Eng & Contr* 52:336-7 *S* 17 '19

Mixed explosives in blasting coal. *Coal Age* 13:1031 *Je* 1 '18

Oxyliquit; a liquid oxygen explosive. *diags Sci Am S* 86:268-9 *O* 26 '18

Permissible explosives, lamps and motors tested prior to January 31, 1918. A. H. Fay. *U S Bur Mines* 35p '18

Production and domestic distribution of explosives in 1917. *Eng & Min J* 106:80 *Jl* 13 '18

Production of explosives in the United States during the calendar year 1917. A. H. Fay. *U S Bur Mines Tech Pa* 192:1-19 '18

Production of explosives in the United States during the calendar year 1918. A. H. Fay. *U S Bur Mines Tech Pa* 231:1-19 '19

Progress of liquid oxygen explosives. *Engineer* 125:506 *Je* 14 '18

Relation between explosives and dyestuffs. *Color Tr J* 4:86-7 *Ap* '19

Relative efficiencies of blasting gelatine and gelignite, as used in hand-drill stopes of the Rand gold mines. *Eng & Contr* 50:107 *Jl* 31 '18

Safety in the use of explosives. A. La Motte. *Coal Age* 14:490-2 *S* 12 '18; *Same. Eng & Min J* 106:488-93 *S* 14 '18; *Excerpts. Eng & Contr* 50:365-6 *O* 16 '18

Sengite, a new explosive. J. P. Udal. *Eng & Min J* 106:820 *N* 9 '18

Sengite—a new mine explosive with a gun-cotton base. M. Meredith. *Coal Age* 15:857 *My* 8 '19

Sensitiveness of azides. L. Wohler and F. Martin. *Sci Am S* 85:236 *Ap* 13 '18

Standardization of mining methods; explosives. C. A. Mitke. *Il diags plan Eng & Min J* 106:982-7 *D* 7 '18

Tests and comparisons of various types of permissible explosives. J. C. Thompson. *Coal Age* 16:94-5 *Jl* 17 '19

Use of permissible explosives in the coal mines of Illinois. J. R. Fleming and J. W. Koster. *Il diags plans map U S Bur Mines Bul* 137:1-110 '17

**See also Ammunition; Blasting; Coal mines and mining—Explosives; Detonators; Dynamite; Gunpowder; Inflammable mixtures; Mines, Military; Nitroglycerin; Oxygen, Liquid; Toluene; Torpedoes; Trinitrotoluene**

**Analysis**

Analytical method for detecting blown-out shots in coal mines. G. F. Hutchison and J. Barab. *U S Bur Mines Tech Pa* 210:1-18 '19

**Cost**

Cost of explosives. *Eng & Min J* 107:12 *Ja* 4 '19

Cost of explosives and production of gold. *Eng & Min J* 106:1039-40 *D* 14 '18

**Laws and regulations**

General information and rulings for the enforcement of the law regulating the manufacture, distribution, storage, use, or possession of explosives and their ingredients. F. S. Peabody. *U S Bur Mines* 44p '18

Questionnaire on explosives regulation. F. S. Peabody. *Coal Age* 12:70-2 *D* 15 '17

Regulations of the U.S. explosives act. *Eng & Min J* 105:378-80 *F* 23 '18

**Manufacture**

By-product coke industry in war time. W. H. Blauvelt. *Coal Age* 101:154-5 *Je* 13 '18; *Same. Iron Tr R* 62:1556-7 *Je* 20 '18

Continuous nitration of n-diacarbitides. *Il Sci Am* 120:31 *Ja* 11 '19

Manufacture of glycols. H. Hibbert. *Il Chem & Met Eng* 19:571-3 *O* 1 '18

Steel industry helps explosive output. W. A. Forbes. *Iron Tr R* 62:1557-8 *Je* 20 '18

**Explosives—Continued****Storage**

- Conservation of explosives. S. C. Jones. *II* *diag*s Coal Age 14:1110-12 D 19 '18  
 Dissolved acetylene and its storage. Engineer 125:125-6 F 8 '18  
 Efficient storage of explosives. C. Atwood. Coal Age 15:232 Ja 30 '19  
 Storage of powder and explosives at coal mines. E. M. Kimball. *II* Coal Age 15:794-5 My 1 '19  
 Storing and handling high explosives during the war. G. C. Munoz. *II* plan Eng N 82: 1242-6 Je 26 '19

**Testing**

- Method of calculating comparative strength and efficiency of high explosives from their composition and apparent densities. C. E. Waller. *J Ind & Eng Chem* 10:448-63 Je '18  
 Methods for routine work in the explosives physical laboratory of the Bureau of mines. S. P. Howell and J. E. Tiffany. *U S Bur Mines Tech Pa* 186:1-63 '18

**Transportation**

- Safe movement of explosives. D. J. O'Dea. *Ry Mech Eng* 93:533-7 S '19  
 Safety powder car. G. Deuvell. *II* Coal Age 16:432 S 11 '19  
 Shipping containers. C. P. Beistle. *II* *J Ind & Eng Chem* 11:674-82 Ji '19  
 Storing and handling high explosives during the war. G. C. Munoz. *II* plan Eng N 82: 1242-6 Je 26 '19

**Explosives, Military**

- British and German military mining explosives. M. Meredith. Coal Age 16:488-9 S 18 '19  
 Chemistry and the navy. R. Earle. *J Ind & Eng Chem* 11:924-7 O '19  
 Huge explosive industry; American manufacturers' co-operation in war. *Iron Tr R* 65:563-4 Ag 28 '19  
 Modern military explosives. J. Young. Engineer 125:364-5 Ap 26 '18  
 Nitrogen problem in relation to the war; resources and methods for making materials required for explosives. A. A. Noyes. *Sci Am* S 86:98-9 Ag 17 '18  
 Powders; some characteristics of the leading military explosives. J. S. Hatcher. *II* *Sci Am* 121:33+ Ji 12 '19

*See also* Greek fire; Gunpowder; Mines, Military

**Export trade**

- Activities of the Foreign trade club of San Francisco. *II* *J Elec* 43:415-16 N 1 '19  
 Adventures in foreign trade. C. Marriott. *Sci Am* 118:170 F 23 '18  
 Aids to foreign trade in the chemical industry. *Chem & Met Eng* 20:189 F 15 '19  
 American economic interests in the Asiatic East. M. A. Oudin. *Elec W* 71:1000 My 11 '18  
 Appointing machine-tool agents in France. P. Auriol. *Am Mach* 49:57-8 Ji 11 '18  
 Assistance available for the exporter. *Ry Age* 64:857-62 Ap 5 sec 1 '18  
 Banking facilities key to trade expansion. A. Walker. *Textile World* 55:2526-7+ Ap 26 '19  
 Banking institutions to finance our future abroad. A. Breton. *Ry Age* 64:940-2 Ap 5 sec 2 '18  
 Broader field for export organizations. G. A. Harris. *Iron Age* 100:1456-7 D 13 '17  
 Cashing in on your export sales. *Iron Tr R* 64:1349-51 My 22 '19  
 Changes in American machine-tool exports. L. W. Schmidt. *Am Mach* 49:9-11 Ji 4 '18  
 Chemical industry in export trade. G. A. O'Reilly. *Chem & Met Eng* 19:358-9 S 24 '18  
 Combinations for export trade. N. B. Williams. *Am Ind* 18:23 Je '18  
 Conduct of business with China. *U S Bur For & Dom Com misc ser* 70:1-47 '19  
 Control over exports is tightened. *Iron Tr R* 62:386-7 F 7 '18

- Co-operation under the Webb-Pomerene act. G. H. Montague. *Textile World* 53:5188+ My 4 '18; *Excerpta. Iron Tr R* 62:1062-3 Ap 25 '18  
 Demand for machine tools after the war. L. W. Schmidt. *Am Mach* 49:306-8 Ag 15 '18  
 Developing America's foreign trade. A. L. Johnson. *Iron Tr R* 63:1348+ D 12 '18  
 Developing export trade to Russia. R. Martens. *Mach* 25:709-10 Ap '19  
 Drawback movement changed by the war. *Iron Age* 101:872-3 Ap 4 '18  
 Duty of the American exporter. J. P. Quinlan. *Textile World* 53:5735+ My 25 '18  
 Effectiveness and service in foreign trade. W. C. Redfield. *Textile World* 55:223+ Ja 11 '19  
 Export combinations legalized by Webb bill. N. B. Williams. *Am Ind* 18:28-9 My '18  
 Export licenses are restricted. *Automotive Ind* 38:968-9 My 16 '18  
 Export licenses for Switzerland. *Mach* 24: 537 F '18  
 Export lines drawn tighter; new regulations restrict licenses to American firms or allies of America. *Automotive Ind* 39:473 S 12 '18  
 Export lumber trade of the United States; with text of Webb bill. E. E. Pratt. *II* *diag*s maps *U S Bur For & Dom Com misc ser* 67: 1-117 '18  
 Export of industrial products. E. Prizer. *Am Mach* 50:1130-2 Je 12 '19  
 Export trade act. *Chem & Met Eng* 21:228 S 1 '19  
 Export trade; new methods for new conditions. *Am Ind* 20:33-8 N '19  
 Export-trade problems. R. S. Alter. *Am Mach* 48:791-4 My 9 '18; *Same cond. Automotive Ind* 38:907-8+ My 9 '18  
 Export trade promotion and protection. B. O. Hough. *Mach* 25:352-3 D '18  
 Exporting the Bolsheviks; foreign trade a cure for unemployment. *Sci Am* 120:402+ Ap 19 '19  
 Exports to Denmark. *Iron Age* 102:757 S 26 '18  
 Exports to Sweden; procedure to be followed by exporters of textiles. *Textile World* 54: 1639 O 5 '18  
 Extensive plans for foreign trade announced by the National association of manufacturers. *Textile World* 55:2065-6+ Ap 5 '19  
 Fallacy of regarding huge exports as being essential to national prosperity. *Eng & Contr* 49:473 My 15 '18  
 Federal trade commission on Webb act. *Iron Age* 102:1552 D 19 '18  
 Financial assistance in foreign trade. *Sci Am* 118:434+ My 11 '18  
 Foreign advertising success. W. G. Hildebrandt. *Am Mach* 51:58-9 Ji 10 '19  
 Foreign selling agencies. R. Alter. *Am Mach* 50:967 My 15 '19  
 Foreign trade after the war; information issued by the Guaranty trust co. *Am Mach* 48:585-7 Ap 4 '18  
 Foreign trade education. *Iron Age* 102:785 S 26 '18  
 Foreign trade essential to our national existence. D. Beecroft. *Automotive Ind* 38: 803-5 Ap 25 '18  
 Foreign trade from the receiving end. C. de Struve. *Sci Am* 121:190 Ag 23 '19  
 Foreign trade obligations to domestic interests. J. A. Farrell. *Textile World* 55:224+ Ja 11 '19  
 Foreign trade problems of the United States. R. H. Tingley. *Am Ind* 20:31-2 Ag '19  
 Freight forwarding for export. W. J. Riley. *Am Mach* 50:1000-2 My 22 '19  
 Fresh impetus to foreign trade movement; National Foreign Trade council convention. *Iron Age* 103:1161-8 My 1 '19  
 Future of foreign trade in textiles. E. B. Filsinger. *Textile World* 53:2974+ Ja 12 '18  
 Future of manufactures in our export trade. O. P. Austin. *Textile World* 53:2956+ Ja 12 '18  
 Game is on. *Sci Am* 120:174 F 22 '19  
 Government and foreign credits. E. E. Pratt. *Am Mach* 51:233-4 Ji 31 '19  
 Government control of foreign trade. *Sci Am* 118:214 Mr 9 '18

**Export trade—Continued**

Government loans to assist export trade. Elec W 73:443 Mr 1 '19

Gunning for foreign customers. C. Marriott. Sci Am 118:434 My 11 '18

Hints for increasing trade. T. D. Davis. Iron Tr R 63:519 Ag 29 '18

How a manufacturer can establish his own organization abroad. W. Ingersoll. Am Mach 49:1018-20 D 5 '18

How machine tool builders can cooperate in foreign trade. L. W. Schmidt. Am Mach 48:839-41 My 16 '18

How the export houses help in foreign trade. H. C. Johnstone. Ry Age 64:867-8 Ap 5 sec 1 '18

How to combine for export trade under Webb act. Am Ind 19:36-8 Mr '19

How Uncle Sam will help solve your export problem. Am Mach 50:176-7 Ja 23 '19

Increasing our sales force. Sci Am 120:606 Je 7 '19

Interest of American machinery manufacturers in Russia. S. H. Bunnell. Am Mach 49:155-7 JI 25 '18

Keep good will alive. Sci Am 118:582 Je 29 '18

Kind of advertising to be used in Latin-America, China, Russia, and Orient. C. H. Greene and E. B. Filsinger. Automotive Ind 38:852-3+ My 2 '18

Labor problem and export trade after the war. E. N. Hurley. Automotive Ind 39:234 Ag 8 '18

Less government interference is the demand of foreign trade convention. A. Sinsheimer. Automotive Ind 40:935-41 My 1 '19

Market and the merchant. Sci Am 119:214 S 14 '18

Metric system in export trade. F. A. Halsey. Textile World 53:5201+ My 4 '18

Miles of gold. Il Sci Am 120:464 My 3 '19

Mississippi valley association organized to promote foreign commerce. Am Lumberman 2279:58-9 Ja 18 '19

National foreign trade convention at Chicago. Ry Age 66:1087-90 My 2 '19

Necessary document in foreign trade; bill of lading. Il Sci Am 119:110+ Ag 10 '18

New regulations for exporting steel. Iron Tr R 63:823 O 10 '18; Same abr. Textile World 54:1757 O 12 '18; Same cond. Iron Age 102:904 O 10 '18

New restrictions put on exports to conserve tonnage. Am Mach 48:1066 Je 20 '18

Organization of a district export selling company under the Webb bill. G. H. Charls. Ry Age 66:110-11 sec 2 JI 12 '18; Excerpta. Iron Tr R 62:1063 Ap 25 '18

Organization of export associations under the Webb act. F. D. Jones. Am Ind 19:36-8 Ap '19

Our export obligations widespread. Textile World 55:243+ Ja 11 '19

Our export trade with Europe. M. Coster. Elec W 73:910 My 3 '19

Our future in foreign markets. E. E. Pratt. Textile World 53:2354-5 D 8 '17

Our gold reserve and our merchant ships. W. C. Redfield. Am Arch 114:482 O 23 '18

Our opportunity in Brazil. Il Sci Am 120:78 Ja 25 '19

Our position as an exporter. O. P. Austin. Textile World 53:5217-18 My 4 '18

Outlook for foreign trade after the war. E. M. Herr, M. A. Oudin and W. W. Nichols. Elec W 72:900-1 N 9 '18

Post war problems. J. Rattray. Iron Age 101:1346-7 My 23 '18

Powerful foreign trade combinations of Europe. P. H. Middleton. Ry Age 64:884-7 Ap 5 sec 1 '18

Problems of our foreign trade. G. A. O'Reilly. Am Mach 50:891-3 My 8 '19

Providing credit facilities for foreign trade. G. A. O'Reilly. Textile World 53:5193+ My 4 '18

Regulations governing the application for and issuance of export licenses. Elec R 73:412 S 14 '18; Same. Textile World 54:1198 S 14 '18

Regulations governing the exportation of tin and terne plate. Metal Work 89:464 Ap 5 '18

Removing the shackles from foreign trade. Iron Age 103:311-12 Ja 30 '19

Renaissance of commerce. Sci Am 120:78 Ja 25 '19

Revised export list requiring licenses. Am Mach 48:967-8 Je 6 '18

Selling in foreign markets. G. E. Snider. U S Bur For & Dom Com misc ser 81:1-688 '19

Selling machine tools abroad. J. J. Prado. Am Mach 49:366a Ag 22 '18

Small manufacturer in export trade. W. M. Benney. Am Ind 18:34-5 My '18

Stabilizing effect on American industry of a definite foreign-trade policy. J. W. Hook. Am Mach 50:938-9 My 15 '19

Temporary check in export trade. Iron Tr R 65:282 JI 31 '19

Testing the buying power of a foreign market. L. W. Schmidt. Am Mach 49:581-4 S 26 '18

Through bill of lading in foreign trade. H. Scott-Young. Sci Am 121:190 Ag 23 '19

Trade after the reconstruction. A. Walker. Am Lumberman 2280:79 Ja 25 '19

Trade combines under Webb law. G. H. Montague. Iron Tr R 62:1312-13 My 23 '18

Trade of the United States with the world 1916-1917. U S Bur For & Dom Com misc ser 63:1-317 '18

Trade to be had for the asking. Sci Am 119:414 N 23 '18

Travels of a trader. Il Sci Am 120:514 My 17 '19

Unshackling the exporter; the Webb law. Sci Am 118:474 My 25 '18

Wartime exports of cottons. Textile World 54:898 Ag 24 '18

Webb law in operation. A. Sinsheimer. Automotive Ind 40:1073-4 My 15 '19

Webb-Pomerene bill opens the way for foreign commerce. Iron Age 100:1476-7 D 20 '17; Same cond. Met & Chem Eng 18:10-11 Ja 1 '18

What export trade means to American industry. Il map Sci Am 119:287+ O 13 '18

What will ocean delivery service mean to you? E. N. Hurley. Am Lumberman 2254:60 JI 27 '18

Who exports—and how? C. Marriott. Sci Am 118:104 F 2 '18; Discussion. H. L. Woodward. 118:409 My 4 '18

Why foreign trade? E. A. Parsons. Sci Am 119:335 O 26 '18

Work of the War trade board; how and why our foreign trade is being federally regulated. C. H. Claudy. Sci Am 119:30+ JI 13 '18

See also Embargo; Pacific development corporation; Packing for shipment; Tariff; Trading with the enemy; also United States—Foreign and domestic commerce, Bureau of; United States—War trade board; also subdivision Commerce under names of countries, e.g. South America—Commerce, United States—Commerce

**Bibliography**

List of books on world trade. U S Shipping Board, Free Pub Lib, Newark, N. J. 8p '18

Exposure. See Photography—Exposure

Express cars. See Baggage and express cars

Express companies

Change in the express contract suggested. Ry Age 65:765-6 N 1 '18

Consolidation of express companies. Ry Age 67:562-3 S 19 '19

Express and other contract carriers by rail; committee report. Ry R 63:742-3 N 23 '18

Express rates increased. Ry Age 64:1565-7 Je 28 '18

Merger of express companies. Ry R 62:805-7 Je 1 '18

See also American railway express company

Express service

Outline of government's scheme of organization for handling express business during the war. E. A. Stedman. Ry R 63:531-3 O 12 '18

**Express service—Continued**

Should railroads handle the express business? J. M. Fitzgibbon. Ry R 64:279-81 F 22 '19

See also Express companies; Motor trucks in freight service; Parcel post

**Extensometer**

Field extensometer promotes safety and economy. Eng N 79:1042-3 D 6 '17

Mirror extensometer for testing wire. T. D. Lynch and P. H. Brace. diags Eng N 83:32 J1 3 '19

Recording extensometer and the measured stresses in a concrete hull. F. R. McMillan. II diags Eng & Contr 52:360-2 S 24 '19

Stress measurement. Engineer 128:117-18, 125-6 Ag 1-3 '19; Excerpt. Eng & Contr 52:506-8 O 29 '19

Stress measurements on Niagara gorge railway bridges. C. E. Fowler. II diags Eng N 81:1172-5 D 26 '18

**Extracts, Flavoring. See Flavoring extracts****Eye**

Accommodation and chromatism of the eye. J Fr Inst 185:416 Mr '18

Effect of altitude on the eye. C. Berens. Sci Am 120:21 Ja 11 '19

Experiments on the eye with different illuminants. C. E. Ferree and G. Rand. II chart Illum Eng Soc 13:50-60; 14:107-16 no 1 '18, no 3 '19; Discussion. 14:117-32 no 3 '19

Experiments on the eye with pendant opaque reflectors differing in lining, dimensions and design. C. E. Ferree and G. Rand. II diags plan Illum Eng Soc 12:464-87 no 9 '17

Inertia of the eye. J. F. Tristan and G. Michaud. II Sci Am 119:255 S 28 '18

Light and vision; the physiology of the retina. W. M. Bayliss. II Illum Engr 11:104-13 Ap '18; Abstract. Sci Am S 86:61 J1 27 '18; Discussion. Illum Engr 11:113-19 Ap '18

Minimum energy visible to the eye as light. Illum Engr 11:217-18 S '18

New light upon our eyes. M. Dudderidge. II Sci Am 118:53+ Ja 12 '18; Discussion. 118:231 Mr 16 '18

Relative sensibility of the average eye to light of different colors and some practical applications to radiation problems. bibliog II diags U S Bur Stand Bul 14:167-236 Je 17 '18; Excerpts. Sci Am S 86:83, 96 Ag 10 '18; Summary. Sci Am S 86:301 N 9 '18

Report on standard illumination of Snellen's types used in testing the vision of candidates for public services. diags Illum Engr 12:5-7 Ja '19

Some factors in illuminating engineering; the production of visual sensations. F. K. Richtmyer. diags Sci Am S 85:28-9 Ja 12 '18

Technic of reading. L. Laurance. J Fr Inst 185:146 Ja '18

Theory of color vision and the selective action of the eye. R. A. Houston. diags Sci Am S 86:92-3 Ag 10 '18

See also Color sense; Goggles; Light; Sight; Spectacles

**Protection**

Eye protection and light filters. Sci Am S 85:9 Ja 5 '18

Eye protection in iron welding operations. W. S. Andrews. II Gen Elec R 21:961-6 D '18

Eye protection in the foundry and mill. B. W. Nutt. Iron Tr R 63:733 S 26 '18

Eye protection in the machine industry. II Mach 24:818-20 My '18

General notes on the protection of eyesight. W. S. Andrews. II Gen Elec R 20:903-5 N '17; Same. Sci Am S 85:397 Je 22 '18

Glasses for protecting the eyes from injurious radiations. W. W. Coblenz and W. B. Emerson. U S Bur Stand Tech Pa 93:1-25 '18

Recent progress in the manufacture of glasses for protecting the eye from injurious radiations. W. W. Coblenz. J Fr Inst 188:255-61 Ag '19

Safety engineering in automotive plants. II Automotive Ind 37:1011-13 D 6 '17

Ultra-violet and visible transmission of eye-protective glasses. K. S. Gibson and H. J. McNicholas. U S Bur Stand Tech Pa 119:1-47 '19

See also Glass, Colored; Goggles

**Eye, Artificial**

Artificial eyes. II Sci Am 118:385 Ap 27 '18

Eyebolts. See Bolts and nuts

**F**

Faber, Edwin C. 1875-

Head of War board traffic bureau. por Elec Ry J 51:256 F 2 '18

Fabricated ships. See Shipbuilding—"Fabricated" ships

Fabrics. See Airplane fabric; Balloon fabric; Cotton fabrics; Textile fabrics

Fabrics, Waterproofing of. See Waterproofing of textiles

**Face**

Evolution of the human face. W. K. Gregory. II diags Sci Am S 85:152-4 Mr 9 '18

**Faceplates**

Faceplate for patternmakers' facing lathe. J. L. Gard. II Mach 25:249 N '18

Face plates aid straightening and bending work in the shop. II diags Elec Ry J 54:559-60 S 20 '19

**Facing tools**

Genesee facing tool. II Am Mach 48:721 Ap 25 '18

**Factories**

Building a home for an industry. II diags plans Am Arch 115:467-75 Mr 26 '19

Building for H. N. Cook belting company. II Am Arch 113:248, 252, 262 F 27 '18

Building them good and fast; speed on New Jersey factory job. R. A. Wilson. II diags plans Concrete 15:182-4 N '19

Buildings as a factor in production costs. F. E. Davidson. Am Arch 115:810-13 Je 11 '19

Cabinet factory, Victor talking machine company, Camden, N.J. II diags plans Am Arch 115:109-18 Ja 15 '19

Chemistry by wholesale; a super-factory near Nashville, Tenn., for the manufacture of smokeless powder. Sci Am 118:567 Je 22 '18

Concrete factory. E. W. McMullen. Arch Forum 31:7-9 J1 '19

Construction of a standard factory building for the New York air brake co., at Watertown, N.Y. II diags Ry R 61:695-9 D 8 '17

Factory for the Motor starter company, Long Island City. II Am Arch 113:266, 271, 273 F 27 '18

Factory stairs and stairways. G. L. H. Arnold. diags Am Soc M E J 40:928-32 N '18; Same. Eng & Contr 50:509-11 N 27 '18; Same cond. Textile World 55:3715+ Je 14 '19

Facts, factories and frills. H. W. Corbett. II Am Arch 113:233-8 F 27 '18

58,000 square feet of floor space in 30 days. II Ind Management 56:134 Ag '18

Government rolling mill, Southampton. II plan Engineer 127:191-3, 202 F 28 '19

Hainault optical works. II plan Engineer 128:434-5 O 31 '19

How a chain factory was built and then occupied. C. Lundberg. II Iron Age 101:1585-90 Je 20 '18

If I were to build again; written largely out of experience at the Packard motor car company. II Factory 20:34-6 Ja '18

Industrial sanitary equipment standards. II diags plan Metal Work 91:165-7, 238-40 F 7, 21 '19

Is your factory building holding you back? M. S. Stern. II Factory 22:32-4 Ja '19

Luxurious factory club and roof garden of the Globe machine & stamping co. II Iron Age 103:1575-7 Je 12 '19

Manufacturing building of A. B. Dick company, Chicago, Ill.; views and plan. Arch Forum 31:pl 10-11 J1 '19

**Factories—Continued**

Manufacturing non-ferrous metal articles. *Il* diag Iron Age 103:1209-14 My 8 '19  
 Manufacturing plant of the Continental can company, inc., Clearing, Ill. *Il* plan Am Arch 113:253-9 F 27 '18  
 Medal for merit awarded American factory building; Richman brothers company, Cleveland, *Il* plans Am Arch 114:525-30 O 30 '13  
 Modern industrial plants. G: C. Nimmons. *Il* plans map Arch Rec 44:414-21 N '18  
 Naval aircraft factory, navy yard, Philadelphia. *Il* Ind Management 56:465-70 D '18  
 New factory designed to increase production efficiency. *Il* Eng N 81:891-2 N 14 '18  
 New plant of Diamond chain company. *Il* Ind Management 56:22-5 JI '18  
 New South Philadelphia plant of the Westinghouse electric & mfg. company. H. T. Herr. *Il* diag maps plan Elec J 16:114-21 Ap '19  
 Novel plant of American tool company. C. L. Smith. *Il* diag Iron Age 103:29-33 Ja 2 '19  
 Peoples sugar company's plant. Arch & Bldg 50:sup 17, pl 167-8 D '18  
 Plan of International harvester Milwaukee works. Automotive Ind 40:790 Ap 10 '19  
 Planning the industrial plant. H. M. Wharton. plans Ind Management 57:433-7; 58:47-50, 113-17 237-41 Je-S '19  
 Plant of Pyle-National company. *Il* plan Am Arch 113:448-51 Ap 10 '18  
 Roof construction for factories with excessive moisture. F: J. Hoxie. *Il* diag Am Arch 115:181-7 Ja 29 '19  
 South Philadelphia works of the Westinghouse company. *Il* plan Ind Management 55:494-7 Je '18  
 Sprague electric works, Bloomfield, N.J. *Il* Am Arch 113:247 F 27 '18  
 Standardization in factory buildings. *Il* diag Automotive Ind 38:407-9+ F 21 '18  
 Stewart-Warner speedometer corporation. *Il* plan Am Arch 113:262-4 F 27 '18  
 Three buildings which produce the necessary materials for a vegetarian dinner and a smoke. G: C. Nimmons. *Il* plans Am Arch 113:223-32 F 27 '18  
 Using the roof for expansion. *Il* Factory 20:862+ Ap '18  
 Westinghouse marine engineering works. E: K. Hammond. *Il* Mach 25:538-44, 789-96 F, My '19  
 Westinghouse plant at South Philadelphia. *Il* Iron Age 102:22-4 JI 4 '18  
 What is mill building construction? F. W. Dean. diag Eng N 79:1184-9 D 27 '17; Discussion. Am Lumberman 2225:30 Ja 5 '18  
*See also* Automobile factories; Cotton mills; Electric driving; Factory management; Factory sanitation; Flour mills; Garment factories; Industrial buildings; Iron works; Knitting mills; Machine shops; Shoe factories; Steel works; Textile mills; Woolen and worsted mills

**Accounting**

Accounting. B. L. Van Schaick. Ind Management 56:502 D '18  
 Arranging industrial cost factors. M. H. Potter. Iron Tr R 65:508-10 Ag 21 '19  
 Buildings as a factor in production costs. F. E. Davidson. Am Arch 115:810-13 Je 11 '19  
 By-products of cost figures. F. E. Gooding. Factory 22:46-7 Ja '19  
 Candy manufacturers' accounts. W: A. Shenton. J Account 28:197-203 S '19  
 Cost accounting to aid production. G. C. Harrison. diag Ind Management 56:456-63; 57:218-24, 314-18, 400-4, 483-7 D '18, Mr-Je '19  
 Duties of a factory cost accountant. J. Gill. J Account 26:441-9 D '18  
 Duties of a factory cost accountant. L. H. White. J Account 28:190-6 S '19  
 Equipment and maintenance factors in cost accounting during transition period. L. W. Alwyn-Schmidt. Am Mach 50:366-8 F 20 '19  
 Finding costs of manufacture. C. E. Lynn. Iron Tr R 65:23-5 JI 3 '19  
 Fixing land factors in production. M. H. Potter. Iron Tr R 64:1558-9 Je 12 '19

Handling factory costs. Factory 21:180+, 942+, 22:138+, 322+, 550+, 1068+, 1252+ JI, N '18-Mr, My-Je '19  
 Handling machine shop costs. Factory 20:652+ Ap '18  
 How shall I charge off that war equipment? Factory 23:1034-6 N '19  
 How to fan out your space charges. G: K. Barrett. Factory 22:51-3 Ja '19  
 Liquid profits. G. W. Greenwood. Ind Management 58:287-8 O '19  
 Manufacturing cost systems. M. H. Potter. Metal Ind 17:366-8 Ag '19  
 Monthly reports that show you how you stand. W. S. Lord. Factory 21:240-3 Ag '18  
 Necessity of proper factory cost-accounting methods. J. Mack. Inland Ptr 62:49-51 O '18; Same cond. Am Ind 19:17-18 S '18  
 New system computes factory costs. W. A. Rutz. Iron Tr R 64:1023-3 Ap 17 '19  
 Setting production standards for industrial accounting and engineering. F. J. Knoeppel. J Account 26:361-75 N '18  
 Short cut to factory costs. J. O'Brien. Factory 23:1308-10 D '19  
 Systematizing production accounts. R. E. Butz. Iron Tr R 64:757-9 Mr 20 '19  
 Turning time cards into costs. *Il* Factory 23:1048-50 N '19

*See also* Flour mills—Accounting; Symbols; Textile mills—Accounting

**Employees**

*See* Employees; Employees, Training of; Employment management; Employment managers; Employment systems; Industrial management—Employee representation

**Equipment**

Adapting munitions plant to peace-time work. *Il* diag plan Elec W 74:620-6 S 20 '19  
 Audible electric signals in industrial plants; abstracts. V. Karapetoff. *Il* Int Marine Eng 24:466-8 JI '19; J Elec 43:66-7 JI 15 '19; Textile World 55:3707+ Je 14 '19; Iron Age 103:1715 Je 26 '19; Elec R 74:946 Je 7 '19; Elec W 73:1394-5 Je 28 '19  
 Avoiding mistakes in buying equipment. *Il* Factory 23:493-5 S '19  
 Code calling in factories. V. Karapetoff. diag Ind Management 58:306-8 O '19  
 Mechanical equipment of industrial buildings. C: L. Hubbard. *Il* Power 49:244-7, 362-5 F 18, Mr 11 '19  
 Visualizing machine equipment. *Il* Factory 20:116+ Ja '18

*See also* Electric signals

**Heating and ventilation**

Cabinet factory, Victor talking machine company, Camden, N.J. *Il* diag plans Am Arch 116:109-18 Ja 15 '19  
 Electric heating of industrial plants; abstract. F. Rutgers. Elec W 71:106 Ja 12 '18  
 Fuel requirements for factories. C: L. Hubbard. Ind Management 57:125-6 F '19  
 Fuel wastes in factory heating. C: L. Hubbard. Ind Management 57:23-5 Ja '19  
 Government publication on requirements and standards for heating and ventilation. Heat & Ven 16:17-21 Ja '19  
 Heating and ventilation of workshops. *Il* diag Engineer 126:4-5; 127:504-6, 599-602, 608 JI 5 '18, My 23, Je 20 '19  
 Heating factories with gas. J. F. Hutchins. *Il* Gas Age 41:528-9 Je 1 '18  
 Heating system for one-story factory building. diag plan Dom Eng 36:303-6 F 15 '19  
 Heating the Essington plant of the Westinghouse company. Heat & Ven 15:58-9 N '18; Same. Eng & Contr 51:91-2 Ja 23 '19  
 Mechanical equipment of industrial buildings. C: L. Hubbard. Power 49:364-5 Mr 11 '19  
 Modern factory heating. A. G. King. diag plan Dom Eng 36:27-30, 76-9, 254-7, 466-8+ Ja 4-11, F 8, Mr 15 '19  
 More air for offices and drafting rooms. C: L. Hubbard. *Il* diag plans Factory 23:1050-2 N '19  
 Opportunity for better ventilation in industrial buildings. E. C. Allan. *Il* Dom Eng 37:44-6 Ap 12 '19



**Factories—Heating and ventilation—Continued**

- Pipe coils of U-shape for steam heating. diag plan Heat & Ven 16:58 Ja '19  
 Problems in sanitation and ventilation. W. F. Doike, jr. Textile World 53:3599+ F 2 '18  
 Real help for the heating contractor. diag plans Metal Work 90:636-8, 712-14 D 6, 27 '18  
 Report on air conditions at the Paris garter factory. II charts plans Heat & Ven 15:23-36 M., 37-43 Je '18  
 What it pays to know about heating and ventilating. C. L. Hubbard. II Factory 21:24-7, 224-8, 431-5, 645-7 JI-O '18

**Lighting**

- Artificial and natural industrial lighting. C. E. Clewell. II diag Elec W 73:22-3 Ja 4 '19  
 Better lighting of glass works and potteries. F. H. Bernhard. II Elec R 73:567-72 O 13 '18  
 Better lighting of iron and steel mills and fabricating plants. F. H. Bernhard. II Elec R 73:841-5 N 30 '18  
 Better lighting of textile mills. F. H. Bernhard. II Elec R 72:1070-7 Je 29 '18  
 Better ways to light the work. Factory 16: 184+, 238+; 17:168+, 330+, 432+, 676+; 18: 82+, 400+, 690+, 908+; 19:216+, 388+, 600+, 918+; 20:130+, 334+, 478+, 750+; 21:234-6, 506, 718+, 960+, 1084+; 22:110+, 588+, 754+, 1022+, 1352+; 23:180+, 604+, 1416+ F-Mr. Ag-O, D '16-Ja, Mr-Je, Ag-O, D '17-Apr, Ag-D '18-Ja, Mr-JI, S, D '19  
 Campaign for improving factory lighting. II Elec R 74:802-3 My 17 '19  
 Changing aspects of factory lighting legislation. C. E. Clewell. II Elec W 71:607-10, 665-8 Mr 23-30 '18  
 Choosing lighting units for industrial plants. D. H. Tuck. Elec W 71:195 Ja 26 '18  
 Common sense found very essential in illumination. F. J. Pearson. Elec R 72:722-3 Ap 27 '18  
 Daylight vs. sunlight in sawtooth-roof construction. W. S. Brown. diag Am Arch 115: 33-40 Ja 1 '19; Same cond. Am Soc M E J 40:1025-9 D '18; Same cond. Eng & Contr 51:82-5 Ja 22 '19  
 Daylighting the factory. diag Am Arch 113:215-18, 325-30 F 20, Mr 13 '18  
 Design of industrial lighting system. W. Harrison and H. H. Magdick. Elec W 74: 184-7, 232-4 JI 26-Ag 2 '19  
 Development of codes for industrial lighting. G. H. Stickney. Elec W 72:32 JI 6 '18  
 Effective application of protective lighting. H. H. Magdick. II Elec W 71:1268-72 Je 15 '18  
 Effective lighting of factories as judged by daylight standards. W. Harrison. II diag Illum Eng Soc 12:409-21; Discussion. 422-4 no 8 '17  
 Engineering aspects of industrial lighting. C. E. Clewell. II diag Elec W 73:68-71, 260-2, 371-4, 526-9 Ja 11, F 8, 22, Mr 15 '19  
 Entire factory equipped with gas lights. S. E. Wa-dell. II Am Gas Eng J 108:145-6 F 16 '18  
 Factory inspectors study industrial lighting. C. E. Clewell. II Elec W 72:11-12 JI 6 '18  
 Factory lighting—a central-station problem. O. R. Hogue and J. J. Kirk. II Elec R 75: 725-7 N 1 '19  
 Factory lighting codes and rules; a review of progress, and the regulations of Wisconsin, New York, Pennsylvania and New Jersey. C. E. Clewell. II Ind Management 55:117-21 F '18  
 Four conclusive tests of productive value of good factory lighting. II Elec R 74:449-51 Mr 22 '19  
 From coal pile to machine tools and lamps. C. E. Clewell. II diag plans Am Mach 49:1061-5 D 12 '18  
 Fundamentals of illumination design; appendix of illustrative problems. W. Harrison. II plans Gen Elec R 21:539-41 Ag '18  
 Gas-filled lamp and its effect on illuminating engineering. F. W. Willcox. II diag Illum Engr 12:152-6 Je '19; Discussion. 12:161-71, 179-81 Je-JI '19  
 Give the night shift ample light. A. L. Powell. II Iron Tr R 63:260-3 Ag 1 '18  
 Good lighting helps in winning the war. Elec W 71:1194-5 Je 8 '18  
 How better industrial lighting can improve working conditions. F. H. Bernhard. II Elec R 75:469-72 S 20 '19  
 How lighting interests can best serve the nation. F. H. Bernhard. II Elec R 73:355-9 S 7 '18  
 How to plan lighting installation for a factory. Elec R 73:49-52 JI 13 '18  
 Important phases of industrial lighting. W. T. Blackwell. II plan Elec R 73:360-2 S 7 '18  
 Improved industrial lighting. W. T. Reace. II Elec J 16:197-8 My '19  
 Improved industrial lighting offers timely load. F. H. Bernhard. Elec R 72:984-5 Je 15 '18  
 Improved lighting of automobile manufacturing plants. F. H. Bernhard. II Elec R 73: 205-11 Ag 10 '18  
 Improved lighting of electrical manufacturing plants. F. H. Bernhard. II Elec R 73:917-22 D 14 '18  
 Improvement in lighting of paint and varnish works. F. H. Bernhard. II Elec R 73:481-6 S 28 '18  
 Increased light with less glare. II diag Iron Tr R 62:325-6 Ja 31 '18  
 Indirect lighting at Republic cotton mills. G. Wrigley. II Textile World 53:3199+ Ja 12 '18; Same. Illum Eng Soc 13:213-15 no 3 '18  
 Industrial lighting and its relation to the war. C. E. Clewell. Illum Eng Soc 14:306-8 no 7 '19  
 Industrial-lighting curtailment. C. E. Clewell. II diag Am Mach 48:867-72 My 23 '18  
 Influence of the war in industrial lighting. C. E. Clewell. Elec R 73:775 N 16 '18  
 Instruction for inspectors in lighting practice. C. E. Clewell. II diag plans Am Mach 49:1117-22 D 19 '18  
 Laws regarding insufficient lighting. C. C. Sherlock. Am Mach 49:381-2 Ag 29 '18  
 Layout of dressing room. A. W. Anderson. Textile World 54:1599 O 5 '18  
 Light value of a window. L. B. Marks and J. E. Woodell. Metal Work 89:13 Ja 4 '18  
 Lighting curtailment in the industries. A. L. Powell. Elec W 71:709-10 Ap 6 '18  
 Lighting in factories and shipyards. Illum Engr 12:271-2 S '19  
 Lighting of industrial establishments. D. H. Tuck. Illum Engr 12:273-4 S '19  
 Lighting of printing and book-binding plants. F. H. Bernhard. II Elec R 73:279-86 Ag 24 '18  
 Lighting of rubber-goods factories. F. H. Bernhard. II Elec R 73:653-7 O 26 '18  
 Lighting textile mills in Wisconsin. J. A. Hoeveler. II diag Textile World 54:1091+ S 7 '18  
 Making daylight your ally. J. Heywood. II Factory 20:233-5 F '18  
 Modern lighting and power installation for Canadian knitting mill. II Elec R 74:127-30 Ja 25 '19  
 Modern textile mill lighting practice. C. E. Clewell. II Textile World 53:5889+; 54:66, 527+ Je 1, JI 6, Ag 3 '18  
 Natural lighting for work spaces in shops. C. E. Clewell. II diag plans Metal Work 89:9-13, 100-3, 162-6 Ja 4, 18, F 1 '18  
 Need for improved lighting in the leather industry. F. H. Bernhard. II Elec R 73:759-65 N 16 '18  
 Need for the improved lighting of wood-working plants. F. H. Bernhard. II Elec R 73:401-6 S 14 '18  
 New illumination of old ribbon mill. D. H. Tuck. II Textile World 53:4607+ Ap 6 '18  
 New light problems discussed; what the Industrial commission of Ohio is doing to standardize lighting methods in various industries. Iron Tr R 62:277 Ja 24 '18  
 Night-lighting the factory. II Am Arch 113:835-42, 871-6; 114:59-66 Je 19-26, JI 10 '18  
 Notes on illumination in stores and factories; abstract. F. J. Pearson. Illum Eng Soc 13: 373-4 no 7 '18  
 Ohio lighting men conduct factory illumination campaign. Elec R 74:636-7 Ap 19 '19

**Factories—Lighting—Continued**

- Practical daylight measurements in modern factory buildings. E. G. Perrot and F. C. Vogan. *diags Illum Eng Soc* 14:257-77 no 6 '19
- Present status of industrial lighting codes. G. H. Stickney. *Am Inst E E Pro* 38:611-27 Ap '19; Same. *Am Arch* 115:694-8, 771-2, 835-6 My 14, 28, Je 11 '19; Same. *Illum Eng Soc* 14:158-70 no 4 '19; Bibliography. *Am Inst E E Pro* 38:627-8 Ap '19; Same. *Am Arch* 115:836 Je 11 '19; Same. *Illum Eng Soc* 14:171 no 4 '19; Discussion. *Illum Eng Soc* 14:172-208 no 4 '19
- Problem of artificial lighting; how to evaluate lighting costs as a proportion of wages. C. E. Clewell. *Il Ind Management* 55:16-20 Ja '18; Abstract. *Illum Engr* 11:53-6 F '18
- Productive intensities. W. A. Durgin. *Il Illum Eng Soc* 13:417-24 no 8 '18; Same. *Elec R* 73:686-9 N 2 '18; Excerpts. *Elec W* 72:1073-4 D 7 '18; Abstract. *Illum Engr* 11:229-31 O '18; Discussion. *Illum Eng Soc* 13:424-8 no 8 '18
- Proportioning skylight and window areas. M. W. Ehrlich. *Il Metal Work* 89:229-32, 299-302 F 15, Mr 1 '18
- Protective lighting for industrial plants. D. H. Tuck. *Il Elec W* 71:1137-8 Je 1 '18
- Recent advances in industrial lighting. W. Harrison. *Il diags Stevens Ind* 35:179-201 Jl '18
- Record-breaking sale of lighting units during January. *Il Elec R* 74:270-1 F 15 '19
- Reflecting and diffusing light. W. Harrison. *diags Textile World* 54:2107+, 2447+, 2573+, 2683 N 2, 16-30 '18
- Relation between light curtailment and accidents. R. E. Simpson. *Illum Eng Soc* 13:429-35 no 8 '18; Same. *Am Gas Eng J* 109:364-6 O 19 '18; Same abr. *Power* 49:144-5 Ja 28 '19; Excerpts. *Elec W* 72:934 N 16 '18; Discussion. *Illum Eng Soc* 13:435-8 no 8 '18
- Revised rules of the code of lighting factories, mills and other work places. *Illum Eng Soc* 13:256-7 no 4 '18; Same. *Gas Age* 42:46 Jl 1 '18
- Scientific lighting and industrial efficiency. L. Gaster. *Illum Engr* 12:188-90 Jl '19
- Selecting equipment for industrial lighting. W. Harrison and H. H. Magdalcik. *Il Elec W* 73:1319-21; 74:7-11 Je 21, Jl 5 '19
- Shop protective lighting. C. E. Clewell. *Il diags Am Mach* 51:785-8 O 30 '19
- Standardized flexible distributing systems in industrial plants. B. Jones. *Il diags plans Gen Elec R* 21:285-99 Ap '18
- Standardized industrial lighting systems. H. L. Cornelson. *diags plans Elec W* 74:69-72, 459-51 Jl 12, Ag 30 '19
- Tendencies in textile mill illumination. A. L. Powell. *Il Gen Elec R* 21:681-4 O '18
- War industrial lighting and the reconstruction. *Elec W* 72:992 N 23 '18
- War time shoe factory lighting. *Il Gas Age* 41:321-3 Ap 1 '18
- What better industrial lighting can do to stimulate production. F. H. Bernhard. *Il Elec R* 75:381-4 S 6 '19
- What it pays to know about factory lighting. C. E. Clewell. *Il Factory* 19:185-9, 360-4, 537-40, 715-19, 884-7; 20:39-41; 23:496-9 Ag '17-Ja '18, S '19
- White interiors cut coal consumption. G. B. Heckel. *Il Textile World* 53:3167+ Ja 12 '18
- See also Daylight, Artificial; Lighting—Laws and regulations; Textile mills—Lighting

**Location**

- Factors governing selection of industrial site. H. Bartholomew. *diag Eng N* 82:872-3 My 1 '19
- Great opportunity for intelligent location of industries. W. M. Booth. *Chem & Met Eng* 20:311-12 Ap 1 '19

**Lunch rooms**

See Lunch rooms and cafeterias

**Protection**

- Safeguarding your plant from the enemy. A. Van Vlissingen, Jr. *Il plan Factory* 20:1061-5 Je '18

**Sanitation**

See Factory sanitation

**Water supply**

See Water supply for factories

**Yards**

- Paved roadways aid plant efficiency. H. C. Campbell. *Il Ind Management* 56:471-2 D '18
- Pulling factory roads out of the mud. *Il Factory* 22:44-5 Ja '19
- Factory accidents. See Accidents, Industrial
- Factory costs. See Cost accounting
- Factory gardens. See Gardens, Factory
- Factory inspection  
Instruction for inspectors in lighting practice. C. E. Clewell. *Il diags plans Am Mach* 49:1117-22 D 19 '18
- Factory laws. See Child labor; Lighting—Laws and regulations
- Factory lunch rooms. See Lunch rooms and cafeterias
- Factory management  
Absences—how to reduce them. *Factory* 21:231-3 Ag '18
- Automatic helpers for the management. C. E. Clewell. *Il Factory* 22:939-43 My '19
- Being sure of your delivery dates. D. G. Robinson. *Factory* 21:434-5 S '18
- The chase; how to arouse the employee's interest. *Am Mach* 48:48 Ja 10 '18
- Circulating magazines for best results. *Factory* 20:142 Ja '18
- Clean-up and maintenance plans from 15 factories. *Il Factory* 22:943-6 My '19
- Community guarantees for piece prices. J. C. Spence. *Am Mach* 50:793-7 Ap 24 '19
- Continental plant layout facilitates production. J. E. Schipper. *Il diag plan Automotive Ind* 40:1122-6, 1168-73 My 22-29 '19
- Controlling production by power records. G. H. Perkins. *Textile World* 55:2717+ My 3 '19
- Controlling production in a motor plant. C. Lundberg. *Il Iron Age* 103:1279-84 My 15 '19
- Co-ordination in munition work. *Sci Am S* 86:146-7 S 7 '18
- Demand for greater industrial economy. W. R. Conover. *Gen Elec R* 21:706-9 O '18; Excerpts. *Ind Management* 56:119-20 Ag '18
- Developing the community interest at the plant of the Burroughs adding machine co. *Il chart Iron Age* 101:369-72 F 7 '18
- Economical operation must be made certain. H. S. Rich. *Power* 49:606-7 Ap 22 '19
- Efficient utilisation of labour in engineering factories (with special reference to women's work). B. H. Morgan. *Engineer* 125:432-3 My 17 '18
- Efficiency: a method of making profits by universal democracy. W. S. Rogers and N. M. Scott. *Il charts Ind Management* 57:299-301 Ap '19
- Elimination of idleness by systematic study. C. W. Baker. *Eng N* 81:450-1 S 5 '18
- Emergency squad to prevent production hold ups. H. E. Akerly. *Il Factory* 20:45-6 Ja '19
- Factory fire brigade. P. Mason. *Am Ind* 19:14-16 S; 14-16 O '18
- Factory investigations. A. A. Dowd. *Mach* 24:1121-2 Ag '18
- Factory management in garment trades. M. Gordon. *Il Ind Management* 57:345-9, 448-51; 58:12-16, 140-5, 280-5, 321-4 My-O '19
- Factory moving. L. J. Hengesbach. *diags Mach* 24:999-1002 Jl '18
- Factory newspaper. R. Voorhees. *Ind Management* 55:145 F '18
- Facts about war-work fatigue. *Iron Tr R* 62:318-19 Ja 31 '18
- Financing a business from the inside. W. R. Basset. *Il Factory* 19:194-6 Ag '17
- Finished on time; work of the production department. J. Watson. *Factory* 21:238-40 Ag '18
- Five little plans for reducing overhead. *Il Factory* 22:1176-7 Je '19
- From factory to factory. *Factory* 21:658-9; 22:480-1 O '18, Mr '19

**Factory management—Continued**

- Game of taking orders. R. J. Byron. Textile World 55:347+ Ja 11 '19
- Getting our men to give us their ideas. E. A. Hunger. *Il* Factory 20:625-8 Ap '18
- Getting plant spirit into our men. C. R. Hook. chart Factory 20:225-7 F '18
- Good housekeeping in the factory. A. R. Bond. *Il* Sci Am 119:208-9 S 14 '18
- Governmental suggestions for arsenals and manufacturers. Am Mach 47:1085-6 D 20 '17
- Graphic production control. C. E. Knoeppel. Ind Management 56:177-80. 284-8, 383-90, 498-502; 57:56-62, 113-18 S '18-F '19
- Guiding the creative instinct. W. R. Basset. Factory 22:449-52 Mr '19
- Handling shop orders. H. Delmer. Factory 20:934+ My '18
- How operation sheets simplify production. M. N. Twyman. *Il* Factory 23:522-3 S '19
- How other men manage. See monthly numbers of Factory
- How to write and use standard practice instructions in your shop. W. S. Worcester. Ind Management 55:402-4 My '18
- How we increased output 1,000 per cent in an already crowded plant; Gillette safety razor co. *Il* Factory 23:40-2 Jl '19
- Human element in the mill. H. K. Moore. charts Chem & Met Eng 19:146-50 Ag 1 '18
- Increasing war production and safeguarding workers. Mach 24:493 F '18
- Individuality in industry. R. B. Wolf. U S Bur Labor Statistics Bul 227:193-206; Discussion. 207-10 '17
- Industrial democracy. E. Sheldon. Am Mach 49:201-2 Ag 1 '18
- Industrial manager. Ind Management 55:504-5 Je '18
- Industrial production. W. M. Dollar. Am Soc M E J 42:310-13 Ap '18; Same cond. Iron Tr R 63:267-9 Ag 1 '18
- Inspection and quality control. F. E. Merriam. *Il* Ind Management 56:305-11 O '18
- Installing management methods in the wood-working industry. C. M. Bigelow. *Il* charts Jags Ind Management 58:1-8, 124-33, 185-95, 295-305 Jl-O '19
- Keeping close track of shop operation. R. I. Clegg. *Il* Jags Iron Age 102:1251-3 N 21 '18
- Keeping production on schedule. S. P. Keator. Factory 23:510-11 S '19
- Keeping the factory clean. Factory 20:856+ My '18
- Keeping the good will of the employee. H. D. Murphy. Am Mach 48:17-18 Ja 3 '18
- Keeping track of plant keys. C. C. Spreen. Factory 20:1080-1 Je '18
- Keeping track of production. H. A. Russell. Ind Management 56:231-4 S '18
- Labour administration. E. T. Elbourne. Engineer 126:235-6, 257-8, 280-2, 299-300, 322-3, 348-50, 365-7, 388-90, 432-5, 453-4, 478-80, 504-6, 548-50 S 20-N 8, 22-D 13, 27 '18
- Life in a large manufacturing plant; continuity of service. C. M. Ripley. Gen Elec R 21:579-84 Ag '18
- Maintaining industrial-plant equipment. *Il* chart Elec W 73:623-6 Mr 29 '19
- Making management decisions beforehand; how a standard practice book is kept alive. W. M. Skiff. *Il* Factory 20:32-3 Ja '18
- Management by cooperation. L. I. Thomas. *Il* Factory 19:181-4 Ag '17
- Manager and his system. H. L. Gantt. Ind Management 55:404 My '18
- Manufacturing in relation to banking, research and management. W. Rautenstrauch. Am Soc M E J 40:459-63 Je '18
- Measurement of management. F. C. Coburn. Ind Management 55:231-2 Mr '18
- My policies of production. C. W. Nash. *Il* Jags Factory 20:829-33 My '18
- New cycle in industrial organization. M. M. Jones. Sci Am 119:229+ S 21 '18
- Organization of a munition plant; Buffalo Pitts co., Buffalo, N.Y. G. A. Neubauer and E. Oberg. *Il* Mach 25:208-12 N '18
- Organizing electrical inspection and maintenance. C. A. Cowdery. chart Elec W 74:645-9 S 20 '19
- Plea for intensification of management. M. M. Jones. Sci Am 119:150 Ag 24 '18
- Practical ways to cut costs. Factory 19:199-200, 549-53, 719-20, 894-5; 20:47-9, 244-5, 434-7, 843-4, 1071-4; 21:34-7, 422-3, 838-40; 22:41-3, 462-4; 23:512-14 Ag, O '17-Mr, My-Jl, S, N '18, Ja, Mr, S '19
- Preventing man and machine idleness. W. L. Albro. Ind Management 55:457-60 Je '18
- Problems of the manufacturer and how they are being met. C. E. Townsend. Sibley J 38:19-20 N '18
- Purpose and methods of using manufacturing orders. F. H. Korff. Mach 24:877 Je '18
- Relation between production, development and sales. G. J. Kirchgasser. Ind Management 56:133 Ag '18
- Relation of engineering to industrial management. D. S. Kimball. Am Soc M E J 40:121-2 F '18
- Relation of statistics and accounts in industrial management. M. B. Ignatius. Ind Management 56:312-15 O '18
- Reorganizing a factory—through home treatment or professional service; with discussion. F. W. Harris. Factory 21:21-4 Jl '18
- Setting production standards for industrial accounting and engineering. F. J. Knoeppel. J Account 26:361-75 N '18
- Shooting the shop orders to their targets. R. I. Clegg. *Il* Iron Age 103:53-5 Ja 2 '19
- Shop paper as an aid to management. Factory 20:68+, 556+, 776+, 880+; 21:348+ Ja, Mr-My, Ag '18
- Simple way to handle departmental expenses. R. W. E. Sizer. Factory 19:196-7 Ag '17
- Small shop management for large plants. F. O. Wells. Factory 21:417-21 S '18
- Speeding production by using graphic meters. *Il* diag Elec W 72:588-9 S 28 '18
- Standardized occupations and rates at East Pittsburgh plants of Westinghouse co. W. D. Stearns. Ind Management 55:408-10 My '18; Iron Tr R 63:547-50 S 5 '18
- Taking in a factory's washing. *Il* Factory 21:1064-5 D '18
- Timken solving difficult production problem. J. E. Schipper. *Il* Automotive Ind 40:685-8, 748-50 Mr 27-Apr 3 '19
- Under new management—from old to new. C. M. Horton. Ind Management 55:405-7 My '18
- Under new management—the manager; the new era executive will stand out as a man among men. C. M. Horton. Ind Management 56:113-16 Ag '18
- Unsnarling production tie-ups over the telephone. F. E. Gooding. Factory 21:436-8 S '18
- Using bell boys in a factory. *Il* Factory 21:262+ Ag '18
- Wage side of my labor creed. W. S. Rogers. Factory 20:37-8 Ja '18
- War protection for industrial plants. F. W. Gregory. Ind Management 55:177-8 Mr '18
- Warring on waste. Factory 23:534+, 1444+ S, D '19
- Warring on waste. J. Heywood. *Il* Factory 22:1161-5 Je '19
- Watching the work go through. H. J. Lafferty. Factory 20:440-1 Mr '18
- What I learned from a trip with our salesmen. *Il* Factory 23:1293-6 D '19
- Why our factory moving day went well. L. J. Cleary. *Il* Factory 23:1310-11 D '19
- With the works engineer. Factory 22:282+, 564+; 23:574+, 1138+, 1468+ F-Mr, S, N-D '19

See also Assembling methods; Bonus system; Control boards; Conveying machinery; Cost accounting; Employees; Employees, Training of; Employment management; Employment managers; Employment systems; Foremen; Foremen's meetings; Industrial betterment; Industrial management; Inspection; Inventories; Janitors; Machine shop management; Mechanical handling; Medical service, Industrial; Office management; Organization in industry; Payrolls; Planning; Progress records; Purchasing; Records; Rest periods; Routing systems; Stores systems; Suggestion systems; Symbols; Textile mills—Management; Time study; Welfare work in industry

**Factory papers.** See House organs

**Factory sanitation**

- Fine installation of factory plumbing. *Il diag plan Dom Eng* 88:491-4+ S 13 '19.  
 Industrial sanitary equipment standards. *Il diags plans Metal Work* 91:165-7, 238-40 F 7, 21 '19  
 Industrial sanitary standards. *Il diags plans Am Arch* 114:651-7 N 27 '18  
 Problems in sanitation and ventilation. W. F. Dolke, Jr. *Textile World* 53:3599+ F 2 '18  
 Sanitary equipment for industrial buildings. C. L. Hubbard. *Il Dom Eng* 88:100-2+ J1 19 '19  
 Standards for factory washroom facilities. L. A. Coolidge. *Dom Eng* 88:253-4 Ag 9 '19  
 Wash and locker rooms. H. L. Krum. *Il diags plans Am Arch* 114:493-6 O 23 '18; Same. *Metal Work* 90:601-4 N 29 '18

See also Dust removal; Factories—Heating and ventilation; Foundry sanitation; Toilet rooms; Water supply for factories

**Factory towns.** See Model towns

**Factory transportation**

- Automobile factory transportation systems. E. K. Hammond. *Il Mach* 26:1-7, 123-8 S-O '19  
 From envelop addressing to leather working. C. B. Thomas. *Il Factory* 22:241-2 F '19  
 Saving \$200 a day in inter-shop haulage. R. M. Kinny. *Il Factory* 22:926-9 My '19  
 Timken solving production problem. J. E. Schipper. *Il Automotive Ind* 40:748-50 Ap 3 '19  
 Using basements and subways for factory trucking. P. F. O'Shea. *Il diag Factory* 23:1285-9 D '19

See also Electric trucks, Industrial; Mechanical handling

**Factory waste.** See Trade waste

**Fairs.** See Exhibitions

**Family**

- Some aspects of Hindu life in India. B. Basu. *Sci Am S* 87:82-3 F 8 '19

**Fans, Electric.** See Electric fans

**Fans, Exhaust**

- Design of industrial exhaust piping systems. *Il diags Metal Work* 91:144-6, 275-7 Ja 31, F 28 '19  
 Exhaust removal of planing mill waste; instruction for determining the size of exhauster fan, piping and dust arrester and their arrangement. *Il diags Metal Work* 91:714-17 Je 6 '19

**Fans, Mechanical**

- Fan, blower and air-compressor applications. C. E. Clewell. *Il Elec W* 71:196-9 Ja 26 '18  
 Fan business and how to develop it; heating, ventilating, and commercial uses of fans. *Il Metal Work* 88:685-9 D 7 '17  
 Fans and blowers in the power plant. R. T. Strohman. *diags Power* 49:152-5 F 4 '19  
 Fans and boilers. W. D. Owens. *Coal Age* 14:937-40 N 21 '18  
 Improvement in ventilating apparatus. W. J. Baldwin. *Il diag Am Soc Heat & V E* 23:211-18 '17  
 Louvers for ventilating fans. *Il Elec W* 71:230 Ja 26 '18  
 New type of multiblade fan. *Il Heat & Ven* 15:62 My '18; *Metal Work* 89:843-4 Je 21 '18  
 Origin and development of the ventilating fan. *Coal Age* 14:690-1 O 10 '18  
 Plotting blower-test curves. A. H. Anderson. *Il Am Soc M E J* 39:902-4 N '17; Discussion. 40:147-8 F '18  
 Radiator cooling fans. L. Schwitzer. *diags Automotive Ind* 40:202-5 Ja 23 '19  
 Railway shop fans and blowers. J. H. Wickman. *Ry Mech Eng* 92:166 Mr '18  
 Variable-pitch fan for regulating engine temperatures. *Il Sci Am* 119:216 S 14 '18  
 Ventilator fan. *diags Eng & Min J* 105:206 Ja 26 '18

See also Air fans; Blowers; Electric fans

**Fans, Mine**

- Alarm to show fan trouble. W. F. Decker. *diag Coal Age* 14:972 N 28 '18

Design of ventilating fan. *diag Coal Age* 16:724 O 30 '19

Electrically-driven fan. *diag Coal Age* 16:290 Ag 14 '19

Test on a Jeffrey fan. W. D. Owens. *Coal Age* 13:1188-9 Je 29 '18

Ventilation of mines. T. Chester. *Il diags Am Soc Heat & V E* 24:297-312; Discussion. 313-16 '18

**Far East**

**Commerce**

American automobiles wanted in the Far East. *Sci Am* 118:134 F 9 '18

American trade possibilities in the Far East. E. B. Bruce. *Ry Age* 65:95-7 sec 2 J1 12 '18

Our trade with the Orient. D. E. Douty. *Textile World* 53:5179+ My 4 '18

Shoe and leather trade of China and Japan. C. E. Bosworth. *U S Bur For & Dom Com* 173:1-37 '18

Tariff protection after the war. R. W. Austin. *Textile World* 53:5715-16 My 25 '18

**Industries and resources**

Modernizing Oriental industries. *Il Sci Am* 119:502 D 21 '18

**Faraday society**

Meeting, London, Nov. 7; with abstracts of papers. *Met & Chem Eng* 17:685-92 D 15 '17

**Fare collecting.** See Electric railroads—Fare collecting; Street railroads—Fare collecting

**Fares.** See Electric railroads—Fares; Railroads—Fares; Street railroads—Fares

**Farm accounting**

Farm accounting problem. E. L. Smith. *Sci Am* 119:436 N 30 '18

**Farm buildings**

Architectural improvement of farm buildings. *Am Arch* 115:377-9 Mr 12 '19

Better architectural development of farm buildings. F. W. Ives; H. S. Olin. *Am Arch* 115:611-12 Ap 30 '19

Booming farm business. R. F. Salade. *diags Bldg Age* 41:117-19 Ap '19

Buildings for the modern farm. E. H. Janes. *Il diags plans Arch Forum* 30:63-74, 109-14 Mr-Apr '19

Cement staves used in farm building construction. W. F. Kaiser. *Il Bldg Age* 41:30-1 Ja '19

Department store idea applied to farm buildings. *Il diags plans Bldg Age* 41:32-3 Ja '19

Farm building groups on Long Island; views. *Am Arch* 114:pl 136-44 N 6 '18

Good house for farm help. H. A. Shearer. *diag plans Am Lumberman* 2246:50 Je 1 '18

Housing farm help. R. S. Whiting. *Am Lumberman* 2266:40 O 19 '18

Improvement of farm buildings and the country-side. G. W. Maher. *Am Arch* 115:453-4 Mr 26 '19

Improving the design of farm buildings. *Am Arch* 114:676 D 4 '18

Manure pit eliminates waste. F. T. Fellner. *Il diags plans Bldg Age* 40:560-2 D '18

Miscellaneous farm buildings. W. E. Fruden. *Il diags plan Bldg Age* 40:477-8 O '18

Paint as an asset. *Am Arch* 116:7 J1 2 '19

Proper care of farm machinery. *Il diag plan Am Lumberman* 2235:34 Mr 16 '18

Realm of the retailer; farmers' neglect and its cure—housing machinery, hogs and poultry a profitable prospect. *Il Am Lumberman* 2263:44-6 S 28 '18

Repairs and upkeep of farm buildings necessary. *Il Am Lumberman* 2260:44-5 S 7 '18

Rural reconstruction in France. S. Brinton. *Il Am Arch* 116:67-9 J1 16 '19

Silo staves for farm buildings. *Concrete* 12:51 F '18

Small farm buildings sold ready made. *Il Am Lumberman* 2308:42-3 Ag 9 '19

Small farm buildings that are essential. *diags Am Lumberman* 2266:38 O 19 '18

Some recent farm buildings. *Il Arch Forum* 30:75-6, pl 33-48 Mr '19

Storage of farm machinery. F. W. Ives. *diag Sci Am* 118:276 Mr 30 '18

- Farm buildings—Continued**  
 Washrooms for farmers' bunk houses. plans Metal Work 91:834-5 Je 27 '19  
*See also* Barns and stables; Corn cribs; Farmhouses; Granaries; Poultry houses; Silos
- Bibliography**  
 Structural service department; farm buildings, accessories and rural engineering. Am Inst Arch J 5:655 D '17
- Farm bureaus**  
 Relation of the railroad to the farmer; development of farm bureaus in New York state. G: A. Cullen. Ry Age 64:323-4 F 8 '18
- Farm engines**  
 Royal agricultural show. il diags Engineer 127:627-30; 128:8-10 Je 27-Jl 4 '19
- Farm life**  
 Improving the farmer's surroundings. Am Arch 114:549-50 N 6 '18
- Farm lighting.** *See* Electricity on the farm
- Farm machinery.** *See* Agricultural machinery
- Farm produce**  
 By-products on the farm. Sci Am 119:482 D 14 '18  
*See also* Coffee; Corn; Cotton; Fibers; Forest products; Grain; Rubber; Wheat
- Transportation**  
 Highways transport committee for New York. Good Roads n s 18:77-80 Ag 6 '19  
 Rural motor express. Good Roads n s 15:312+ Je 22 '18  
 Scientific marketing and transportation. T. C. Powell. Ry Age 64:134-5 Ja 11 '18  
 Transportation of perishable commodities. M. E. Pennington. diags charts Ry Age 64:119-24 Ja 11 '18
- Farm produce, Drying of.** *See* Drying (fruit and vegetables)
- Farm tractors.** *See* Tractors
- Farmers**  
 Farmer and the patent system. E. J. Prindle. Sci Am 121:36+ Jl 12 '19  
 Farmers' non-partisan league. *See* National non-partisan league
- Farmhouses**  
 Equipping the farm for comfort and efficiency. W: Hutton. il diag plans Dom Eng 88:432-5+ S 6 '19  
 Farm cottage with seven rooms. il diags plans Bldg Age 41:247-9 Ag '19  
 Farm house for \$1,000. R. S. Whiting. il diags plans Bldg Age 41:153-4 My '19  
 Realm of the retailer; woman's influence in building farm houses. plans Am Lumberman 2303:48-9 Jl 5 '19
- Farming.** *See* Agriculture
- Farms**  
 Is this the biggest farm in the world? R. H. Moulton. Sci Am 121:183 Ag 23 '19  
 Number of farms of various acreages in all states. Automotive Ind 40:183 Ja 16 '19  
*See also* Agriculture
- Farms, Municipal.** *See* Sewage irrigation
- Fatigue**  
 Biological character of fatigue. Sci Am S 87:207-8 Mr 29 '19  
 Cause of industrial fatigue. C. B. Lord. Ind Management 55:310-11 Ap '18  
 Facts about war-work fatigue. Iron Tr R 62:318-19 Ja 31 '18  
 Illness in industry—its cost and prevention. T: Darlington. Am Inst Min E Bul 134:281-4 F '18  
 Reducing industrial fatigue. Automotive Ind 40:219-21 Ja 23 '19
- Fatigue in metals**  
 Effect of cold-working and rest on resistance of steel to fatigue under reversed stress. H. F. Moore and W. J. Putnam. diags Am Inst Min E Bul 146:391-404 F '19; Abstract. Eng N 82:619-20 Mr 27 '19; Discussion. Am Inst Min E Bul 148:719-27; 151:1029-30 Ap, Jl '19  
 Failure of boiler plates and the stresses in riveted joints. E. B. Wolff. diags Engineer 124:456-7 N 23 '17; Same cond. Power 47:166-7 Ja 29 '18; Excerpts. Met & Chem Eng 18:313 Mr 15 '18  
 Failure of ductile materials under fluctuating stresses; abstract. H. A. Webb and W. H. Barling. diag Am Soc M E J 40:pt 1, 584-5 Jl '18  
 Fatigue phenomena in metals. bibliog il diags Mech Eng 41:731-8 S '19; Excerpts. Eng & Contr 52:357-9 S 24 '19  
 Fatigue testing machine. F. M. Farmer. il diags plan Am Mach 51:271-3 Ag 7 '19  
 Ironing out cracks in iron; Bardeen electrical method of eliminating fatigue of metals. Elec R 72:844 My 18 '18; Same. Sci Am S 86:48 Jl 20 '18  
 Metallographic investigation of transverse fissure rails with special reference to high-phosphorus streaks. G. F. Comstock. il Am Inst Min E Bul 143:1699-1714 N '18  
 Overstrain and fatigue failure of steel as related to grain structure. H: S. Prichard. il diags Eng N 80:1086-90 Je 6 '18  
 Tests on tie bars from the Menai suspension bridge. il diag Engineer 126:47-9 Jl 19 '18; Excerpt. Eng & Contr 50:433 O 30 '18  
 Transverse fissures in steel rails. J. E. Howard. Am Inst Min E Bul 131:1871-82 N '17; Excerpts. Iron Tr R 61:1055-7 N 15 '17; Ry Age 63:996-9 N 30 '17; Ry R 61:644-7 N 24 '17; Discussion. Am Inst Min E Bul 135:706-8; 136:761-91 Mr-Apr '18; Excerpts. Iron Age 101:556-7 F 28 '18; Ry Age 64:971-5 Ap 12 '18; Iron Tr R 63:662-3 S 19 '18
- Fats.** *See* Oils and fats
- Fatty acids.** *See* Acids, Fatty
- Faults (geology)**  
 Locating submarine faults. O. Klotz. Sci Am S 85:403 Je 29 '18
- Feathers**  
 Machines for making feathered fabric. diags Textile World 53:4705 Ap 13 '18  
 Use of feathers in textiles. Textile World 53:3819 F 16 '18  
 Where substitutes save the day; yarn from feathers. Sci Am 118:146 F 16 '18
- Federal aid road law.** *See* Highway law
- Federal buildings.** *See* Public buildings
- Federal electric railway commission.** *See* United States—Federal electric railway commission
- Federal regulation of industry.** *See* Government regulation of industry
- Federal reserve banks**  
 Influence of the Federal reserve system on the foreign banking of the United States. H. Lawton. Am Ind 20:35-8 Ag '19  
 Problems of the national banks in war time. W. P. G. Harding. Ry Age 65:887-9 N 15 sec 2 '18
- Federal reserve board**  
 Capital issues committee instructs applicants. Eng N 80:483 Mr 7 '18  
 Work of old capital issues committee. Good Roads n s 15:272 Je 1 '18
- Federal trade commission.** *See* United States—Federal trade commission
- Federal transportation board (proposed).** *See* United States—Federal transportation board (proposed)
- Federation of master printers and allied trades of the United Kingdom**  
 Peace with progress in the printing industry in Great Britain. H: L. Bullen. Inland Ptr 63:558 Ag '19
- Feed mechanisms.** *See* Grinding machines—Feeding; Planing machines—Feeding
- Feed pumps.** *See* Pumps, Feed water
- Feed water**  
 Boiler waters: their chemical composition, use, and treatment. W. T. Read and E. P. Schoch. il diags Texas U Bul 1752:1-103 S 15 '17  
 Contaminating a water supply by storage coal. Ry Age 66:1817-18 Je 27 '19  
 Control of concentrated boiler water is essential. H. L. Smith. il charts Elec Ry J 52:1087-91 D 21 '18

**Feed water—Continued**

- Data for analyzing boiler-feed water. T. W. Reynolds. Elec W 71:257 F 2 '18
- Duties of newly trained marine engineers on merchant vessels. C. H. Willey. diag Int Marine Eng 23:34-6 Ja '18
- Effect of feed-water temperature and rate of injection upon steam flow. F. G. Philo. Power 47:915-17 Je 26 '18; Discussion. E. W. Nick. 48:678-80 N 5 '18
- Effect of intermittent boiler feeding. J. F. Tuteln. Power 48:431 S 17 '18
- Feed water for steam boilers; abstract. J. A. Montpeller. Elec W 71:1278 Je 15 '18
- Feed water improvement. A. Lang. Int Marine Eng 24:110-11 F '19
- Feed-water weight and temperature recorder. II Elec W 71:1064 My 18 '18
- Fuel saving by feed water regulation. Ry R 65:175-6 Ag 2 '19
- Getting good samples of boiler-feed water. T. W. Reynolds. Elec W 71:99 Ja 12 '18
- Hot-water tank and float. J. O. Osborne. diag Power 48:135 JI 23 '18
- Locomotive firebox and boiler maintenance and repairs; abstracts. G. Austin. Ry R 62:294-8 Mr 2 '18; Ry Age 64:467-9 Mr 1 '18; Ry Mech Eng 92:161-3 Mr '18
- Losses and trouble caused by impure boiler feed water; special reference to flow meters. H. H. Mapelsden. II diag Gen Elec R 21:393-5 Je '18
- Measuring the feed water. II diag Heat & Ven 15:47-9 Ja '18
- Method of weighing boiler-feed water. T. W. Reynolds. diag Elec W 71:310 F 9 '18
- Scale-forming impurities in feed waters. Power 47:707 My 14 '18
- Testing and treating power plant feed water. H. L. Smith. Elec Ry J 51:751-4 Ap 20 '18; Discussion. 52:513-14 S 21 '18
- Tube spacing to suit bad water conditions. C. E. Brooks. Ry Mech Eng 93:243-4 My '19
- Water—its impurities and your power plant. II Factory 20:996+ My '18
- Watering and un-watering an industrial plant and its relation to the public water supply. W. F. Wilcox. Munic Eng 54:206-9 My '18
- Yarway automatic boiler skimmer. diag Power 49:165 F 4 '19
- See also* Boiler scale; Feed water heaters; Feed water purification; Injectors; Pumps; Feed water
- Feed water heaters**
- Development of locomotive feed water heaters; abstracts. J. S. Bell. Ry Age 64:1531-2 Je 21 '18; Ry R 63:14-16 JI 6 '18
- Feed-water heater and filter. J. E. Noble. diag Power 47:810 Je 4 '18
- Feed-water heaters in ice plants. V. J. Azbe. Power 48:526 O 8 '18
- Feed-water heating. II Heat & Ven 14:46-9 D '17
- Floatless floats. G. Woolaver; J. W. Warwick. diag Power 49:28 Ja 7 '19
- Improvised feed-water heater. H. G. Boutell. diag Power 48:430-1 S 17 '18
- Locomotive feedwater heater. Ry R 63:541 O 12 '18; Same cond. Am Soc M E J 40:1053 D '18
- Locomotive feedwater heating. II diag Ry Age 64:177-9 Ja 18 '18; Same. Ry Mech Eng 92:63-5 Ja '18
- New departure in locomotive feedwater heaters. II diag Ry Age 67:475-6 S 5 '19
- Open type locomotive feed-water heater. II diag Ry Mech Eng 93:495-6 Ag '19
- Feed water heating**
- Approximate method of calculating economy of feed-water heater. W. F. Schaphorst. chart Elec R 72:432 Mr 9 '18
- Dividing box with condensing head. H. C. Thayer. diag Power 49:132 Ja 28 '19
- Fuel economy in the operation of hand fired power plants. A. C. Willard and others. III U Eng Exp Sta Circ 7:62-6 '18
- Heating feed-water at expense of back pressure. Power 47:63 Ja 8 '18
- Locomotive feed water heating. H. S. Vincent. diag Ry Mech Eng 92:645-9; 93:44-7 D '18-Ja '19; Abstract. Am Soc M E J 41:177-80 F '19

Maintenance of a proper heat balance. R. N. Ehrhart. diag Power 48:692-4 N 12 '18

Saving by increase of feed-water temperature. Power 47:97 Ja 15 '18

*See also* Feed water heaters

**Feed water pumps.** *See* Pumps, Feed water

**Feed water purification**

- Boiler-compound feeder. W: Forray. diag Power 46:806 D 11 '17
- Boiler water treatment. U S Bur Mines Tech Pa 218:1-8 '19; Same. Ry R 64:547-9 Ap 12 '19; Same. Eng & Contr 51:519-20 My 14 '19; Same. Power 50:198-9 JI 29 '19
- Boiler waters: their chemical composition, use, and treatment. W. T. Read and E. P. Schoch. II diag Texas U Bul 1752:1-105 S 15 '17
- Compound mixing and feeding tank. B. D. De Pass. diag Power 47:629 Ap 30 '18
- Double-service boiler. diag plan Power 49:634-5 Ap 29 '19
- Economies of pure water for the textile mill. J. J. Felsecker. Textile World 54:2787 D 7 '18
- Elimination of oil and air from feedwater; abstract. Mech Eng 41:284 Mr '19
- Feed-water treating and purifying plant for the Republic iron & steel company, Youngstown, Ohio. S. H. McKee. II plans Eng Soc W Pa 35:288-301; Discussion. 302-9 JI '19
- Ferrochem feed-water treatment. II diag Ry Mech Eng 92:230-1 Ap '18; Power 48:739 N 19 '18
- Filtered water for industrial use. H. C. Stevens. II diag plan Iron Tr R 63:491-4 Ag 29 '18
- Fuel economy in the operation of hand fired power plants. A. C. Willard and others. III U Eng Exp Sta Circ 7:60-2 '18
- Home-made water-softening plant. H. D. Odell. II Power 48:728-31 N 19 '18
- Improvements in water softening practice on the Chicago & Eastern Illinois R. R. W. H: Hobbs. Ry R 62:161-3 F 2 '18; Discussion. 62:167, 188-90, 311-13, 484-5 F 2-9, Mr 2, 30 '18
- International water softener. II Power 48:160-1 JI 30 '18
- Mine water-purifying system. II Coal Age 13:1057 Je 8 '18
- Missouri Pacific saves \$279,843 by water treatment. R. C. Bardwell. Ry Age 66:1321-2 My 30 '19
- One phase of boiler water treatment. J. R. Leighty. Ry Age 65:539-40 S 20 '18
- Reducing costs of fuel and boiler maintenance. S. B. Applebaum. diag Elec W 71:349-52 F 16 '18
- Refinite water softener. diag Power 47:839 Je 11 '18
- Removing mud from locomotive feed water. C. P. Van Gundy. Ry Age 65:638 O 4 '18
- Removing oil from boiler-feed water. H. A. Ward. diag Power 50:152 JI 22 '19
- Report on the chemical treatment of boiler feed water. E. Echikson. Stevens Ind 36:115-25 Ap '19
- Treating boiler make-up water selectively. L. Linnell. Elec R 72:76-7 Ja 12 '18
- Treating water reduces boiler troubles. C. H. Koyl. diag plan map Ry Age 66:1053-6 Ap 25 '19
- Treatment of acidulous feed water for steam purposes. E. A. Reilly. Coal Age 15:531-2 Mr 20 '19
- Treatment of boiler water for industrial plants; abstracts. W. F. Monfort. Eng N 83:323 Ag 14 '19; Power 50:442-3 S 9 '19
- Treatment of impure feed water. Coal Age 13:261 F 2 '18
- Treatment of railway water supplies. W: M. Barr. Ry R 63:16-17 JI 6 '18
- Use of soda ash in water softening. W: H: Hobbs. Ry R 63:633-5 N 2 '18
- Water softening plant on construction job pays for itself in two months. M. W. Woolsey. Eng & Contr 51:393-4 Ap 16 '19
- Water softening to correct boiler corrosion. W: H: Hobbs. Ry R 63:167-70 Ag 3 '18
- Water treatment and anti-foaming compound. L. F. Wilson. Ry Age 66:1808 Je 27 '19

**Feed water regulators**

Automatic feed-water regulation enables big saving. Elec R 74:1087 Je 28 '19  
 Stets boiler-feed controller. diags Power 47:800-1 Je 4 '18  
 Warner automatic boiler feed regulator. Engineer 128:380 O 17 '19

**Feeders. See Electric distribution****Feeding and feeding stuffs**

Balanced rations from restricted sources. E. B. Hart and others. Sci Am S 87:202 Mr 29 '19  
 Desert feed for drought seasons. II Sci Am 119:357 N 2 '18  
 Emergency fodder. Sci Am 118:345 Ap 13 '18  
 German substitutes for cattle feed. Sci Am 118:313 Ap 6 '18  
 Mineral elements in animal nutrition. E. B. Forbes. Sci Am S 87:218-19+ Ap 5 '19  
 Nature of the inositol phosphoric acids of some important feeding materials. J. B. Rather. Am Chem Soc J 40:523-36 Mr '18  
 New feeding stuffs used in Germany during the war. M. Kling. Sci Am S 85:23 Ja 12 '18  
 Practical self-feeder for hogs. F. C. Lewis. II Bldg Age 41:209 Je '19

See also Alfalfa; Hay; Silage; Sudan grass

**Feeding floors**

Construction of concrete feeding floors. W. G. Kaiser. II diags Bldg Age 40:208-9 Ap '18

**Fees. See Engineers—Fees****Feldspar**

Potash from feldspar: abstracts. E. A. Ashcroft. Met & Chem Eng 18:153 F 1 '18; Eng & Min J 105:382 F 23 '18  
 Potash from feldspar: patents. Met & Chem Eng 18:100, 317 Ja 15, Mr 15 '18

**Bibliography**

Extraction of potash from complex mineral silicates, such as feldspar, leucite and glaucinite (greensand marl). E. C. Buck. Met & Chem Eng 18:33-7, 90-5 Ja 1-15 '18

**Fell, John, 1625-1686**

Dr Fell and the University press at Oxford. H: L. Bullen. por Inland Ptr 62:527-8 F '19

**Fellows and fellowships. Am Inst Arch J 7:51-9 F '19****Fellowships. See Scholarships and fellowships****Felt**

Uses of felt. F. Dolge. Metal Ind 15:88 F '17

**Fence posts**

Results of long-time tests of creosote-treated fence posts. C. H. Teesdale. Eng N 82:1254 Je 26 '19

**Fence posts, Concrete**

Form for concrete fence posts. A. H. Sawyer. diags Eng & Min J 107:796 My 3 '19  
 Making an inexpensive concrete fence post. II Bldg Age 40:209 Ap '18

**Fences, Railroad. See Railroads—Fences****Fenders, Car. See Car fenders****Fermentation**

By-products of the fermentation of cabbage. V. E. Nelson and A. J. Beck. Am Chem Soc J 40:1001-5 Je '18

Fermentation process for the production of acetone and ethyl alcohol. J: H. Northrop, L. H. Ashe and R. R. Morgan. diags J Ind & Eng Chem 11:723-7 Ag '19

Ferments and catalysts. P. Sabatier. Sci Am S 88:274-5, 278+ N 8 '19

Preservation of fermentation organisms in nutrient media. A. Klocker. Sci Am S 85:53 Ja 26 '18

Production of glycerine from sugar by fermentation. J: R. Eoff, W. V. Linder and G. F. Beyer. diags J Ind & Eng Chem 11: 843-5 S '19

See also Bacteriology; Enzymes; Sugars

**Ferric arsenate**

Influence of the age of ferric arsenate on its peptization. H. N. Holmes and P. H. Fall. Am Chem Soc J 41:713-17 My '19

Peptization of ferric arsenate and phosphate and the formation of their gels. H. N. Holmes and R. Arnold. Am Chem Soc J 40: 1014-19 Jl '18

**Ferric hydroxide**

Adsorption of arsenious acid by ferric hydroxide. M. C. Boswell and J. V. Dickson. diags Am Chem Soc J 40:1793-1801 D '18

**Ferric sulfate**

Application of rotating reducers in the determination of iron. W. Scott. J Ind & Eng Chem 11:1135-7 D '19

**Ferries**

See also Train ferries

**Ferrite**

Grain-size inheritance in iron and carbon steel. Z. Jeffries. II Am Inst Min E Bul 131: 1883-89 N '17; Discussion. 135:699-700; 136: 727-34; 137:1023-5 Mr-May '18

Supposed reversal of inheritance of ferrite grain size from that of austenite. H: M. Howe. Am Inst Min E Bul 129:1365-7 S '17; Discussion. 133:105-6 Ja '18

**Ferro-alloys. See Iron alloys****Ferrocerium**

French method of making ferrocerium in sticks for pyrophoric use. M. J. Camillo. diags Iron Age 103:1527 Je 5 '19  
 How the French make ferrocerium. Iron Age 103:1086 Ap 24 '19

**Ferrochrome**

Ferrochrome situation. Eng & Min J 105:244-5 F 2 '18

**Ferrocyanide**

Electrometric method for the determination of ferrocyanides depending on a change in oxidation potential. G. L. Kelley and R. T. Bohn. Am Chem Soc J 41:1776-83 N '19

**Ferromanganese**

Anaconda company to produce ferromanganese. Met & Chem Eng 18:391 Ap 15 '18  
 Anaconda copper co. makes ferroalloy. II Iron Tr R 63:1125-6 N 14 '18

Analysis of ferromanganese. L. R. Taylor. Chem & Met Eng 20:53 Ja 15 '19

Deoxidation of steel by ferromanganese. A. L. Feild. J Ind & Eng Chem 11:242-4 Mr '19

Design of electric furnaces. R. C. Gosrow. Chem & Met Eng 21:235-41 S 1 '19

Development of the ferro-manganese industry in the United States since 1914. T. Swann. Chem & Met Eng 19:672-3 N 1 '18; Same. Iron Age 102:1075 O 31 '18; Same. Eng & Min J 106:874 N 16 '18; Same cond. Iron Tr R 63:1345-6 D 12 '18

Eliminating phosphorus and sulphur in electric ferromanganese furnaces. J. Lonergan. Chem & Met Eng 20:245 Mr 1 '19

Ferroalloys production stimulated. Iron Tr R 64:118, 120 Ja 2 '19

Ferromanganese and spiegeleisen. G: C. Stone. Eng & Min J 105:75-6 Ja 12 '18

Ferromanganese at Great Falls, Mont. Chem & Met Eng 20:7 Ja 1 '19

Home output meets ferro demand. Iron Tr R 62:24-5 Ja 3 '18

How to save manganese and coke. Iron Tr R 63:1347-8 D 12 '18

Liquid ferromanganese in steel making. Iron Age 102:208-9 Jl 25 '18

Manganese-alloy furnaces. P. H. Royster. Iron Age 102:1607 D 26 '18

Manganese alloys in 1918. Iron Age 103:493 F 20 '19

Our ferromanganese output in 1917. Iron Age 101:316 Ja 31 '18

Plans of the Anaconda copper mining co. for producing ferromanganese electrolytically. Iron Age 101:782 Mr 21 '18; Excerpt. Eng & Min J 105:677 Ap 13 '18

Present situation in ferromanganese. Iron Age 104:584 Ag 28 '19

Production of ferromanganese in blast furnaces. P. H. Royster. U S Bur Mines War Minerals Investigations Ser 5:1-31 '18 (Type); Same cond. Iron Tr R 64:405-7, 439-43 F 6-13 '19

Production of ferromanganese in the blast furnace. P. H. Royster. Am Inst Min E Bul 146:367-78 F '19

Size vs. recoveries in ferromanganese furnaces. E. S. Bardwell. Chem & Met Eng 19:749 D 1 '18

Spiegeleisen in place of ferromanganese. E. F. Cone. Iron Age 101:40-1 Ja 3 '18

**Ferromanganese—Continued**

- Supplies of ferromanganese. *Iron Age* 102:212, 1590 J1 25, D 26 '18  
 That missing page from the blue-back speller; use of manganese ferro-alloys in steel making. *Chem & Met Eng* 19:794; 20:53, 501 D 15 '18, Ja 15, My 15, Je 15 '19

**Ferrosilicon**

- Analysis of ferro-silicon. M. A. Mammen. *Met & Chem Eng* 18:438 My 1 '18  
 Chemical iron ware. *Il Chem & Met Eng* 19:520-3 S 28 '18  
 Ferrosilicon in the cupola. H. E. Diller. *Foundry* 47:394 Je 15 '19  
 High-grade ferrosilicon. *Iron Age* 101:1177 My 2 '18  
 Hydrogen from ferrosilicon. *Iron Age* 103:608 Mr 6 '19

**Ferrous carbonate**

- Equilibrium in the system: ferrous carbonate, carbon dioxide and water. H. J. Smith. *Am Chem Soc J* 40:879-83 Je '18

**Ferrozirconium**

- Analysis of ferrozirconium and zirconium in steel. J. D. Ferguson. *Eng & Min J* 106:356 Ag 24 '18

**Fertilization of plants**

- Flowers that fertilize themselves. A. A. Hansen. *Il Sci Am* 118:406 My 4 '18

**Fertilizers and manures**

- Agricultural availability of raw ground phosphate rock. W. H. Waggaman and C. R. Wagner. *J Ind & Eng Chem* 10:442-4 Je '18  
 Agricultural fertilizers; the raw materials, their source and characteristics. *Sci Am S* 87:174-6 Mr 15 '19

- Artificial fertilizer: studies on the influence of fluorides on plants. A. Gautier and P. Clausmann. *Sci Am S* 88:95 Ag 9 '19

- Commercial fertilizer as a side line. *Am Lumberman* 2282:44-5 F 8 '19

- Crops thrive under Imhoff-tank sludge tests at Dallas. C. Saville. *Eng N* 81:164-5 J1 25 '18

- Effect of fertilizers on hydrogen-ion concentration in soils. F. W. Morse. *J Ind & Eng Chem* 10:125-6 F '18

- Effect of fertilizers on the composition of hops. G. A. Russell. *J Ind & Eng Chem* 11:218-24 Mr '19

- Fertilizer industry and its power requirements. J. E. Mellett. *Il Gen Elec R* 21:96-110 F '18

- Fertilizing the retail lumberman's bank account. W. W. Weir. *Am Lumberman* 2284:57 F 22 '19

- Fertilizing value of activated sludge. G. G. Nasmith and G. P. McKay. *Il J Ind & Eng Chem* 10:339-44 My '18; Excerpts. *Eng & Contr* 50:31-2 J1 10 '18; Discussion. P. Rudnick. *J Ind & Eng Chem* 10:400 My '18

- Fertilizing values of water hyacinth. *Eng & Contr* 50:415 O 30 '18

- Imhoff tank sludge makes raspberries and lettuce grow at Toronto. I. H. Nevitt. *Il Eng N* 81:373 Ag 22 '18

- Licensing of fertilizer industry ordered by the President. *J Ind & Eng Chem* 10:323-4 Ap '18

- Manure pit eliminates waste. F. T. Fellner. *Il diag plans Bldg Age* 40:560-2 D '18

- Micro-organisms in plant chemistry and nitrogen fixation. E. Hendrick. *Il Chem & Met Eng* 19:574-6 O 1 '18

- New fertilizer from Italy. *Sci Am* 119:337 O 26 '18

- Rejuvenation of earth and man; clean culture nature's method. S. Morgan. *Sci Am S* 84:402-3 D 29 '17

- Theory of fertilizers. *Sci Am S* 87:26 Ja 11 '19

- Use of sludge as a fertilizer. F. T. Hambleton. *Eng & Contr* 51:446 Ap 30 '19

- Uses of peat in agriculture. *Coal Age* 14:63 J1 13 '18

- Water hyacinth as a fertilizer. R. S. Finlow and K. C. McLean. *Sci Am S* 86:75 Ag 3 '18

- What shall we do with wheat bran; is its use for human food the most efficient utilization of its mineral constituents? A. D. Holmes. *Sci Am* 119:106 Ag 10 '18

*See also* Phosphates; Potash; Sewage irrigation

**Analysis**

- Determination of the value of agricultural lime. S. D. Conner. *Il J Ind & Eng Chem* 10:996-9 D '18

- Study of sources of error incident to the Lindo-Gladding method for determining potash. T. E. Keitt and H. E. Shiver. *J Ind & Eng Chem* 10:994-6 D '18

**Fever. See Typhoid fever; Typhus fever****Fiber board**

- Webb paper tester—a new instrument for testing corrugated fiber boards. J. D. Malcolmson. *Il J Ind & Eng Chem* 11:133-8 F '19

**Fibers**

- Cellulose, a new wood pulp fiber. *Sci Am S* 86:71 Ag 3 '18

- Convenient and efficient digestion apparatus for the determination of crude fiber. H. D. Spears. *Il diag J Ind & Eng Chem* 11:140-1 F '19

- Distinguishing manila from all other hard rope fibers. C. E. Swett. *J Ind & Eng Chem* 10:227 Mr '18

- New sources of cordage fiber supply. F. A. G. Pape. *Il Textile World* 53:2965-4 Ja 12 '18

- See also* Cotton; Flax; Hemp; Jute; Linen; Nettles; Silk; Sisal hemp; Textile fibers; Vulcanized fiber; Wool; Yucca

**Fibers, Textile. See Textile fibers****Fibrin**

- Effect of prolonged acid hydrolysis upon the nitrogen distribution of fibrin with especial reference to the ammonia fraction. R. A. Gortner and G. E. Holm. *Am Chem Soc J* 39:2736-45 D '17

- Molecular mechanism of colloidal behavior; the swelling of fibrin in acids. R. C. Tolman and A. E. Stearn. *Am Chem Soc J* 40:264-72 Ja '18

- Molecular mechanism of colloidal behavior; the swelling of fibrin in alkalies. R. C. Tolman and R. S. Bracewell. *Am Chem Soc J* 41:1503-10 O '19

- Swelling of fibrin in polybasic acids and their salts. M. H. Fischer and M. Benzinger. *Am Chem Soc J* 40:292-303 Ja '18

**Fibroin**

- Researches on proteins; the destructive distillation of fibroin. T. B. Johnson and P. G. Daschavsky. *Am Chem Soc J* 41:1147-9 J1 '19

**Field museum of natural history**

- Henry Hering's sculpture for the Field museum of natural history in Chicago. C. O. Cornelius. *Il Arch Rec* 44:430-49 N '18

**Files and filing (documents)**

- Binder for detached pages. F. A. Combe. *diag Power* 47:410-11 Mr 19 '18

- Business library. L. B. Krause. *Il J Elec* 43:25-7 J1 1 '19

- Control of industrial and scientific information; abstract. W. Rintoul. *J Fr Inst* 186:264 Ag '18

- Convenient catalog file. N. Gineer. *Il diag Metal Work* 91:201-2 F 14 '19

- Engineer's data file is compact and convenient; abstracts. A. H. Myers. *Il diag Eng N* 82:587 Mr 20 '19; *Coal Age* 15:606 Ap 3 '19

- Filing record charts. W. H. Nostan. *diag Power* 47:777 My 28 '18

- Filing system for central station use. C. C. Hogan. *J Elec* 42:221-4 Mr 1 '19

- Indexing trade literature (trade pamphlets, circulars, catalogs, etc.). J. C. Hawkins. *Power* 47:557 Ap 16 '18

- Map-indexing system adapted to small cities. F. J. Calkins. *Eng N* 82:965-6 My 15 '19

- Production advertisement filing system. W. N. Allen, Jr. *Am Mach* 51:553-6 S 18 '19

- Uniform filing system. C. C. Hogan. *J Elec* 42:170-2 F 15 '19; Same. *Eng & Contr* 51:525-6 My 14 '19

*See also* Classification



**Files and rasps**

- Getting the most out of the file. *Il Sci Am* 118: 410+ My 4 '18  
 How to use the file. *diags Motor Age* 35: 30-1 My 29 '18  
 Manufacture of files. *Sci Am S* 84:415 D 29 '17  
 Recutting files. *Am Mach* 50:70, 252 Ja 9, F 6 '19  
 Reform in the file industry. G: Taylor. *Engineer* 126:13-14 JI 5 '18  
 Some points in the manufacture of files; abstracts. G: Taylor. *Engineer* 127:604, 606, 626 Je 20-27 '19; *Iron Age* 103:1631-6 Je 19 '19

**Filing machines**

- Advance filing machine. *Il Am Mach* 48:850 My 16 '18  
 Barry filing machines. *Il Am Mach* 48:890 My 23 '18  
 Davis 20th century filing machine. *Il Am Mach* 48:558-9 Mr 28 '18  
 Holmes filing machine. *Il Am Mach* 48:470-1 Mr 14 '18

**Fillets**

- Area of fillets. H. Gwinner. *chart diags Mach* 25:200 N '18  
 Weight of fillets. W. L. Tryon. *diags Foundry* 47:22a, 66a Ja-F '19

**Films**

- Measurement of the thickness of film formed on glass and sand. E. Pettijohn. *diags Am Chem Soc J* 41:477-86 Ap '19

*See also Soap bubbles and films*

**Filters and filtration**

- Air wash filter. *Il Textile World* 53:3283 Ja 12 '18  
 Algal growths and water filtration. *Engineer* 128:233-4 S 5 '19; *Same. Eng & Contr* 52: 486-7 O 29 '19  
 American army's water-works projects in France number about four hundred. R. K. Tomlin, jr. *Il diags plans Eng N* 81:434-7 S 5 '18  
 Buffalo's water supply, with special reference to the filtration problem. H: F. Wagner. *Il Am Water Works Assn J* 6:524-31 S '19  
 Build filters for fighters in France from odds and ends. *diags plans Eng N* 81:670-1 O 10 '18  
 Clinker vs. gravel as a nidus. J: E. Farmer. *Eng & Contr* 50:105 JI 31 '18  
 Coagulant and filters remove oily tastes and odors; experiments at Whiting, Ind. *Il Eng N* 80:87-8 Ja 10 '18  
 Coal pre-filter prevents sand accretion in final rapid water filters. *Il diags plans Eng N* 80: 912-14 My 9 '18  
 Cost of rapid sand filtration at Evanston, Ill. *Eng & Contr* 49:262 Mr 13 '18  
 Data on filter sand growth at Grand Rapids. *Il Eng N* 81:358 Ag 22 '18; *Eng & Contr* 50: 182 Ag 14 '18  
 Decarbonation and removal of iron and manganese from ground waters at Lowell, Mass. F. A. Barbour. *Il 4 pls Am Water Works Assn J* 4:129-64 Je '17; *Discussion. 5:185-9 Je '18*  
 Design and construction features of the new slow sand water filtration plant at Auburn, New York. J. W. Ackerman. *Il Munic Eng* 55:139-41 O '18  
 Design and construction of new mechanical water filtration plant at Oshkosh, Wis. T. B. Jorgensen. *Il Munic Eng* 55:20-2 JI '18  
 Design and operation of the water filtration plant at Camp Meade, Maryland. C. R. Pottelger. *Munic Eng* 57:33-8 JI '19  
 Design of new filters influenced by experience gained from the operation of original filters at the Minneapolis plant. L: I. Birdsall. *Munic Eng* 56:230-1 Je '19  
 Drifting-sand water-filter test results reported. G: G. Nasmith and N. J. Howard. *Eng N* 81:817-18 O 31 '18  
 Electric filtration plant. R. U. Steelquist. *Il J Elec* 42:427-8 My 1 '19  
 Electrically controlled filtration. *Sci Am* 118: 95 Ja 26 '18  
 Electrically driven filter. E. J. Richards. *Il J Elec* 42:262-3 Mr 15 '19

- Excess lime treatment system for Aberdeen (Scotland) waterworks. *plan Eng & Contr* 50:100 JI 31 '18  
 Experience with filter sand at Columbus, O. *Eng & Contr* 49:593-4 Je 12 '18  
 Features of present-day water purification practice. M. F. Stein. *Il diags Munic Eng* 56:57-60 F '19  
 Filtered water for industrial use. H. C. Stevens. *Il diag plan Iron Tr R* 63:491-4 Ag 29 '18  
 Filtration and sterilization of water. R. G. Tyler. *Texas U Bul* 1733:23-31 Je 10 '17  
 Filtration plant operations at St. Louis. E: E. Wall. *Eng & Contr* 52:410-11 O 8 '19  
 Fully metered plant treats highly turbid Arkansas for Tulsa, Okla. *Il diag plan Eng N* 81:221-3 Ag 1 '18  
 High rate of filtration feasible for Detroit water-supply. *Eng N* 82:662 Ap 3 '19  
 How to filter soft water in pneumatic tank supply system. *diags Dom Eng* 81:500-1 D 22 '17  
 Insect aid to filtration. H. D. Bell and W. H. Parkinson. *Munic J* 46:383-4 My 31 '19  
 Intermediate rate fine-sand water filter operates under vacuum. *Il diags plan Eng N* 80: 1230-2 Je 27 '18  
 Mixing baffles cut down chemicals at Jackson, Miss. J: R. Baylis. *Eng N* 80:364-5 F 21 '18  
 Model explains water filter to visitors. *Il Eng N* 82:923 My 8 '19  
 Need of certain investigations for increasing the efficiency of water filter plant design and operation. J. W. Armstrong. *Munic Eng* 56:5-6 Ja '19  
 Operating features of the Chain of Rocks filter plant. A. G. Nolte. *Eng & Contr* 51:32-3 Ja 8 '19  
 Operation of an American or rapid water filtration plant for twenty years at Elmira, New York. J. M. Caird. *Am Water Works Assn J* 6:409-21 S '19  
 Operation of Louisville filter plant. *Il Munic J* 46:362-3 My 24 '19  
 Operation of the Moline filtration plant. A. E. Anderson. *Am Water Works Assn J* 6:238-42 Je '19  
 Poor filter operation accountable for typhoid outbreaks. *diag Eng N* 82:1264-5 Je 26 '19  
 Preliminary analysis of the degree and nature of bacterial removal in filtration plants. A. Wolman. *Am Water Works Assn J* 5:272-8 S '18; *Same cond. Eng & Contr* 50:346-7 O 9 '18  
 Progress report of American water works association committee on mechanical analysis of sands. *Am Water Works Assn J* 5:345-54 S '18  
 Proper construction for rain water filter. C. D. Puckett. *diags plan Metal Work* 91: 491-2 Ap 18 '19  
 Proposed water filtration at Detroit, Mich. *Munic Eng* 57:177-8 O '19  
 Ransome drifting sand filters at Toronto, Ontario. J. Race. *diag Munic Eng* 56:15 Ja '19  
 Rebuild underdrains in Toledo filters. *Eng N* 81:281 Ag 8 '18  
 Reduction of free carbonic acid in settled water increases length of filter runs at Panama. G: C. Bunker. *Eng & Contr* 49:260-2 Mr 13 '18  
 Report on Detroit waterworks. R. W. Pratt. *Il Munic J* 46:334-7 My 10 '19  
 Result of first year's operation of Point St Charles filtration works, Montreal. *Eng & Contr* 52:303-4 S 10 '19  
 Selection of and specifications for alum for filter plants. *Eng & Contr* 49:462-3 My 8 '18  
 Settling basin efficiency at Philadelphia. J. S. V. Siddons. *Am Water Works Assn J* 6:157-9 Je '19  
 Significance of black sands in filters. J. E. Welker and C. C. Young. *Am Water Works Assn J* 5:425-8 D '18  
 Slow sand and multiple filtration. W. Clemence. *diag Eng & Contr* 50:123 JI 31 '18  
 Some observations and experiences in the operation of coagulating basins. J. W. Armstrong. *diags Am Water Works Assn J* 6:160-6 Je '19

**Filters and filtration—Continued**

- Sprinkling filter flies. C. S. Beckwith. *Munic J* 46:196 Mr 8 '19; Same cond. *Eng & Contr* 51:267 Mr 12 '19
- Toronto drifting sand filters; abstracts. N. J. Howard. *Il diags Munic J* 47:220-2 O 11 '19; *Eng & Contr* 52:402-4 O 8 '19; *Eng N* 83: 822-3 O 30 '19
- Toronto's drifting sand filter. *Munic J* 45:390-2 N 16 '18
- Trenton, N. J., filtration plant. F. W. Daggett. *Il Am Water Works Assn J* 6:147-56 Je '19
- Value of coagulants in filtration of water for domestic use. *diag Dom Eng* 87:521 Je 21 '19

*See also* Air filters; Oil filters; Oil separators; Water purification

**Filters and filtration (chemistry)**

- Filtration in the laboratory. R. T. Smith. *Color Tr J* 4:21-4 Ja '19
- New form of ultra-filter: some of its uses in biological and synthetic organic chemistry. P. A. Kober. *diags Am Chem Soc J* 40: 1226-30 Ag '18
- Ultra-filter. O. Ostwald. *J Ind & Eng Chem* 10:747 S '18

**Filters and filtration (metallurgy)**

- Filter adjustments at Packard mill at Rochester, Nevada. F. D. Bradley. *diags Eng & Min J* 106:207-9 Ag 3 '18
- Filter-press. D. R. Sperry. *Il diags Met & Chem Eng* 18:140-3, 362-4, 520-2 F 1, Ap 1, My 15 '18
- Oliver filter modifications. C. T. Rice. *Eng & Min J* 106:899 N 23 '18
- Use of filters in centrifugal washers. M. H. Merriss. *Eng & Min J* 106:336 Ag 24 '18

**Filters and filtration (technical chemistry)**

- Commercial filtration. J. F. Springer. *diag Color Tr J* 5:103-7 O '19
- Developments in filtration and the use of Filter-Cel as a filter aid. W. L. Jordan. *Met & Chem Eng* 18:101-2 Ja 15 '18
- Efficient filtering tube. *diag Textile World* 53: 3911+ F 23 '18
- Filter-press. D. R. Sperry. *Il diags Met & Chem Eng* 18:140-3, 362-4, 520-2 F 1, Ap 1, My 15 '18
- Plate-and-frame filtration. D. R. Sperry. *Il diags Met & Chem Eng* 18:258-60 Mr 1 '18
- Washing in filter presses. D. R. Sperry. *Il diags Chem & Met Eng* 19:680-2 N 1 '18
- World's leading filters. *Chem & Met Eng* 19: 550-1 O 1 '18

**Filtration.** *See* Filters and filtration

**Finance**

- Banking institutions to finance our future abroad. A. Breton. *Ry Age* 64:940-2 Ap 5 sec 2 '18
- Indictment which must be examined; letter to the directors of the title and mortgage companies of New York. *Am Inst Arch J* 6:79-81 F '18
- New York as the world's discount market. *Am Ind* 18:9 My '18
- Some of our post-war problems. F. B. Sisson. *Am Mach* 50:935-7 My 15 '19
- Talking finance to employees. F. H. Payne. *Ind Management* 58:28 Jl '19

*See also* Auditing; Banks and banking; Bimetallism; Bonds; Budget; Building loans; Capital; Corporations; Credit; Debts; Public; Holding companies; Income tax; Insurance; Interest; Investments; Loans; Money; Municipal finance; Panics; Prices; Securities; Sinking funds; Tariff; Taxation; Trusts; Industrial; War finance; also subdivision Finance under special subjects. e.g. European war—Finance, Public utilities—Finance, Railroads—Finance, Roads—Finance

**Finance, international**

- Financial reconstruction in world markets. P. Warburg. *Textile World* 55:228+ Ja 11 '19
- Our role as a creditor country. B. M. Anderson, Jr. *Textile World* 55:2531-2 Ap 26 '19
- Pooling national war debts. *Am Ind* 19:10-11 F '19

**Finance, municipal.** *See* Municipal finance

**Financial libraries**

- Selection of reference books for a financial library. *Special Libraries* 10:128 Je '19

**Financial statements**

- Essential features in a report for credit purposes. R. H. Leamy. *J Account* 26:161-8 S '18
- Financial reports of public institutions. L. Morey. *J Account* 26:33-7 Jl '18

**Finger prints**

- Copying fingerprints. R. de Réaillac-Rosé. *Il Sci Am S* 88:173-4, 216-17 S 13, O 11 '19
- Finger print classification. J. H. Taylor. *Sci Am* 120:369 Ap 12 '19

**Finland**

- Traffic through Finland after the war. *Am Ind* 18:45 Mr '18

**Economic conditions**

- American industrial methods in Finland. J. de Julin. *Ind Management* 58:51-2 Jl '19

**Industries and resources**

- Finland and the world's next paper supply. C. A. Player. *Sci Am* 119:411 N 23 '18

**Fir**

- Government sets southern pine and fir prices. *Am Lumberman* 2250:35-6 Je 29 '18
- Spruce and fir output nears requirements. *Automotive Ind* 39:210 Ag 1 '18

*See also* Douglas fir

**Fire.** *See* Fires; Flames; Heating; Spontaneous combustion

**Fire alarm stations**

- Central fire-alarm station of San Francisco. *Il Elec R* 74:291-4 F 22 '19

**Fire alarms**

- Aero alarm co.'s patent fire finder. *Am Arch* 114:246 Ag 21 '18
- Federal electric siren. *Il Munic J* 45:220 S 14 '18
- New York fire alarm telegraph. *Il Munic J* 44:53-4 Ja 19 '18
- Reynolds automatic controller for a fire-alarm siren. *Il Elec W* 71:179 Ja 19 '18

**Fire apparatus**

- Auxiliary fire equipment; tabulation. *Munic J* 44:35-7, 56-58 Ja 12-19 '18
- Care and use of fire apparatus. *Textile World* 56:113 Jl 5 '19
- See also* Fire engines; Fire hose; Hose couplings

**Fire apparatus, Motor**

- Average mileage per year made by motor fire apparatus; tabulation. *Munic J* 43:583-5, 608-9 D 15-22 '17
- Motor apparatus in service in the United States; tabulation. *Munic J* 43:587-40, 560-3 N 29-D 6 '17
- Motor apparatus operation; miles run per gallon of gasoline. *Munic J* 43:631-2; 44:18-19 D 29 '17-Ja 5 '18
- Motor fire apparatus in American cities; summary of data given in tables previously published. *Munic J* 43:582-3 D 15 '17
- White fire apparatus makes new pumping record in Chicago. *Il Munic J* 45:239-40 S 21 '18

**Fire boats**

- Fire boat and salvage boat for Elswick. *Il Engineer* 124:503-4 D 7 '17

**Fire brick**

- Action of iron oxide on silica bricks. *Sci Am S* 86:368 D 7 '18
- Blast-furnace refractories. R. M. Howe. *Am Inst Min Bul* 153:1791-1802 S '19; Discussion. 155:3049-50 N '19
- Brick for making coke oven walls gas-tight. H. Graham. *diags Iron Age* 101:803 Mr 28 '18
- Composition of refractory silica brick. J. S. McDowell. *diag Eng & Min J* 105:954-6 My 25 '18
- Constitution and microstructure of silica brick and changes involved through repeated burnings at high temperatures. H. Insley and A. A. Klein. *Il diag U S Bur Stand Tech Pa* 124:1-31 '19; Abstract. *J Fr Inst* 187:628-30 My '19; Same. *Mech Eng* 41:470 My '19

**Fire brick—Continued**

- Disadvantages of chrome brick for copper reverberatory furnaces. F. R. Pyne. *Am Inst Min E Bul* 132:2025-7 D '17; Same. *Eng & Min J* 105:9-10 Ja 5 '18; Same. *Met & Chem Eng* 18:20 Ja 1 '18; Discussion. *Am Inst Min E Bul* 135:698; 136:713-14 Mr-Apr '18
- Effects of furnace conditions on basic refractories used in smelting operations. *Sci Am S* 85:192 Mr 23 '18
- Facts concerning refractories in the iron and steel industry. C. E. Nesbitt and M. L. Bell. *II J Ind & Eng Chem* 11:1149-51 D '19; Same. *Iron Tr R* 65:1112-14 O 23 '19
- Facts regarding silica refractories. W. J. Rees. *Foundry* 47:555 Ag 15 '19
- Inspecting refractory brick. C. E. Nesbitt and M. L. Bell. *Iron Age* 102:630 S 12 '18
- Making and testing silica cement. R. J. Montgomery. *II Iron Tr R* 63:1014-16 O 31 '18
- Manufacture of silica brick. H. Le Chatelier and B. Bogitch. *II Am Inst Min E Bul* 141:1435-62 S '18; Excerpts. *Iron Tr R* 63:1178-82 N 21 '18
- Manufacture of silica bricks. *Sci Am S* 85:323 My 25 '18
- Plastic fire brick as a substitute for blocks or bricks requiring mortar. *II Heat & Ven* 15:68-9 S '18
- Porosity and volume changes of clay firebrick at furnace temperatures; abstract. G. A. Loomis. *Am Soc M E J* 41:51 Ja '19
- Preventable defects in fire brick. C. E. Nesbitt and M. L. Bell. *II Iron Tr R* 65:423-6 Ag 14 '19
- Recent developments in ceramics. A. V. Bleining. *Chem & Met Eng* 19:467-70 S 27 '18
- Refractory materials used in casting plants. H. C. Arnold. *Foundry* 46:252-5 Je '18
- Research in refractories. *Sci Am* 121:309 S 27 '19
- Silica brick in open-hearth furnace roofs. M. Bied. *Iron Age* 102:270-2 Ag 1 '18

**Testing**

- How slag temperatures affect firebrick. R. M. Howe. *Iron Tr R* 63:1288-9 D 5 '18; Same. *Iron Age* 103:255-6 Ja 23 '19; Same. *Chem & Met Eng* 20:167-8 F 15 '19
- Important physical properties of acid refractory materials and methods of estimation. G. E. Foxwell. *diags Eng & Min J* 106:565-8 S 28 '18
- Refractoriness under load. J. W. Mellor and W. Emery. *Sci Am S* 86:187 S 21 '18
- Report on heat-insulating materials. *diags plan Power* 45:593-6 My 1 '17; Abstract. *Am Soc M E J* 39:567 Je '17; Abstract. *Met & Chem Eng* 17:605 N 15 '17; Correction. E. R. Weidlein. *Power* 47:484 Ap 2 '18
- Silica refractories, factors affecting their quality and methods of testing the raw materials and finished ware; abstract. *J Fr Inst* 187:353-6 Mr '19
- Test dolomite firebrick. *Iron Tr R* 64:160 Ja 9 '19

**Fire clay**

- Effect of the size of grog in fire-clay bodies. F. A. Kirkpatrick. *U S Bur Stand Tech Pa* 104:1-39 '18; Abstract. *Chem & Met Eng* 20:88-9 Ja 15 '19

*See also* Fire brick

**Fire damp. See Firedamp****Fire departments**

- City payments for fire protection; tabulation. *Munic J* 44:76-8 Ja 26 '18
- Fire departments of the larger cities. *Munic J* 45:69-70 JI 27 '18
- Training firemen for service. *Munic J* 44:225-6 Mr 16 '18
- See also* Fire extinction; Fire protection; Fire service (water supply)

**Fire engines**

- Fire engines and effective fire fighting. C. H. Fox. *Mech Eng* 41:503-5 Je '19
- Fire engines and the essentials of fire fighting. C. Goldsmith. *Mech Eng* 41:689-90 Ag '19

**Fire escapes**

- Defective fire escapes. C. C. Sherlock. *Mach* 24:536 F '18
- Insufficiency of fire escapes. C. C. Sherlock. *Am Mach* 51:715-16 O 9 '19
- Proper fire escapes an essential to safety. *II plan Am Ind* 18:supl-4 My '18

**Fire extinction**

- Ammonia for fire extinguishing. A. Schleimer. *Mach* 24:443-4 Ja '18
- Automatic chemical fire extinguisher. *Ind Management* 56:431 N '18
- Extinguishing a burning gas well. *II Eng & Min J* 108:73 JI 12 '19
- Extinguishing and preventing oil and gas fires. C. P. Bowle. *bibliog II diags U S Bur Mines Bul* 170:1-45 '18; Abstract. *Mech Eng* 41:436-7 My '19
- Extinguishing fires in large totally enclosed generators and motors. M. A. Savage. *II diag Gen Elec R* 21:53-5 Ja '18
- Extinguishing fires in turbo-generators. *diags Elec W* 73:1116-17 My 24 '19
- Extinguishing fires in turbo-generators. J. T. Foster. *II diags Elec W* 72:116 JI 20 '18
- Extinguishing generator fires. *Elec W* 73:1102-3 My 24 '19
- Extinguishing oil fires with foam. *Engineer* 128:109-10 Ag 1 '19
- Fire engines and effective fire fighting. C. H. Fox. *Mech Eng* 41:503-5 Je '19
- Fire engines and the essentials of fire fighting. C. Goldsmith. *Mech Eng* 41:689-90 Ag '19
- Fire prevention and fire fighting on the farm. H. R. Tolley and A. P. Yerkes. *II U S Agric Farmers' Bul* 904:1-16 '18
- Fire protection for oil tanks. *II Eng & Min J* 108:350-1 Ag 30 '19
- Firefoam extinguishers. *II Coal Age* 15:819 My 1 '19
- Handling fires in stored coal. H. A. Ward. *II diag Power* 50:563-4 O 7 '19
- Methods of extinguishing burning oil and gas wells. R. E. Somers. *II diag Sibley J* 32:119-22 My '18
- See also* Fire apparatus; Fire departments; Fire engines; Fire protection; Fire service (water supply); Hydrants

**Fire hose**

- Best fire hose most economical. J. H. Espy. *Munic J* 45:132 Ag 17 '18
- Fire streams from small hose and nozzles. V. R. Fleming. *diags III Eng Exp Sta Bul* 105:46-60 '18

**Fire houses**

- Engine houses for San Francisco, Cal., fire department; views and plans. *Am Arch* 114:pl 187-93 D 18 '18
- Fire engine house, Vermilye ave., New York; view and plans. *Am Arch* 113:pl 201-3 Je 5 '18
- United States housing corporation proposed development at Bethlehem, Pa., fire house; view and plans. *Am Arch* 116:406 S 24 '19

**Fire insurance. See Insurance, Fire****Fire places. See Fireplaces****Fire prevention. See Fire protection****Fire protection**

- Accident and fire prevention. H. P. Heyne. *Am Mach* 49:157 JI 25 '18
- Care and use of fire apparatus. *Textile World* 56:113 JI 5 '19
- Central fire-alarm station of San Francisco. *II Elec R* 74:291-4 F 22 '19
- Chemical fire protection for the car-storage yard. *II Elec Ry J* 54:753-4 O 18 '19
- Dust and fire. *Sci Am* 119:44 JI 20 '18
- Economic aspects of fire-protection problems and hazards in war times. J. D. Fryor and F. V. Sackett. *II diag plans Am Soc M E J* 40:441-9 Je '18; Excerpt. *Iron Tr R* 63:214 JI 25 '18
- Education to minimize electrical fire losses; National board of fire underwriters issues fire-prevention manual for school children. *Elec R* 72:1006-7 Je 15 '18
- Efficient fire prevention work in Cincinnati reduces insurance rates. J. J. Conway. *Am Arch* 116:469-70 O 1 '19

**Fire protection—Continued**

- Electric fire hazard. T: H. Day. Am Ind 18:34 Ja '18
- Exits, fire alarms and drills. il diags Textile World 56:929+ Ag 16 '19
- Extinguishing and preventing oil and gas fires. C. P. Bowle. bibliog il diags U S Bur Mines Bul 170:1-45 '18; Abstract. Mech Eng 41:436-7 My '19
- Factory fire brigade. P. Mason. Am Ind 19:14-16 S; 14-16 O '18
- Fighting fires—before they start. Factory 16: 298+, 530+; 17:56+, 412+, 708+; 18:104+, 380+, 544+, 760+, 922+; 19:222+, 418+, 566+, 834+, 960+; 20:182+, 288+, 586+, 762+, 888+, 1134+; 21:162+, 356+, 978+; 1172+; 22:92+, 604+, 744+, 1040+, 1236+; 23:106+, 310+, 1078+, 1352+ Mr., My, JI, O, D '16-Ja, Mr-Je, Ag '17-Ag, N '18-Ja, Mr-Ag, N-D '19
- Fire prevention and fire fighting on the farm. H. R. Tolley and A. P. Yerkes. il U S Agric Farmers' Bul 904:1-16 '18
- Fire prevention during construction. il Am Arch 114:178-81 Ag 7 '18
- Fire prevention in anthracite coal mines. M. W. Price. Coal Age 16:651-2 O 16 '19
- Fire protection in chemical plants. W. D. Milne; B. Richards. J Ind & Eng Chem 11:489-90 My '19
- Fire protection in manufacturing plants. C. E. Rigby. diags plan Am Soc M E J 40: 842-7 O '18
- Fire protection of piers. F. V. Sackett. il diags plan Int Marine Eng 23:351-8 Je '18
- Fires caused by chimney sparks. C. C. Sherlock. Power 49:147 Ja 28 '19
- Fires in mills and elevators. C. W. Ringer. Munic J 44:532 Je 29 '18
- Guarding against fire and foe: organization and routine of International arms & fuse co. Iron Age 101:869-70 Ap 4 '18
- How army hospitals are being protected against fire. diags plans Eng N 80:1054-6 My 30 '18
- How emergency buildings should be protected against fire. Eng N 80:1032-3 My 30 '18
- Information from Public service commission decisions relative to fire protection. J. N. Chester. Am Water Works Assn J 6:320-2 Je '19
- Insurance engineering as a factor in architectural service. Arch Forum 31:143-4 O '19
- More power to fire prevention officials. Munic J 44:13-14 Ja 5 '18
- Notes on mill fire protection. D. Lay. diags Eng & Min J 108:184 Ag 2 '19
- Poor housekeeping responsible for most of the fires in gas plants. H. A. Johnson. Am Gas Eng J 108:539-40+ Je 8 '18
- Precautions against freezing of fire appliances. Am Ind 18:29 Mr '18
- Preventing fires in homes. Factory 21:662+ O '18
- Price of safety against fire. C: Hill. Ind Management 55:217-18 Mr '18
- Safety for the household. il diag U S Bur Stand Circ 75:82-108 '18
- Silent watchmen over industry. il Iron Tr R 64:1609-12 Je 19 '19; Same. Textile World 56:113, 117 JI 5 '19
- 13 plans that fight fires. il Factory 21:651-3 O '18

See also Fire apparatus; Fire boats; Fire departments; Fire engines; Fire escapes; Fire extinction; Fire service; Fireproof construction; Fireproofing; Forest fires; Hydrants; Mine fires; Railroads—Fire protection; Sprinkling systems; Underwriters' laboratories

**Bibliography**

Structural service department; fire-prevention and fire-protection. Am Inst Arch J 6:261-72 My '18

**Laws and regulations**

Detroit code. P. Mason. Am Arch 114:66 JI 10 '18

Film exchange regulations; with Chicago code. il plan Am Arch 114:88-94 JI 17 '18

**Water supply**

See Fire service (water supply)

**Fire pumps**

Fire pumps on switch engines. diags Ry Mech Eng 93:332 Je '19

**Fire-resisting materials**

Aggregate is critical element in fire resistance of concrete columns; abstracts. W. A. Hull. Eng N 81:49 JI 4 '18; Concrete 13:51-2 Ag '18

Comparison of the heat-insulating properties of materials used in fire-resistive construction. W. A. Hull. J Fr Inst 188:558-9 O '19

Conclusions and recommendations of American concrete institute committee on fire resistive concrete. W. A. Hull. Eng & Contr 52:105 JI 23 '19; Same. Eng N 83: 76-7 JI 10 '19

See also Concrete construction; Fireproof construction; Refractory materials

**Testing**

New standard fire tests. Am Arch 113:732-4 My 29 '18

**Fire service (water supply)**

Design, construction and operation of Toledo's new high pressure fire protection system. W. J. Sherman. il Munic Eng 53:221-2 N '17

Diagrammatic representation of public utility commission decisions on fire charges. Eng & Contr 51:517 My 14 '19

High pressure fire system of Cincinnati. J. A. Hiller. diags maps Munic J 43:597-9, 628-30 D 22-29 '17

High-pressure hydrants regulation. C. W. Gelger. il diags Sci Am 120:234+ Mr 8 '19

Leaks from high pressure fire service mains. New York city. H: B. Machen. Am Water Works Assn J 5:44-8 Mr '18; Same cond. Eng & Contr 50:256 S 11 '18

Private fire protection; report of committee of American water works association. Munic J 46:449-51 Je 21 '19; Eng & Contr 52:44-5 JI 9 '19; Discussion. Munic J 46:468-70 Je 28 '19

Proper regulations governing private fire protection water service lines. D. R. Gwinn. Munic Eng 56:193-5 My '19

Reduction of insulation resistance in high pressure fire service motors, due to moisture. W: W. Brush. Eng & Contr 52:421-2 O 8 '19; Abstract. Eng N 83:818 O 30 '19

Report of committee on private fire protection service. bibliog diags Am Water Works Assn J 6:679-770; Discussion. 771-84 N '19

San Francisco's high pressure fire service. il Munic J 46:454-5 Je 21 '19

Water rates and fire protection charges. Munic J 47:38-40, 54-6, 70-2, 88-90, 108-10, 122-3, 135-7 JI 19-Ag 30 '19

Water works improvements and fire insurance rates. K. L. Walling. Am Water Works Assn J 6:839-43 N '19; Same. Munic Eng 57:95-6 Ag '19

See also Fire alarms; Fire departments; Hydrants

**Bibliography**

Report of committee on private fire protection service; literature bearing on public and private fire protection. Am Water Works Assn J 6:765-70 N '19

Fire stations. See Fire houses

**Firearms**

Musket manufacture in past centuries. H. H. Manchester. il Am Mach 48:371-3 F 28 '18

Temporary small-arms repair shop in France. R. K. Tomlin, jr. il Am Mach 49:535-6 S 19 '18

See also Artillery; Guns; Pistols; Projectiles; Rifles; Shooting

**Sights**

Machining panoramic sight parts. L. J. Orr. diags Mach 24:834 My '18

Making gun sights for anti-aircraft guns. F. H. Colvin. il diag Am Mach 50:681-4 Ap 10 '19

New rear sight wanted for the United States 30-caliber model 1917 rifle. Am Mach 49: 861-2 N 7 '18

- Fireboxes, Locomotive.** See Locomotive fire-boxes
- Firebrick.** See Fire brick
- Fireclay.** See Fire clay
- Firedamp**  
 Detecting marsh gas by smell. T. E. Smith. Coal Age 13:1210 Je 29 '18  
 Firedamp in gold mines. Coal Age 12:807 N 10 '17; Same. Eng & Min J 105:184 Ja 26 '18  
 See also Methane; Mine explosions; Mine gases; Mine ventilation
- Fireless cookers**  
 Gas appliance testing laboratory. H. M. Riley and L. B. Wilson, Jr. Am Gas Eng J 109: 481-5 N 23 '18
- Firemen.** See Fire departments
- Fireplaces**  
 Architectural causerie. Am Arch 115:878-9 Je 25 '19  
 Coal economy as a war measure. diag plans Metal Work 91:90-1 Ja 17 '19  
 Concrete fireplace forms. diag Concrete 13: 116 O '18  
 Designing and building a brick fireplace. J. E. Ray. diag Bldg Age 41:70-2 F '19  
 Details of a brick fireplace; photographs and diagrams. Bldg Age 40:240-1, 506-7 My, O '18  
 English architectural decoration. A. E. Bullock. II diag plans Arch Rec 46:133-52 Ag '19  
 Fireplaces that add beauty to the home. C. A. Byers. II Bldg Age 41:186-7 Je '19  
 How to design a fireplace. E. Draht. diag Bldg Age 40:204-7 Ap '18  
 Of fireplaces. A. D. F. Hamlin. II Arch Rec 44:326-36 O '18  
 See also Mantels
- Fireproof construction**  
 Balloon framing with concrete. diag plans Coal Age 13:881-2 Ap 13 '18  
 Concrete and fire. J. Upton. Concrete 12:148-9 Ap '18  
 Conflagration stopped by fire-resistant buildings in Kansas City, Mo. II Eng N 80:951 My 16 '18; Discussion. 80:1102-3 Je 6 '18  
 Covering fire doors and shutters. diag Metal Work 91:395-7+, 488-9 Mr 28, Ap 18 '19  
 Fire proof building construction by cement gun process. II Eng & Contr 48:535-6 D 26 '17  
 Fireproof construction cheaper in first cost. H. K. Holzman. II Concrete 14:110 Mr '19; Same. Am Arch 116:26-7 J1 2 '19  
 Fireproof construction for substations. C. A. Elliott. Elec Ry J 54:487 S 6 '19  
 Fireproof interior dividing partitions. II diag Concrete 15:212 N '19  
 Fireproof terminal oil house. A. P. Sharp. II diag plans Ry Mech Eng 93:579-80 O '19  
 Fire-resisting building construction; use of guncrete. II diag plans Am Arch 113:573-5 My 8 '18  
 How to build and fireproof with hollow tile. J. J. Cosgrove. II diag Bldg Age 40:252-3, 300-1, 346-7, 392-4, 449-51, 492-4, 540-1, 576-7; 41:28-30, 68-70, 103-4, 137-9, 165-7, 204-5, 238-40, 268-70, 310-11, 340-2, 367-8 My '18-N '19  
 Insurance on block buildings. Concrete 12:146-7 Ap '18  
 New standard fire tests. Am Arch 113:732-4 My 29 '18  
 Permanent, fireproof homes. H. Whipple. Concrete 14:1 Ja '19  
 Rapid house construction with concrete studs; fire-resistive walls of cement stucco on metal lath. diag plans Eng N 80:604-6 Mr 28 '18; Eng & Contr 49:504-5 My 22 '18  
 Second report on the work of the underwriters' laboratories. II Am Arch 115:829-34 Je 11 '19  
 When building with concrete. Factory 21: 868+ N '18  
 Wire lath fireproofed by baking on small terra cotta blocks. II Eng N 81:341 Ag 15 '18  
 See also Building, Mill construction; Concrete construction; Exits; Fire protection; Fireproofing; Steel construction; Windows, Fireproof
- Fireproof windows.** See Windows, Fireproof
- Fireproofing**  
 Cement fireproofing for cables. Elec W 72: 986 N 23 '18  
 Fireproofing concrete columns with plates. W. A. Hull. Eng N 83:92 J1 10 '19  
 Fireproofing material. J Ind & Eng Chem 11:590 Je '19  
 Fireproofing mine shaft of the Anaconda copper mining co. E. M. Norris. diag Am Inst Min E Bul 135:657-9 Mr '18; Same. Eng & Min J 105:1126-7 Je 22 '18; Same abr. Eng & Contr 49:287 Mr 20 '18  
 Fireproofing raw cotton. Textile World 54: 1443 S 28 '18  
 Fire-proofing wood investigated by Forest products laboratory. Gas Age 41:118 F 1 '18  
 See also Fireproof construction
- Fires**  
 Causes and preventions of fires in balloons. W. F. Swann. Sci Am S 88:258+ N 8 '19  
 Effect of fire on the flat slab building of the Quaker oats co., Peterboro, Ont., Dec. 11, 1916. T. D. Mylrea. II 3 pls W Soc E J 22: 509-39; Discussion. 539-45 O '17  
 Fire waste in Canada. Am Arch 114:231-2 Ag 21 '18  
 Fires and accidents reported due to electrical causes. Am Ind 19:35-6 My '19  
 Great American bonfire cost \$60,466,054. Am Gas Eng J 108:215 Mr 2 '18  
 Heights of cumulus clouds forming over fires. S. P. Fergusson and C. F. Brooks. Sci Am S 88:118-19 Ag 23 '19  
 Lessons from Royal mill fire. II Textile World 55:1449- Mr 1 '19  
 Life and fire hazards of electricity. D. Pierce. Elec R 72:840-1 My 18 '18  
 Personal responsibility for fire losses. Am Arch 114:290 S 4 '18  
 Reports from the chemical laboratory of the Massachusetts district police. W. L. Wedger. E. J. McCarthy. J Ind & Eng Chem 11:893-5 S '19  
 Responsibility for fires. H. P. Wood. Munic J 44:74 Ja 26 '18  
 Restoration of materials after fires. J. Hankin. Sci Am S 85:111-12 F 16 '18  
 Some lessons from a disastrous carhouse fire. II Elec Ry J 52:239-40 Ag 10 '18  
 Wireless incendiary. J. Boyer. II diag Sci Am 120:628 Je 14 '19; Discussion. T. D. Paret. Sci Am 121:253 S 13 '19  
 See also Electric generators—Fires; Fire alarms; Fire protection; Fires at sea; Forest fires; Gas fires; Mine fires; Oil fires
- Fires at sea**  
 Precaution against fire on a Diesel-engined ship. Z. W. Wickes. Int Marine Eng 23:137 Mr '18; Discussion. T. O. Lisle. 23:309 My '18
- Firing**  
 Air over the fire necessary to burn fuel completely. H. Kreislinger. Metal Work 90:535 N 8 '18  
 Burning bituminous coal in house-heating boilers. W. A. Pittsford. diag Heat & Ven 15:23-7 S '18  
 Burning fine anthracite and bituminous coal. Power 49:116-17 Ja 28 '19; Same. Sci Am S 87:391 Je 21 '19  
 Burning soft coal in heaters designed for hard coal. W. H. Reid. Heat & Ven 15:21-3 S '18  
 Care of heating and ventilating equipment. H. L. Alt. diag Power 48:662-4 N 5 '18  
 Coal economy in mine boiler firing. diag Eng & Min J 106:529-30 S 21 '18  
 Coke firing. diag Mech Eng 41:696-8 Ag '19  
 Combined coal and gas firing. M. Meredith. Coal Age 13:1147 Je 22 '18  
 Combustion in its relation to boilers. E. A. Uehling. Power 48:804-6 D 3 '18  
 Cost of banking fires. C. F. Danner. Power 49:660 Ap 29 '19  
 Directions for operating hand-fired boilers. A. Bement. Power 48:757-8 N 19 '18  
 Economical methods of burning coal in house-heating plants. Dom Eng 85:204 N 9 '18

**Firing—Continued**

- Economical methods of firing coal in furnaces. Elec W 73:1391 Je 28 '19  
 Economy hints. Locomotive 32:2-10 Ja '18  
 Firing a steam plant without a cleaning period. diags Textile World 54:1106+ S 7 '18  
 Firing bituminous coals in large house-heating boilers. S. B. Flagg. II diags U S Bur Mines Tech Pa 180:1-19 '17; Excerpt (How to burn bituminous coals economically). Am Gas Eng J 108:sup15-16 F 9 '18; Excerpt. Power 47:244 F 12 '18  
 Firing low-pressure boilers. J. M. Coleman; R. McLaren. Power 48:837; 49:581 D 10 '18, Ap 15 '19  
 Firing up locomotives. A. Armer. Ry Mech Eng 92:29 Ja '18  
 Fuel conservation by the economical combustion of soft coal. G. L. Larson. Wis U Bul Eng S 8:469-68 No 7 '17  
 Fuel economy in the operation of hand fired power plants. A. C. Willard and others. chart diags plans map III U Eng Exp Sta Circ 7:1-89 '18  
 Fuel economy results obtained in house heaters. A. Bement. Heat & Ven 15:45-7 D '18  
 Fuel facts. Heat & Ven 15:47-9 S '18  
 Getting the fireman with you. Factory 20:788+ Ap '18  
 Heating contractor can help consumer during coal crisis. C. Rosemont. Dom Eng 89:160-2 O 25 '19  
 How heating contractors can aid fuel conservation. C. L. Hubbard. diags Dom Eng 82:86-8+ Ja 19 '18  
 How much do you lose? Factory 21:342+ Ag '18  
 How to hand-fire soft coal. Factory 21:466+ S '18  
 How to operate the home heating outfit. diags Metal Work 91:299-301 Mr 7 '19  
 Instructions for the fireman. A. P. Hyde. Power 49:80-1 Ja 21 '19  
 Little helps for the firemen. Factory 20:308+ F '18  
 Making the power plant more efficient. K. B. Lamb. Textile World 53:4603+ Ap 6 '18  
 Management of the power plant; standard practice of hand firing. R. June. diags Textile World 54:2107+ N 2 '18; Same. Elec R 74:937-9 Je 7 '19  
 New patents concerning steam-boiler firing; abstract. Mech Eng 41:479-80 My '19  
 Points in steam-boiler management. C. E. Stromeyer. Power 47:242-3 F 12 '18  
 Practical measures for securing greatest economy in utility power plant operation. C. Brossmann. Munic Eng 54:140-2 Ap '18  
 Preventable waste of coal; devices for use with mechanical stokers. G. W. Partridge. II diags Elec W 71:577 Mr 16 '18  
 Problems involved in fuel changes; ash, and not coal, is the trouble maker. A. Bement. Power 48:380-2 S 10 '18  
 Rates of combustion. J. Harrington. Elec R 73:826-7 N 23 '18; Same. Power 48:782 N 26 '18  
 Significance of the rate of combustion in coal conservation. Locomotive 32:110-14 O '18  
 Smoke preventing and coal saving suggestions. Ry R 63:362 S 7 '18  
 Something about hand firing. II Power 48:50-1 Jl 9 '18  
 Talk to firemen on saving coal. C. H. Bromley. Power 47:146-8 Ja 29 '18; Same. Textile World 53:4049 Mr 2 '18  
 Training engineers and firemen in Wisconsin. A. W. Ruggles. II Ind Management 55:125-8 F '18  
 Visualizing the fireman's job. Factory 23:1208 N '19  
 What are the possibilities in the direction of the utilization of anthracite wastes; symposium. Am Soc M E J 40:pt 2, 622-9 Jl '18; Excerpts. Power 48:143-6 Jl 23 '18  
 What coal economies can be effected in residence heating; symposium. diag Am Soc M E J 40:pt 2, 644-9 Jl '18  
 What is essential to the economical operation of hand-fired boiler furnaces when using soft coal; symposium. chart Am Soc M E J 40:pt 2, 633-6 Jl '18  
 Why firemen need training. Factory 21:334+ Ag '18  
*See also* Combustion; Fuel; Furnaces; Stokers, Mechanical  
**Firing grounds.** See Rifle ranges  
**First aid in illness and injury**  
 First aid for factories and plants. G. H. Radebaugh and J. H. Beard. II charts Am Mach 50:109-14 Ja 16 '19  
 First aid medicines for construction camps. Eng & Contr 49:490 My 15 '18  
 Mine-rescue and first-aid contest in Pittsburgh. II Coal Age 16:614-17 O 9 '19  
 Safety in industry; first aid and accident prevention in Bethlehem steel company's plant. II Sci Am S 84:392-3 D 22 '17  
 Shop first-aid department. H. L. Carr. Am Mach 49:183-4 Jl 25 '18  
 Standardization of first-aid methods. C. H. Connor. Coal Age 14:728-9 O 17 '18  
*See also* Burns and scalds; European war—Medical and sanitary affairs; Mine rescue work; Resuscitation  
**Fish as food**  
 Commercial freezing and storing of fish. E. D. Clark and L. H. Almy. II U S Agric Bul 635: 1-9 '18  
 Eulachon—a delicious food fish. Sci Am S 86: 335 N 23 '18  
 Fish food that we fail to utilize. Sci Am S 85: 74 F 2 '18  
 Let's eat fish. II Sci Am S 85:8 Ja 5 '18  
 Method for refrigerating fish. Sci Am S 85: 263 Ap 27 '18  
 Story of the grayfish. Sci Am 118:126 F 9 '18  
**Fish glue.** See Glue  
**Fish lice**  
 Fish louse; argulus foliaceus L. R. Merle. II Sci Am S 84:373 D 15 '17  
**Fish-oil**  
 Determination of the hexabromide and iodine numbers of salmon oil as a means of identifying the species of canned salmon. H. S. Bailey and J. M. Johnson. J Ind & Eng Chem 10:999-1001 D '18  
 Utilization of fish oil. J Ind & Eng Chem 10: 487 Je '18  
**Fisheries, Bureau of.** See United States—Fisheries, Bureau of  
**Fishes**  
 Anomalies in the animal world. R. W. Shufeldt. II Sci Am S 86:404-5 D 28 '18  
 Anomalies of the senses in fishes. R. W. Shufeldt. II Sci Am S 86:34-5 Ag 10 '18  
 Fishes of the most remarkable kinds known to naturalists. R. W. Shufeldt. II Sci Am S 86:237-8 O 12 '18  
 How fishes were named. Sci Am S 86:341 N 30 '18  
 Utilizing the skins of sharks and other aquatic animals. Sci Am S 84:403 D 29 '17  
 Water pollution and fish life. V. E. Shelford. Am Water Works Assn J 5:434-7 D '18  
 Weeding out the poisonous fishes. II Sci Am 120:28-9+ Ja 11 '19  
*See also* Aquariums; Eulachon; Fish as food; Marine fauna; Sharks  
**Fishing**  
 Fishing with spider's webs. E. W. Gudger. II Sci Am S 87:149-50 Mr 8 '19  
 Seaplanes for fishing and oceanography. Sci Am 120:332 Ap 5 '19  
**Fishing boats**  
 Drifters and trawlers. II diags plans Int Marine Eng 24:665-8 O '19  
 Trawler has gas-electric drive. H. R. Simmonds. II diag plans Marine R 49:503-5 N '19  
**Fishwheels**  
 Fishing by machinery. II Sci Am S 87:104-5 F 15 '19  
**Fisk rubber company**  
 5th annual report for 1917. Automotive Ind 38:474 F 28 '18  
**Fixtures**  
 Heating and ventilating equipment as realty fixtures. A. L. H. Street. Heat & Ven 15: 25-8 Ag '18

**Fixtures—Continued**

Is there any way in which I can protect myself, when installing fixtures and materials, so that I can take them out, if I am not paid? Dom Eng 82:141-2 Ja 26 '18  
Plumber's right to remove certain trade fixtures when he vacates leased premises. Dom Eng 85:49+ O 13 '18  
Whether heating plant part of realty or not here a jury question. Heat & Ven 16: 53-4 Ag '19

See also Electric light fixtures; Gas fixtures; Machine tools—Fixtures; Street lighting fixtures

**Flagging.** See Railroads—Signals**Flagpoles**

Design of flag poles. diags Am Arch 113:191-4 F 13 '18  
Metal flag pole. G: W. Childs. diags Mach 24: 442 Ja '18  
Seventy-foot concrete flagpole poured erect in place. R. C. Hardman. Il Eng N 83: 173 Jl 24 '19

**Flame propagation**

Experiments on flame propagation. Il Automotive Ind 40:248+ Ja 30 '19  
New method of determining rate of flame propagation. P. M. Heldt. Il diags Automotive Ind 40:1256-8 Je 12 '19

**Flames**

Action of flame in furnaces. A. D. Williams. diags Iron Tr R 61:1319-23 D 20 '17  
Flame radiation. Am Gas Eng J 109:296 S 28 '18  
Temperature of luminous flames. Am Gas Eng J 109:463 N 16 '18  
See also Gas burners; Gas lighting; Lighting; Oxyacetylene flame; Photometry

**Flanges**

Flange forming tool. A. F. Owen. diags Mach 25:1081 Jl '19  
Newton flange-facing machine. Il Am Mach 49:405-6 Ag 29 '18  
Report of the A. S. M. E. committee on standardization of flanges and pipe fittings. diags Am Soc M E J 40:850-3 O '18  
See also Pipe flanges; Pipe joints

**Flanging machine**

Flanging machine, for thin steel plates, built on the job. diags Eng N 83:628 S 25 '19

**Flash suppressors.** See Electric protective apparatus**Flashing**

Proper method of flashing valleys. Il diags Bldg Age 40:569 D '18

**Flatirons, Electric.** See Electric irons**Flatness**

Flatness tests at Bureau of standards. R. L. Rankin. Il Am Mach 50:1218-20 Je 26 '19

**Flavone**

Synthesis of aminoflavones, of flavone-azobeta-naphthol dyes, and of other flavone derivatives. M. T. Bogert and J. K. Marcus. Am Chem Soc J 41:83-107 Ja '19

**Flavor.** See Taste**Flavoring extracts**

Detection and determination of coumarin in facitious vanilla extracts. H. J. Wichmann. J Ind & Eng Chem 10:535-7 Jl '18  
Determination of essential oils in non-alcoholic flavoring extracts. F. M. Boyles. J Ind & Eng Chem 10:537-9 Jl '18

**Flax**

Decorticating machine. Textile World 53:3373 Ja 19 '18  
Decorticating machine for flax. Sci Am 120: 126 F 8 '19  
Flax fiber for spinning. Textile World 53:3706 F 9 '18  
For seed or for fiber? R. S. Skerrett. Il Sci Am 121:30-1 Jl 12 '19  
Latest type of flax hackling machine. T. Woodhouse and P. Kilgour. Il Textile World 53:2519+ D 15 '17  
Strongest and most durable fiber; the cultivation, preparation, spinning, weaving and history of flax. W. N. Boase. Sci Am S 88:6-7, 42-3 Jl 5, 19 '19

Utilization of flax straw. Textile World 55: 2341 Ap 19 '19  
World's flax spindles. Textile World 54:1081 S 7 '18

**See also Linen****Flexure**

Analysis of statically indeterminate structures by the slope deflection method. W. M. Wilson, F. E. Richart and C. Weiss. diags Ill U Eng Exp Sta. Bul 108:1-214 '18; Abstract. Mech Eng 41:624-5 Jl '19

See also Elasticity; Girders; Strains and stresses; Strength of materials

**Files**

Effective methods of fly control. T: J. Headlee. Sci Am S 85:150-1 Mr 9 '18  
Fly destruction by manure. E. G. Bothwell-Maye. Il Sci Am 119:36 Jl 13 '18  
How the house fly spends the winter. Sci Am 118:513 Je 1 '18  
How the house fly takes hold. Il Sci Am 120:683 Je 28 '19  
Sprinkling filter flies. C: S. Beckwith. Munic J 46:196 Mr 8 '19; Same cond. Eng & Contr 51:267 Mr 12 '19

**Flight**

Elementary mathematics of flying. Texas U Bul 1827:6-8 My 10 '18

**See also Aeronautics****Films**

Alfred Douglas, 1869-Secretary for joint activities of engineering societies. por Eng N 79:1219 D 27 '17; Same. Power 47:31 Ja 1 '18  
Secretary of cooperative activities. por Am Soc M E J 40:165-6 F '18

**Flint, Michigan**

Industrial housing development, for the Civic building co. Il plans Am Arch 113:622-34 My 15 '18

**Flint implements and weapons.** See Stone implements and weapons**Floats**

Some float pointers. M. A. Saller. diags Power 48:136 Jl 23 '18

**Flood control**

Check dams, novel and economic method of controlling streams. H. P. Gillette. Il diags Eng & Contr 50:339-40 O 9 '18  
Colorado river flood control by storage. E. C. La Rue. Il map Eng N 82:456-61 Mr 6 '19  
Commission to study the Colorado and save Imperial Valley. Eng N 82:315-16 F 13 '19  
Concrete channel for stream over fractured mine outcrop. H. A. Coy. Il diag plan map Eng N 83:327-8 Ag 14 '19  
Creek control at Kingston, W. Va. W. H. Dunlap. diag plan Coal Age 16:439 S 11 '19  
Determining the regulating effect of a storage reservoir. R. E. Horton. Eng N 81:455-8 S 6 '18  
Excavation methods on the Miami conservancy project. G. L. Teeple. Il Eng & Contr 52:61-3 Jl 16 '19  
Flood damage is checked by storage reservoirs on the Yakima river, Washington. R. K. Tiffany. Eng N 81:410 Ag 29 '18  
Flood prevention works of Miami conservancy district to be built by day labor. Eng & Contr 48:509 D 19 '17  
Flood protection and drainage at East St Louis, Illinois. map Eng N 83:814-16 O 30 '19  
How the Miami conservancy district keeps records of construction equipment and supplies. Eng & Contr 52:213 Ag 20 '19  
Hydraulicking dam embankment on Miami flood-control project. Il Eng N 83:371-3 Ag 21 '19  
Largest use of electric power on construction work. Il chart maps plan Eng N 83: 417-20 Ag 28 '19  
Miami conservancy flood prevention plan. W. A. Drake. Il plan Sci Am 120:282-3+ Mr 22 '19  
Miami flood control works. Munic J 46:341 My 10 '19  
Miami flood works involve radical railway changes. Il diag maps plan Eng N 83:313-15 Ag 14 '19

**Flood control—Continued**

- Santa Ana river flood control and water conservation. Eng N 81:470 S 5 '18  
 Short-circuiting floods in the big Sioux river. F. C. Shenehon. Il diags plan Eng N 82: 961-4 My 15 '19  
 Sioux Falls spillway for flood relief of the big Sioux river, South Dakota. F. C. Shenehon. Il Munic Eng 56:143-6 Ap '19  
 Widened channel reduces flood hazard at Columbus, O. diags Eng N 83:512-13 S 11 '19  
*See also* Dams, Concrete; Reclamation of land; Reservoirs; Rivers—Regulation; Sea walls

**Flood lighting.** *See* Light projection

**Floodgates.** *See* Gates, Hydraulic

**Floods**

- Cedar Rapids, Ia., gets decision which enables city to avert probable future flood calamity. L. R. Howson. Munic Eng 55:26-7 Jl '18  
 June floods cause damage to bridges in Iowa. Il Eng N 81:500-1 S 12 '18  
 Kansas flood studies prompted by food and war conditions. Eng N 80:988 My 23 '18  
 Peak run-off data on restricted dry-wash channel of Lytle Creek. Il map Eng N 81: 531-3 S 19 '18  
 Recent Erie flood similar to inundation of 1915. F. Gannett. Il Eng N 81:687-8 O 10 '18  
 Spillway capacities required for reservoirs in western United States based on a study of the flood discharges of 402 North American and 60 European and Indian records. J. T. Whistler. Eng N 83:28-32 Jl 3 '19  
*See also* Flood control

**Floors**

- Asphalt mastic makes good shop floor. Elec Ry J 51:923 My 11 '18  
 Causes and prevention of failure in creosoted wood block factory floors. L. J. Ericson. Eng & Contr 49:318-20 Mr 27 '18; Abstract. Eng N 80:306 F 14 '18  
 Concrete mix vs. wooden blocks for foundry floors. J. V. Hunter. Il diag Am Mach 48: 227-8 F 7 '18  
 Floor that's built to fit the room. Am Arch 114:382 S 25 '18  
 Floors made of wood blocks. Il Sci Am 118: 357+ Ap 20 '18  
 Hazards of walking. H. W. Mowery. Am Inst Arch J 7:29-30 Ja '19  
 How acorn brand oak flooring is made. Il Am Lumberman 2230:41 F 9 '18  
 How to build and fireproof with hollow tile. J. J. Cosgrove. Il diags Bldg Age 41:28-30 Ja '19  
 Modern industrial plants; wearing surfaces of floors. G. C. Nimmons. Il diags Arch Rec 45:151-9 F '19  
 Navy engineer advocates asphalt blocks for warehouse floors. H. S. Rinker. Eng N 80: 868 My 2 '18  
 New floor surface for slopes. Il Ry Age 65: 780-1 N 1 '18  
 Plastic, fireproof and durable material laid over old floors. Il Textile World 54:2691 N 30 '18  
 Properties of flooring materials. Am Arch 114:116-20 Jl 24 '18  
 Redwood block floors in favor on Coast. Il Am Lumberman 2260:47 S 7 '18  
 Some hints on wood bridging and its importance. W. A. Giesen. diags Bldg Age 40:202 Ap '18  
 Structural service department. Am Inst Arch J 7:84-6, 181-3, 181-2 F-Ap '19  
 Use of magnesite in building construction. Il Am Arch 114:374-81 S 25 '18  
 What floor construction in room over porch will keep room warm? Bldg Age 40:310-11 Je '18  
*See also* Bridges—Floors; Building; Feeding floors; Fireproof construction; Pavements

**Polishing**

- Polishing floors with electrical muscles. Il Sci Am 119:112 Ag 10 '18

**Specifications**

- Specification for interior wood-block floors; submitted by committee of American wood preservers' association. Am Lumberman 2228:59 Ja 26 '18

**Testing**

- How to test strength of floors. diags Bldg Age 41:195 Je '19

*See also* Floors, Concrete—Testing

**Floors, Concrete**

- Beam and slab floors. Concrete 12:142-3 Ap '18  
 Cast-iron columns carry concrete flat-slab floor. W. J. Knight. Il diags Eng N 80:83 Ja 10 '18  
 Cement floor finishes. Am Arch 114:182-3 Ag 7 '18  
 Chicago reinforced-concrete flat-slab ruling amended. Eng N 79:1153-5 D 20 '17; Same. Eng & Contr 49:79-81 Ja 23 '18  
 Computing moments on irregularly spaced flat-slab panels. W. S. Tait. Eng N 80:652-4 Ap 4 '18  
 Concrete floor stands big overload without collapse. Il Eng N 82:813-14 Ap 24 '19  
 Concrete floor surfaces for residences. Concrete 14:109 Mr '19  
 Concrete floors—cleaning. F. W. Dudley. Concrete 12:32 Ja '18  
 Concrete floors combine steel and concrete frame. diags plans Eng N 81:677-8 O 10 '18  
 Concrete foundry floors. G. Moyer. Concrete 13:194 D '18  
 Core type of reinforced concrete floor construction. diags Eng & Contr 50:84-5 Jl 24 '18  
 Detailed cost figures on forms and concrete for floors. F. R. Walker. Il Concrete 12:199-203 Je '18  
 Distribution of the energy stored in reinforced concrete beams and column-supported, flat-slab floors. H. T. Eddy. J Fr Inst 186:439-48 O '18  
 Economy in the design of concrete buildings. C. W. Mayers. diags Boston Soc C E J 5:73-6 F '18; Same cond. Concrete 12:118-19 Ap '18; Discussion. F. S. Bailey and others. Boston Soc C E J 5:307-20 Je '18  
 Filling leaky cracks in floor. R. B. Lammens. diag Concrete 12:153 My '18  
 Finish 3325 sq. ft. of concrete floor for 58c per 100 sq. ft. J. T. Sullivan. diag Eng N 80:677 Ap 4 '18  
 Finishing concrete floors. Concrete 12:178 My '18  
 Flat slab floors. Concrete 12:178-9 My '18  
 Flat-slab system—a topical discussion. Il diags Eng Soc W Pa 34:72-109 F '18  
 Floor forms designed for easy stripping. diags Eng N 83:195 Jl 24 '19  
 Forms for concrete floor made up of wood frame sections. Il diag Eng N 82:1280 Je 26 '19  
 Hardener for floor surfaces. L. R. Ferguson. Concrete 14:90 Mr '19  
 How popular concrete dance floor was laid. Il Concrete 14:57-8 F '19  
 How to prevent concrete floors from dusting. Bldg Age 40:580 D '18  
 Light concrete floor slabs for truss bridges. C. E. Nagel. Il Eng & Contr 49:642-3 Je 26 '18  
 New elements of floor construction as introduced in the Hurley-Wright building, Washington, D.C. Il plan Am Arch 116:321-4 S 3 '19  
 New top finish on a poor floor. R. B. Lammens. Concrete 12:156 My '18  
 New type of reinforced concrete floor construction. E. F. Allbright. Il Arch Forum 31:67-9 Ag '19  
 Notes on flat slab design; bending moments, exterior panels, spandrels, arrangement of reinforcement. A. M. Wolf. diags Eng & Contr 49:307-10 Mr 27 '18  
 Placing concrete floors on wood joists. E. Sharp. Concrete 13:187 O '18  
 Powder magazine floor slab concrete poured on sand filled boxes. G. Pratt. diag plan Eng N 80:578-9 Mr 21 '18



**Floors, Concrete—Continued**

- Record in making panel floor forms. J: D. Gurvin. *Il Concrete* 15:162 O '19
- Reinforced-concrete building has 2000-pound floor load. *diags plan Eng N 79:1065-6 D 6 '17*
- Simple formulas for rapid design and estimates of flat slab based on the last joint committee report on concrete and reinforced concrete. M. W. Serby. *Eng & Contr* 49:82-3 Ja 23 '18; Same. *Concrete* 12:136-7 Ap '18
- Some pointers on how to finish a concrete floor. W: McGinnis. *Eng N 82:477-8 Mr 6 '19*
- Strength of reinforced concrete floor slabs. A. P. Hoover. 3 charts *Arch & Bldg* 49:103-6 N '17
- Types of reinforced concrete floor construction. B. Brown. *diags plans Arch Forum* 31:129-30 O '19
- Unit forms for flat slab floors. A. M. Wolf. *Il diag Concrete* 13:161-2 N '18
- What is a good concrete floor? L. C. Wason. *Ind Management* 55:471-2 Je '18
- Why the Chicago flat-slab ruling was revised. J: Krippner. *diags Eng N 79:1155-7 D 20 '17*
- With the works engineer. *Factory* 22:62+ Ja '19

See also Floors, Terrazzo

**Testing**

- Floor test at Western newspaper union building. C. A. P. Turner. *Concrete* 11:190 D '17
- Floor tests. *Concrete* 13:165 N '18
- Remarkable test of a reinforced concrete floor. Western newspaper union building. R. H. Moulton. *Il diag Arch & Bldg* 49:113-14 D '17
- Test of a flat slab floor of the Western newspaper union building, Chicago. A. N. Talbot and H. F. Gonnerman. *Il diags Ill U Eng Exp Sta Bul* 106:1-48 '18; *Excerpta. Eng & Contr* 51:416-18 Ap 23 '19
- Tests of circumferentially reinforced floor. E: Smuleki. *Il Concrete* 13:85 S '18
- Vivisection of a condemned building in Chicago. *Il Sci Am* 118:341+ Ap 13 '18

**Floors, Terrazzo**

- How to construct terrazzo floors. *Bldg Age* 40:98 F '18

**Floriculture**

See also Electrohorticulture; Flowers; Plant breeding

**Florida**

- Swamp land in Florida. *Sci Am* 131:85 Jl 26 '19

**Flotation machines**

- Callow-cell pneumatic-bottom pans. *diags Eng & Min J* 105:734 Ap 20 '18
- Callow pneumatic machine notes. *Eng & Min J* 106:257 Ag 10 '18
- Convenient soda feeder. A. Del Mar. *diags Eng & Min J* 195:719 Ap 20 '18
- Fahrenwald flotation machine. A. W. Fahrenwald. *diag plan Met & Chem Eng* 18:487 My 1 '18
- Flotation apparatus and the Towne-Flinn flotation patents. F. B. Flinn. *Chem & Met Eng* 19:168-9 Ag 15 '18
- Flotation apparatus, their design and operation. A. W. Fahrenwald. *diags plans Chem & Met Eng* 19:77-82, 129-34 Jl 15-Ag 1 '18
- Groch centrifugal flotation machine. *Eng & Min J* 105:737 Ap 20 '18; *Met & Chem Eng* 18:373 Ap 1 '18
- Jones-Belmont flotation machine. *diag Eng & Min J* 106:497-8 S 14 '18
- Kraut flotation machine. *diag Eng & Min J* 105:746 Ap 20 '18
- Little Janney flotation machine. *diag Eng & Min J* 106:497 S 14 '18
- Macquisten tube flotation machine. C. T. Rice. *Eng & Min J* 106:163 Jl 27 '18
- Ruth flotation machine. J. P. Ruth, jr. *diags Eng & Min J* 105:752 Ap 20 '18

**Flotation process**

- Alpha-naphthol and xylidine mixture as flotation agent. *Chem & Met Eng* 21:418 O 1 '19
- Baffling and froth-skimming device for pachuca emulsifiers. *Eng & Min J* 106:21 Jl 6 '18

- Ball milling and flotation. A. P. Watt. *Eng & Min J* 107:453 Mr 8 '19
- Bradford process of preferential flotation. R. S. Dean. *Chem & Met Eng* 20:373-3 Ap 15 '19
- Cascade method of agitation for selective flotation of sulphides. T. H. Palmer. *diags Eng & Min J* 104:993-4 D 8 '17
- Collective and preferential flotation. G. C. Riddell. *flow sheet Chem & Met Eng* 19:822-5 D 15 '18
- Colloids and flotation. F: G. Moses. *U S Bur Mines. Tech Pa* 200:1-22 '18
- Colloids in flotation. J. A. Pearce. *Chem & Met Eng* 20:52-3 Ja 15 '19
- Concentration practice in southeast Missouri. A. P. Watt. *diags Am Inst Min E Bul* 130:1524-42 O '17; *Discussion. 133:1-8 Ja '18*
- Development in Lake Superior milling. C. H. Benedict. *Il Eng & Min J* 108:9-10 Jl 5 '19
- Differential flotation at Wallace, Idaho. C. T. Rice. *plans Eng & Min J* 106:482-3 S 14 '18
- Differential flotation of lead and zinc. W. L. Zeigler. *diag Eng & Min J* 105:741-2 Ap 20 '18
- Differential flotation of lead-zinc tailing at a small plant. *Eng & Min J* 106:528 S 21 '18
- Early developments in flotation at the Kyloe copper mine, New South Wales. H. H. Smith. *Eng & Min J* 108:656 O 18 '19
- Effect of addition agents in flotation; chlorides. M. H. Thornberry and H. T. Mann. *charts Met & Chem Eng* 18:249-52 Mr 1 '18
- Effect of addition agents in flotation; part 1. sulphates, hydroxides and nitrates. M. H. Thornberry and H. T. Mann. *Il diag charts Mo U Sch Mines & Met Bul tech ser* 4:1-48 N '17; Same without tables and references. *Met & Chem Eng* 17:709-13; 18:71-7 D 15 '17, Ja 15 '18; *Abstract (Sulphates and alums). Eng & Min J* 105:915-16 My 18 '18
- Feeding flotation oil in the Coeur d'Alenes. C. T. Rice. *diags Eng & Min J* 106:1022-3 D 14 '18
- Flotation and retorting of sulphur. P. F. Junehomme. *diag Eng & Min J* 107:1124 Je 28 '19
- Flotation at Belmont surf inlet mines. A. H. Jones. *flow sheet Il diags Eng & Min J* 105:720-3 Ap 20 '18
- Flotation at Cobalt, Ontario. *Eng & Min J* 105:785 Ap 27 '18
- Flotation for the practical mill man. F: G. Moses. *Chem & Met Eng* 20:571-7 Je 1 '19; Same. *Sci Am S* 88:34-5+, 78 Jl 19, Ag 2 '19
- Flotation in Arizona. R. Gahl. *Eng & Min J* 105:717-19 Ap 20 '18
- Flotation in 1917. *Met & Chem Eng* 18:5-6 Ja 1 '18
- Flotation in relation to gangue minerals. J. M. McClave. *Eng & Min J* 105:738-9 Ap 20 '18
- Flotation in the Coeur d'Alenes. C. T. Rice. *Il diags plan Eng & Min J* 105:707-16 Ap 20 '18
- Flotation license of Minerals separation North American corporation. *Eng & Min J* 105:332-3 F 16 '18
- Flotation of chalcopryrite in chalcopryrite-pyrrhotite ores of southern Oregon. W. H. Coghill. *flow sheet U S Bur Mines Tech Pa* 182:1-10 '18; Same. *Eng & Min J* 105:422-4 Mr 2 '18
- Flotation of mixed copper ores. *flow sheets Eng & Min J* 107:840 My 10 '19
- Flotation of oxidized ores of lead. G. L. Allen. *flow sheet Chem & Met Eng* 20:169-75 F 15 '19
- Flotation on the Rand. F. Wartenweiler. *Eng & Min J* 108:386 Mr 3 '17
- Flotation process. A. W. Allen. *Eng & Min J* 107:97-100 Ja 11 '19
- Flotation vs. cyanidation. G. H. Clevenger. *Eng & Min J* 105:743-6 Ap 20 '18
- Froth removal from Dorr thickener. C. T. Rice. *Eng & Min J* 107:839 My 10 '19
- Froth removal from flotation cells. C. T. Rice. *diags Eng & Min J* 107:759-60 Ap 26 '19
- Functions of sub-aeration in flotation. H. K. Picard. *Eng & Min J* 107:497 Mr 15 '19

**Flotation process—Continued**

- Graphite mining and milling in Alabama. H. P. H. Brumell. Eng & Min J 108:17-18 J1 5 '19
- Handling flotation concentrates at Utah leasing co.'s plant. H. H. Adams. diag Eng & Min J 105:724-6 Ap 20 '18
- Innovations in the metallurgy of lead. D. A. Lyon and O. C. Ralston. 2 flow sheets U S Bur Mines Bul 157:84-122 '18
- Instructions for flotation operators. Eng & Min J 105:878 My 11 '18
- Molecular physics of ore flotation. W. H. Coghill and C. O. Anderson. diag Met & Chem Eng 18:595-600 Je 1 '18; Discussion. Chem & Met Eng 19:60, 168 J1 15, Ag 15 '18
- Notes on flotation. J. P. Ruth, jr. diag Eng & Min J 107:1149-52 Je 28 '19
- Notes on troubles from colloids in flotation. Eng & Min J 108:510-12 S 20 '19
- Progress of flotation in 1917. H. A. Megraw. Eng & Min J 105:99-102 Ja 12 '18
- Pulp-level control. C. T. Rice. diag Eng & Min J 107:368-9 F 22 '19
- Recent metallurgical progress. H. K. Picard. Eng & Min J 108:65-9 J1 12 '19
- Safety rules needed to govern repairs to acid lines in flotation plants. Eng & Min J 105:183 Ja 26 '18
- Selective flotation at Eureka, Colo. II Met & Chem Eng 18:170 F 15 '18
- Selective flotation in Australia. G. C. Riddell. Eng & Min J 105:739 Ap 20 '18
- Status of flotation in Spain. Eng & Min J 108:316-17 Ag 23 '19
- Substitute for pine oil. P. Leininger. Am Lumberman 2283:81 F 15 '19
- Terry differential flotation process. Chem & Met Eng 19:319-20 S 15 '18
- Treatment of flotation concentrates. A. Del Mar. plan Eng & Min J 105:1177-8 Je 29 '18
- Troubles in flotation. O. C. Ralston. Eng & Min J 105:735-7 Ap 20 '18
- Utah leasing company's flotation plant at Newhouse, Utah. H. H. Adams. flow sheets II Eng & Min J 105:535-7 Mr 23 '18
- Why minerals float. G. J. Young. Eng & Min J 106:1127-8 D 28 '18; Discussion. C. C. Smith and A. R. Pickett. Eng & Min J 107:365-6 F 22 '19
- Why water over-fills a tumbler and floats glass plates and flaky minerals. W. H. Coghill and C. O. Anderson. II diag Sci Am S 86:52-3 J1 27 '18

**Experiments**

- Flotation experiments on hardwood tar oils. L. F. Hawley and O. C. Ralston. Chem & Met Eng 20:586-7 Je 1 '19
- Hand device for flotation experiments. W. H. Coghill. II Chem & Met Eng 20:537-8 My 15 '19; Same. Eng & Min J 107:1090 Je 21 '19
- Recording experimental flotation tests. A. F. Taggart. Eng & Min J 106:751-2 O 26 '18

**Patents**

- Butte & Superior decision. R. C. Canby. Eng & Min J 107:1018 Je 7 '19
- Butte & Superior—Minerals separation decision by the U.S. Court of appeals. Eng & Min J 105:962-5, 974 My 25 '18
- Conforming to the prior art in flotation. R. C. Canby. Chem & Met Eng 19:113-14 Ag 1 '18
- Expiration of flotation patents. Eng & Min J 108:64 J1 12 '19
- Flotation decision. Eng & Min J 107:1044-7, 1057-8 Je 14 '19
- Flotation litigation. Eng & Min J 107:617 Ap 5 '19
- Flotation monopoly in Spain. Chem & Met Eng 21:178 Ag 15 '19
- Last decision in the flotation case. Eng & Min J 105:976 My 25 '18
- Minerals separation co., ltd., vs. Butte & Superior in the U.S. Circuit court of appeals. Eng & Min J 105:609-10 Mr 30 '18
- Minerals separation vs. Butte & Superior; opinion of district court in favor of plaintiff reversed by Court of appeals. Met & Chem Eng 18:570-1 Je 1 '18
- Minerals separation wins doubtful victory. Chem & Met Eng 20:609-10 Je 15 '19

- New factor in flotation litigation. H. A. Megraw. Eng & Min J 108:25 J1 5 '19
- Recent flotation decision. P. C. Choate. Chem & Met Eng 19:60-1 J1 15 '18
- Roasting flotation concentrates; patent. diag Chem & Met Eng 20:86 Ja 15 '19

**Testing**

- Outline for flotation test work. H. L. Hazen. Eng & Min J 107:1160-1 Je 28 '19

**Flour**

- Report of the Federal trade commission on flour milling and jobbing. U S Fed Tr Comm p 1-27 Ap 4 '18
- Substitutes for wheat employed in making bread for the French army. A. Balland. Sci Am S 86:138 Ag 31 '18

**Analysis**

- Chemical analysis of wheat-flour substitutes and of the breads made therefrom. J. A. Le Clerc and H. L. Wessling. II U S Agric Bul 701:1-10 '18

**Flour mills**

- Electrical equipment of new Pacific coast flour mill. II Elec R 74:295-6 F 22 '19
- Night work on concrete flour mill. D. Baxter. II plan Concrete 13:119 O '18

**Accounting**

- Some aspects of flour mill accounting. J. L. Dohr. J Account 28:161-79 S '19

**Flow meters**

- Automatic compensating flow meter. G. G. Oberfell and R. P. Mase. diag J Ind & Eng Chem 11:294-6 Ap '19
- Electrical measurement of fluid flow in pipes. J. M. Spitzglass. diag Mech Eng 41:429-32+ My '19
- Flowmeters and the calibration of carburetor nozzles. G. S. Clarke. diag Automotive Ind 40:1110-13 My 22 '19
- Losses and trouble caused by impure boiler feed water; special reference to flow meters. H. H. Mapelsden. II diag Gen Elec R 21:393-5 Je '18
- Measuring the flow of fluids electrically. J. M. Spitzglass. diag J Elec 43:271-2 S 15 '19
- Points to consider in choosing flow meters. Elec W 72:448 S 7 '18
- Royer flow indicator. diag Power 49:924-5 Je 17 '19

See also Air flow; Air meters; Gas meters; Steam meters; Water meters

**Flow of air. See Air flow****Flow of gas. See Gas flow****Flow of water. See Water flow****Flow sheets (metallurgical plants)**

- Flow diagram of Kennecott copper corporation, Kennecott, Alaska. Eng & Min J 107:1162 Je 28 '19
- Flow sheet Bunker Hill & Sullivan M. and C. co.'s west mill, no. 2. Eng & Min J 107:1147 Je 28 '19
- Flow sheet of coal pyrite concentration material from Eastland mine, Tennessee. Coal Age 15:1077, 1079 Je 12 '19
- Flow sheet of Homestake tungsten mill. Eng & Min J 107:1159 Je 28 '19
- Flow sheets of Arizona Hercules copper co.'s mill. Eng & Min J 107:1119-20 Je 28 '19

**Flowers**

- Bulb growing in the United States; a California farm that rivals the best in Holland. A. H. Dahl. II Sci Am S 86:36-7 J1 20 '18

See also Fertilization of plants; Plant names

**Flowers, Artificial. See Artificial flowers****Flue dust**

- Double salts of calcium and potassium and their occurrence in leaching cement mill flue dust. E. Anderson. J Ind & Eng Chem 11:327-32 Ap '19
- Large potash yield from British flue dust. A. Hall. Iron Age 101:807 Mr 28 '18
- See also Blast furnace gas; Blast furnaces; Sintering; Smelting

**Flue gas**

CO<sub>2</sub> recorders in the boiler-house. J. B. C. Kershaw. *Il diags Engineer* 126:45-7, 67-9 *Jl* 19-26 '18

Care of flue-gas treaters. J. M. Wauchope. *Power* 49:536 *Ap* 8 '19

Electrical precipitation from flue gas. *Il Iron Age* 102:273 *Ag* 1 '18

Electrical precipitation of metals in waste gases. *Il Elec W* 72:1169 *D* 21 '18

Electrical precipitation of solids from flue gases. J. M. Wauchope. *Il diags Elec R* 74:744-7 *My* 10 '19; *Abstract. Elec W* 74: 30-1 *Jl* 5 '19

Formula for calculating the heat carried to waste by the flue gases. E. A. Uehling. *Stevens Ind* 34:124-36 *Ap* '17; Same *abr. Am Gas Eng J* 107:62-4 *Jl* 21 '17; *Excerpt. Power* 47:395 *Mr* 19 '18

Heat transfer in tubes. W. Nusselt. *Am Soc M E J* 40:204-5 *F* '18

Management of the power plant. R. June. *Il diag Textile World* 54:1611-4 *O* 5 '18; Same. *Concrete* 13:sup41-3 *O* '18

Measuring the temperature of flue gases. *Engineer* 127:262 *Mr* 14 '19

Precipitation from flue gases; installation at copper refinery. *Il Elec R* 73:575 *O* 12 '18

Transfer of heat between a flowing gas and a containing flue. L. H. Fry. *diags Am Soc M E J* 39:848-9 *O* '17; *Abstracts. Elec W* 70:773 *O* 20 '17; *Engineer* 125:447 *My* 24 '18; *Discussion. Am Soc M E J* 40:141-4 *F* '18

Westinghouse electrical equipment for Cottrell plant. *Eng & Min J* 106:1030 *D* 14 '18

*See also* Blast furnace gas; Flue dust

**Analysis**

Efficiency in the use of oil fuel. J. M. Wadsworth. *diag U S Bur Mines* p 51-9 '18

Flue gas analysis. *Locomotive* 32:166-76 *Ap* '19

Flue-gas analysis and CO<sub>2</sub> recorders. B. M. Baxter. *Power* 50:146-7 *Jl* 22 '19

Flue-gas analysis and CO<sub>2</sub> recorders. A. H. Bullard. *diags Power* 50:395 *S* 2 '19

How to make a flue-gas analysis. J. W. Hays. *diags Power* 48:796-7 *D* 3 '18

Obtaining samples of flue gases. *Power* 48:397 *S* 10 '18

Orsat apparatus for testing flue gases. *diag Munic J* 45:344-5 *N* 2 '18

Vulcan-Orsat flue-gas analyzer. *Il Elec R* 74: 438 *Mr* 15 '19

Vulcan-Orsat flue gas analyzer. *Textile World* 54:1083 *S* 7 '18

**Flues**

Flue outlets and dampers. *diags Heat & Ven* 15:65-6 *F* '18

Flue setting. *diags Ry Mech Eng* 92:280 *My* '18

Friction in flues. J. Troland. *diag Metal Work* 89:811 *Je* 21 '18

Notes on chimney flues—causes of poor draft. H. N. Dix. *diags Am Arch* 115:530-4 *Ap* 9 '19

Proper gauges and weights of round g.i. pipe and elbows for duct systems. *Heat & Ven* 15:69 *Ap* '18

Sizing of ducts and flues. *Heat & Ven* 15:71-2 *Ap*; 65-7 *My*; 61-2 *Jl*; 35, 63-4 *Ag*; 79-80 *S* '18; *Discussion. 15:58-60 Je* '18

*See also* Chimneys

**Fluid ton**

Fluid ton. A. W. Allen. *Eng & Min J* 107:16-17 *Ja* 4 '19

**Fluids**

Two-dimensional fluid motion, with free stream lines, past an obstacle of curved outline; abstract. J. G. Leatham. *Am Soc M E J* 40:724 *Ag* '18

Velocity measured by impact tube. S. A. Moss. *Il diags Iron Tr R* 62:777-85 *Mr* 28 '18

*See also* Air flow; Drops; Flow meters; Gas flow; Gases; Hydraulic engineering; Hydraulics; Liquids; Osmosis; Solution (chemistry); Steam flow; Viscosity

**Flumes**

Concrete box flume carried across gulch on trestle. A. W. Collins. *Il diags Eng N* 82: 463-4 *Mr* 6 '19

Concrete drop stops highway washouts in California county. *diags Eng N* 80:372 *My* 2 '18

False bottom in flume doubles flow. *Eng N* 80:1144 *Je* 13 '18

Flow conditions in irrigation flumes unstable. J. S. Longwell. *Eng N* 80:38-9 *Ja* 3 '18; *Discussion. S. M. Woodward. 80:574 Mr* 21 '18

Fluming a stream to unwater a tunnel. *Il Eng N* 82:232 *Ja* 30 '19

Precast concrete slabs make durable flume. S. L. Stovall. *Il Eng N* 81:131-2 *Jl* 18 '18

Reinforced-concrete flumes poured in 100-foot lengths. *Il diags plans Eng N* 80:567-8 *Mr* 21 '18

Temporary timber bents rapidly repair destroyed flume. *Il Eng N* 81:316-17 *Ag* 15 '18

*See also* Hydroelectric plants; Irrigation canals; Water supply engineering

**Fluorescence**

Fluorescence and phosphorescence. S. E. Sheppard. *Illum Engr* 10:178 *Je* '17; *Discussion. 10:225-6; 11:62-4, 197-200 Ag* '17, *F*, *Ag* '18

Fluorescence of cellulose and its derivatives. *Sci Am S* 87:144 *Mr* 1 '19

Phenomena of fluorescence. D. Geoghegan. *Sci Am S* 86:391 *D* 21 '18

Phenomenon of optimum fluorescence in relation to molecular transformation. J. Perrin. *Sci Am S* 87:162-3, 187 *Mr* 15-22 '19

**Fluorides**

Artificial fertilizer: studies on the influence of fluorides on plants. A. Gautier and F. Clausmann. *Sci Am S* 88:95 *Ag* 9 '19

**Fluorine**

Critical study of the potassium and sodium double salts of lead tetrafluoride as sources of fluorine. G. L. Clark. *Am Chem Soc J* 41:1477-91 *O* '19

Relation of fluorine in soils, plants, and animals. L. A. Steinkoenig. *J Ind & Eng Chem* 11:463-5 *My* '19

**Fluorspar**

Fluorite for optical purposes. *Eng & Min J* 105:522 *Mr* 16 '18

Fluorspar industry in 1918. *Iron Age* 104: 430 *Ag* 14 '19

Fluorspar market and the local supply. A. L. Sweetser. *Eng & Min J* 106:1031-2 *D* 14 '18

Fluorspar mining in 1918. *Eng & Min J* 107: 196-7 *Ja* 25 '19

Fluorspar output estimated for 1918. *Eng & Min J* 106:579 *S* 28 '18

Kentucky fluorspar mining. E. V. Rawn. *Iron Age* 103:818 *Mr* 27 '19

Large output of fluorspar. *Iron Age* 102:669 *S* 12 '18; *Foundry* 46:495 *O* '18; *Iron Tr R* 63: 837 *O* 10 '18

Scarcity of fluorspar. *Iron Age* 101:563 *F* 28 '18

**Flush tanks.**

*See* Sewer flushing

**Fluting**

Cutter formula for special fluting. R. E. Vivian. *diags Am Mach* 49:1186 *D* 26 '18

**Flux**

Flux and cleaner question of brass. E. D. Frohman. *Metal Ind* 15:499 *N* '17

Fluxes used in melting aluminum scrap. *J Ind & Eng Chem* 10:151 *F* '18

Formulas for the brass foundryman: fluxes for nonferrous metals. *Foundry* 46:408a; 47: 546a *S* '18, *Ag* 15 '19

Installation and operation of a small reclamation plant. W. H. Parry. *Metal Ind* 15:429-30 *O* '17

New record in furnace flux production. *Iron Tr R* 63:1469 *D* 26 '18

Use of arsenic as a flux in brass. G. C. Holder. *Metal Ind* 17:124 *Mr* '19

*See also* Solder and soldering

**Fly cutters**

Use of fly cutters. R. Mawson. *Mach* 24:543 *F* '18

**Fly wheels.**

*See* Flywheels

**Flying boats**

America flies the Atlantic. *Il Sci Am* 120: 604-5+ *Je* 7 '19

**Flying boats—Continued**

- Development of the NC seaplanes. *Il* diags plan Aviation 6:468-74 Je 1 '19
- F-5-L navy flying boat. S. T. Williams. *Il* diags Automotive Ind 40:634-7, 703-7, 755-8, 809-11 Mr 20-Ap 10 '19
- Flying boat to guard forests of British Columbia. Am Ind 19:39 S '18
- Giant monoplane flying boat—Count Zeppelin's last production. Sci Am 120:475 My 3 '19
- Naval flying boat NC-1. *Il* Aviation 5:699 Ja 1 '19
- Navy factory's year record in building flying boats. Am Soc M E J 40:795 S '18
- NC boats. J. C. Hunsaker. *Il* Automotive Ind 41:68-72, 120-3, 172-6 JI 10-24 '19; Same (Progress in naval aircraft). Am Mach 51:305-11, 611-16 Ag 14, S 25 '19; Same. Sci Am S 88:66-7+, 107-9+ Ag 2, 16 '19
- Phoenix cork flying boat. *Il* diags Engineer 127:194-6 F 28 '19
- Romance of invention. C. H. Claudy. *Il* Sci Am 121:442-3+ N 1 '19
- Seagull flies; special factors in connection with naval aviation. P. J. Haaren. *Il* Sci Am 120:488-9+ My 10 '19
- War airplanes of to-day. *Il* diags Automotive Ind 39:66 JI 11 '18

See also Seaplanes

**Manufacture**

- How the NC boats were built under pressure of war need. J. C. Hunsaker. *Il* Automotive Ind 41:120-3 JI 17 '19
- Making aircraft fittings with temporary tools. S. A. Hand. *Il* diags Am Mach 51:221-5 JI 31 '19
- Our navy's winged destroyers. A. C. Lescarbourea. *Il* Sci Am 119:480-1+ D 14 '18

Flying fields. See Aviation fields

**Flying machines**

- Direct-lift machine. S. Camm. Aviation 6:333-4 Ap 15 '19

See also Aeronautics; Airplanes

Flying sickness. See Aviators—Diseases and hygiene

Flying tanks. See Airplanes, Armored

**Flywheel explosions**

- Adjusting safety cams would have prevented explosion; "locking the barn door." J. P. Morrison. *Il* Locomotive 32:10-14 Ja '18
- Disastrous flywheel explosion at Chicago. *Il* diags plan Power 48:516-19 O 8 '18; Discussion. H. J. Vandereb. 48:752 N 19 '18
- Flywheel accident at Corinth, N.Y. diags Power 50:69 JI 8 '19
- Flywheel bursts at Racine, Wis. *Il* plan Power 50:372-3 S 2 '19
- Flywheel explosion at Hoquiam, Washington. *Il* Power 48:957 D 31 '18
- Flywheel explosion at Minot, N.D. *Il* Power 47:330-1 Mr 5 '18
- Flywheel explosion at Norwood, Ohio. *Il* Power 50:560 O 7 '19
- Flywheel explosion in St Louis. A. J. Dixon. diags Power 49:699-700 My 6 '19
- Fly wheel explosions, 1915, 1916, 1917. Locomotive 32:21-5 Ja '18
- Fly-wheel explosions, 1917, 1918, 1919. Locomotive 32:182-5 Ap '19
- Why have flywheel insurance? Factory 21:1210+ D '18

**Flywheels**

- Applications of flywheels in motor operation. C. E. Clewell. *Il* diags Elec W 71:400-2 F 23 '18
- Considerations in determining the capacity of rolling-mill motors. R. F. Hamilton. diags Am Inst E E Pro 37:276-82 Mr '18
- Flywheel design for rolling mills; abstracts. G. E. Stoltz. Iron Age 101:328-30 Ja 31 '18; Iron Tr R 62:272-4 Ja 24 '18
- Flywheel equalizing generator is economical for ore dock. *Il* Elec R 72:835-6 My 18 '18
- How much should a flywheel weigh? R. T. Strohm. diags Power 49:269-73 F 25 '19
- Safe speed for cast-iron flywheels. W. H. Boehm. Power 46:886 D 25 '17

- Spike McNally's nonexploding flywheel. E. E. Clock. *Il* Power 49:717-18 My 13 '19
- Truing a flywheel. N. Denny. diags Am Mach 48:718 Ap 25 '18
- Value of flywheels in woodworking. D. R. Shearer. Elec W 71:968-9 My 11 '18
- Way of removing tight flywheels and pulleys. H. S. Rich. diags Elec W 72:1082 D 7 '18

**Flywheels, Automobile****Manufacture**

- Turret lathe practice. E. Oberg. *Il* diags plans Mach 26:99-109 O '19

Fodder. See Feeding and feeding stuffs

**Fog**

- Fog problem in aviation. Sci Am 119:26 JI 13 '18
- New apparatus for studying the formation and persistence of fogs. Sci Am S 88:47 JI 19 '19
- Physics of the air. W. J. Humphreys. *Il* J Fr Inst 185:611-47 My '18
- Transmission of colored light through fog. C. L. Utterback. diags Illum Eng Soc 14:133-40 no 3 '19; Abstract. Illum Engr 12:269-70 S '19; Discussion. Illum Eng Soc 14:140-5 no 3 '19; Same. Sci Am S 88:124+ Ag 23 '19

**Fog signals**

- Recent developments in marine lighting. *Il* diags plan Engineer 125:225-6 Mr 15 '18; Same. Sci Am S 88:40 JI 19 '19
- Researches on fog-signal sound measurement. L. V. King. J Fr Inst 187:485-6 Ap '19; Same. Sci Am S 88:151 S 6 '19
- Studies of fog-signal machinery. Sci Am 120:621 Je 14 '19

**Folklore, Ukrainian**

- Religion of ancient Ukraine. P. Crath. Sci Am S 85:114-15 F 23 '18

**Food**

- Dietary for miners. S. H. Brockunier. Eng & Min J 105:627-30 Ap 6 '18
- Food chemistry in the service of human nutrition. H. C. Sherman. biblog J Ind & Eng Chem 10:383-90 My '18
- Palate of civilized man and its influence on agriculture. D. Fairchild. *Il* J Fr Inst 185:299-316 Mr '18; Same. Sci Am S 87:68-71 F 1 '19
- Work of the Harriman research laboratory, Roosevelt hospital, New York city, in affiliation with the Division of food and nutrition, Medical department, U.S. army. K. G. Falk. J Ind & Eng Chem 11:1062-3 N '19

See also Bakers and bakeries; Beverages; Bread; Butter; Butter, Substitutes for; Cooking; Cost of living; Cotton as food; Dietaries; Eggs; Farm produce; Fish as food; Flavoring extracts; Flour; Food conservation; Food laws; Food preservation; Food preservatives; Food supply; Fruit; Gelatin; Glucose; Markets; Meat; Milk; Mussels; Nutrition; Nuts; Potatoes; Poultry; Proteins; Sirups; Vegetables; Vitamines; Whale meat

**Analysis**

- Estimation of sulfates in a concentrated electrolyte and the determination of sulfur in foods. V. K. Kriebel and A. W. Mangum. Am Chem Soc J 41:1317-28 S '19

Food, Cost of. See Cost of living

**Food, Dried**

- Low temperature-vacuum food dehydration. K. G. Falk, E. M. Frankel and R. H. McKee. J Ind & Eng Chem 11:1036-40 N '19
- New process for drying food. *Il* Sci Am 120:431 Ap 26 '19
- See also Apples, Dried; Fruit, Dried; Potatoes, Dried

**Bibliography**

- Selective bibliography on dehydrated foods. E. D. Greenman. Special Libraries 10:108-18 My '19

**Food conservation**

- Balanced rations and good cooks cut cost of camp messes. T. Tharaldsen. Eng N 82:146-7 Ja 16 '19

- Food laws**  
Decade of pure food. Sci Am 118:270 Mr 30 '18
- Food preservation**  
Preserving perishable food stuffs. Sci Am S 85:252 Ap 20 '18  
See also Drying (fruit and vegetables)
- Food preservatives**  
Use of microorganisms to determine the preservative value of different brands of spices. F. M. Bachmann. J Ind & Eng Chem 10: 121-3 F '18  
See also Canning and preserving
- Food supply**  
Economics of peace; factors of men and ships that will continue to dominate the food situation. Sci Am 119:476 D 14 '18  
Food shortage and high prices caused by high wages. Sci Am S 86:346 N 30 '18  
Scientific basis of rationing. Sci Am S 86:35 JI 20 '18
- Europe**
- Food situation in Central Europe, 1917.** A. Maylander. U S Bur Labor Statistics Bul 242:1-128 '18
- France**
- Camouflaged food; science and invention as displayed in the daily menu in France. Il Sci Am 119:152-3 Ag 24 '18
- Germany**
- Where Germany is obtaining indispensable supplies. Il Sci Am S 85:276 My 4 '18
- United States**
- America's food resources. Il Sci Am S 87:136 Mr 1 '19  
Bureau of markets in its relation to the conservation of foods. C. J. Brand. J Ind & Eng Chem 10:66-9 Ja '18  
Food facts versus fallacies. Sci Am 119:268 O 5 '18  
Food for all—a fundamental war problem. H. C. Hoover. Il map Sci Am 118:310-11 Ap 6 '18  
Food wastes—some causes and remedies. L. P. Brown. Il diag J Fr Inst 185:585-610 My '18  
Increasing food production. H. B. Riley. Eng N 80:717 Ap 11 '18  
Transportation and food supply. Ry Age 64: 445-6 Mr 1 '18
- Foot**  
When did our ancestors take to trees? J. W. Gidley. Sci Am S 88:74+ Ag 2 '19  
See also Shoes
- Footings, Column.** See Column footings
- Footings, Wall.** See Wall footings
- Forage plants.** See Feeding and feeding stuffs
- Force, Peter, 1790-1868**  
Only a compositor. por Inland Ptr 61:327-8 Je '18
- Force and energy**  
Generation of electrical energy. Coal Age 14: 697 O 10 '18  
See also Centrifugal force; Dynamics; Dynamometer; Electromotive force; Free energy; Inertia; Mechanics; Pressure
- Forced draft.** See Mechanical draft
- Ford motor company**  
Annual report for the fiscal year ended July 31, 1917. Automobile 37:556 S 27 '17  
Ford methods in ship manufacture. F. E. Rogers. Il plan Ind Management 57:1-6, 119-24, 190-7, 289-95, 367-72, 456-64; 58:8-11 Ja-JI '19  
Ford shipbuilding plant, River Rouge, Mich. Il Am Arch 115:526-9 Ap 9 '19  
Great Ford plant is taking form; shipyard for submarine chasers will be completed speedily. Il Iron Tr R 62:614-15 Mr 7 '18  
Guiding the workman's personal expenditures; Ford reduced turnover 350 per cent. C. J. Shower. Il Automotive Ind 38:539-41+ Mr 14 '18  
Henry Ford's secret. H. P. Gillette. Eng & Contr 52:446 O 15 '19
- Production of Liberty motor parts at Ford plant.** W. F. Verner. Il Mech Eng 41:517-22+ Je '19; Same. Am Mach 51:123-30 JI 17 '19  
Rehabilitating cripples at Ford plant. J. E. Mead. Il Iron Age 102: 739-42 S 26 '18  
Safeguarding the automobile worker. Il Iron Age 101:609-10 Mr 7 '18  
Work of the Ford company's traffic department. Il Ry Age 65:402-5 Ag 30 '18
- Ford motor company of Canada**  
Gasteam plant at Ford City, Ontario. Il diag plan Power 48:186-93 Ag 6 '18
- Fords**  
California dip or paved ford for dry wash road crossings. E. E. Glass. diag Eng & Contr 49:564 Je 5 '18
- Foreign advertising.** See Advertising, Foreign
- Foreign bodies (surgery)**  
Finding bullets with the X-ray. Il Sci Am 119:255+ S 28 '18
- Foreign bond & share corporation**  
New corporation organized in America to finance public and private enterprises in foreign countries. Ry Age 66:1056-7 Ap 25 '19
- Foreign exchange**  
Disrupted condition of European exchange. R. H. Tingley. Am Ind 20:40-1 S '19  
Exchange with silver standard countries; China. Am Ind 20:12-13 O '19
- Foreign investments.** See Investments, Foreign
- Foreign language press**  
Industrial Americanization. F. A. Kellor. Am Ind 19:35 Je '19
- Foreign trade.** See Export trade
- Foreign trade club of San Francisco**  
Activities of the Foreign trade club. Il J Elec 43:415-16 N 1 '19
- Foreign trade council, National.** See National foreign trade council
- Foremen**  
Bonus plan for your foremen. H. D. Hite. Factory 20:1074-5 Je '18  
Comments for foremen. C. W. Bayne. Factory 20:192 Ja '18  
Constructive foremanship. Eng & Contr 49: 624-5 Je 19 '18  
Converting foremen to safety first. Factory 21:288+ Ag '18  
Creating a class of super-foremen. J. V. Hunter. Am Mach 48:865-6 My 23 '18  
Employment manager and foreman. R. W. Kelly. Ind Management 55:65-6 Ja '18  
Foreman as safety engineer. H. P. Heyne. Iron Age 101:1280-1 My 16 '18  
Foreman the determining factor in plant safety. F. E. Morris. Am Gas Eng J 110:143-4 F 15 '19  
Getting the foreman's coöperation. W. F. Johnson. Ind Management 56:143-4 Ag '18  
Getting together. W. J. Kibby. Ind Management 56:237 S '18  
Handling foundry workers. P. R. Ramp. Iron Age 101:326-7 Ja 31 '18  
How Joe Harris saved his job. A. J. Ten Cate. Ry Mech Eng 93:211-14 Ap '19  
Industrial problems. Am Mach 48:952-3 Je 6 '18  
Instructing future foremen and superintendents. F. H. Korff. Mach 25:338-41 D '18  
Instructions to assistant foremen. G. H. Shepard. Ind Management 56:403-7 N '18  
Managing for maximum production. L. V. Estes. Il Ind Management 57:439-43 Je '19  
Modern foreman. W. H. Addis. Am Mach 50: 198 Ja 30 '19  
Modern foreman—his job. M. L. Lowrey. Am Mach 50:749-51 Ap 17 '19  
Modern foreman—what is his present job? Am Mach 48:799, 1089; 49:143, 723, 1008; 50: 121-2 My 9, Je 27, JI 25, O 17, N 28 '18, Ja 16 '19  
New foremanship. M. Bloomfield. Ind Management 55:145-6 F '18  
Relations between the employment manager and foreman. C. E. Fouhy. Ind Management 58:334-6 O '19  
Short cuts. Factory 21:1094+ D '18

**Foremen—Continued**

- Teaching foreman human factors. J: Calder. Iron Tr R 64:1030 Ap 17 '19  
 Ten rules for foremen. Eng & Contr 50:505 N 27 '18  
 Training foremen to lead enlightened labor. J: Calder. Iron Tr R 65:895+ O 2 '19  
 Training the worker for the new era. H. Godfrey. Textile World 55:2535 Ap 26 '19  
 What I would do if I were a foreman. M. M. Jones. Ind Management 56:59-61 Jl '18  
 Where shall we select foremen? R. Newbecker. Ind Management 57:416-17 My '19  
 Who make the best foremen? Factory 23:63-7, 293-6 Jl-Ag '19  
 Young man's chance to be a foreman. P. T. Spurr. Am Mach 51:325-6 Ag 14 '19

See also Mine foremen

**Foremen's meetings**

- Getting more out of shop conferences. Factory 20:488+, 700+; 21:134+; 22:858+; 23:586+, 1198+, 1368+ Mr-Ap, Jl '18, Ap, S, N-D '19  
 How we increased output 1,000 per cent in an already crowded plant; Gillette safety razor co. Il Factory 23:40-2 Jl '19  
 Management by cooperation. L. I. Thomas. Il Factory 19:181-4 Ag '17

**Forest fires**

- Clouds induced by forest fires. F. A. Carpenter. Sci Am S 88:118 Ag 23 '19  
 Fighting forest fires from the skies. Sci Am 121:115 Ag 2 '19  
 Fire control in forests. J. A. Kitts. Ry R 64:550-1 Ap 12 '19  
 Fire fighters hold important conferences. Spokane, Wash., March 13-16. Am Lumberman 2236:48-50 Mr 23 '18  
 Fire finder for lookout stations of forest service. Il Eng N 82:1055 My 29 '19  
 Flying boat to guard forests of British Columbia. Am Ind 19:39 S '18  
 Forest fires of spontaneous origin. Sci Am 120:47 Ja 18 '19  
 Forest fires take heavy toll in lives and property. Il Ry Age 65:726-8 O 25 '18  
 Heavy fire damage this season in Pacific Coast forests. Eng N 80:253 F 7 '18  
 Inadequate patrol and dry peat raise fire loss. map Eng N 81:841-2 N 7 '18  
 Use of airplanes in forest patrol work. H: S. Graves. Aviation 5:754-5 Ja 15 '19  
 Western forestry-conservationists convene. Am Lumberman 2318:55-8+ O 18 '19

**Forest planting**

- Advice to forest planters in the plains region. S. D. Smith. U S Agric Farmers' Bul 883:1-23 '17  
 Tree planting for forests. S. W. Allen. Sci Am S 85:327 My 25 '18  
 Turning sand hills into pine forests. R. P. Crawford. Il Sci Am 118:447 My 18 '18

**Forest products**

- Pine stumps offer valuable harvest. Am Lumberman 2304:47 Jl 12 '19  
 Results of minor forest utilization during the war. C. T. Hamill. Am Lumberman 2277:51-2 Ja 4 '19  
 Some uses and abuses of our forests. C: E. Chidsey. Il Am Lumberman 2265:52-3 O 12 '18

See also Gums and resins; Lumber; Rubber; Timber; Turpentine; Wood; Wood oils; Wood waste

**Forest products laboratory. See United States—Forest products laboratory****Forest reserves**

- Effects of grazing upon western yellow-pine reproduction in the national forests of Arizona and New Mexico. R. R. Hill. Il map U S Agric Bul 580:1-27 '17  
 Three new national forests in the East. Eng N 80:1077 Je 6 '18

See also Forests and forestry

**Forest taxation**

- Principles of forest taxation reviewed. O. T. Barnes. Am Lumberman 2287:46-7 Mr 15 '19

See also Timber—Taxation

**Forestry. See Forests and forestry****Forests and forestry**

- Forest conservation; the form or the substance, which? W. Compton. Am Lumberman 2303:44-5 Ag 16 '19  
 Forest disease surveys. J. R. Weir and H. E. Hubert. Il map U S Agric Bul 653:1-23 '18  
 Forestry and community development. S: T. Dana. Il U S Agric Bul 638:1-38 '18  
 Influence of forests on water power supply. A. A. Griffin. Il J Elec 42:268-70 Mr 15 '19  
 Issue between forestry and lumbering. Am Lumberman 2242:35 My 4 '18  
 New Englanders discuss forestry problems; conference held under auspices of New Hampshire state forestry commission, the department of forestry of the State college, and the Society for the protection of forests. Am Lumberman 2261:51 S 14 '18  
 Plute forestry. Am Lumberman 2310:43-4 Ag 23 '19  
 What is needed in airplanes for forest rangers. K. E. Kennedy. Am Lumberman 2239:39 Ap 13 '18  
 World's timber resources. Am Lumberman 2270:29 N 16 '18

See also Chestnut; Conservation of resources; Fir; Forest fires; Forest planting; Forest reserves; Landscape gardening; Lumbering; Natural resources; Pine; Tree planting; Wood; Woodlots

**Africa**

- Africa's timber resources. Am Lumberman 2268:54 N 2 '18

**Costa Rica**

- Exploitation of Costa Rica's timber resources. C. D. Mell. Il Am Lumberman 2260:72 S 7 '18

**France**

- Damage to French forests. T. S. Woolsey, jr. Il Am Lumberman 2281:46-7 F 1 '19  
 France conserves its timber by strict laws. H. M. Stickney, jr. Am Lumberman 2304:50 Jl 12 '19  
 French forests. F. M. Bartelme. Am Lumberman 2273:67-8 D 7 '18  
 Mechanical forestry. Sci Am 121:235 S 6 '19

**Great Britain**

- English silviculture after the war. M. C. Duchesne. Am Lumberman 2257:48 Ag 17 '18

**Montana**

- Forest resources of Montana shown. Am Lumberman 2303:43 Jl 5 '19

**Panama Canal Zone**

- Lumbermen inspect the timber of Panama. W. M. Buchanan. Am Lumberman 2293:58 Ap 26 '19

**United States**

- Co-operative national forest policy. W. R. Brown. Am Lumberman 2320:57 N 1 '19  
 Economic aspects of state forests. W. Compton. Am Lumberman 2320:56-7 N 1 '19  
 Economic tree murder. C. H. Claudy. Sci Am 121:132+ Ag 9 '19  
 Experts exchange opinions in working out a sound national forest policy. Am Lumberman 2305:50-1 Jl 19 '19  
 Forestry and lumber. A. C. Klumph. Am Lumberman 2311:50-1 Ag 30 '19  
 National forest and lumber policy. B. A. Chandler. Am Lumberman 2303:1+ Jl 5 '19  
 National forest policy. G. Roth. Am Lumberman 2310:46+; 2311:49 Ag 23-30 '19  
 National lumber and forest policy. H: S. Graves. U S Agric Circ 134:1-14 '19; Same cond. Am Lumberman 2292:55+ Ap 19 '19  
 Plan for a national forest policy. R. S. Kellogg. Am Lumberman 2302:43 Je 28 '19  
 Policy of forestry for the nation. H: S. Graves. Am Lumberman 2317:50-50a O 11 '19  
 Private forestry. H: S. Graves. U S Agric Circ 129:1-11 '19

**Forge shops**

- American bridge co.'s forge plant. C. J. Walker. Il Iron Age 103:1423-5 My 29 '19; Same. Iron Tr R 64:1442-3 My 29 '19

**Forge shops—Continued**

Example of forge shop construction; with layout of plant. *Il* diags plan Iron Age 104:219-23 J1 24 '19; Same. Am Arch 116:283-7 Ag 27 '19

Forge shop of the Packard motor car company, Detroit. *Il* diag Am Arch 114:30-3 J1 3 '18

Low-pressure turbines in forge shops. H. V. Schoepflin. diags Power 50:450-3 S 16 '19

**Forges**

Forges made from discarded roll shells. *Il* Eng & Min J 105:208 Ja 26 '18

Mine forge for heavy work. W. L. Zeigler. diags Eng & Min J 105:291 F 9 '18

**Forging**

American drop forge association 5th annual convention, Buffalo, June 19-21. Iron Age 101:1650-4 Je 27 '18

American drop forge association 6th annual convention, Pittsburgh, June 12-14. Iron Age 103:1645-7 Je 19 '19; Am Mach 50:1247-50 Je 26 '19

Camden forge company equips plant to make forgings. *Il* Marine R 49:384-5 Ag '19

Camden forge company keeps pace with war requirements. *Il* Iron Tr R 64:1616-17 Je 19 '19

Cooling forgings by compressed air. Iron Tr R 62:720 Mr 21 '18

Development of flaws in hollow forgings. A. S. Hesse. diags Am Mach 49:153-4 J1 25 '18

Die cost as a factor in selling forgings. R. T. Herdegen. Am Mach 51:87-8 J1 10 '19

Does forging increase specific density of steel? H. E. Doerr. diags Am Inst Min E Bul 145:79-81 Ja '19; Same. Iron Tr R 64:508 F 20 '19; Discussion. Am Inst Min Bul 149:788-90 My '19

Draftsman, the purchasing agent and the forge shop. J. E. Schipper. Automotive Ind 38:597-8 Mr 21 '18

Drop forging and its possibilities; with discussion. J. D. Boyle. Ry Age 67:426-6 Ag 29 '19; Same. Ry Mech Eng 93:541-2 S '19

Electric furnace for forging and annealing of steel. W. S. Scott. *Il* Elec R 72:941-4 Je 8 '18; Same. Chem & Met Eng 19:86-9 J1 15 '18; Same cond. Iron Tr R 63:440-2 Ag 22 '18; Abstract. Iron Age 101:1676-7 Je 27 '18

Electric heating and heat treating. T. F. Bailey. *Il* Automotive Ind 39:188-90 Ag 1 '18

Forging ball levers. H. F. Salomon. *Il* Am Mach 47:1046-7 D 13 '17

Forging of an off-set jaw. J. V. Hunter. *Il* diags Am Mach 48:187-9 Ja 31 '18

Forging the U.S. 75-millimeter shell. E. Oberg. *Il* diags plans Mach 24:890-7 Je '18

Improved methods of hollow forging. S. A. Hand. *Il* diags Am Mach 50:377-82 F 27 '19

Machine forging in automotive plants. *Il* Automotive Ind 39:327-9 Ag 22 '18

Making accurate turned forgings. *Il* Iron Tr R 64:815-18 Mr 27 '19

Making and heat-treating heavy forgings. F. D. Jones. *Il* Mach 25:583-90 Mr '19

Operations on the Liberty motor cylinders. F. H. Colvin. *Il* Am Mach 50:757-8 Ap 17 '19

Organizing to produce shell forgings. F. E. Merriam. *Il* Ind Management 55:193-7 Mr '18

Plant for heavy forgings; Allis Chalmers mfg. co., Milwaukee. *Il* Iron Tr R 65:1048-9 O 16 '19

Producing bitter pills for Fritz. G. Satterthwaite. Iron Tr R 63:384-8 Ag 15 '18

Question of quenching oils for forgings; abstract. G. W. Pressell. Am Soc M E J 40:776-6 S '18

Shaping the front axle forging on the Nash motor car. J. Ledin. diags Am Mach 49:679-80 O 10 '18

Slick wheel mill; commercial products formed directly from large rolled bars by rolling-forging process at Cambria steel works. *Il* diags plan Iron Age 102:491-8 Ag 29 '18

War-time repairs in the navy; forging and pattern work. F. A. Stanley. *Il* diags Am Mach 50:433-7 Mr 6 '19

See also Blacksmithing; Dies; Forge shops; Forging machinery; Ironwork; Steel forgings; Welding

**Forging machinery**

Bulldozer operations with one- and two-motion dies. J. V. Hunter. diags Am Mach 49:465-70 S 12 '18

Double-movement dies for bulldozer work. J. V. Hunter. *Il* diags Am Mach 49:508-10 S 19 '18

Essentials of bulldozer operations. J. V. Hunter. diags Am Mach 49:195-9 Ag 1 '18

Hollings indenting type of nut-forging machine. *Il* diags plan Mach 25:33-5 S '18

Special Ajax upsetting forging machine. *Il* Ry Mech Eng 93:359-60 Je '19; Iron Age 103:877 Ap 3 '19

**Bibliography**

Hydraulic forging presses; literature on the machinery used in plastic metal deformation. E. C. Buck. Iron Age 100:1480, 1522-4 D 20 '17

**Forgings, Steel. See Steel forgings****Formaldehyde**

Disinfection with formaldehyde, a substitute for the permanganate-formalin method. C. G. Storm. J Ind & Eng Chem 10:123-5 F '18

Disinfection with formaldehyde; the practical efficiency of some substitutes for the permanganate-formalin method. M. A. Pozen and L. V. Dieter. J Ind & Eng Chem 11:448-51 My '19

Fumigation with formaldehyde—a substitute for the permanganate-formalin method. D. W. Horn. J Ind & Eng Chem 11:126-9 F '19

**Formamide**

Effect of dissolved substances on the velocity of crystallization of formamide. A. Brann. Am Chem Soc J 40:1184-7 Ag '18

Preparation of formamide. A. Brann. Am Chem Soc J 40:793-6 My '18

**Formamidines**

Reactions of the formamidines; the constitution of some pyrazole derivatives. F. B. Dains and R. N. Harger. Am Chem Soc J 40:562-9 Mr '18

**Formates**

Studies in conductivity; the conductivity of alkaline earth formates in anhydrous formic acid. H. I. Schlesinger and R. D. Mullinix. Am Chem Soc J 41:72-5 Ja '19

**Formic acid**

Studies in conductivity; the conductivity of alkaline earth formates in anhydrous formic acid. H. I. Schlesinger and R. D. Mullinix. Am Chem Soc J 41:72-5 Ja '19

Forms (business). See Automobile service stations—Forms, blanks, etc.; Railroads—Forms, blanks, etc.; Records

**Formulas. See Mathematics—Formulas****Fort Worth, Texas****Rapid transit**

Five lines now operated with safety cars. *Il* Elec Ry J 52:548-50 S 28 '18

**Water supply**

Improving Fort Worth's water supply. *Il* Munic J 45:295-7 O 19 '18

**Fortification**

Trench system of defense vs. the pill-box system. *Il* Sci Am 117:469+ D 22 '17

See also Intrenchments; Mines, Military

**Fossil insects. See Insects, Fossil****Foucault's pendulum**

Foucault's experiment. W. N. Collier; G. Whittle. Sci Am 117:476; 118:587 D 22 '17; Je 29 '18

**Foundation soils**

Bearing capacities of various soils. Bldg Age 40:388 Ag '18

Deep drainage of foundation soil for heavy building. diags Eng N 80:363 F 21 '18

**Testing**

Soil exploration by pipe sounding. R. C. Chaney. diag Eng N 83:439-40 Ag 28 '19

**Foundation soils—Testing—Continued**

Test of sandy foundations at arch bridge pier. A. Richards. *Il diag Eng N 83:208-9 J1 31 '19*; Discussion. H. Abbott. *83:772 O 23 '19*

**Foundations**

- Bending moments in grillage beams. R. Fleming. *diag Eng & Contr 50:585-6 D 25 '18*  
 Building concrete foundations: how to make them waterproof. E. I. Freese. *diags plan Bldg Age 41:250-1 Ag '19*  
 Caisson method for foundations and mine shafts. G. R. Johnson. *Il diags plan Eng Soc W Pa 34:489-97 O '18*  
 Concrete foundation for a wooden water tank. *diags plan Ry Age 67:473 S 5 '19*  
 Concrete mat and columns reduce cost of building. Chicago. *Il diags Eng N 82:959-60 My 15 '19*  
 Drop shafts sunk through buried tree trunks by dredging; foundation for large Kansas City power station. *Il Eng N 81:485-8 S 12 '18*  
 Faulty foundation causes serious damage to Minneapolis armory. *Il diag plan Eng N 82:1067-9 My 29 '19*  
 Forty-five-hundred-yard concrete boiler room mat laid continuously. H. S. Hunt. *Il Eng N 81:242 Ag 1 '18*  
 Foundation construction for new station at Kansas City. *Il Elec R 73:492-3 S 28 '18*  
 Foundations in quicksand and watery gravel. *diags Eng N 83:414-15 Ag 28 '19*  
 Foundations of the new buildings of the Massachusetts institute of technology. Cambridge, Mass. C. T. Main and H. E. Sawtell. *diags Boston Soc C E J 5:1-34 Ja '18*; Abstract. *Am Soc M E J 40:340-1 Ap '18*; Discussion. *Boston Soc C E J 5:34-8, 135-7 Ja, Mr '18*  
 Method of constructing difficult foundations. E. A. Prentiss, jr. *diags plan Eng N 79:1061-2 D 6 '17*  
 Pile foundations for unequal load distribution. E. P. Arneson. *diags Eng N 83:698-9 O 9 '19*  
 Pneumatic caissons sunk through moving ground. *Il diags plan Eng N 82:1160-2 Je 12 '19*  
 Points on foundation work. I. P. Hicks. *diags Bldg Age 40:542-3 N '18*  
 Proper foundation for bungalow. *Bldg Age 40:456-7 S '18*  
 Sewer complicates foundation plans of a Chicago armory. *diags Eng N 82:770-1 Ap 17 '19*  
 Sinking six cylinder foundations a day on Boston army supply base. *Il diags plan Eng N 81:584-8 S 26 '18*  
 Stone foundations. C. King. *Il diags Bldg Age 40:93-4 F '18*  
 Suggestions for concrete work on foundations. A. Gemmell. *diags Elec R 72:929-30 Je 1 '18*  
 Supporting blast furnace while replacing foundation. C. W. Lush. *Il diags Eng N 82:1123-4 Je 5 '19*  
 Suspended templates and their application. T. Croft. *diags plan Power 47:78-80 Ja 15 '18*  
 Using concrete to best advantage for foundation walls. E. I. Freese. *Il diags Bldg Age 41:317-19 O '19*

*See also* Bridges—Foundations and piers; Building; Caissons; Cellars; Cofferdams; Column footings; Concrete piling; Cribbs; Concrete; Dams—Foundations; Earthwork; Foundation soils; Grouting; Machinery—Foundations; Pavements—Foundations; Piers; Piles and pile driving; Shoring and underpinning; Walls

**Founders**

- Preliminary report on foundry training. C. C. Schoen. *Foundry 47:484-5 J1 15 '19*  
 Umpire in case of Wheeling mold & foundry co. provides for permanent committee to decide when company and employees disagree. *Iron Age 102:754-5 S 26 '18*

**Founding.** *See* Brass founding; Copper founding; Foundry practice; Iron founding; Molding machines

**Foundries**

- Achievement in foundry design; Busch-Sulzer structure. G. L. Lacher. *Il plans Iron Age 104:827-32 S 25 '19*  
 Advanced ideas in gray-iron foundry. C. Lundberg. *Il Iron Age 101:435-7 F 14 '18*  
 American foundrymen's association convention. G. B. Goodfellow. *Il Metal Ind 17:405-12 S '19*  
 Bethlehem's ingot mold foundry. E. C. Kreutzberg. *Il Iron Tr R 65:495-8 Ag 21 '19*; Same. *Foundry 47:601-3 S 1 '19*  
 Birdsboro steel foundry. *Il diags Iron Tr R 63:313-21 Ag 8 '18*  
 Brass foundry with automatic ventilation. C. Vickers. *Il plan Foundry 46:568-74 D '18*  
 British engineer's impeachment of foundrymen. A. E. Bush. *Foundry 47:314-17 My 15 '19*  
 British foundries undergo change. H. C. Estep. *Il Iron Tr R 64:819-23 Mr 27 '19*  
 British foundrymen discuss weighty problems. *Il Foundry 46:405-8 S '18*  
 Converted plow plant makes efficient foundry. *Il diag plan Foundry 47:27-34 Ja '19*  
 Dayton foundry of progressive design. *Il Iron Age 104:355-6 Ag 7 '19*  
 Diversified output at Canton plant. Ohio. *Il chart plan Foundry 47:243-50 My 1 '19*; Same. *Iron Tr R 64:1211-17 My 8 '19*  
 Electric furnace in malleable foundry; National malleable castings co. F. L. Prentiss. *Il plan Iron Age 103:537-48 F 27 '19*  
 Electric steel castings made in Chicago shop. *Il plan Foundry 47:352-5 Je 1 '19*  
 Foundry and shops of striking design. C. Lundberg. *Il plan Iron Age 103:417-22 F 13 '19*  
 Foundry at a coal mine. A. A. Liggett. *Il Coal Age 16:357-8 Ag 28 '19*  
 Foundry building. M. W. Lee. *Il Iron Age 101:797-9 Mr 28 '18*  
 Foundry built and operated on battlefield. *Foundry 46:545 N '18*; Same. *Iron Tr R 63:1188 N 21 '18*  
 Foundry built around a shop truck; new plant of Peerless foundry, Cincinnati. *Il diag plan Iron Age 103:603-6 Mr 6 '19*  
 Foundry built for motor industry at Saginaw, Mich. *Il Iron Tr R 65:1245-7 N 6 '19*  
 Foundry equipped in record time; Richmond malleable casting co.'s plant, Richmond, Ind. *Il plan Iron Tr R 62:313-16 Ja 31 '18*  
 Foundry industries grow. *Iron Age 102:951 O 17 '18*  
 Foundry industry makes big gain in two years. *maps Foundry 46:456-60 O '18*  
 Foundry of National malleable castings co., Cleveland, O., nears completion. *plan Iron Tr R 62:655-6 Mr 14 '18*; Same. *Foundry 46:144-6 Ap '18*  
 Foundryman's iron problem. C. J. Stark. *Iron Tr R 63:895-8 O 17 '18*; Same. *Foundry 46:526-9+ N '18*  
 Foundrymen grapple war problems. B. D. Fuller. *Iron Tr R 63:840-1 O 10 '18*  
 Getting ready for huge production; details of plant at Saginaw, Mich. P. Dwyer. *Il plan Foundry 47:697-702 O 1 '19*  
 Government builds model factory at League Island, Philadelphia. *Il Foundry 47:651-3 S 15 '19*  
 Hoosier foundry embodies principles of modern design. *Il plan Foundry 46:97-9 Mr '18*; Same. *Iron Tr R 62:721-3 Mr 21 '18*  
 How one steel foundry met the need for ship and railway castings. H. C. Estep. *Il diags plan Foundry 46:415-23 S '18*  
 How steel castings are made in California. *Il Foundry 46:129-33 Mr '18*  
 How the foundry served overseas. *Il Foundry 47:792-5 N 1 '19*  
 Increased melting capacity aids production. *Il Foundry 47:69-71 F '19*  
 Lakey foundry & machine co.'s plant planned to save manpower. *Il diags plans Iron Tr R 63:433-9 Ag 22 '18*  
 Lakey foundry at Muskegon, Mich. H. C. Spillman. *Il diag plan Iron Age 101:1455-9 Je 6 '18*  
 Making cast steel wheels for U. S. army trucks at Dayton steel foundry. *Il diag Foundry 46:396-401 S '18*



**Foundries—Continued**

Making good with tradition discarded; foundry of the American cast iron pipe co., Birmingham, Ala. A. O. Backert. *il* *diags* plans Iron Tr R 62:95-106 Ja 3 '18; Same. Foundry 46:115-27 Mr '18

Malleable plant proves versatility adapted to the successful manufacture of cast-steel anchor chain. *il* plan Iron Tr R 64:633-9 Mr 6 '19; Same *abr.* Foundry 47:221-4 Ap 15 '19

Manufacture of pattern castings. H. M. Lane. *il* plan Iron Age 101:36-8+ Ja 3 '18

Milwaukee foundries serve all industry. D. M. Avey. *il* Iron Tr R 63:sup109-15 O 3 '18

Model metal foundry for the Silver metal manufacturing company of New York. *il* plan Metal Ind 15:173-5 Ap '17

Modern corerom for malleable foundry. Rochester, N.Y. D. S. Barrows. *il* *diags* plans Iron Age 102:1254-5 N 21 '18; Same. Foundry 46:577-8+ D '18

Modern French foundry in suburbs of Paris. H. C. Estep. *il* Foundry 47:429-34 Jl 1 '19

Modern gray-iron foundry in Utah. T. F. Jennings. *il* Foundry 47:587-9 S 1 '19

New plant of the W. A. Jones foundry & machine co. *il* plan Am Arch 113:810-12 Je 12 '18

New uses for industrial fuel gas. C. H. Kallstedt. Am Gas Eng J 108:261 Mr 16 '18; Same. Gas Age 41:318 Ap 1 '18

Old foundry replaced by new; Pratt & Letchworth co., Buffalo. *il* Iron Age 103:1563-7 Je 12 '19

Philadelphia as a foundry center. D. M. Avey. *il* Iron Tr R 65:sup121-6 S 25 '19

Problems in small foundry design. M. H. Potter. plan Foundry 47:550 Ag 15 '19

Quaker city is thriving workshop. *il* Foundry 47:625-32 S 15 '19

Rapid construction of new steel foundry. *il* Iron Age 102:827 O 3 '18

Saginaw malleable iron co.'s plant. *il* plan Iron Age 101:1191-5 My 9 '18

Scientists co-operate with British foundrymen. G. E. Wells. Foundry 47:195 Ap 15 '19

Seeing chemical plant apparatus made. *il* Chem & Met Eng 20:395-9 Ap 15 '19

Seek economy in repetition work. *il* Foundry 47:761-6 N 1 '19

Steel foundry opened in Wilkes-Barre, Pa. *il* plan Foundry 47:334-5 Je 1 '19; Same. Iron Tr R 64:1677-8 Je 26 '19

Unique features of an Illinois foundry. C. Lundberg. *il* plan Iron Age 102:1563-9 D 26 '18

Using the upstairs in a foundry. J. F. Ervin. *il* Iron Tr R 63:1173-5 N 21 '18; Same. Foundry 47:40-2 Ja '19

Where power transmission machinery is made; foundry of W. A. Jones co., Chicago. *il* plan Foundry 47:325-8 Je 1 '19

*See also* Brass foundries; Founders; Foundry management; Foundry practice; also other headings beginning Foundry

**Accidents**

Injuries from molten metal. C. C. Sherlock. Iron Age 102:1262-3 N 21 '18

**Accounting**

*See* Foundry accounting

**Electric equipment**

Electric oven used for baking cores. *il* Iron Age 100:652-3 S 20 '17; Same. Gen Elec R 21:146-3 F '18

Harnessing the electric furnace to the foundry. D. Walker. Foundry 46:9-11 Ja '18

*See also* Electric furnaces

**Employees**

Industrial training for foundry workers. H. E. Miles. Am Ind 20:40-1 N '19

Training women for record output. R. I. Clegg. *il* Iron Age 103:169-74 Ja 16 '19

Vocational training for foundry occupations. Dom Eng 89:355-+ N 15 '19

Women employed in German foundries. K. Abeking. Foundry 46:99 Mr '18

*See also* Foundry management

**Equipment and supplies**

Air-operated malleable iron annealing oven charging truck. *il* Iron Tr R 63:667 S 19 '18

Audible signals in the foundry. V. Karapetoff. *diags* Iron Tr R 65:894-5 O 2 '19

Bucket loader for foundry sand mixer. *il* Iron Age 102:899 O 10 '18

Castings—as per sample. W. H. Parry. Metal Ind 16:219 My '18

Charging truck for malleable iron foundries. *il* Foundry 46:390 Ag '18

Cutting the cost of cupola charging with an electric elevating platform truck equipped with a beam scale. *il* Iron Age 100:1411 D 13 '17

Details of a coremaker's bench. G. W. Childs. *diag* plans Foundry 46:112a Mr '18

Exhibition at Milwaukee reveals war capacity of foundries. *il* Foundry 46:512-20 N '18

Exhibits show year's progress. *il* Iron Tr R 65:905-9 O 2 '19

Feeder head for ingot moulds. *diag* Engineer 125:369 Ap 26 '18

Flask arbor and jet bar for a circular flask. G. W. Childs and J. Rafferty. *diags* Foundry 46:404 S '18

Foundry and machine tool exhibition at the Philadelphia commercial museum. *il* Iron Age 104:841-8 S 25 '19; Iron Tr R 65:825-32 S 25 '19; Foundry 47:634-40+ S 15 '19

Foundry exhibition surpasses all. Foundry 47:726-34+ O 15 '19

Handling foundry jobs by crane. W. C. Briggs. *il* Iron Tr R 65:889-91 O 2 '19; Same. Foundry 47:735-7 O 15 '19

How to select suitable sand-blast equipment. H. D. Gates. *il* plan Foundry 46:539-45 N '18

Labor is saved by pouring device. *il* Foundry 47:519-20 Ag 1 '19; Same. Iron Tr R 65:637-8 S 4 '19

Machinery and supply exhibit. Iron Age 102:965-8 O 17 '18

Mechanical handling of foundry material. *il* Iron Age 104:870-2 S 25 '19

Method of mounting patterns in a double match. W. H. Albohn. *il* Foundry 47:402-3 Je 15 '19

Molten metal charging car. *diags* Iron Tr R 63:788 O 3 '18

Motor drive in a modern foundry. *il* Elec R 72:99-100 Ja 19 '18

Reclaiming core and molding sand. *il* Foundry 46:90-1 F '18

Reliable signal system. H. S. Rich. *diag* Power 49:907 Je 10 '19

Stripping plate device for small foundries. H. D. Davis. *diags* Foundry 46:495 O '18

What you will see at the Milwaukee exhibition; exhibitors and the products displayed. Foundry 46:484-90 O '18; Iron Age 102:817-21 O 3 '18; Iron Tr R 63:777-83, 845-9+ O 3-10 '18

*See also* Blowers; Brushes; Casting machines; Chaplets; Converters (foundry); Crucibles; Fire brick; Foundries—Electric equipment; Foundries—Safety devices and measures; Foundry ladles; Foundry machinery; Molding machines; Riddles; Sand; Foundry; Sand blast

**Floors**

Concrete mix vs. wooden blocks for foundry floors. J. V. Hunter. *il* *diag* Am Mach 48:227-8 F 7 '18

**Heating and ventilation**

Brass foundry with automatic ventilation. C. Vickers. *il* plan Foundry 46:568-74 D '18

Foundry utilizes waste heat from open hearth. *il* Foundry 47:387 Je 15 '19

Foundry ventilation. *diags* Iron Age 103:610 Mr 6 '19

**Lighting**

Better lighting of iron and steel mills and fabricating plants. F. H. Bernhard. *il* Elec R 73:841-5 N 30 '18

**Management**

*See* Foundry management

## Foundries—Continued

## Safety devices and measures

- All foundries need a safety program. M. F. Gartland. Foundry 47:748-9 O 15 '19  
 Safety code prepared by joint committees of the American foundrymen's association and the National founders' association. Iron Age 101:684-5 Mr 14 '18  
 Safety first for foundrymen. Sci Am S 86:9 J1 6 '18  
 Safety in the foundry. diags Am Ind 19:supl-4 N '18  
 Standards for brass and bronze foundries and metal-finishing processes. L. Erskine. Am Inst Min E Bul 146:263-75 F '19; Same. Metal Ind 17:113-17 Mr '19

## Foundry (periodical)

- New foreign offices are established for the Foundry. Foundry 47:809-10 N 15 '19

## Foundry accounting

- Applying the principles of cost engineering. R. S. Denham. Foundry 46:309+ J1 '18  
 Compiling cost data in a naval steel foundry. W. S. Doxsey. Foundry 47:206-11 Ap 15 '19  
 Cost-finding; some practical methods for brass, bronze and aluminum foundries. Metal Ind 15:112-14 Mr '17  
 Cost system for a medium size foundry. D. O. Barrett. Iron Age 102:810-13 O 3 '18  
 Foundry cost and accounting system. W. W. Bird. Am Soc M E J 40:370-3 My '18; Same. Foundry 46:256-8 Je '18; Discussion. Am Soc M E J 40:681-4 Ag '18  
 Handling costs in a steel foundry. C. E. Lynn. Iron Tr R 65:1179-80 O 30 '19  
 Handling factory costs. Factory 20:1202+; 22:1252+ Je '18, Je '19  
 Production cost and profit control in nonferrous foundries. W. G. Scott. Metal Ind 17:417-20 S '19  
 Relating expenses with factors of production. M. J. House. Foundry 46:308-9 J1 '18  
 Simple foundry cost system. A. N. Petersen. Foundry 47:67-8 F '19

## Foundry costs

- Electric furnace performance for alloys with high zinc content. Il Elec R 74:814-15 My 17 '19  
 Metal melting as practiced at the Royal mint, Birmingham, England. W. J. Hocking. Metal Ind 15:383-5 S '17; Abstract. Foundry 45:193 My '17

See also Foundry accounting

## Foundry ladles

- Combination ladle and truck. Il Iron Age 103:1356 My 22 '19  
 New heaters for large and small ladles. Il Iron Tr R 65:1120 O 23 '19  
 Preventing accidents with ladles. M. H. Potter. Foundry 47:569-70 Ag 15 '19  
 Self-contained ladle tilter. diags Iron Tr R 63:446-7 Ag 22 '18  
 Skip-type ladle tilter. diag Iron Tr R 62:975 Ap 18 '18  
 Using heat resisting cement for ladle linings. Il Foundry 47:322 My 15 '19

## Foundry machinery

- Equipment for iron, steel and brass foundries. Il diag Foundry 46:498-9 O '18  
 How to care for foundry equipment. G. L. Grimes. Foundry 47:771 N 1 '19  
 Improving foundry sand mixtures. H. B. Hanley. Il Iron Age 102:1146-8 N 7 '18; Same. Iron Tr R 63:891-4 O 17 '18; Same. Foundry 46:559-62 D '18  
 Saving man power in the foundry. E. S. Carman. Il diags Iron Tr R 63:827-33 O 10 '18  
 Side surface grinder for heavy duty. Il Iron Tr R 64:1227-8 My 8 '19  
 Special rig aids foundry output. Il Iron Tr R 65:769-73 S 18 '19; Same. Foundry 47:654-8 S 15 '19  
 Using a corebox machine on shallow work. W. Ballantine. diags Foundry 47:709 O 1 '19  
 Woodson universal sensitive core machine to aid output. Il Foundry 46:338-9 J1 '18

See also Casting machines; Foundry practice; Molding machines

## Exhibitions

- Exhibition at Milwaukee reveals war capacity of foundries. Il Foundry 46:512-20 N '18  
 Exhibits show year's progress. Il Iron Tr R 65:905-9 O 2 '19  
 Foundry and machine tool exhibition at the Philadelphia commercial museum. Il Iron Age 104:841-8 S 25 '19; Iron Tr R 65:825-32 S 25 '19; Foundry 47:634-40+ S 15 '19  
 Foundry exhibition surpasses all. Foundry 47:726-34+ O 15 '19  
 Machinery and supply exhibit at Milwaukee. Iron Age 102:965-8 O 17 '18  
 What you will see at the Milwaukee exhibition; exhibitors and the products displayed. Foundry 46:484-90 O '18; Iron Age 102:817-21 O 3 '13; Iron Tr R 63:777-83, 845-9+ O 3-10 '18

## Foundry management

- Applying the premium plan to a pattern shop. D. M. Avey. diags Foundry 47:295-9 Mr '19  
 Brass foundry core-making points. H. M. Lane. Metal Ind 15:436-7 O '17  
 British foundries assign heavy tasks to women. Il Foundry 46:69-70 F '18  
 British foundries undergo change. H. C. Estep. Il Iron Tr R 64:819-23 Mr 27 '19  
 Departmental co-operation effects economies. J. Shaw. Foundry 46:83 F '18  
 Economies in a malleable iron foundry. A. F. Conant. Il plan Iron Age 104:859-61 S 25 '19  
 Educational value of a scrap pile. H. Trap-hagen. Foundry 47:688-90 O 1 '19; Same cond. Iron Tr R 65:892-3 O 2 '19  
 Efficiency methods triple foundry output. C. E. Wright. Il chart Iron Age 104:849-55 S 25 '19  
 Estimating the weights of castings rapidly. W. Hathaway. diags Foundry 46:210-12 My '18  
 Following work through the plant. A. Mann. Foundry 47:742-3 O 15 '19  
 Handling foundry jobs by crane. W. C. Briggs. Il Iron Tr R 65:889-91 O 2 '19; Same. Foundry 47:735-7 O 15 '19  
 Handling foundry workers. P. R. Ramp. Iron Age 101:326-7 Ja 31 '18  
 How the engineer can save foundry labor. E. S. Carman. Il diags Foundry 47:113-20 Mr '19  
 Keeping record of iron in storage. D. C. Kickler. Foundry 47:538-9 Ag 15 '19  
 Material expediting. J. C. Graf. Ind Management 57:143-4 F '19  
 Modern methods applied to the foundry. W. R. Dean. chart diag Metal Ind 17:3-4, 69-70 Ja-F '19  
 Organizing a foundry to obtain top production. P. R. Ramp. Foundry 47:8-13 Ja '19; Excerpts. Iron Age 102:1383-5 D 5 '18  
 Pattern shop superintendent. P. R. Ramp. Iron Age 103:1132-3 My 1 '19  
 Piecework rates for grinding gates and risers from steel castings. F. R. Zimmerman. Foundry 46:114 Mr '18  
 Prime factors of foundry efficiency; scheduling of work and shop details. M. H. Potter. Metal Ind 17:462-3 O '19  
 Production cost and profit control in nonferrous foundries. W. G. Scott. Metal Ind 17:417-20 S '19  
 Sales engineer views the foundry. Iron Tr R 62:723-4 Mr 21 '18  
 Short cuts keeping track of castings and patterns. Factory 23:652+ S '19  
 Simple pattern control and routing system. Il Foundry 47:292-6 My 15 '19  
 System in the steel foundry. J. C. Graf. Ind Management 57:468-9 Je '19  
 Time studies on grey iron molding. C. A. Marston. Il Ind Management 57:198-202+ Mr '19  
 Using the upstairs in a foundry. J. F. Ervin. Il Iron Tr R 63:1173-5 N 21 '18; Same. Foundry 47:40-2 Ja '19  
 What proper routing did for an old foundry. H. E. Goetz. plans Foundry 46:40-1+ Ja '18  
 Why expert foundry advice sometimes fails. R. R. Clarke. Foundry 47:229-31 Ap 15 '19  
 Why some foundries continue to lose money. R. Grimshaw. Foundry 46:562-3 D '18

**Foundry management—Continued**

Win-the-war methods at the Essington foundry. E. C. Kreutzberg. *Il Foundry* 46:293-301+ JI '18; Same. *Iron Tr R* 63:201-8 JI 25 '18

Your biggest foundry problem—manpower. H. C. Estep. *Il Foundry* 46:443-50 O '18

See also **Foundries—Safety devices and measures**; **Foundry accounting**; **Foundry practice**; **Foundry sanitation**

**Foundry practice**

Accuracy in setting cores. J. V. Hunter. *Il diags Am Mach* 49:439-40 S 5 '18; Abstract. *Am Soc M E J* 40:860-1 O '18

Air-tight castings. *Mach* 24:728 Ap '18

American and foreign steel foundries; a British comparison of French, Belgian and American steel castings. E. F. Lange. *Iron Age* 102:308-9 O 3 '18

Anthracite coal for melting iron in a cupola. W. J. Keep. *Foundry* 46:325 JI '18

Application of pyrometers to core ovens. G. W. Keller. *Il Foundry* 47:72-4 F '19

Attaining production on Liberty motor crankcase castings. *Il diags Foundry* 47:126-9 Mr '19

Australian steel foundry practice. A. M. Henderson. *Iron Tr R* 62:212-13 Ja 17 '18

Auxiliary cope flask. M. E. Duggan. *diags Am Mach* 48:589 Ap 4 '18

Birdsboro steel foundry. *Il diags Iron Tr R* 63:213-21 Ag 8 '18

Brass foundry practice. W. R. Dean. *diag Metal Ind* 15:195-6, 388-9 My, S '17

Cast-steel anchor chain developed to meet war need; abstracts. H. J. Cox. *Eng N 81:129-30 JI 18 '18*; *Iron Age* 102:25-6 JI 4 '18

Casting a chromium-nickel alloy successfully. *Foundry* 46:470 O '18

Casting a slide valve locomotive cylinder. R. H. Palmer. *Il diags Foundry* 46:276-9 Je '18

Casting a water-jacket ring. M. E. Duggan. *diags Am Mach* 49:33 JI 4 '18

Casting bearings in sand and metal moulds. R. R. Clarke. *Metal Ind* 15:485-7, 516-17 N-D '17

Casting gray-iron piston rings by machinery. E. Sheldon. *Il diags Am Mach* 49:783-7 O 31 '18

Casting large guns in the early eighties. J. Goostray. *Il diags Foundry* 46:6-8 Ja '18

Casting nickel-silver, a copper nickel-zinc alloy. R. V. Hutchinson. *diag Metal Ind* 17:13-14 Ja '19

Casting pipe centrifugally. *Il diag Sci Am* 118:39+ F 2 '18

Casting pipe sections by continuous pouring. *Il diags plan Foundry* 46:73-8 F '18

Casting steel anchors in a permanent mold. *diags Foundry* 47:112 Mr '19

Casting tools from an air-hardening steel. *Il Foundry* 47:66-7 F '19

Casting under pressure. *Iron Age* 102:1138 N 7 '18

Chinese iron foundries. F. A. Foster. *Il Am Mach* 51:345-52 Ag 21 '19

Clamping device for core plate; diagrams. *Foundry* 46:292a JI '18

Compressor casting takes 31 cores. *Il Foundry* 47:673-6 O 1 '19

Converted plow plant makes efficient foundry. *Il diag plan Foundry* 47:27-34 Ja '19

Converting crucible furnace to gas. *diags plan Gas Age* 42:162 Ag 15 '18

Cooling of castings by electricity. *Sci Am* 119:298 O 12 '18

Core box construction. *diag Foundry* 46:34 Ja '18

Core work at the Nash foundry. M. E. Hoag. *Il Am Mach* 48:22-4 Ja 3 '18

Crankcases for sub chaser engines are molded and cast. H. C. Estep. *Il Foundry* 46:244-7 Je '18; Same. *Iron Tr R* 63:139-42 JI 18 '18

Davidson process of casting formed tools. J. E. Johnson, Jr. *Il Am Inst Min E Bul* 146:353-60 F '19; Same cond. *Iron Tr R* 64:435-7 F 13 '19; Same cond. *Iron Age* 103:481-3 F 30 '19; Same cond. *Foundry* 47:162-4 Ap 1 '19; Abstract. *Mech Eng* 41:395-6 Ap '19

Difficult job molded in a single flask. M. E. Duggan. *diag Am Mach* 48:548 Mr 28 '18

Eastern plant makes ship castings. E. C. Kreutzberg. *Il Foundry* 47:468-71 JI 15 '19

Easy method for determining metal mixtures. H. L. Campbell. *Foundry* 47:130+ Mr '19

Efficiency in the core room. J. B. Conway. *diags plans Am Mach* 50:11-14 Ja 2 '19

Electric furnace in malleable foundry; National malleable castings co. F. L. Prentiss. *Il plan Iron Age* 103:537-43 F 27 '19

Electric furnaces for steel foundries. W. E. Moore. *Il diags plan Elec J* 16:360-6 S '19; Excerpts. *Mech Eng* 41:874-6 N '19

Electric heating of molds. H. E. White. *Il diags Am Soc M E J* 40:388-9 My '18; Same. *Automotive Ind* 38:1207-8 Je 20 '18; Same. *Am Mach* 48:1109-11 Je 27 '18

Engineer in relation to the foundry. E. S. Carman. *Il diags Iron Age* 102:1200-2 N 14 '18

Exceptional gang core boxes. J. V. Hunter. *Il diags Am Mach* 49:377-80 Ag 29 '18

Experiments with cast steel chain; abstracts. C. K. Brooks. *diags Iron Age* 102:26-8 JI 4 '18; *Eng N* 81:130 JI 18 '18; *Iron Tr R* 63:28-32 JI 4 '18; *Foundry* 46:374-5 Ag '18

Factors in selecting the proper core binder. W. G. Smith. *Foundry* 47:344 Je 1 '19

Foreign foundry practice analyzed. A. O. Backert. *Foundry* 47:769-70 N 1 '19

Foundrymen face new problems in war service. B. D. Fuller. *Foundry* 46:521 N '18

Gas fired ovens for baking and drying cores. B. Rahn. *Il Foundry* 46:250-1 Je '18

Gating of metal castings. R. V. Hutchinson. *Il diags Metal Ind* 16:495-7 N '18

Grinding wheel in the foundry. W. T. Montague. *Iron Age* 101:318-21 Ja 31 '18

Handling government work in a steel foundry. H. C. Estep. *Il Foundry* 46:193-200 My '18; Same. *Iron Tr R* 62:1113-20 My 2 '18

Hispano-Suiza airplane engine. H. O. C. Isenberg. *Il Am Mach* 51:55-8, 365-8, 515-19 JI 10, Ag 21, S 11 '19

Hoosier foundry seeks difficulties. D. M. Avey. *Il Foundry* 47:505-9 Ag 1 '19; Same. *Iron Tr R* 65:701-5 S 11 '19

How a large pump casing was molded and cast. *Il Foundry* 47:281-3 My 15 '19

How cores are used to cut molding costs. *Il Foundry* 46:1-4 Ja '18

How dummy iron shells are molded and cast. H. C. Estep. *Il Foundry* 46:347-50 Ag '18; Same. *Iron Tr R* 63:659-62 S 19 '18

How gear cases for tractors are molded. *Il diags Foundry* 47:2-5 Ja '19

How iron castings for big gun lathes are made. H. C. Estep. *Il Foundry* 46:147-53 Ap '18; Same. *Iron Tr R* 62:1045-51 Ap 25 '18

How loam molds and cores are dried. E. Schwartz. *diags Foundry* 47:754-5+ O 15 '19

How one steel foundry met the need for ship and railway castings. H. C. Estep. *Il diags plan Foundry* 46:415-23 S '18

How propeller castings are made. R. H. Palmer. *Il diags Iron Tr R* 63:711-13 S 26 '18

How semisteel shells are being made in France. E. Ronceray. *Foundry* 46:93-6 Mr '18

How the engineer stops foundry losses. S. B. Phelps. *diags Ind Management* 56:209-11 S '18

How the foundry aided the machine shop. J. J. McDonald. *diags Foundry* 47:392 Je 15 '19

How to cool castings to prevent distortion. M. H. Potter. *Foundry* 47:99-100 Mr '19

How to insure the soundness of castings. E. Touceda. *Iron Tr R* 63:841-2 O 10 '18

How water shut-off boxes are made. *Il diag Foundry* 47:495-8 Ag 1 '19

Huge chain cable is now cast successfully. *Il Foundry* 46:310-13 JI '18

Inland plant sets record on marine engine castings. D. M. Avey. *Il diags Foundry* 47:196-204 Ap 15 '19

Is casting cymbals a lost art? *diag Metal Ind* 17:129-30 Mr '19

Loam model for evaporator steam belt. *Il Foundry* 47:811-16 N 15 '19

Long castings from short patterns. R. R. Clarke. *Foundry* 47:561-4 Ag 15 '19

Machine for calculating cupola mixtures. *Il Foundry* 46:336-7 JI '18

**Foundry practice—Continued**

- Making a large piston on emergency order. J. R. Anderson. *Il* *diags* Foundry 47:270-1 My 1 '19
- Making castings for giant lathes. *Il* *diags* Foundry 47:772-7 N 1 '19
- Making castings of uniform thickness from block patterns. H. J. Butler. *diags* Foundry 46:374a Ag '18
- Making castings used in ship construction. B. Shaw and J. Edgar. *diags* plans Foundry 47:297-300+, 336-9, 338-92, 417-20, 474-8, 523-7, 540-4, 597-600, 647-50, 705-8, 738-41, 785-8, 832-5, 870-3 My 15-D 1 '19
- Making core mixtures for steel castings. *Il* Foundry 46:279 Je '18
- Making cores for small hollow parts. *diags* Foundry 46:134-5 Mr '18
- Making hand grenade castings for Uncle Sam. A. M. Jones. *Il* Foundry 46:177-82 Ap '18
- Making malleable cast iron rifle grenades. *Il* *diags* plans Foundry 46:47-56 F '18; Same. Iron Tr R 62:477-86 F 21 '18
- Making quad wheels in a tractor foundry. *Il* Foundry 47:157-61 Ap 1 '19
- Making sand-cast forging ingots. W. L. Booth. *Il* Iron Age 102:1139-40 N 7 '18
- Making semi-steel projectiles. *Il* *diags* Iron Age 102:879-83 O 10 '18
- Malleable plant proves versatility adapted to the successful manufacture of cast-steel anchor chain. *Il* plan Iron Tr R 64:623-9 Mr 6 '19; Same abr. Foundry 47:221-4 Ap 15 '19
- Manufacture and testing of cast steel chain cables; memorandum issued by Lloyd's register of shipping. Engineer 126:134-5 Ag 16 '18
- Manufacture of metal beds. F. A. Stanley. *Il* *diags* Am Mach 49:427-31 S 5 '18
- Manufacture of nickel anodes. L. J. Krom. *Il* Metal Ind 15:147-8 Ap '17
- Manufacture of semi-steel shells. *Il* *diags* Iron Age 102:1317-21 N 28 '18
- Marine gasoline engine cylinders. R. H. Palmer. *Il* Foundry 47:567-9 Ag 15 '19
- Melting cast iron in crucibles. J Fr Inst 185: 858 Je '18
- Metal melting as practiced at the Royal mint, Birmingham, England. W. J. Hocking. *Il* *diag* plan Metal Ind 15:348-9, 352-5 Ag-S '17; Same cond. Foundry 45:191-3 My '17; Abstract, with discussion. Engineer 123:311 Ap 6 '17
- Method of casting thin-section hollow articles. *diags* Foundry 47:88 F '19
- Molding a large casting. M. E. Duggan. *diag* Am Mach 50:352-3 F 20 '19
- Molding a propeller hub. C. A. Otto. *diags* Am Mach 48:802-3 My 9 '18
- Molding a superheater locomotive cylinder. R. H. Palmer. *Il* *diags* Foundry 46:205-9 My '18
- Molding and casting bronze tablets. W. B. Jones. Foundry 46:329 JI '18
- Molding and casting heavy steel anchor chain. *Il* Foundry 47:141-7 Ap 1 '19
- Molding and casting ornamental bronze tablets. C. Vickers. *Il* Foundry 46:216-17 My '18
- Molding machines facilitate the production of castings for tractors. *Il* Foundry 46:230-3 My '18
- Molding shoes for caterpillar tractors. *Il* Iron Age 103:119-20 Ja 9 '19
- Molding slag pots in dry sand. C. J. McMahon. *diags* Foundry 46:11, 33-4 Ja '18
- Mounting pattern on plates an aid to molding. R. R. Clarke. *diags* Foundry 46:451-4+ O '18
- New hot top for ingot molds. *diag* Iron Age 102:85 JI 11 '18
- New method of molding trench-mortar shell. H. C. Estep. *Il* Foundry 46:523-5 N '18
- New methods speed up foundry output; conveyor systems and green sand cores used in large production works. *Il* Iron Age 104:763-6 S 18 '19
- New way to make castings of non-ferrous alloys. Sci Am 120:57 Ja 13 '19
- Novel method of drying cores in vacuum ovens. G. W. Merrefield. *diags* Foundry 47: 268-9 My 1 '19
- Overcoming aluminum bronze difficulties. Foundry 46:534 N '18
- Overweight casting—its cause and remedy. R. R. Clarke. *Il* Foundry 46:12-16 Ja '18
- Patternmaking and molding cast tooth gears. J. Nall. *Il* *diags* Foundry 46:377-80 Ag '18
- Patterns and core boxes for gas engine beds. J. Horner. *diags* plan Foundry 46:100-3 Mr '18
- Paving the way for the guns; making tractor track links. *Il* Foundry 47:104-9 Mr '19
- Permanent moulds. *Il* Engineer 128:33-4 JI 11 '19
- Pit molding an intricate condenser casting. *Il* *diags* Foundry 46:552-7 D '18
- Pointers on molding car couplers. *Il* plan Foundry 47:499-504 Ag 1 '19
- Pouring metal direct from furnace to molds. *Il* *diags* Foundry 47:449 JI 1 '19
- Pouring system for modern foundries. M. P. Ohlsen. *Il* Iron Age 102:1203 N 14 '18
- Pressure casting of high tensile copper alloys. W. Rosenhain and D. Hanson. Sci Am S 88:77 Ag 2 '19
- Problems evolve melting changes. *Il* plan Foundry 47:456-9 JI 15 '19
- Producing small cores cheaply in quantities. R. E. Kennedy. *Il* chart plans Foundry 46: 169-76+ Ap '18
- Producing sound nonferrous castings for valves. R. R. Clarke. *Il* *diag* Foundry 47:441-7 JI 1 '19
- Progress in metal casting in England. W. R. Barclay. *Il* *diags* Metal Ind 17:266-8 Je '19
- Quantity production of small iron castings. C. A. Hardy. Foundry 47:87-8 F '19
- Radiator foundry to use iron molds. *Il* *diags* plan Foundry 47:821-2 N 15 '19
- Reasoning applied to foundry work—its rewards. R. R. Clarke. Foundry 46:266-9 Je '18
- Reminiscences of early steel foundry practice. D. McLain. *diag* Foundry 46:35-7 Ja '18
- Results of use of permanent molds in England. M. Riddell. Foundry 46:162-3 Ap '18
- Runner box and skim gate combined. E. Grant. *Il* *diags* Foundry 46:96 Mr '18
- Seek economy in repetition work. *Il* Foundry 47:761-6 N 1 '19
- Semisteel and general foundry practice. D. McLain. Foundry 47:393-4 Je 15 '19
- Setting or punching the sprue—which? R. R. Clarke. Foundry 46:103 Mr '18
- Shell need found foundries ready. *Il* *diag* Iron Tr R 63:1229-36 N 28 '18; Same. Foundry 46:581-7+ D '18
- Small castings from alloys and scrap metals. W. J. May. Sci Am S 85:171 Mr 16 '18
- Some aspects of British foundry practice. Iron Age 104:873-4 S 25 '19
- Special rig aids foundry output; four machines make molds with green-sand cores for tractor transmission housings. *Il* Iron Tr R 65:769-73 S 18 '19; Same. Foundry 47: 654-8 S 15 '19
- Steel castings for our first line of defense. W. S. Doxsey. *Il* *diags* Foundry 47:367-73 Je 15 '19
- Suggestions for handling stopper heads. A. D. Johnson. Foundry 46:146 Ap '18
- Suggestions on mixing foundry core sand. R. Grimshaw. Iron Age 102:807 O 3 '18
- Tapering of core prints. F. J. Townsend. *diag* Foundry 46:186-7 Ap '18; Discussion. M. E. Duggan. 46:237 My '18
- Temperature measurements in foundry drying ovens. Iron Age 102:1153 N 7 '18
- Two ways of molding a casting. M. E. Duggan. *diags* Am Mach 49:551 S 26 '18
- Unique features of an Illinois foundry. C. Lundberg. *Il* plan Iron Age 102:1563-9 D 26 '18
- Using metal denseners and molds. E. H. Broughall. *Il* *diags* Foundry 47:514-18 Ag 1 '19
- Welding propellers in Panama canal foundry; how blades are repaired by burning-on, with a comparison of costs with autogenous processes. J. H. Moffett. *Il* Foundry 46: 356-8 Ag '18
- What the sand blast means to the foundryman. H. L. Wadsworth. Foundry 46:359-60 Ag '18; Abstract. Iron Age 101:778 Mr 21 '18
- When you haven't the gas to sell them for brass melting help them to use oil. L. Resnick. *Il* Am Gas Eng J 109:129-30 Ag 10 '18

**Foundry practice—Continued**

- Where converter castings are made. *Il plan Foundry* 47:608-11 S 1 '19  
 Why facing is necessary. *Foundry* 47:681 O 1 '19  
 Why the inclined mold is a fallacy. R. R. Clarke. *Foundry* 46:351-2 Ag '18  
 Win-the war methods at the Essington foundry. E. C. Kreutzberg. *Il Foundry* 46:293-301+ J1 '18; Same. *Iron Tr R* 63:201-8 J1 25 '18  
*See also* Aluminum founding; Brass founding; Cast iron; Copper founding; Cupola furnaces; Die casting; Electric furnaces; Fire clay; Foundries; Foundry machinery; Iron founding; Iron metallurgy; Molding machines; Pattern making; Pickling (metals); Pig iron; Steel castings

**Tables, calculations, etc.**

- Computing weights of castings. W. L. Tryon. *diags Foundry* 47:420a J1 1 '19  
 Foundry riddles. *See* Riddles  
 Foundry sand. *See* Sand, Foundry  
 Foundry sanitation  
 Cleaning foundry air electrically. H. D. Egbert. *Il diags plan Iron Tr R* 63:956-9 O 24 '18; Same. *Foundry* 47:43-5+ Ja '19  
 Standards for brass and bronze foundries and metal-finishing processes. L. Erskine. *Am Inst Min E Bul* 146:263-75 F '19; Same. *Metal Ind* 17:113-17 Mr '19; Discussion. *Am Inst Min E Bul* 148:710-11 Ap '19  
 Using construction standards. *diags Factory* 21:1154+ D '18  
 Foundry supplies. *See* Foundries—Equipment and supplies  
 Fountain pens  
 Gas an important factor in the manufacture of fountain pens. G. C. Shadwell. *Il diags Am Gas Eng J* 111:247-50, 254-9 S 20 '19  
 Fountains  
 Electrically illuminated fountain. A. L. Powell. *Il diags plan Elec R* 72:551-3 Mr 30 '18  
 Jackman fountain, Glenview, Ill. *Il Concrete* 14:111 Mr '19  
 Fountains, Drinking. *See* Drinking fountains  
 Fourth dimension  
 Fourth dimension; the engineer's playground. E. Fleming. *diags Sci Am S* 85:188-9 Mr 23 '18  
 Worlds of four dimensions. *Sci Am* 120:117 F 8 '19  
 Fracture. *See* Strength of materials  
 Fractures (surgery)  
 Further advance in mechanical surgery. F. Honoré. *Il Sci Am* 119:35 J1 13 '18  
 Framing (building)  
 Country house details. A. B. Greenberg. *diags Bldg Age* 40:570-1; 41:53-5, 101-2 D '18, F-Mr '19  
 How a successful builder frames the barns he builds. *diag Bldg Age* 40:140-1 Mr '18  
 How to use steel in timber framing. E. I. Freese. *diags Bldg Age* 41:13-15 Ja '19  
 Making strong corners and framing heavy overhangs. I. P. Hicks. *diags Bldg Age* 41:190-1 Je '19  
 Steel and concrete framing combined for economy in the 12-story State-Lake building in Chicago. *diags plans Eng N* 83:178-82 J1 24 '19  
 Steel framing features of Hotel Pennsylvania. T. C. Tuck. *diag Arch Forum* 30:104 Ap '19  
 Steel framing for long-span construction N. A. Richards. *diags plans Arch Forum* 30:23-7 Ja '19  
*See also* Roofs  
 France  
 Motoring in France after 3¼ years of war. W. F. Bradley. *Il Automotive Ind* 38:727-8 Ap 11 '18  
 Reconstructing the devastated areas of France; photographs. *Am Inst Arch J* 6:346-51 J1 '18  
*See also* Botany—France; European war—France; Reconstruction (European war)—France; Roads—France

**Aeronautics, Military**

- French airplanes in service at the front; tabulation. *Automotive Ind* 40:136-7 Ja 16 '19

**Army**

- French transport service highly organized. W. F. Bradley. *Automobile* 37:494-7, 548-50 S 20-27 '17

**Commerce**

- After-war prospects for American machine tools in France. C. E. Carpenter. *Am Mach* 48:146-8 Ja 24 '18  
 American cars popular in southern France. *Automotive Ind* 38:661 Mr 28 '18  
 Appointing machine-tool agents in France. P. Auriol. *Am Mach* 49:57-8 J1 11 '18  
 France and her industrial needs. C. F. Beach. *Am Ind* 18:21-2 Je '18  
 Letters from France;—opportunities after the war. H. J. Harms. *Concrete* 13:117-18 O '18  
 Machine-tool consortium. *Am Mach* 49:630 O 3 '18  
 New French regulations regarding machine tools. *Am Mach* 49:629-30 O 3 '18  
 Opportunities in France. H. G. Harms. *Concrete* 11:171-3 D '17  
 Our duty to France, now that the war is won. W. W. Nichols. *Elec R* 73:816-17 N 23 '18  
 Work of American builders for France—in the war and after. H. J. Harms. *Il Concrete* 13:185-91 D '18

**Description and travel**

- Aftermath in Paris and London. M. R. Lamb. *Eng & Min J* 107:324-5 F 15 '19  
 Eight weeks in Great Britain and France. H. G. Lord. *Il Textile World* 55:214-15+ Ja 11 '19

**Economic conditions**

- American delegates to Paris engineering congress report conditions in France. *Eng N* 82:348-9 F 13 '19  
 Europe's social and financial instability. S. S. Buckley. *Iron Age* 104:561-2 Ag 28 '19  
 Facts on the devastation and the present reconstruction efforts in France. G. B. Ford. *Il map Eng N* 82:218-27 Ja 30 '19  
 Review of French industrial conditions. A. C. Cook. *Iron Age* 104:639-40 S 4 '19  
 Will devastated France be rebuilt? *Eng N* 82:256-7+ Ja 30 '19

**German occupation**

- Devastation in the north and east of France. *Sci Am* 121:404 O 18 '19  
 Germany restoring factory loot. F. Miltoun. *map Iron Tr R* 65:1386-7 N 20 '19  
 Great French steel works in ruins. C. M. Muchnic. *Il Iron Tr R* 64:1477-83 Je 5 '19

**Industries and resources**

- Bureau of statistics will take French industrial census. F. Miltoun. *Iron Tr R* 62:1373-4 My 30 '18  
 Collective selling is declared necessary; important report on the reconstruction of France. P. C. Williams. *Iron Age* 102:560-2 S 5 '18  
 Delegates to France report to societies. *Am Inst E E Pro* 38:94-100 Mr '19 [sec 1]  
 Engineering conditions in France. *Mech Eng* 41:262-4 Mr '19  
 France decides to market alcohol; 22,000,000 gallons to be sold after the war for use of automobiles only. W. F. Bradley. *Automotive Ind* 38:656 Mr 28 '18  
 Gas-heating problem in France. F. Miltoun. *Am Gas Eng J* 108:149-50 F 16 '18  
 Great effort of the French industries. M. Knecht. *J Ind & Eng Chem* 10:433-4 Je '18  
 Helping France to help herself; hydroelectric power can supplant her coal supply. A. C. Clogher and V. F. Hammel. *Il map Elec W* 71:142-5 Ja 19 '18  
 Kaiser must yield mineral spoils. F. Miltoun. *map Iron Tr R* 63:148-9 J1 18 '18  
 Letters from France;—opportunities after the war. H. J. Harms. *Concrete* 13:117-18 O '18

**France—Industries and resources—Continued**

Plans for post-war activities taking shape. W. F. Bradley. *Automotive Ind* 38:757-9 Ap 18 '18

Restoring French factories. *Sci Am* 119:281 O 5 '18

See also Hydroelectric plants—France; Iron industry and trade—France; Steel industry and trade—France

**Navy**

French naval policy and the lessons of the great war. R. W. Neeser. *Sci Am* 120:573 My 31 '19

War-time construction in the French naval arsenals. R. W. Neeser. *Il Sci Am* 120: 686+ Je 28 '19

**Public works**

Immediate national reconstruction in France. D. T. Pierce. *Eng N* 82:570 Mr 20 '19

**Railroads**

See Electric railroads—France; Railroads—France

Franchises. See Electric utilities—Franchises; Gas companies—Franchises; Public utilities—Franchises; Street railroads—Franchises

Franklin, Benjamin, 1706-1790

Tradesman's use of his tools. *Inland Ptr* 63: 283 Je '19

**Franklin Institute**

Annual report of the director of the school, 1917-1918. S. V. Jester. *J Fr Inst* 185:838-9 Je '18

Proceedings of the annual meeting, Jan. 16, 1918. *J Fr Inst* 185:283 F '18

Report of the president for the fiscal year ending September 30, 1917. *J Fr Inst* 185: 284-7 F '18

**Franklin medal**

Presentation of medal to J. Marconi and T. C. Mendenhall, May 15, 1918. *J Fr Inst* 186:77-106 Jl '18

Frasch patents. See Sulfur

**Fraternity houses**

Alpha Tau Omega fraternity house, Berkeley, Cal.; views and plans. *Am Arch* 113:pl 3-5 Ja 2 '18

Phi Delta Theta chapter house at the University of California. V. H. Henderson. *Il plans Arch Rec* 43:413-19 My '18

Theta Delta Chi fraternity house, University of California, Berkeley, California. *Am Arch* 113:pl 170-3 My 8 '18

**Fraud**

Corporation may be liable for fraud of its salesman who was acting within scope of his authority. *Dom Eng* 87:434-5 Je 7 '19

Unintentional misrepresentation of fact in sale of heater may give buyer right to overturn the transaction. *Dom Eng* 86:225-6 F 1 '19

See also Competition, Unfair

Frazil ice. See Hydroelectric plants—Ice protection

**Free energy**

Electromotive force and free energy of dilution of lithium chloride in aqueous and alcoholic solutions. J. N. Pearce and F. S. Mortimer. *Am Chem Soc J* 40:509-23 Mr '18

Equilibria involving cyanogen iodide; the free energy of formation of cyanogen. G. N. Lewis and D. B. Keyes. *diag Am Chem Soc J* 40:472-8 Mr '18

Free energy of dilution of sulfuric acid. M. Randall and O. E. Cushman. *Am Chem Soc J* 40:393-7 F '18

Free energy of hydrochloric acid in aqueous solution. A. A. Noyes and J. H. Ellis. *diag Am Chem Soc J* 39:2532-44 D '17

Freezing points of concentrated solutions and the free energy of solution of salts. W. H. Rodebush. *Am Chem Soc J* 40:1204-13 Ag '18

Oxidizing power of cyanates and the free energy of formation of cyanides. G. N. Lewis and T. B. Brighton. *diag Am Chem Soc J* 40:482-9 Mr '18

**Free harbors**

Is the supply field interested in free ports? E. S. Swasey. *Il Ry Age* 64:902-5 Ap 5 sec 1 '18

Opposes the free port idea. E. P. Holmes. *Am Lumberman* 2262:33 S 21 '18

Free ports. See Free harbors

Freedom of teaching. See Academic freedom

Freedom of the seas

Address by President Wilson. *Sci Am* 118:66 Ja 19 '18

Freedom of the seas from Britain's viewpoint. H. C. Estep. *Il Marine R* 49:57-62 F '19

Supremacy of her fleet is the Monroe doctrine of the British Empire. *Sci Am* 119:472 D 14 '18

Freedom of the skies. A. McAdie and A. L. Rotch. *Sci Am* 121:84 Jl 26 '19

**Freezing**

Anti-freeze preparations for cold weather driving. *Motor Age* 36:29 N 6 '19

Anti-freeze solutions. B. M. Ikert. *Il Motor Age* 34:18-19 N 7 '18

Freezing of shaft in winter. *Coal Age* 14:1004, 1134-5, 1175-6; 15:28-9, 156-7, 200-1, 334 N 28, D 19 '18-Ja 2, 16-23, F 18 '19

Ice forming in clay soils will lift surface weights. S. Taber. *diags Eng N* 80:262-3 F 7 '18; Discussion. L. B. Wyckoff. 80:627-8 Mr 26 '18

Solution for use in automobile radiators. *Sci Am* 118:179 F 23 '18

Surface heaving caused by segregation of water forming ice crystals. S. Taber. *Eng N* 81:683-4 O 10 '18

Water expansion in ground cause of heaving in winter. C. D. Norton. *diags Eng N* 80: 1058 My 30 '18

See also Air pipes—Freezing; Frost; Ice; Refrigeration and refrigerating machinery; Water meters—Freezing; Water pipes—Freezing

**Freezing points**

Determination of the freezing-point curves and densities of denatured alcohol-water mixtures. C. E. Davis and M. T. Harvey. *Il diags J Ind & Eng Chem* 11:443-8 My '19

Freezing points of concentrated solutions and the free energy of solution of salts. W. H. Rodebush. *Am Chem Soc J* 40:1204-13 Ag '18

Standardized method for the determination of solidification points, especially of naphthalene and paraffin. R. M. Wilhelm and J. L. Finkelstein. *diags U S Bur Stand Sci Pa* 340:185-97 '19

Studies on the nitrotoluenes; binary systems of a nitrotoluene and symmetrical trinitrometoxylene. J. M. Bell and J. P. Sawyer. *diags J Ind & Eng Chem* 11:1025-8 N '19

**Freight**

Relative economy of freight transport by railway and by motor truck. C. W. Baker. *Eng N* 83:52-67 Jl 10 '19

See also Carriers; Demurrage; Electric railroads—Freight; Freight cars; Freight handling; Freight ships; Motor trucks in freight service; Railroads—Freight; Railroads—Rates; Shipment of goods; Stowage; Tonnage; Transportation

Freight agents. See Railroads—Freight agents

**Freight car lifts**

Typical design of a hydraulic balanced freight-car lift. *diags plan Mech Eng* 41: 511 Je '19

**Freight car service**

Can the freight car situation be improved? *Ry Age* 64:913-14 Ap 5 sec 1 '18

Car conservation problem solved in China. J. E. Baker. *Il Ry Age* 64:303-5 F 8 '18

Car shortage and its relation to highway work. C. M. Upham. *Eng N* 79:1099-1100 D 13 '17

Efficiency of freight train operation. *Ry Age* 65:762-3 N 1 '18

**Freight car service—Continued**

Freight traffic movement and car performance for twelve months ended December 31, 1918, compared with previous year. Ry Age 66:407-8 F 14 '19

Freight traffic movement and car performance; January, 1919 and January, 1918 compared. Ry Age 65:550 Mr 7 '19

General and district freight traffic committees are appointed. Ry R 63:136-7, 334-5 J1 27, S 7 '18

Increased savings in car mileage through re-routing. Ry Age 65:927-8 N 22 '18

Necessity of prompt release of cars shown by demurrage figures. E. J. Pearson. Ry R 62:823-4 Je 8 '18

New uniform rules for coal car distribution. Ry Age 65:621-2 O 4 '18

Open-top cars for road building material. Good Roads n s 15:276 Je 1 '18

Railway administration reports coal car conditions. Coal Age 16:325-6 Ag 21 '19

Traffic department of the U. S. R. A. Ry Age 66:213-16 Ja 17 '19

See also Coal—Transportation; Coal famine, 1917-18; Demurrage; Freight cars, Interchange of; Private car lines; Railroads—Management; Railroads—Statistics; Railroads—Trains; Refrigerator cars

**Car load**

Arithmetic of railroad operation. W. J. Cunningham. Ry R 64:355-7 Mr 8 '19

Freight car supply improved. J. F. Townsend. Iron Age 103:756 Mr 20 '19; Same. Ry R 64:459-60 Mr 22 '19; Same. Iron Tr R 64:830 Mr 27 '19; Same cond. Ry Age 66:1296 My 30 '19

Heavier loading of cars. J. F. Townsend. Iron Age 101:1405 My 30 '18; Same. Iron Tr R 62:1430 Je 6 '18; Same. Ry R 62:818-19 Je 8 '18

L. C. L. freight; committees representing regional districts. Ry R 63:382-3 S 14 '18

Make every freight car do its bit. O. O. Carr. Ry Age 63:1094 D 14 '17

Maximum car loading. W. H. McClymonds. Ry R 64:474-5 Mr 29 '19

New methods of loading freight cars. C. J. Shower. Il Automotive Ind 39:50-2 J1 11 '18

Pennsylvania lines show additional improvement in l. c. l. loading. Ry Age 65:674 O 11 '18

Pennsylvania lines specialize in car conservation. Ry Age 64:217-19 Ja 25 '18

Proper methods of loading automobiles. Il diag Ry R 63:565-8 O 19 '18

Report of M. C. B. committee on loading rules. diags plan Ry Age 64:1497-9 Je 21 '18

Results of maximum capacity loading of freight cars. Ry R 62:860-1 Je 15 '18

Steel loading and shipping deck. Il Iron Age 102:139 J1 18 '18; Ry Age 65:138 J1 19 '18

Train and engine loading. T. H. Williams. Ry R 64:507-8 Ap 5 '19; Same cond. Ry Age 66:1061-2 Ap 25 '19

Work of the Ford company's traffic department. Il Ry Age 65:402-5 Ag 30 '18

**Shipping day plan**

Car service section of the Railroad administration urges the sailing day plan. Ry Age 64:806 Mr 29 '18

Development and death of the sailing day plan. Ry Age 65:1101-2 My 2 '19

Extension of shipping day plan, Pennsylvania R. R. Ry R 62:403 Mr 16 '18

Marked success of sailing day plan. Ry Age 65:860 N 15 sec 1 '18

Modification of the shipping day plan. Ry Age 66:1146-7 My 9 '19

Sailing day plan applied to company freight. H. E. Ray. diags Ry Age 66:387 F 14 '19

Sailing day plan brings results. R. H. Alston. Ry R 63:736-7 N 23 '18; Same cond. Ry Age 65:860 N 15 sec 1 '18

**Freight cars**

All-wood and composite hopper cars for the Norfolk & Western railway. B. W. Kadel. Il diags plan Ry R 62:13-15, 172-4 Ja 5, F 2 '18

Allocation of the 100,000 standard cars. Ry Mech Eng 92:512 S '18

Bad order car situation. Ry Age 65:748-9 O 25 '18; Same. Ry Mech Eng 92:614 N '18

Bad order coal car situation. Ry Mech Eng 93:595-7 O '19

Box cars built by C. M. & St P. diags Ry Mech Eng 93:529-31 S '19; Same. Ry Age 67:886-7 O 31 '19

Business box car. W. J. Bohan. Ry R 61:758-9 D 22 '17; Same. Ry Age 63:1173-5 D 28 '17; Same. Ry Mech Eng 92:153-4; Discussion. 154-5 Mr '18

Car and locomotive orders in 1918. Ry Mech Eng 93:34-7 Ja '19

Car construction and maintenance; an argument for the composite car. Z. B. Wilson. Ry R 62:444-6 Mr 23 '18

Cars and locomotives ordered in 1917. Ry R 62:38-43 Ja 5 '18

C. M. & St P. fifty-ton hopper bottom gondolas. Il diags Ry Mech Eng 92:99-101 F '18; Same. Ry Age 64:249-51 F 1 '18

Combination cattle and coal cars, South African railways. C. Coleman. Il Ry R 63:585-6 O 19 '18

Composite hopper car for the New York, Chicago & St Louis R. R. Il diags Ry R 62:813-15 Je 8 '18

Delaware & Hudson steel underframe for wood freight cars. diags Ry Mech Eng 91:683 D '17

Design of Hillman seventy-ton coal car with tandem hoppers. diags Ry Mech Eng 92:611-13 N '18

Double sheathed box cars for the Canadian Pacific. Il diags Ry Age 67:257-9 Ag 8 '19; Same. Ry Mech Eng 93:475-7 Ag '19

Durability of steel ends and steel roofs. Il Ry Mech Eng 93:478-9 Ag '19

Economics of freight car maintenance. L. K. Silcox. Ry R 65:682-4 N 8 '19

End re-inforcement for box cars, Minneapolis, St Paul & Sault Ste Marie R. R. diags Ry R 62:826-7 Je 8 '18

Equipment built and retired for past nine years. Ry R 64:89 Ja 18 '19

First annual convention, American railroad association, section 3—mechanics. diags Ry R 64:922-5+, 977-85, 994-1000 Je 21-28 '19

Forty-foot automobile cars for Illinois Central. Il diags plan Ry Age 66:440-3 F 21 '19; Same. Ry Mech Eng 93:141-5 Mr '19

Freight car orders in 1917 reach low level. Ry Age 64:65-6, 68-72 Ja 4 '18; Same, without tables. Ry Mech Eng 92:60-2 Ja '18

Freight car orders in 1918 exceed 1917 figures. Il Ry Age 66:86-90 Ja 3 '19

Government car and locomotive orders. Ry Age 64:1169-71 My 10 '18

High-capacity goods wagons for Indian railways. Engineer 127:110 Ja 31 '19

High capacity hopper and gondola cars Pennsylvania railroad. Il diags plan Ry R 65:45-50 J1 12 '19

High capacity hopper coal cars for the Norfolk & Western. Ry Mech Eng 92:75 F '18

High capacity narrow-gauge rolling stock for Burma. Il diags Engineer 124:478-80 N 30 '17

Hints for the freight operator. A. B. Cole. Il diags Elec Ry J 53:396-407 Mr 1 '19

Large capacity wooden hopper car of the N. & W. Il diags plan Ry Mech Eng 92:509-12 S '18

Limitations to the capacity of coal cars. Ry Mech Eng 92:329-30 Je '18

Lining and loading cars of potatoes for protection from cold. H. S. Bird and A. M. Grimes. Il diags U S Agric Markets Doc 17:1-26 '18

Local stresses in box bolsters. L. E. Endaley. Il diags plans Ry Mech Eng 92:343-8 Je '18

Present condition of freight cars. Ry Mech Eng 93:117-18 Mr '19

Present conditions of locomotives and cars. Ry Mech Eng 93:17-18 Ja '19

Private car lines to receive one cent a mile. Ry Age 65:386-91 Ag 30 '18

Re-inforcement for wooden freight cars, Norfolk Southern R. R. diags Ry R 62:829 Je 8 '18

**Freight cars—Continued**

Reinforcing wooden furniture cars. *Il diag*  
 Ry Mech Eng 92:91-2 F '18  
 Rolling stock of 1919. H. T. Walker. *Il diag*  
 Sci Am 121:250-1-4 S 13 '19  
 Serial numbers of freight cars allocated various railroads. Ry R 63:543-4 O 12 '18  
 When freight cars bump. J. H. Smith. *Il diag*  
 Sci Am 120:602-4 Je 7 '19  
*See also* Baggage and express cars; Brake beams; Car cleaning; Car houses; Car painting; Car trucks; Car wheels; Draft gears; Freight car service; Grain cars; Loading and unloading; Private car lines; Refrigerator cars; Sand cars; Tank cars

**Manufacture**

Electrically welded freight car. J. A. Osborne. *Il Gen Elec R* 21:912-16 D '18  
 Electrically welded gondola car. *Il Ry R* 63:833-4 D 14 '18  
 Northern Pacific builds box cars. *Il diag* plans  
 Ry Mech Eng 93:37-40 Ja '19  
 Punching and coping metal sills for railway cars. C. M. Rogers. *Il diag* Am Mach 50:173 Ja 23 '19  
 Timber preservation in car construction. H. S. Sackett. Ry R 64:957-9 Je 21 '19  
 Treated lumber for car construction. Ry R 64:330-2 Mr 1 '19; Same, with tables. Ry Mech Eng 93:193-200 Ap '19  
 Welding truck side frames, bolsters and arch bars; report. *diag* Ry R 64:980-1 Je 28 '19

**Repair**

Car department of the Milwaukee. chart Ry Mech Eng 92:615-20 N '18  
 Car repair contract. Ry R 63:647-8 N 2 '18  
 Freight car rehabilitation, Boston & Maine R.R. *diag* Ry R 64:16-17 Ja 4 '19  
 Freight car situation. Ry Age 64:149-50 Ja 18 '18  
 Government standards for freight car repairs. Ry Age 66:487-9 F 28 '19; Same. Ry Mech Eng 93:147-8 Mr '19; Same. Ry R 64:325-6 Mr 1 '19  
 Limit of cost for freight car repairs. Ry Mech Eng 92:613-14 N '18  
 Maintenance of freight car equipment. H. L. Shipman. Ry R 64:310-12 Mr 1 '19; Excerpts. Ry Age 66:495-6; Discussion. 496-7 F 28 '19; Same. Ry Mech Eng 93:191-3 Ap '19  
 Master car builders' discussion on freight car maintenance. Ry Age 64:1487-9 Je 21 '18  
 New car repair shed, Baltimore & Ohio R.R. *Il diag* plan Ry R 64:515-16 Ap 5 '19  
 Rehabilitation and maintenance of the wooden freight car. P. P. Barthelemy. Ry R 62:819-22 Je 8 '18  
 Repair the cars and keep them moving. Ry Mech Eng 92:53-4 Ja '18  
 Standard freight car repairs. L. E. Endsley. Ry Age 66:930 Ap 11 '19  
 Steel car repair shop, New York Central R.R., Ashtabula, O. *Il diag* plan Ry R 64:647-8 My 3 '19  
 Traveling freight car repair outfit. W. E. Fowler. Ry R 62:817-18 Je 8 '18  
 Unification of car inspection and maintenance. J. J. Tatum. Ry Age 66:773-4 Mr 21 '19; Same. Ry Mech Eng 93:201-3 Ap '19; Same cond. Ry R 64:473-4 Mr 29 '19; Discussion. Ry Age 66:774-5 Mr 21 '19

*See also* Railroads—Shops**Standards**

Drawings for standard cars. Ry R 64:259 F 15 '19  
 Progress toward standardization. Ry Age 64:609-10 Mr 8 '18  
 Railroad administration announces car lumber grades. Am Lumberman 2244:40 My 18 '18  
 Standardization of freight cars and locomotives. W. G. McAdoo. Sci Am S 86:261 O 26 '18  
 Standardized cars take much steel. Iron Tr R 62:923 Ap 11 '18  
 United States standard cars; specifications and principal drawings; abstracts. *diag*

plans Ry Mech Eng 92:199-208 Ap '18; Ry Age 64:785-8, 869-83 Mr 29-Ap 5 sec 1 '18; Ry R 62:459-63, 503-6, 533-5 Mr 30-Ap 13 '18  
 United States standard steel sheathed box car. *diag* plan Ry Age 64:987-90 Ap 12 '18; Same. Ry Mech Eng 92:267-70 My '18

**Freight cars, Concrete**

Concrete goods wagons in America. *Il diag*  
 Engineer 128:107 Ag 1 '19  
 Gondola car of reinforced concrete construction. *Il Ry Age* 66:776-7 Mr 21 '19; Ry R 64:475-6 Mr 29 '19; Concrete 14:143-4 Ap '19; Eng & Contr 51:392 Ap 16 '19; Iron Age 103:890 Ap 3 '19; Ry Mech Eng 93:193-5 Ap '19; Sci Am 120:343 Ap 5 '19  
 Is the reinforced concrete freight car an economic possibility? Eng & Contr 50:184 Ag 21 '18

**Freight cars, Interchange of**

Chief interchange car inspectors & car foremen's association 19th annual meeting, St Louis. Ry R 65:451-2 S 27 '19; Ry Mech Eng 93:593-5 O '19  
 Freight equipment in interchange. T. J. O'Donnell. Ry R 64:460-1 Mr 22 '19; Same. Ry Mech Eng 93:203-4 Ap '19  
 Important revision of M. C. B. rules. Ry Mech Eng 92:299-300 Je '19  
 Report of the arbitration committee. *diag*  
 Ry R 64:977-8 Je 28 '19  
 Revision of the rules of interchange: report of the M. C. B. committee. Ry Age 64:1482-3; Discussion. 1483-7 Je 21 '18  
 Rules of interchange modified. Ry R 64:943 Je 21 '19  
 Run, repair or transfer. Ry R 62:827-9 Je 8 '18  
 Run, repair or transfer. F. W. Trapnell. Ry Mech Eng 92:155-6 Mr '18  
 Settlement for destroyed cars. A. M. Orr. Ry Mech Eng 92:513-14 S '18  
 Should the master car builder's repair card be abolished during the period of the war. E. A. Sweeley. Ry Mech Eng 92:266 My '18  
 Tank car. E. S. Way. Ry R 61:801-3 D 29 '17; Same cond. Ry Mech Eng 92:97-9 F '18

*See also* Private car lines**Freight cars, Pooling of**

Development of the refrigerator car pool. Ry Age 66:591-3 Mr 14 '19

**Freight cars, Steel**

Box cars for Chilean railway. *Il diag* plan  
 Ry Mech Eng 93:417-20 J1 '19  
 Development of the steel car. H. P. Hoffstad. Ry Age 64:461-2 Mr 1 '18; Same. Ry Mech Eng 92:147-8 Mr '18; Same. Ry R 62:353-4 Mr 9 '18; Same cond. Iron Tr R 62:440-1 F 14 '18  
 Heavy freight cars for a narrow gage railway in India. F. C. Coleman. *Il Ry Mech Eng* 92:569-70 O '18  
 Hopper cars built by E. J. & E. *Il diag* plans  
 Ry Mech Eng 92:262-6 My '18; Same abr. Ry Age 64:1663-5 Je 28 '18  
 Narrow gage steel hopper car. F. C. Coleman. *Il diag* Ry Mech Eng 91:692-4 D '17  
 100-ton coal car for the N. & W. B. W. Kadel. *Il diag* plan Ry Mech Eng 92:93-6 F '18; Same. Ry Age 64:313-16 F 8 '18  
 One hundred tons capacity steel hopper car, Norfolk & Western Ry. *Il diag* Ry R 62:495-7 Ap 6 '18  
 Standard steel sheathed box car. *diag* plan  
 Ry Mech Eng 92:267-70 My '18  
 Steel car repair shop, New York Central R.R., Ashtabula, O. *Il diag* plan Ry R 64:647-8 My 3 '19

**Freight claims. See Railroads—Claims****Freight congestion**

Electrical railways a potential factor in relieving freight congestion. A. B. Cole. Ry R 63:234-5 Ag 17 '18  
 Glimpses of conditions in congested railway field. *Il Ry R* 62:176-8 F 2 '18  
 Operating methods of transfer railroads. E. H. Lee. *Il Ry R* 63:490-3 O 5 '18  
 Outline of present transportation deficiencies. Elec R 72:299-300 F 16 '18



**Freight congestion—Continued**

Transportation and food supply. Ry Age 64:445-6 Mr 1 '18

See also Freight car service; Freight handling; Terminals

**Freight handling**

American cargo handling equipment used at French ports. Il Int Marine Eng 24:418-14 Je '19

Analysis of freight movements at terminals. H. M. Harding. plan Int Marine Eng 24:38-9 F '19

Coming mechanical devices that will make ship-loading economical. Il Int Marine Eng 24:415-18 Je '19

Comparative figures on freight shipments by highway and by railroads. Eng & Contr 49:sup30 My 1 '18

Construction of St. Louis municipal wharf. Il diags Ry R 64:275-9 F 22 '19

Conveyor scheme for handling New York city's package freight. diag plan Ry Age 65:455-6 S 6 '18

Electric automechanical handling of freight shipments. Z. W. Carter. Elec R 75:939-41 D 6 '19; Same. Ry Age 67:922-4 N 7 '19

Electric tractors and trucks in freight house service. Il Ry R 62:245-54 F 16 '18

Electric trucks and tractors. F: B. Fink. Ry Age 67:924-6 N 7 '19

Eliminating trap car service. Il Ry Age 64:1089 Ap 26 '18

Freight handling at the Brooklyn army base. Il plan Eng N 83:555-60 S 18 '19

Freight handling at the Panama canal. Il Int Marine Eng 23:25-7 Ja '18

Freight handling by tractors found economical. Il Eng N 81:720-1 O 17 '18

Freight transportation without rehandling; Bonner rail wagon system. Il diags Elec Ry J 52:658-9 O 12 '18; Ry Age 65:675 O 11 '18

Freight tunnel transportation in Chicago. N. W. Pierce. Ry R 63:636-7 N 2 '18

Handling freight faster with fewer men. F. C. Myers. Il Ry Age 63:1039-42 D 7 '17

Handling freight on inland waterways. H. M. Harding. Il Int Marine Eng 23:667-70 D '18

Handling freight on New York's new steamship pier; Forty-sixth street wharf. C. W. Staniford. Il diags plans Eng N 79:1058-60 D 6 '17

Handling machinery builders organize. Iron Age 103:248-9 Ja 23 '19

How freight-handling machinery is being used abroad. H. Varndell. Il Eng N 80:713-15 Ap 11 '18

Industrial tractors for solving freight terminal congestion. Il diag plan Elec R 73:588-90 O 12 '18

Install operatorless freight elevators. Il Iron Tr R 65:1392-3 N 20 '19

Kansas City studies transportation by motor truck. Il map Motor Age 34:28-9 D 19 '18

Light as an aid to the transportation of material. A. L. Powell and R. E. Harrington. Il diags plans Illum Eng Soc 14:1-17 no 1 '19; Same. Gen Elec R 22:61-71 Ja '19; Discussion. Illum Eng Soc 14:17-23 no 1 '19

Modernizing freight-handling methods. B. K. Price. Il Iron Tr R 65:351-5 Ag 7 '19

Operation of New York Central's Cleveland freight terminal. W. E. Phelps. Il plan Eng N 82:508-10 Mr 13 '19

Plan proposed to relieve freight congestion in New York. Elec R 72:300-1 F 16 '18

Port facilities and freight handling. Il J Elec 42:294-7 Ap 1 '19

Progress in the development of freight handling. Int Marine Eng 23:23-4 Ja '18

Radical departure in loading ocean freighters. Il diag Ry Age 66:981-4 Ap 18 '19

Railway freight transference and handling. H. M. Harding. Ry Age 66:582 Mr 14 '19

Reducing the cost of handling freight. Il Ry R 64:453-4 Mr 22 '19

Report on proposed store door freight delivery in New York city. J. S. Harlan. Ry R 63:39-43 J 13 '18; Excerpt. Ry Age 65:64 J 12 '18; Excerpt. Textile World 54:669-+ Ag 10 '18

Short cuts in cargo-handling. P. Teas. Il Int Marine Eng 24:482-3 J 1 '19

Store door delivery plan for terminal relief; plan proposed by the Highways transport committee to relieve freight congestion. Good Roads n s 15:33-4 Ja 19 '18

Store door delivery plan prepared by the Traffic bureau of the Merchants' association. Textile World 54:667-+ Ag 10 '18

Store-door delivery proposed in New York by directors of the Merchants' association of New York city. Ry Age 64:276-7 F 1 '18

Tractors help a railroad. Il Elec R 73:587 O 12 '18

Use of electrical equipment on San Francisco water front. C: W. Geiger. Il Elec R 74:977-81 Je 14 '19

What freight handling on electric roads requires and costs. A. B. Cole. Il maps plans Elec Ry J 53:218-28 F 1 '19

See also Coal handling; Cranes, derricks, etc.; Dumping appliances; Electric railroads—Freight; Electric trucks, Industrial; Freight houses; Grain handling; Hoisting machinery; Loading and unloading; Lumber handling; Motor trucks in freight service; Ore docks; Ore handling; Railroads—Terminals; Terminals

**Freight houses**

Freight station and warehouse in Chicago has 23 acres of floor. Il diags plans Eng N 80:405-8 F 28 '18

New freight house for the Illinois Central R.R. at Champaign, Ill. Il diags plans Ry R 62:220-4 F 16 '18

New freight house of the Pennsylvania lines in Chicago. Il diags plans Ry R 62:365-71 Mr 16 '18; Ry Age 65:215-19 Ag 2 '18

New freight station of the New York Central lines in Cleveland. Il diags plans Ry R 62:703-9 My 18 '18; Ry Age 65:117-22 J 19 '18

Truscon system of steel buildings. Il diags plan Ry R 63:635-6 N 2 '18

See also Warehouses

**Freight rates**

Colorado proposes establishing rates for motor truck carriers. C. E. Neil. Eng & Contr 51:8 Ja 1 '19

Comparison of short-haul truck and rail shipments; abstracts. W. J. L. Banham. Eng N 82:903-4 My 8 '19; Eng & Contr 51:498 My 7 '19

Freight and passenger rates increased; general order no. 28. Ry R 62:792-5 Je 1 '18

Ocean freight rates rapidly reduced. Iron Age 103:371-2 F 6 '19

Standard freight rates. Ry Age 65:803-4 N 8 '18

United States shipping board has issued a revised list of the rates. Iron Age 103:623-4 Mr 6 '19; Same. Iron Tr R 64:653-4 Mr 6 '19

See also Railroads—Rates

**Freight ships**

Are war-built ships fit for peace? V. G. Iden. Il Marine R 49:66-70 F '19

Cargo ship lines of simple form. W: McEntee. diags Int Marine Eng 23:19-21 Ja '18

Cargo steamship Santa Tecla launched by New York shipbuilding corporation. Int Marine Eng 23:218-19 Ap '18

Design and construction of self-propelled reinforced concrete sea-going cargo steamers now building in Great Britain. T. G. O. Thurston. diags plans Int Marine Eng 23:455-64 Ag '18

Effect of torpedo explosions on the structure of merchant ships; report of committee of the council of the Institution of naval architects. Int Marine Eng 23:275-6 My '18

Five thousand-ton deadweight fabricated steel cargo steamer for emergency fleet. diags plans pls Int Marine Eng 23:194-8 Ap '18

Hog Island turbine-driven cargo vessel christened Schenectady. Il Int Marine Eng 24:350-1 My '19

Insufficiently considered details of ship construction and equipment. C. W. Cairns. Int Marine Eng 23:570-5 O '18

Internal bossing for cargo vessels. E. De Brinja. diags Int Marine Eng 24:752-4 N '19

Italian geared turbine cargo steamer. Il diag plans Int Marine Eng 24:94-94a F '19

**Freight ships—Continued**

- Machinery for American merchant vessels. H. C. Dinger. *Int Marine Eng* 24:135-8 Mr '19
- Merchant ship design and torpedo attack. *Sci Am S* 85:283 My 4 '18
- Merchant ship of the future. W. S. Abell. *Sci Am S* 85:302-4 My 11 '18
- Modern steel freight steamship. D. D. Thomas. *Il diags plans (supp) Int Marine Eng* 24:592-600 S '19
- Most suitable sizes and speeds for general cargo steamers. J. Anderson. *diags Int Marine Eng* 23:505-11 S '18
- New merchant ships: timber as auxiliary. *Engineer* 126:8 Jl 5 '18
- New Pacific Coast steam schooners. *Il diags plans Int Marine Eng* 23:280-4 My '18
- New type American freighters. *diags plan Marine R* 49:413-14+ S '19
- 9,600-ton deadweight cargo vessel. *Il diag plans Int Marine Eng* 24:200-2 Ap '19
- Ore carriers for ocean service. V. G. Iden. *Il diags plans Marine R* 49:420-3 S '19; *Excerpts. Iron Tr R* 65:1258-60 N 6 '19
- Pacific coast yard builds 8,300-ton freighter in thirty-seven days. *Il pl (supp) Int Marine Eng* 24:484-5 Jl '19
- Plans for Hog Island steel cargo ship. *diags plans Int Marine Eng* 24:71-4 F '19
- Proportions of ideal cargo vessel. *Int Marine Eng* 23:544-5 S '18
- Protected merchant ships. U. Pugliese. *Sci Am* 119:107 Ag 10 '18
- Reinforced concrete cargo steamer: plans and specifications of 5,000-ton vessel. *Il diag plans Int Marine Eng* 23:54-6 F '18
- Robert Dollar type of cargo vessel. *diag plans Int Marine Eng* 24:204-6 Ap '19
- Ship within a ship. *Il diag Sci Am* 118:161 F 23 '18
- Shipping possibilities of the Yangtze Kiang river. H. Delano. *Il diags Int Marine Eng* 24:394-8 Je '19
- Shooters Island shipyard and its standard cargo ships. *Il diag plans Int Marine Eng* 23:191-3 Ap '18
- Standard cargo boat built by Moore & Scott iron works. *Int Marine Eng* 23:342 Je '18
- Standard cargo ships. G. Carter. *diags plan Int Marine Eng* 23:407-11+ Jl '18; *Same cond. Engineer* 125:257-9 Mr 22 '18
- Standard sea-going cargo vessel of 3,500-tons deadweight built on the lakes. *diag plans Int Marine Eng* 24:206-7+ Ap '19
- Standard steel cargo ships for the war zone. *Il Sci Am* 118:8+ Ja 5 '18
- S. S. Poughkeepsie, standard 8,800-ton deadweight cargo vessel built by Newburgh shipyards, inc. *Il diags plans (supp) Int Marine Eng* 24:530-5 Ag '19
- Steel cargo carrier Crawl Keys starts on her maiden voyage in less than a month after keel is laid. *Il Iron Tr R* 63:668-72 S 19 '18
- Structural steel standardized cargo vessels. H. R. Sutphen. *plan Int Marine Eng* 23:695-8 D '18
- Submersible cargo vessels. *Sci Am S* 85:381 Je 15 '18
- Trial trip of a fabricated boat. *Marine R* 49:249-50 My '19
- See also* Colliders; Lighters; Merchant marine; Tank ships; also Lucia (freight ship)

**Equipment**

- New equipment used on lakes. F. B. Jacobs. *Il diags plan Marine R* 49:506-12 N '19
- Freight terminals.** *See* Freight handling; Freight houses; Railroads—Terminals; Railroads—Yards; Terminals
- Freight trains.** *See* Freight car service; Railroads—Trains
- Freight yards.** *See* Railroads—Yards
- Freighters.** *See* Freight ships
- French language**
- Mistakes in the printing of French words. H. Rosset. *Inland Ptr* 62:39-40 O '18

**Frequency changers**

- Load division between induction-type frequency changer sets. Q. Graham. *Il Power* 49:195 F 11 '19
- Load division between synchronous frequency changers operating in parallel. Q. Graham. *Power* 48:520-1, 591-3 O 8, 22 '18
- Single-phase operation caused low power factor. E. W. Miller. *Power* 47:481 Ap 2 '18

**Frequency interchangeability**

- Interchangeability of generator frequencies. *Il Elec W* 73:127-8 Ja 18 '19

**Frequency meters**

- Better frequency control. H. E. Warren. *Il Gen Elec R* 21:816-19 N '18
- Standardization of frequency; description of the Warren duplex-clock frequency control system. H. E. Warren. *Il Elec R* 72:967-9 Je 8 '18; *Excerpt. Elec W* 71:1294 Je 15 '18

**Frescoes.** *See* Mural painting and decoration**Friction**

- Formulas for the brass foundryman; babbitt and antifriction metals. Foundry 46:66a F '18
- Friction and the coal pile. E. S. Morrison. *Power* 48:129 Jl 23 '18
- Friction of slime pulp in pipes; abstract. E. J. Laschinger. *Am Soc M E J* 40:116-17 Ja '18
- Simple power friction test. W. F. Schaphorst. *Gas Age* 40:563 D 15 '17

*See also* Bearings; Lubrication and lubricants

**Friction clutches.** *See* Clutches**Frost**

- Frost in the United States. R. De C. Ward. *maps Sci Am S* 88:117-18 Ag 23 '19
- See also* Ice; Thawing

**Frost protection**

- Jack Frost in the orange country. J. L. Von Bion. *Il Sci Am* 121:278-9 S 20 '19
- Orchard protection from frost. W. Stone. *Sci Am* 118:147 F 16 '18

**Fructose**

- Mutarotation of glucose and fructose. J. M. Nelson and F. M. Beegle. *Am Chem Soc J* 41:559-75 Ap '19

**Fruit**

- Car-lot shipments of fruits and vegetables in the United States in 1916. P. Froehlich. *U S Agric Bul* 667:1-196 '18
- Nuts from the forests. *Sci Am S* 85:336 My 25 '18
- Palate of civilized man and its influence on agriculture. D. Fairchild. *Il J Fr Inst* 135:299-316 Mr '18

**Fruit, Dried**

- South American markets for dried fruits. W. Fischer. *U S Bur For & Dom Com* 148:1-35 '17

**Fruit, Drying of.** *See* Drying (fruit and vegetables)**Fruit culture**

- Fruit-grower's sleight of hand. *Il Sci Am S* 88:28-9 Jl 12 '19

*See also* Frost protection; Fruit trees; Grafting

**Fruit growers' associations****Accounting**

- System of accounting for fruit shipping organizations. G. A. Nahstoll and J. R. Humphrey. *U S Agric Bul* 590:1-60 '18

**Fruit trees**

- Pruning fruit tree roots. *Sci Am S* 84:379 D 15 '17

**Fuel**

- America's energy supply. C. P. Steinmetz. *Am Inst E E Pro* 37:591-615 Je '18; *Same. Gen Elec R* 21:454-66 Jl '18; *Excerpt. Sci Am S* 86:123 Ag 24 '18; *Excerpts. Power* 48:364-5 S 3 '18; *Abstract. Elec W* 71:1367-8 Je 29 '18
- Bagasse as a source of fuel. E. C. Freeland. *Am Soc M E J* 39:919-21 N '17; *Abstract. Power* 46:779 D 4 '17; *Discussion. Am Soc M E J* 40:135-7 F '18
- Concerning fuel. A. C. Laut. *Sci Am* 118:234+ Mr 16 '18

**Fuel—Continued**

- Energy resources of the United States: a field for reconstruction. C. G. Gilbert and J. E. Pogue. U S National Museum Bul 102, v 1:1-162 '19
- Fuel from household waste. Sci Am 120:358-9 Ag 5 '19
- Fuel problem of Canada—some national and international aspects. A. V. White. Gen Elec R 22:465-74 Je '19
- Fuel requirements for factories. C. L. Hubbard. Ind Management 57:125-6 F '19
- Fuel situation in Turin, Italy. Power 48:216 Ag 6 '18
- Heating values of fuels. L. P. Breckenridge. Power 47:858 Je 11 '18
- Is our fuel supply nearing exhaustion? R. H. Fernald. Il Gen Elec R 21:542-55 Ag '18; Same. Ry R 63:271-5, 303-5 Ag 24-31 '18; Same cond. Iron Tr R 63:323-7 Ag 8 '18
- Low-grade fuels; possible methods of disposal. J. W. Cobb and W. Chaney. Sci Am S 86:191-2 S 21 '18
- Materials for the household. U S Bur Stand Circ 70:204-22 '17
- Methods for more efficiently utilizing our fuel resources; fuels of Canada. B. F. Haanel. map Gen Elec R 21:689-98 O '18
- New composite fuel. Eng & Min J 107:691-2 Ap 19 '19
- Pitch as a fuel for power generation. J. B. C. Kershaw. Power 47:904-6 Je 25 '18; Abstract Am Soc M E J 40:496 Je '18
- Some phases of the fuel problem. G. A. Orrok. Elec W 74:801-3 O 11 '19
- Statistical sidelights on our national fuel problem. charts Coal Age 16:440-2 S 11 '19
- Substitutes for coal in gas making; note. Sci Am S 86:285 N 2 '18
- Use of lignite, bagasse and wood waste for power generation and other purposes. J. B. C. Kershaw. Il diags Engineer 126:121-2, 133-4 Ag 9-16 '18; Same. Coal Age 15:432-8 Mr 6 '19
- Use of rice hulls as a fuel in Italy. Sci Am 117:497 D 29 '17
- See also** Alcohol as fuel; Automobile engines—Fuel; Blast furnace gas; Carbocool; Charcoal; Cinders; Coal; Coal, Pulverized; Coal as fuel; Coke; Coke-oven gas; Cullm; Firing; Furnaces; Gas, Natural; Gas and oil engines—Fuel; Gas as fuel; Gasoline; Heating; Kerosene; Liberty fuel; Lignite; Liquid fuel; Locomotives—Fuel; Oil as fuel; Peat; Pitch as fuel; Smoke; Wood as fuel
- Cost**
- Calculation of plant efficiencies and fuel costs. J. T. Foster. charts Power 49:316-18 Mr 4 '19
- Cost of fuel for steam-electric stations. W. T. Batcheller. J Elec 42:470-2 My 15 '19
- Cost of locomotive fuel in 1917. Ry Age 65:728 O 25 '18; Same. Ry R 63:707 N 16 '18
- Gas and its competitors as an industrial fuel. T. King. Am Gas Eng J 110:113-16 F 8 '19
- Kerosene vs. coal as a fuel. Heat & Ven 16:52-3 Ja '19
- Testing**
- Combustion experiments with North Dakota lignite. H. Kreisinger, C. E. Augustine and W. C. Harpster. diags U S Bur Mines Tech Pa 207:1-41 '19
- Combustion in rotary kilns. W. H. Klein. diags Concrete 15:sup49-51 O '19
- Fuel tests in northern Saskatchewan. Power 48:624-5 O 29 '18; Abstract. Am Soc M E J 40:1045 D '18
- Oil as an auxiliary fuel. M. Meredith. Ry R 64:828 Je 7 '19
- Pulverized-coal tests conducted at Milwaukee. J. Anderson. diags Elec R 73:615, 658-9 O 19-26 '18; Same. Ry R 63:606-7 O 26 '18; Same. Ry Age 65:667-9 O 11 '18
- Value of yard screenings. W. H. Wakeman. Power 49:491 Ap 1 '19
- Fuel, Colloidal**
- Advent of colloidal fuel. Sci Am 120:392 Ap 19 '19
- Colloidal fuel. Engineer 127:446-7 My 9 '19

- Colloidal fuels. Sci Am S 87:338-9 My 31 '19; Excerpts. Iron Age 103:824 Mr 27 '19; Excerpts. Mech Eng 41:473 My '19
- New fuel—colloidal. H. E. Linden. J Elec 43:128 Ag 1 '19
- Possibilities of colloidal fuel. diag Eng & Contr 52:200-1 Ag 13 '19
- Powdered and colloidal fuels. Eng & Contr 52:115-16 Jl 30 '19
- Tests of colloidal fuel. Power 49:662 Ap 29 '19
- Fuel, Liquid. See Liquid fuel**
- Fuel, Pulverized. See Coal, Pulverized**
- Fuel administration. See United States—Fuel administration**
- Fuel economizers**
- Care of economizers. J. F. Daggett. Il diags Power 49:192-3 F 11 '19
- Centenary of the heat regenerator and the Stirling air engine, with text of original specification. diags Engineer 124:516-17 D 14 '17; Discussion. R. B. Prosser. 124:537 D 21 '17
- Economizer explodes at New Orleans railway and light company's plant. diag plan Power 48:165 Jl 30 '18
- Economizer in turbine power plants. Elec R 73:452-3 S 21 '18
- Economizers from the viewpoint of a designing and operating engineer. L. R. Lee. diag Power 48:637-8 O 29 '18
- Economizers in steam-boiler plants. D. Brownlie, J. Compton and H. W. Royse. Eng & Min J 107:449 Mr 8 '19
- High-pressure steel economizers at Kansas City. diag Power 49:556-7 Ap 15 '19
- Increasing the life of economizers. diag Power 47:436-7 Mr 26 '18
- Joliet (Ill.) plant a step toward higher steam pressures. Elec W 71:148 Ja 19 '18; Same. Power 47:110 Ja 22 '18
- Management of the power plant. R. June. Il diags Textile World 56:105+ Jl 5 '19
- Performance tests of economizers. B. M. Baxter. Power 50:299-300 Ag 19 '19; Abstract. Mech Eng 41:842-3 O '19
- Proportioning fuel economizers. A. B. Clark. diag Power 49:613-15 Ap 22 '19
- Proportioning fuel economizers. C. C. Cobb, Jr. Power 50:76 Jl 8 '19
- Station planned with a view to future economizer. diag Elec W 72:1129 D 14 '18
- Steam boilers and economizers; abstract. M. R. Schulz. Am Soc M E J 40:114 Ja '18
- Use of boiler parts for economizer. diag Elec R 73:899-900 D 7 '18
- Use of steam instead of air improves economy of Doherty economizer. Il Am Gas Eng J 109:sup18 N 16 '18
- Using a spare boiler as an economizer. A. C. French. diag Power 49:579 Ap 15 '19
- Visits of Inspector Brown. J. E. Terman. Power 48:153-4, 200-1, 231-3, 268-70 Jl 30-Ag 20 '18; Discussion. 48:313-14, 429 Ag 27, S 17 '18
- Waste prevention in power plants. V. J. Azbe. Iron Tr R 62:423-5 F 14 '18
- Fuel economy**
- Advantages of high pressure and superheat as affecting steam plant efficiency; abstracts. E. Berg. diag Gen Elec R 21:216-21 Mr '18; Elec W 72:56-8 Jl 13 '18; Am Soc M E J 40:742-5 S '18; Elec R 73:444-7 S 21 '18
- Another coal and liquid fuel mixture. Power 47:659-60 My 7 '18
- Arlington mills' fuel economy committee. Textile World 54:1103+ S 7 '18
- As it is in Holland; war time conditions. Y. Brouwers. Power 47:738 My 21 '18; Correction. 48:174 Jl 30 '18
- Basis of limitation of domestic fuel supply; discussion. Am Soc Heat & V E 24:71-80 '18
- Boiler control, coal economy and production. A. T. Baldwin. chart Textile World 53:3203+ Ja 12 '18
- Boiler fuel economy. M. Meredith. Coal Age 15:617 Ap 3 '19
- Boiler-house economies. E. P. Humphrey. Il Coal Age 16:570-2 O 2 '19

**Fuel economy—Continued**

- Boiler-house operation with reference to various fuels; abstract. *Am Soc M E J* 40:727-8 Ag '18
- Bonus plan reduces coal consumption at Manila. P. I. B. H. Blaisdell. *Elec Ry J* 51:308-11 F 16 '18
- Bonus system for the saving of coal. W. N. Polakov. *Elec W* 71:36-9 Ja 5 '18
- British gas industry; comparison of gas and electricity in fuel economy. *Am Gas Eng J* 110:377-80 My 3 '19
- Burn ashes and use daylight. *Sci Am* 118:82 Ja 26 '18
- By-product coke ovens. E. B. Elliott. II chart diag map Gen *Elec R* 21:467-80 J1 '18
- Canadian railways and the fuel situation. T. Britt. *Ry R* 62:749-50 My 25 '18
- Careful examination where B. t. u. standard has been reduced shows no appreciable increase in individual consumption. L. R. Nash, E. B. Powell and H. Vittinghoff. *Am Gas Eng J* 109:317-19 O 5 '18
- Certain essentials of fuel economy. E. McAuliffe. *Ry Age* 66:1254-5 My 23 '19; Same. *Ry R* 64:762-3 My 24 '19; Same. *Ry Mech Eng* 93:584 O '19
- Circular of fuel conservation section of Railroad administration. *Ry Age* 65:339-40 Ag 23 '18
- Coal and electricity in double harness; what England is doing to work out the problem of fuel conservation. *Sci Am* 118:408+ My 4 '18
- Coal and the cult of the skin. *Sci Am S* 86:245 O 19 '18
- Coal conservation. D. M. Myers. II *Coal Age* 13:450-3 Mr 9 '18
- Coal conservation and restriction of fuel exports. A. V. White. *Gas Age* 44:251-2 S 15 '19
- Coal conservation in fact. C. R. Knowles. *Elec R* 72:1078-9 Je 29 '18
- Coal conservation in industrial plants. W. M. Graff. *Ind Management* 55:334-5 Ap '18
- Coal conservation in New England. I. N. Hollis. *Ind Management* 56:89-93 Ag '18
- Coal conservation in the boiler room; abstracts. R. H. Kuss. *Power* 48:322-3 Ag 27 '18; *Am Soc M E J* 40:848-9 O '18
- Coal conservation suggestions for the central station industry. P. E. Noyes. *Elec R* 73:609-11 O 19 '18
- Coal economics. *Engineer* 127:609-10 Je 20 '19
- Coal economizer frauds. *Sci Am* 117:477 D 22 '17
- Coal economy and the range boiler. II diag Metal *Work* 89:353 Mr 15 '18
- Coal economy as a war measure. diag plans Metal *Work* 91:90-1 Ja 17 '19
- Coal economy in mine boiler firing. diag Eng & Min *J* 106:529-30 S 21 '18
- Coal saving by the scientific control of steam boiler plants. D. Brownlie. *Power* 48:322-5 D 3 '18
- Coal-saving nostrums. *Power* 47:626 Ap 30 '18
- Coal shortage. P. E. Noyes. *Elec W* 71:1256-7 Je 15 '18
- Coal situation. H. Van Blarcom. *Elec W* 72:317-18 Ag 17 '18
- Coal waste in heatless mills. *Textile World* 53:4037+ Mr 2 '18
- Combustion and fuel economy. *Locomotive* 31:226-32 O '17
- Committee on war service of Illuminating engineering society prepares guide conserving lighting. *Am Gas Eng J* 109:367-71 O 19 '18
- Compounding and fuel economy. *Ry R* 62:648-9 My 4 '18; Discussion. H. Rogers. 62:725-6 My 18 '18
- Concrete examples of coal conservation. H. E. Dart. *Locomotive* 32:34-43 Ap '18
- Connecticut Public utilities commission recommendations sent to electric railways. *Elec Ry J* 51:135-6 Ja 19 '18
- Conservation in fuel oil boiler plants. E. A. Rogers. *Ry Mech Eng* 92:599-600 N '18
- Conservation in the foundry; saving of coal and the care and repair of brass melting pit furnaces. R. E. Modrow. diag Metal *Ind* 16:65-8 F '18
- Conservation of fuel. W. M. Mackay. Metal *Work* 89:291-2 Mr 1 '18
- Conservation of fuel in California. R. J. C. Wood. map *Elec W* 72:348-50 Ag 24 '18
- Conservation of fuel in war time. W. W. Kilder. *Textile World* 53:5213+ My 4 '18
- Conservation of fuel on the railroads; papers before the New York railroad club. *Ry Age* 65:913-16 N 22 '18
- Conservation of fuel through smoke regulation. J. W. Henderson. *Ry R* 62:193-5 F 9 '18
- Conserve fuel all the time. Metal *Work* 89:362-3 Mr 15 '18
- Conserving the coal pile. R. P. Bassett. *Textile World* 53:6331+ Je 29 '18
- Co-operation of electric railways asked to eliminate wasteful uses of electricity. *Elec Ry J* 50:1033 D 8 '17
- Co-operative research and the fuel problem. O. S. Beyer, jr. *Ry Mech Eng* 93:443-4 J1 '19
- Cost of leaky blow-off valves. chart *Elec R* 74:110-11 Ja 18 '19
- Course in combustion engineering to promote fuel conservation. *Elec R* 75:693-4 O 25 '19
- Dealing with the high cost of coal. A. T. Baldwin. *Am Ind* 18:22-3 D '17
- Dollar value of heated air. W. F. Schaphorst. chart *Elec R* 71:1114-15 D 29 '17
- Economic crime to burn coal for mere heating. H. P. Gillette. *Eng & Contr* 51:28-9 Ja 8 '19
- Economic operation of turbo-electric stations. C. T. Hirshfeld and C. L. Karr. diag U S Bur Mines Tech Pa 204:1-27 '18; Same. *Elec R* 73:886-90, 923-8 D 7-14 '18; Same cond. *Elec W* 72:1120-4 D 14 '18
- Economical use of coal in railway locomotives. II Ill U Eng Exp Sta Circ 8:29-48, 65-71 '18
- Economical use of fuel; symposium. *Am Soc M E J* 40:pt 2, 601-60 J1 '18
- Economies in power-plant operation. F. N. Lawton. II *Elec R* 71:967-70 D 8 '17
- Economy beginning at the gas standard set and running all the way to the cheapest and most efficient consuming appliance. J. D. Kuster. *Am Gas Eng J* 111:268-70, 275-6 S 27 '19
- Economy discussed at fall meeting of Iron and steel institute. *Iron Tr R* 65:1044-5 O 16 '19
- Economy hints. *Locomotive* 32:2-10 Ja '18
- Economy in fuel. P. West. *Heat & Ven* 15:35-8 F '18; Same. Metal *Work* 89:290-1 Mr 1 '18
- Economy in heating. K. Meler. *Am Soc Heat & V E* 24:387-97 '18; Abstract. *Heat & Ven* 15:37-8 J1 '18; Discussion. *Am Soc Heat & V E* 24:397-402 '18
- Economy in industrial fuel oil furnaces. M. Sklovsky. II diag *Am Mach* 51:495-500 S 11 '19
- Economy in lighting and fuel saving. *Illum Engr* 11:43-4 F '18
- Economy in power for the mine. C. M. Garland. *Coal Age* 13:789-90 Ap 27 '18
- Economy in the use of fuel in power stations. C. H. Parker. II diag Boston Soc C E J 5:163-85 Ap '18; Excerpts. *Elec W* 71:762-3 Ap 13 '18; Discussion. Boston Soc C E J 5:185-9 Ap '18
- Economy of Arizona power plants using oil fuel. C. R. Weymouth. *Mech Eng* 41:523-6 Je '19; Same. *J Elec* 43:124-8 Ag 1 '19
- Economy of automatic combustion control. I. L. Kentish-Rankin. diag *Elec R* 71:971-2; 72:64-6 D 8 '17; Ja 12 '18
- Education of boiler-room men necessary. E. A. Hunger. *Elec W* 72:344-7 Ag 24 '18; Excerpts. *Eng & Contr* 51:374-6 Ap 9 '19
- Effect upon fuel economy of different arrangements of baffles in boiler tubes. W. G. Eager. diag *Am Soc M E J* 40:737-42 S '18
- Effecting fuel and light economies in England. *Elec R* 73:710 N 2 '18
- Effective methods of reducing the coal bill. H. C. Woodbridge. *Ry Age* 67:833-5 O 24 '19
- Electric light a necessity. *Elec W* 71:82 Ja 12 '18; Discussion. R. H. Pierce. *Am Gas Eng J* 108:134 F 9 '18

**Fuel economy—Continued**

- Electric sign ruling by Fuel administration. Dec. 3. Elec W 70:1114 D 8 '17; Same. Elec R 71:1020-1 D 15 '17
- Electrical interconnection to conserve fuel advocated by New York and California. maps Elec W 71:12-14 Ja 5 '18
- Electricity will not replace coal. A. V. White. Am Gas Eng J 109:290 S 28 '18
- Emergency shop power and coal conservation. C. E. Clewell. Il Am Mach 50:533-6 Mr 20 '19
- Emergency substitutes for coal. J. F. Springer. diag Am Ind 18:22-4 Ja '18
- England's fuel-rationing order. Heat & Ven 15:17-21 N '18
- English heating engineers compile rules for fuel economy. Heat & Ven 16:55 Mr '19
- Estimated savings in skip stops. C. E. Stuart. Elec Ry J 51:1102 Je 8 '18
- Exhaust steam waste. Sci Am S 85:74 F 2 '18
- Expert's observations on fuel economy. A. J. McNeill. Metal Work 89:321+ Mr 8 '18
- Extent of the use of pulverized fuel in the industries and its possibilities in the war. F. P. Coffin. Il Gen Elec R 21:373-80 My '18
- Firing bituminous coals in large house-heating boilers. S. B. Flagg. Il diags U S Bur Mines Tech Pa 180:1-19 '17; Excerpt (How to burn bituminous coals economically). Am Gas Eng J 108:sup15-16 F 9 '18; Excerpt. Power 47:244 F 12 '18
- Firing coal and wood in water heater. Metal Work 89:297 Mr 1 '18
- Five coal-less days and ten heatless holidays; Fuel administration orders curtailment of coal burning and a suspension of industries. Ry Age 64:198-200 Ja 25 '18
- 5 day industrial shut-down followed by 9 idle Mondays ordered by administration for conservation of coal. Am Gas Eng J 108:65-6 Ja 19 '18
- Five ways of saving fuel in heating houses. H. Kreislinger. diags U S Bur Mines Tech Pa 199:1-10 '18
- Forcible shutting down of isolated power plants. P. R. Moses. Power 47:443-4 Mr 26 '18
- From coal pile to machine tools and lamps. C. E. Clewell. Il diags plans Am Mach 49:1061-5 D 12 '18
- Fuel administration and the skip stop. J. F. Layng. Elec Ry J 53:34-8 Ja 4 '19
- Fuel administration's new light-restricting order now in effect. Elec R 73:136-7 Jl 27 '18; Same. Elec W 72:176 Jl 27 '18; Same. Munic J 45:97-8 Ag 3 '18; Excerpt. Gas Age 42:240 S 2 '18
- Fuel and its economical use. E. A. Uehling. Power 48:779-81 N 26 '18
- Fuel conservation. L. P. Breckenridge. Am Soc Heat & V E 24:51-8 '18; Abstract. Am Soc M E J 40:27-9 Ja '18; Discussion. Am Soc Heat & V E 24:59-60 '18
- Fuel conservation. G. W. Martin. Am Soc Heat & V E 24:61-5; Discussion. 65-70 '18
- Fuel conservation after the war. Gas Age 41:272 Mr 15 '18
- Fuel conservation by the Bureau of mines; with discussion. O. P. Hood. Am Soc M E J 40:308-10 Ap '18
- Fuel conservation by the economical combustion of soft coal. G. L. Larson. diags Wis U Bul Eng S 8:429-88 no 7 '17
- Fuel conservation comes nearer as permanent bureau is formed. Elec R 75:788-91 N 8 '19
- Fuel conservation in Connecticut. Power 49:419-20 Mr 18 '19
- Fuel conservation in Massachusetts. T. Hawley. Power 49:349-50 Mr 11 '19
- Fuel conservation on the Northern Pacific. M. A. Daly. Il Ry Age 66:1037-9 Ap 25 '19; Same. Ry Mech Eng 93:237-9 My '19; Same abr. Ry R 64:868-9 Je 14 '19; Discussion. Ry Age 66:1039-40 Ap 25 '19; Same. Ry Mech Eng 93:239-40 My '19
- Fuel conservation on the Santa Fe. C. E. Parks. Ry R 63:124-7 Jl 27 '18
- Fuel conservation reports to the management. J. G. Worker. Power 48:863 D 10 '18
- Fuel conservation rules. Am Gas Eng J 109:522-3 D 7 '18
- Fuel consumption control by the government. J. W. Henderson. Power 47:115-18 Ja 22 '18
- Fuel economy. Engineer 128:299-300 S 26 '19
- Fuel economy and consumptions in the manufacture of iron and steel. W. A. Bone, R. Hadfield and A. Hutchinson. diag Engineer 128:316-17, 341-3 S 26-O 3 '19; Abstract. Iron Age 104:1065-6; Discussion. 1067-9 N 27 '19
- Fuel economy at stationary plants; abstracts. Ry Age 65:516-17 S 13 '18; Ry R 63:477-9 S 28 '18; Ry Mech Eng 92:556-8 O '18
- Fuel economy in blast furnaces; abstracts. T. C. Hutchinson. Engineer 125:400-1 My 10 '18; Iron Age 102:689-91 S 19 '18
- Fuel economy in humidity control. F. J. McCullough. Heat & Ven 16:33 O '19
- Fuel economy in mill power plants. G. H. Dorman. Power 48:179 Jl 30 '18
- Fuel economy in New York bus service. Elec Ry J 52:895 N 16 '18
- Fuel economy in the boiler house. J. B. C. Kershaw. diags Chem & Met Eng 20:176-8, 241-5, 291-5 F 15-Mr 15 '19
- Fuel economy in the operation of hand fired power plants. A. C. Willard and others. chart diags plans map Ill U Eng Exp Sta Circ 7:1-89 '18
- Fuel economy made simple. A. Bement. Power 48:524-6 O 8 '18; Discussion. A. J. De Freest. 48:641 O 29 '18
- Fuel economy results obtained in house heaters. A. Bement. Heat & Ven 15:45-7 D '18
- Fuel economy—Traveling engineers association committee report; with discussion. Ry Age 65:501-3 S 13 '18; Ry R 63:402-3 S 14 '18
- Fuel economy will continue a serious problem. W. A. Shoudy. Elec W 73:14-16 Ja 4 '19
- Fuel efficiency in railroad stationary plants. Ry R 65:24-5 Jl 5 '19
- Fuel facts. Heat & Ven 15:47-9 S '18
- Fuel for the merchant marine. F. P. Coffin. Gen Elec R 22:200-12 Mr '19
- Fuel meeting in New York, Sept. 28. Power 48:545 O 8 '18
- Fuel outlook. Il map Heat & Ven 16:21-6 S '19
- Fuel problem of Canada—some national and international aspects. A. V. White. Gen Elec R 22:465-74 Je '19
- Fuel problems before engineers in Boston. Elec W 72:1238-9 D 28 '18
- Fuel problems of the Pacific coast. Mech Eng 41:264-9+ Mr '19
- Fuel regulations. P. B. Noyes. Power 48:471-2 S 24 '18
- Fuel-saving campaign in Connecticut plants. Il Elec W 72:1176-7 D 21 '18
- Fuel saving don'ts prepared by General accident assurance co. of Canada. Power 47:334 Mr 5 '18
- Fuel saving in household heating. R. E. Dillon. diags Gen Elec R 21:119-23 F '18
- Fuel saving in industrial plants. J. F. Tinsley. Mech Eng 41:750-1 S '19
- Fuel saving suggestions. C. H. Bromley. Il diag Power 46:786-9 D 11 '17
- Fuel wastes in factory heating. C. L. Hubbard. Ind Management 57:25-5 Ja '19
- Full utilization of power sources advocated by the division of mineral technology of the U.S. national museum. Gas Age 43:643-5 Je 16 '19
- Fyrox moving West. Power 47:360 Mr 12 '18
- General need of fuel conservation in the boiler rooms. V. H. Manning. Am Gas Eng J 107:553+ D 15 '17; Same. Coal Age 12:1086 D 29 '17; Same. Elec R 71:1068 D 22 '17; Same. Elec W 70:1161 D 15 '17; Same. Iron Age 100:1480 D 20 '17; Same. Ry Age 63:1129-30 D 21 '17; Same. Ry R 61:727 D 15 '17; Same. Int Marine Eng 23:3 Ja '18
- General utilization of pulverized coal. H. G. Barnhurst. Il diag plan Gen Elec R 20:924-31 D '17; Same abr. Elec R 71:1100-2 D 29 '17; Same cond. Sci Am S 85:34-5 Ja 19 '18; Excerpts. Elec R 71:736-8 O 27 '17; Abstract. Iron Age 101:626-7 Mr 7 '18
- Getting along with a smaller coal pile. J. Heywood. Factory 21:654-7, 852-5, 1054-7; 22:244-7 O-D '18, F '19
- Getting better economy in the power house. G. H. Kelsey. diags Elec Ry J 53:455-60 Mr 8 '19

**Fuel economy—Continued**

- Government's plan for fuel conservation. D: M. Myers. Am Soc M E J 40:pt 2, 603-4 J1 '18; Excerpts. Heat & Ven 15: 37-9 Ag '18
- Heat leakage wastes coal. A. Bolam. Ind Management 56:211-12 S '18
- Heating homes and heating Huns. H. E. Dart. Locomotive 32:98-104 O '18
- Helping power plants save coal by mail. J. Harrington. Elec R 73:899, 941-2 D 7-14 '18
- Homes to be put on fuel rations. Heat & Ven 15:48 Ag '18
- How can coal be saved on the engine? Ry Age 65:136-7 J1 19 '18
- How fuel is saved in a large school. J. A. Lane. chart Power 48:954-5 D 31 '18
- How heating contractors can aid fuel conservation. C. L. Hubbard. diags Dom Eng 82:86-8+ Ja 19 '18
- How much is 150,000,000 tons? Am Gas Eng J 109:271 S 21 '18
- How the heating trade can do its bit by launching an educational campaign for fuel saving. M. W. Ehrlich. Metal Work 90: 241-3 Ag 30 '18
- How the householder can save coal. Dom Eng 82:146 Ja 26 '18
- How to operate the home heating outfit. diags Metal Work 91:299-301 Mr 7 '19
- How to run household heaters. Factory 21: 878+ N '18; Same. Metal Work 90:445-6 O 18 '18
- How 20 percent of the cost of heating buildings can be saved. Eng & Contr 49:323-4 Mr 27 '18
- Hydro-electric energy as a conservator of oil. H. F. Jackson and F. E. Hoar. Gen Elec R 21:68-70 Ja '18
- Important phases of the fuel conservation problem; suggestions to railway men. H. C. Woodbridge. Ry Age 65:335-6 Ag 23 '18
- Important points in fuel conservation. R. Collett. Ry Age 65:1121-3 D 20 '18; Same cond. Ry Mech Eng 93:66-7 F '19
- Improving boiler-room operation. I. L. Kentish-Rankin. diags chart plan Elec R 72:986-9 Je 15 '18
- Individual effort toward fuel saving. E. McAuliffe. Coal Age 13:1012-13 Je 1 '18; Abstract. Ry Age 64:1343-4 My 31 '18
- Industrial coal economy. D. Wilson. Engineer 126:353-5 N 1 '18
- Industrial-lighting curtailment. C. E. Clewell. II diags Am Mach 48:867-72 My 23 '18
- International railway fuel association 11th annual convention, Chicago. Ry Age 66:1248-56, 1309-17 My 23-30 '19; Ry R 64:755-9, 791-6 My 24-31 '19
- Is your furnace a heat slacker? L. W. Moffett. II Iron Tr R 61:1274-6 D 13 '17
- Lamp substitution to save coal. Ry R 63:652-3 N 2 '18
- Lighting curtailment. P. S. Millar. bibliog Illum Eng Soc 13:111-35 no 2 '18; Abstracts. Elec R 72:343-4 F 23 '18; Elec W 71:370-1 F 16 '18; Power 47:452-3 Mr 26 '18; Discussion. Elec W 71:426-7 F 23 '18; Illum Eng Soc 13: 135-69 no 2 '18
- Lighting, heating and power order (1918) and the best methods of making economies. Illum Engr 11:134-8, 151-2 My-Je '18
- Lightless night order of fuel administration. Elec W 70:1209-10 D 22 '17
- Lightless nights decreed twice a week. Elec R 71:1062 D 22 '17
- Lightless order suspended by Fuel administration until Sept. 1. Elec W 71:888 Ap 27 '18
- Lines of attack chemist may follow to conserve fuel. E. O'Neill. Am Gas Eng J 109: 437-9 N 9 '18
- Making the power plant more efficient. K. B. Lamb. Textile World 53:4603+ Ap 6 '18
- Making your fuel go farther. J. W. Hays. II Factory 20:1069-71 Je '18
- Management of railway power plants. W. Olsen. Ry R 64:858-9 Je 14 '19
- Management of the power plant. R. June. II Textile World 54:71+, 847+, 1097+, 1611+, 2107+ J1 6, Ag 24, S 7, O 5, N 2 '18; Same abr. Concrete 13:sup16-19, sup41-3 Ag, O '18; Same abr. Elec R 74:94-7, 257-60 Ja 18, F 15 '19
- Massachusetts fuel administration shows how to save coal; bulletin for firemen and engineers. Textile World 54:1615+ O 5 '18
- Massachusetts plan of power-plant inspection and coal conservation. T. Hawley. Power 48:302-4 Ag 27 '18
- Maximum benefits from fuel; extracts from the reports of four plants. Power 47:850-2 Je 11 '18
- Maximum coal economy as a world problem. A. Delamarre. Gas Age 42:10-12 J1 1 '18
- Maximum fuel production with minimum fuel waste. D: M. Myers. Ind Management 56: 104 Ag '18
- Means of conserving the fuel supply. Iron Tr R 62:488-9 F 21 '18
- Methods employed to aid fuel conservation. Ry R 62:718-20 My 18 '18
- Methods for more efficiently utilizing our fuel resources. F. P. Coffin. II map Gen Elec R 22:517-35 J1 '19
- Methods for more efficiently utilizing our fuel resources; central station, isolated plant, and fuel conservation. G. F. Brown. Gen Elec R 21:448-50 Je '18; Same. Ry R 62:856-7 Je 15 '18
- Methods for more efficiently utilizing our fuel resources; fuels of Canada. B. F. Haanel. map Gen Elec R 21:689-98 O '18
- Methods for reducing coal consumption; 20 don'ts for firemen and water tenders. G. H. Kelsey. Eng & Contr 51:372-3 Ap 9 '19
- Methods of fuel conservation. M. A. Rooney. Iron Tr R 62:269 Ja 24 '18
- Methods of fuel conservation in cement mill operation. E. Ashton. Concrete 13:sup45-9 N '18
- Methods that saved coal in Cuban plant. H: G. Fenton. Elec W 72:1227 D 28 '18; Same. Eng & Contr 51:524 My 14 '19
- Methods to improve plant fuel economy. S. J. H. White. Iron Age 100:1528-9 D 27 '17
- Motive power department and fuel economy. R. Quayle. Ry R 62:750-2 My 25 '18; Same cond. Ry Age 64:1290-1 My 24 '18; Same cond. Ry Mech Eng 92:352-3 Je '18
- Municipal fuel conservation. Munic J 45:161-5 Ag 31 '18
- Natural gas; its production, service and conservation. S: S. Wyr. II diags maps U S National Museum Bul 102,pt 7:1-66 '18; Same cond. Gen Elec R 22:636-48, 760-6 Ag, O '19
- Need for fuel conservation. P. B. Noyes. Ry R 62:755-7 My 25 '18; Same cond. Ry Age 64:1340-2 My 31 '18; Same cond. Coal Age 13:1010-11 Je 1 '18
- New English household fuel and lighting order (1918). Illum Engr 11:139-41, 153-6 My-Je '18
- New Haven saves a million dollars in fuel. Ry Age 64:207-8 Ja 25 '18; Same. Ry R 62: 178-80 F 2 '18
- New rules for coal conservation. Iron Tr R 63:955 O 24 '18
- New York chapter compiles standards for mechanical and natural systems of ventilation. Heat & Ven 15:54-5 N '18
- New York fuel conservation committee formulates recommendations. Elec Ry J 51:135 Ja 19 '18
- Notes on the conservation of fuel in the installation of central heating systems. Metal Work 91:426-7 Ap 4 '19
- 100,000 tons of coal wasted by Chicago. II charts Munic J 44:105-9 F 9 '18
- Organize to save coal and power; recommendations of Massachusetts fuel administration. Textile World 54:525+ Ag 3 '18; Power 48:249-50 Ag 13 '18; Am Soc M E J 40:692 Ag '18
- Philadelphia and New England in water and fuel saving campaigns. C. E. Davis. Eng N 81:329 Ag 15 '18
- Philadelphia fuel conservation activities; work of Master tin and sheet metal workers' association. Metal Work 89:385-7, 431-2 Mr 22-29 '18
- Philadelphia plan of coal allotment. J. S. Carson. II Heat & Ven 15:17-30 O '18
- Plan to operate all industries at full capacity, but make each pound of fuel perform its maximum service. Am Gas Eng J 108:487-8 My 25 '18

**Fuel economy—Continued**

- Plans made for relief in fuel and in power. C: E. Stuart. Elec W 72:852-3 N 2 '18
- Pointers on fuel conservation in modern heating systems. W. W. Hughes. Dom Eng 84:467-8 S 28 '18
- Points to consider now that coal is expensive. Factory 20:310+ F '18
- Possibilities for fuel saving in existing plants. A. H. Anderson. Heat & Ven 16:37-9 Ja '19
- Possible saving in avoiding leaks in boiler setting. J. M. Aarons. Power 47:365-6 Mr 12 '18
- Powdered coal as fuel for boiler. A. L. Field. Il Textile World 53:3595+ F 2 '18
- Power economy an essential factor in winning the war. W. R. Conover. Ind Management 55:314-18 Ap '18
- Power plant burns locomotive cinders. Power 47:13 Ja 1 '18; Discussion. E: C. Boynton. 47:338 Mr 5 '18
- Power-plant practice during 1917. I. L. Kentish-Rankin. Il Elec R 72:25-30 Ja 5 '18
- Power plant saving; program to be worked out by fuel administrator. Textile World 54:211 Jl 13 '18
- Power production and coal economy. W. N. Polakov. Ind Management 58:235-6 S '19
- Practicable methods to help in saving coal suggested by Westinghouse co. Elec W 72:556 S 21 '18
- Practical measures for securing greatest economy in public utility plant operation. C: Brossmann. Munic Eng 54:13-15, 140-2 Ja, Ap '18
- Practical suggestions for economy in use of fuel. P. B. Juhnke. Elec W 71:1206 Je 8 '18
- Preventable waste of coal; devices for use with mechanical stokers. G. W. Partridge. Il diags Elec W 71:577 Mr 16 '18
- Preventable waste of coal in the United States. D: M. Myers. Power 47:64-5 Ja 8 '18; Same cond. Ry R 62:210-12 F 9 '18; Excerpt. Eng & Contr 49:463 My 8 '18; Am Soc M E J 39:901-2 N '17; Dom Eng 81:553-4 D 29 '17; Coal Age 13:16-17 Ja 5 '18; Excerpts. Elec Ry J 50:1119 D 22 '17; Ry Age 64:273-4 F 1 '18; Discussion. Power 47:65-7 Ja 8 '18; Am Soc M E J 40:128-35 F '18
- Preventing waste of fuel oil. R. T. Strohm. Power 48:636 O 29 '18
- Principal arguments for electric cooking and heating appliances and data on the coal that they conserve. Elec R 73:545-7 O 5 '18
- Problem of coal conservation. L. P. Breckenridge. Am Soc M E J 40:305-6; Discussion. 306-8 Ap '18
- Problems in the utilization of fuels. R. F. Bacon and W. A. Hamor. Sci Am S 88:222-3, 254-6 O 11, 25 '19
- Program of power plant saving prepared by U. S. Fuel administration. Am Gas Eng J 109:66-7 Jl 20 '18
- Progress in locomotive fuel economy. H. B. Oatley. Ry R 63:160-1+ Ag 3 '18
- Proposed coal-rationing rules for the United States; allowances designed for heating, cooking and hot-water service in residences, flats and apartment houses. Heat & Ven 15:21-3 N '18
- Pulverized coal demonstrates high economy during 24-hour test. Elec R 72:192-3 F 2 '18
- Pulverized fuel in a power plant on the Missouri, Kansas & Texas railway. H. R. Collins and J. Harrington. Il diag Gen Elec R 20:768-77 O '17; Excerpts. Ry Mech Eng 92:503-4 S '18
- Railroad electrification as a fuel conservation measure. W. J. Davis, Jr. Il Gen Elec R 22:196-9 Mr '19; Same cond. Mech Eng 41:268-9 Mr '19
- Railroad fuel conservation campaign quickened. E. McAuliffe. Ry R 63:278-9 Ag 24 '18
- Railway fuel conservation; abstracts. E. McAuliffe. Ry Age 65:500-1 S 13 '18; Ry R 63:432-3 S 21 '18; Ry Mech Eng 92:550-2 O '18
- Reducing fuel wastes. C. L. Hubbard. diags Dom Eng 85:200-2+, 242-3 N 9-16 '18
- Reducing water waste to save coal; figures derived from data relative to New York cities. Munic J 45:128-9 Ag 17 '18
- Relation of locomotive maintenance to fuel economy. F. McManamy. Ry Age 64:1289-90 My 24 '18; Same. Sci Am S 86:11 Jl 6 '18; Same cond. Ry Mech Eng 92:352 Je '18
- Relation of the railways to the fuel problem. E. W. Pratt. Ry R 62:748-9 My 25 '18; Same cond. (Individual effort and the war). Coal Age 13:1014 Je 1 '18
- Report of Master mechanics' association committee on fuel economy and smoke prevention. Ry Age 64:1516-19 Je 21 '18
- Rochester lines save coal. J. F. Hamilton. Elec Ry J 51:270 F 9 '18
- Save coal and help win the war. Sci Am 117:456 D 15 '17
- Save fuel by returning air to furnaces. Metal Work 89:105 Ja 18 '18
- Save fuel in the heating boilers. Locomotive 31:242-3 O '17
- Save fuel in the kitchen range. Metal Work 89:550-1 Ap 26 '18
- Save water and help win the war. Munic J 45:131 Ag 17 '18
- Saved \$20,000 on yearly coal bill. F. J. Dowling. Power 50:542-3 S 30 '19
- Saving by burning slack coal. F. H. Guldner. Power 47:260-1 F 19 '18
- Saving coal. G: M. Basford. Ry R 64:625 Ap 26 '19
- Saving coal by efficient pulleys. C: H. Machen. Il diag Am Mach 49:536-8 S 19 '18; Same abr. Textile World 55:29+ Ja 4 '19
- Saving coal in boiler plants. H: Krelsinger. diags U S Bur Mines Tech Pa 205:1-21 '18; Same cond. Factory 22:166+ 344+ Ja-F '19; Excerpt. Metal Work 91:237 F 21 '19
- Saving coal in steam power plants. diag U S Bur Mines Tech Pa 217:1-8 '19
- Saving coal in the Blackstone power plant. W. A. Eberman. Il Power 49:632-4 Ap 29 '19
- Saving derived from covering steam pipes. Elec W 70:671-2 O 6 '17; Excerpt. Dom Eng 81:501 D 22 '17; Discussion. A. Bolam. Elec W 70:1253 D 29 '17
- Saving fuel through operating economies. Elec Ry J 51:267-70 F 9 '18
- Saving steam in industrial heating systems. diags U S Bur Mines Tech Pa 221:1-13 '19; Same cond. Power 50:156-8 Jl 22 '19; Excerpt. Textile World 56:1385+ S 6 '19
- Saving that extra shovelful of coal by increased coasting. H. C. Kendall. Elec Ry J 52:51-4 Jl 13 '18
- Small savings that count; suggestions of committee on coal conservation of the United States chamber of commerce. Elec W 71:115 Ja 12 '18
- Smoke preventing and coal saving suggestions. Ry R 63:362 S 7 '18
- Some conditions observed in public utility plants by a representative of the U. S. Fuel administration. C: Brossmann. charts Munic Eng 56:94-6 Mr '19; Same. Power 49:416-17 Mr 18 '19
- Steam economics in simple terms. S. A. Worcester. Eng & Min J 107:561-3 Mr 29 '19
- Steps toward coal saving. H. S. Cooper. Elec W 72:313 Ag 17 '18
- Stoker installations as agencies in coal and iron conservation. Power 48:602 O 22 '18
- Stopping leaks that waste the coal pile. C: L. Hubbard. Il Factory 20:29-32, 228-31 Ja-F '18
- Street railroads save 2000 tons of coal a month in Cincinnati by skip stops. Elec Ry J 51:460 Mr 9 '18
- Substitutes for coal and oil being tried; hogged fuel, pulverized coal and natural gas used by Pacific Coast companies. Elec W 71:881 Ap 27 '18
- Suggestions for conserving coal and assisting manufacturing. G: N. Cole. Am Mach 50:651-2 Ap 3 '19
- Suggestions for fuel economy. E. C. Wiley. Metal Work 89:76 Ja 11 '18
- Suggestions for fuel saving. B. J. Feeny. Ry Mech Eng 93:67-9 F '19
- Suggestions for obtaining fuel economy compiled by Doherty organization. Elec R 71:1026-7 D 15 '17; Same. Elec W 70:1196 D 22 '17
- Suggestions for saving coal. T: Britt. Ry Age 64:1340 My 31 '18; Same abr. Ry Mech Eng 92:354 Je '18

**Fuel economy—Continued**

- Suggestions for saving coal in construction operations. G: E. Ladd. Eng & Contr 49: 475-7 My 15 '18
- Survey of industrial power plants to determine coal-burning efficiency suggested. F. H. Sparks. Coal Age 13:274-5 F 9 '18
- Talk to firemen on saving coal. C: H. Bromley. Power 47:146-8 Ja 29 '18; Same. Textile World 53:4049 Mr 2 '18
- Ten commandments of fuel economy. II Motor Age 34:36-7 Jl 11 '18
- Thrill in using power. Factory 20:516+; 21: 456+, 738+; 22:166+, 344+, 516+, 770+ Mr, S-O '18, Ja-Apr '19
- To all users of fuel oil. W. C. Robinson. Iron Age 102:459 Ag 22 '18
- Transportation department and fuel economy. E. H. DeGroot, Jr. Ry Age 64:1291-2 My 24 '18; Same. Ry R 62:754-5 My 25 '18; Excerpt. Ry Mech Eng 92:353-4 Je '18
- Transportation department and fuel economy. H. C. Woodbridge. II diags plans Ry R 64:865-7 Je 14 '19
- Turning waste into steam. Factory 21:456 S '18
- Twenty-seven thousand dollar saving in Manhattan building plant. Power 48:918-19 D 24 '18
- Unique plan to save coal by using stump wood. Sci Am 118:78 Ja 19 '18; Same cond. Coal Age 13:236 F 2 '18
- Universal enforcement of the skip-stop plan by the Fuel administration is a great object lesson in economics. Eng & Contr 50: 228-9 S 4 '18
- Use of pulverized fuel for locomotive operation. V. Z. Caracristi. II diags Gen Elec R 20:853-9 N '17; Same. Ry R 61:785-7 D 29 '17
- Vigorous fuel-saving campaign. Elec W 71:1308-9 Je 22 '18
- War and the domestic furnace. Sci Am 117: 450 D 15 '17
- War conservation of power and light. C: E. Stuart. Elec W 71:1181-3 Je 8 '18; Same. Elec R 72:1034-6 Je 22 '18; Same cond. Power 47:927-8 Je 25 '18
- War emphasizes need of intelligence in boiler room. C: H. Bromley. II Power 46:860-1 D 25 '17
- War-time fuel conservation campaign on the Northern Pacific. II Ry Age 64:1080 Ap 26 '18
- Wartime lighting economies. Illum Eng Soc 13:387-400 no 8 '18; Same cond. Elec W 72: 885-7 N 9 '18; Discussion. Illum Eng Soc 13: 400-10 no 8 '18
- Waste of fuels and the remedies. J. Harrington. Power 47:314 F 26 '18
- Waste prevention in power plants. V: J. Azbe. diags Iron Tr R 62:421-8 F 14 '18
- Water works operation; pumping plants. diags Munic J 45:244-6, 264-6 S 28-O 5 '18
- Way to enormous coal economies. II Sci Am 118:135+ F 9 '18
- What did we learn in fuel economy? A. Walton. Textile World 55:945+ F 1 '19
- What one concern did to conserve fuel. Sci Am 118:359 Ap 20 '18
- What the engineer can do. Power 46:803 D 11 '17
- What yardmen can do to save fuel. A. E. West. Ry Age 66:911 Ap 4 '19
- Wood for boiler fuel. C. T. Baker. Ind Management 55:366-7 My '18
- Work of the fuel supervisor. F. P. Roesch. Ry Age 65:713 O 18 '18
- Work of the New Orleans fuel administration committee. L. S. Weil. Power 47:156-7 Ja 29 '18
- Your coal supply will depend on your compliance with these recommendations. Power 48:92-3 Jl 16 '18
- See also* Firing; Fuel economizers; Grates; Locomotives—Fuel; Temperature—Regulation; Waste heat
- Fuel oil. See Oil as fuel.**
- Fullerphone**
- Fullerphone; abstracts. A. C. Fuller. diags Engineer 127:435 My 2 '19; Elec W 74:85 Jl 12 '19
- Fuller's earth**
- Fuller's earth. Sci Am 121:148 Ag 9 '19
- Fuller's earth in 1918. Eng & Min J 108:16 Jl 5 '19
- Preparation of Fuller's earth. W. C. Phalen. Chem & Met Eng 21:469 O 8 '19
- Production of fuller's earth in 1917. Chem & Met Eng 19:682 N 1 '18
- Utilization of the adsorptive power of fuller's earth for chemical separations. A. Seidell. Am Chem Soc J 40:312-28 Ja '18
- Fulling**
- Action of wool fiber in fulling. O. Fiske. II Textile World 56:475+ Jl 26 '19
- Felting of wool. Color Tr J 4:156-7 Je '19
- Fulling kerseys, broadcloths, meltons, etc. O. Fiske. Textile World 56:1179+ Ag 30 '19
- Fulling of wool army goods. O. Fiske. Textile World 53:3106+ Ja 12 '18
- Improved fulling mill. diags Textile World 55:1909 Mr 29 '19
- Oiling, scouring and fulling wool. W: H. Butler. Textile World 53:4145 Mr 9 '18
- Staining cotton and wool mixtures; conditions that make trouble and expense in finishing. Textile World 54:1733+ O 12 '18
- Fumaric acid**
- Preparation of fumaric nitrile; the action of hydroxylamine on fumaric nitrile. L. McMaster and F. B. Langreck. Am Chem Soc J 40:970-3 Je '18
- Fumes, Smelter. See Smelter fumes**
- Fumigation**
- Captive balloon and the fruit grower. II Sci Am 121:372 O 11 '19
- Fumigation as a disinfecting agency. C. T. Kingzett and others. Sci Am S 85:37 Ja 19 '18
- See also* Disinfection and disinfectants
- Funafuti (islands)**
- Coral-reef problem and the evidence of the Funafuti borings. E. W. Skeats. Sci Am S 85:382-3 Je 15 '18
- Functions, Bessel's. See Bessel's functions**
- Functions, Exponential**
- Transmission-line computations. A. E. Kennelly. Elec W 73:356-7 F 22 '19
- Fungi**
- Review of mycology. P. Vuillemin. Sci Am S 86:206-8, 222-4 S 28-O 5 '18
- Strange botanical garden where the molds that grow in old books are studied. II Sci Am 118:379 Ap 27 '18
- See also* Ergot; Molds (botany)
- Fur trade**
- Fur trade of the United States. II Sci Am S 85:24-5 Ja 12 '18
- Furnace industry**
- Better things for the furnace industry. A. W. Williams. Metal Work 91:35 Ja 3 '19
- Furnacemen must insist on doing better work. Metal Work 89:37-8 Ja 4 '18
- Future for the furnace industry. Metal Work 89:203-4 F 8 '18
- How a heating expert gets plenty of profitable work by telling people of their needs that he can satisfy. Metal Work 90:706-7 D 27 '18
- Outlook for furnace trade excellent. Metal Work 92:213-16 Ag 22 '19
- Pointers from an old time stove salesman. Metal Work 91:208-9, 270-1 F 14, 28 '19
- South America can use pipeless furnaces. II Metal Work 91:31+ Ja 3 '19
- Furnace pipe. See Furnaces, Hot air—Pipes and fittings**
- Furnaces**
- Air screens for ovens and furnaces; abstract. F. Wellman. Am Soc M E J 40:861-2 O '18
- Combustion of North Dakota lignites with suggestions for design of furnaces. H: Kreislinger. diags Power 47:608-12 Ap 30 '18; Abstract. Engineer 127:639 Je 27 '19
- Firing-door arch construction. L. Miller. diags Power 49:792 My 20 '19
- Furnace settings for caustic pots. F. H. Nickle. II chart diags Chem & Met Eng 20:65-9 Ja 15 '19



**Furnaces—Continued**

- Gas firing and the glass industry. Sci Am S 85:185 Mr 23 '18
- J. R. S. low-grade fuel burner. diags plan Power 47:184-5 F 5 '18
- Low-rate combustion in fuel beds of hand-fired furnaces. H: Kreislinger, C. E. Augustine and S. H. Katz. diags U S Bur Mines Tech Pa 139:1-54 '18; Excerpts. Power 48:576-7 O 15 '18
- Mechanically operated furnaces; abstract. M. Lamotte. Elec W 71:55-6 Ja 5 '18
- Meldrum's shell nosing furnace for solid fuel. diags Engineer 125:294 Ap 5 '18
- Molding a furnace door. M. E. Duggan. diag Am Mach 47:1118 D 27 '17
- Protection of furnace walls. J. Goder. diags Power 47:520 Ap 9 '18
- Protective screens for furnaces. J. V. Hunter. II diags Am Mach 48:359-62 F 28 '18
- Rapid operating gas reversing valve. II Iron Age 103:431 F 13 '19; Iron Tr R 64:452+ F 13 '19
- Selection of refractories for industrial furnaces. W. F. Rochow. II diags J Ind & Eng Chem 11:1146-9 D '19
- Spring-heating furnace. J. K. Long. diags Am Mach 48:244-5 F 7 '18
- Tate-Jones series A and H recuperative gas oven furnaces. II Am Mach 48:42 Ja 3 '18
- Ventilated side walls. W: R. Caton. diags Power 47:43 Ja 8 '18
- See also Blast furnaces; Boilers; Clinkers; Coke ovens; Crucibles; Cupola furnaces; Draft; Electric furnaces; Fire brick; Firing; Foundry practice; Fuel; Fuel economy; Furnaces, Metallurgical; Grates; Kilns; Mechanical draft; Metallurgy; Oil burners; Open hearth process; Refractory materials; Refuse incinerators; Smelting
- Furnaces, Boiler**
- Automatic air-controlled furnace. II Power 48:833-4 D 17 '18
- Bernitz furnace construction. diags Power 48:871 D 17 '18
- Boiler furnaces and boiler-furnace design. D. S. Jacobus. Power 48:318-20 Ag 27 '18; Same. Stevens Ind 36:1-10 Ja '19; Discussion. Power 48:320 Ag 27 '18
- Burning coals of the southwest. W. M. Park. diags Power 49:574-5 Ap 15 '19
- Burning gas in furnaces. diag Factory 20:320 F '18
- Burning steam sizes of anthracite with or without admixture of soft coal. U S Fuel Administration Eng Bul 5:1-8 '19; Same abr. Coal Age 16:4-5 Ji 3 '19
- Care of heating and ventilating equipment. H. L. Alt. diags Power 48:736-8 N 19 '18
- Coal and wood furnaces under Stirling boilers. II diags plan Power 50:414-17 S 9 '19
- Coke for boiler furnaces. M. Meredith. Coal Age 13:925 My 18 '18
- Combined coal and gas firing. M. Meredith. Coal Age 13:1147 Je 22 '18
- Combustion control meter. diags Power 48:599-600 O 22 '18; Abstract. Am Soc M E J 40:1051-2 D '18
- Combustion of coal and design of furnaces. H: Kreislinger, C. E. Augustine and F. K. Ovtz. II diags plan U S Bur Mines Bul 135:1-144 '17; Abstract. Power 47:596-600 Ap 23 '18; Abstract. Int Marine Eng 23:243 Ap '18
- Combustion of lignites and high-moisture fuels. T. A. Marsh. diags map Elec W 73:265-7 F 8 '19; Same. Power 49:525-7 Ap 8 '19
- Combustion of North Dakota lignites with suggestions for design of furnaces. H: Kreislinger. diags Power 47:608-12 Ap 30 '18; Abstract. Engineer 127:639 Je 27 '19; Discussion. C. P. Larsen. Power 47:809-10 Je 4 '18
- Drake nonclinking furnace blocks. diags plan Power 49:171 F 4 '19
- Economical generation of thermal power at coal mines. J: B. C. Kershaw. II diag Coal Age 13:284-7 F 9 '18
- Efficient gas-fired boiler installation. J. C. Hobbs. diags Eng Soc W Pa 33:421-42 O '17; Abstract. Am Soc M E J 40:112-14 Ja '18; Discussion. Eng Soc W Pa 33:442-56 O '17
- Getting better combustion of Indiana coals. T. A. Marsh. diags Elec W 73:72-4 Ja 11 '19; Same. Power 49:17-19 Ja 7 '19; Abstract. Am Soc M E J 41:169-70 F '19
- Getting more energy out of coal in the power plant. H. L. Smith. Elec Ry J 51:953-5 My 18 '18
- Graf gas consuming furnace. J: Nelson. diags Iron Age 102:339 Ag 8 '18; Same cond. Am Soc M E J 40:862-3 O '18
- High-set furnace arch. Elec W 71:1010-11 My 11 '18
- Liptak double suspension arch. II Power 50:147 Ji 22 '19
- Oil-seal combustion control. diag Power 49:862 Je 3 '19
- Pre-heating furnace air. L. Linnell. Elec R 71:1026 D 15 '17
- Preventing explosions in boiler furnaces. G. Rutherford. Elec W 71:100-1, 309 Ja 12, F 9 '18
- Results obtained by use of fuel-oil regulator. II Elec W 71:204 Ja 26 '18
- Safety latch for furnace door. C. W. Howard. diags Power 47:865 Je 18 '18
- Smokeless furnace for volatile coal. E. Weyerman. diags Power 48:357 D 10 '18
- Smokeless furnaces. J. F. Manley. Power 48:316 Ag 27 '18
- Stack dampers versus ashpit doors. Power 48:193 Ag 6 '18
- Use of intensely heated air to accomplish smokeless combustion. II Heat & Ven 15:67-8 S '18
- What equipment can I use? Factory 21:336+ Ag '18
- What is essential to the economical operation of hand-fired boiler furnaces when using soft coal; symposium. chart Am Soc M E J 40:pt 2, 633-6 Ji '18
- What substitution of oil for coal can do. II Elec W 71:711-14 Ap 6 '18
- See also Boilers
- Repair**
- Hot patch furnace cement. II Power 50:539 S 30 '19
- Furnaces, Cupola. See Cupola furnaces**
- Furnaces, Electric. See Electric furnaces**
- Furnaces, Hot air**
- Are pipeless heaters practical? II Metal Work 90:212-13 Ag 23 '18
- Better humidity needed with furnaces. Metal Work 89:264-5 F 22 '18
- Comparison of warm-air and hot-water heating. W. E. Pratt. plans Metal Work 91:825-7+; 92:37-9+ Je 27, Ji 11 '19
- Construction with relation to temperature. Metal Work 89:361-2 Mr 15 '18
- Definite programme laid out for furnace research work. Heat & Ven 16:54-5 Mr '19
- Design of the warm-air furnace. J: R. Allen. Metal Work 91:784-6+ Je 20 '19
- Designing hot air heating systems. D: H. Cuyler. diags Metal Work 91:757-9+ Je 13 '19
- East backs West's opinion of the pipeless. diag Metal Work 90:388-90 O 4 '18
- Effort to get gas proof furnaces. R. L. Spellerberg. Metal Work 89:265-6 F 22 '18
- Emperor furnaces. Metal Work 90:172-3 Ag 9 '18
- Engineering of warm-air furnace heating. M. W. Ehrlich. II diags Am Soc Heat & V E 24:121-36 '18; Same. Metal Work 89:418-19+, 481-4 Mr 29, Ap 12 '18; Discussion. Am Soc Heat & V E 24:137-42 '18
- Five methods of installing furnaces. diags Metal Work 90:408-9 O 11 '18
- Furnace construction governs its operation. Metal Work 89:319-20 Mr 8 '18
- Furnace heating engineers' opportunity. D. R. Richardson. Metal Work 89:233-5 F 15 '18
- Furnace in service one third of a century. II plan Metal Work 89:711-12 My 31 '18
- Furnace manufacturers start research work. Metal Work 91:123-4 Ja 24 '19
- Furnacemen must insist on doing better work. Metal Work 89:673-5 My 24 '18
- Furnaces that heat better with less coal. M. H. Ressler. II plans Metal Work 91:485-7 Ap 18 '19

**Furnaces, Hot air—Continued**

- Heater selected to warm model residence. C. J. Pearson. plan Metal Work 91:139-40 Ja 31 '19
- Hints on two fuel furnace outfits. diag plan Metal Work 89:104 Ja 18 '18
- Hot-air furnace and its use. J. R. Allen. Metal Work 89:862-4 Je 28 '18
- How to burn soft coal in the house furnace. diags Iowa state college Bul 40:1-4 '18
- How to improve the hot-air furnace. C. W. Baker. U S Bur Mines Tech Pa 208:1-17 '18; Same. Am Soc Heat & V E 24:379-82, 403-12 '18; Same. Metal Work 91:59-62, 117-18 Ja 10, 24 '19; Discussion. Am Soc Heat & V E 24:282-6 '18
- How to save coal to help win the war. Metal Work 90:363-5 S 27 '18
- Kelsey pipeless furnace. II Metal Work 90:233-4 Ag 23 '18
- Lesson of the pipeless furnace. Metal Work 89:519-20 Ap 19 '18
- Majestic hot blast furnace. II Metal Work 90:112 Jl 26 '18
- More pipeless furnace experience invited. C. S. Prizer. Metal Work 92:248-9 Ag 29 '19
- New automatic float valve for use in evaporating pans in warm-air furnaces. II Heat & Ven 16:58-9 N '19
- New factors in furnace installation. Metal Work 91:374+ Mr 21 '19
- Observations of a practical furnaceman. J. Troland. diags Metal Work 89:769-71 Je 14 '18
- One-pipe furnace has proved a success. Metal Work 91:579-80 My 9 '19
- Pipeless furnace discussion takes bad trend. Metal Work 92:340-1 S 19 '19
- Pipeless furnace experience. diag Metal Work 92:165-6 Ag 8 '19
- Pipeless furnace installation. Metal Work 89:527, 738-9, 810-11; 90:410 Ap 19, Je 7, 21, O 11 '18
- Pipeless furnace outfit modified. plans Metal Work 90:185 Ag 16 '18
- Pipeless furnace the answer to a demand. Metal Work 90:498-9 N 1 '18
- Present day furnace construction and its effect. R. L. Spellerberg. Metal Work 89:361 Mr 15 '18
- Reclaim lost heating opportunities. II Metal Work 90:467-8 O 25 '18
- Robinson pipeless furnace. II Metal Work 90:78 Jl 19 '18
- Typical furnace installation in war city. II plan Metal Work 90:679-80 D 20 '18
- Unit portable hot-blast heaters. II diags Heat & Ven 15:72-4 S '18
- Warm air heating solved this problem. II Metal Work 92:359-61 S 26 '19
- West criticizes pipeless furnace. V. A. Fath. Metal Work 90:272-5 S 6 '18
- What will the pipeless furnace do? Metal Work 90:447 O 18 '18

**Laws and regulations**

- Another Michigan bill on furnace heating. Metal Work 91:398 Mr 28 '19
- Furnace law as enacted in Michigan. Metal Work 91:613-14 My 16 '19
- Michigan bill to regulate furnace heating. P. J. Dougherty. Metal Work 91:578-9 My 9 '19
- Proposed Michigan furnace law; comments. Metal Work 91:487 Ap 18 '19
- Proposed Michigan law on furnace heating. Metal Work 91:372-4 Mr 21 '19

**Pipes and fittings**

- Correcting improper furnace installation. H. W. Locke. Metal Work 91:639-40 My 23 '19
- Curing faulty furnace systems. II diags plans Metal Work 89:159-61 F 1 '18
- Down draft furnace heats Michigan home. II plans Metal Work 91:32-4 Ja 3 '19
- Fan-furnace system in Indiana churches. II diags plans Metal Work 90:523-6 N 8 '18
- Faulty air supply to furnace heating a hall. diag Metal Work 92:96-7 Jl 25 '19

- Figuring radiation and furnace pipe sizes. charts Metal Work 89:488-90 Ap 12 '18
- Furnace estimating. A. E. Munkel. Metal Work 90:155-6 Ag 9 '18
- Furnace piping erected with tools and not brains. diags plan Metal Work 89:202-3 F 8 '18
- Furnace used with indirect radiator stacks. Metal Work 91:464-5 Ap 11 '19
- Hot air pipe capacities for everyday use. D. Elver. Metal Work 92:59-60 Jl 18 '19
- How can this pipeless furnace be made to heat the house? diag plans Bldg Age 41:130-1 Ap '19; Same. Metal Work 91:344-5 Mr 14 '19
- How is trunk line size figured? diag Metal Work 91:40, 94-5, 178-9 Ja 3, 17, F 7 '19
- One-pipe method with individual piping. diag Metal Work 92:292 S 6 '19
- Piping that hinders heating and wastes fuel. diags Metal Work 88:747, 773 D 21-28 '17
- See also Air pipes

**Testing**

- Furnace manufacturers' research plant. II Metal Work 91:727-9+ Je 6 '19
- Research investigation of warm air furnaces for house heating. II Am Arch 115:766-8 My 28 '19
- Warm-air furnace research. A. C. Willard. II diags plans Ill U Eng Exp Sta Bul 112:1-63 '19

**Furnaces, Metallurgical**

- Action of flame in furnaces. A. D. Williams. diags Iron Tr R 61:1319-23 D 20 '17
- Advantage of gas as a fuel for tin plating. W. J. Harris, Jr. II Am Gas Eng J 107:513-14 D 8 '17
- Advantages of gas for brass melting. C. C. Krauss. II diags charts Am Gas Eng J 108:193-9 Mr 2 '18
- Air-volume regulation in smelting and refining furnaces. C. H. Smoot. II diag Eng & Min J 107:654-6 Ap 12 '19
- American Spirlet roaster. F. J. Harlow. II diags Eng & Min J 106:293-9 Ag 17 '18
- Application of heat in steel treating. A. F. MacFarland. diags Iron Age 101:612-14 Mr 7 '18; Same cond. Ry Mech Eng 92:164-6 Mr '18
- Automatic gas-fired furnace for heat treating artillery shell. W. J. Harris, Jr. II diag Am Gas Eng J 109:169-73 Ag 24 '18; Same. Iron Age 102:565-8 S 5 '18; Same. Gas Age 42:366-7 O 15 '18
- Automatic puddler in operation; Lebanon valley iron & steel co. Iron Tr R 65:781 S 18 '19
- Blair removable slag pocket enables a schedule of repairs designed to make open-hearth operation continuous. diags Iron Age 103:941 Ap 10 '19
- Blue water gas used for metal melting in Great Britain. A. Forshaw. Am Gas Eng J 107:588-93 D 29 '17
- Cherry distillation furnace. diag Eng & Min J 104:1046 D 15 '17
- Choosing furnaces. Metal Ind 16:119 Mr '18
- Coal-dust-fired reverberatory furnaces in Chile. Eng & Min J 106:21-2 Jl 6 '18
- Conservation in the foundry; saving of coal and the care and repair of brass melting pit furnaces. R. E. Modrow. diags Metal Ind 16:65-6 F '18
- Continuous tunnel furnace in malleable industry. P. d'H. Dressler. II diag Foundry 46:566-7 D '18; Same. Iron Tr R 63:1416-17 D 19 '18
- Design of heating furnaces from a practical standpoint. G. J. Hagan. diags plans Eng Soc W Pa 35:31-47; Discussion. 48-57 F '19
- De Spirlet kilns at Argentine. Kan. Met & Chem Eng 18:9 Ja 1 '18
- Development of reverberatory practice at Copper Cliff, Ont. C. F. Mason. Eng & Min J 104:1078-9 D 22 '17
- Device for charging precipitate. II Eng & Min J 107:1051-2 Je 14 '19
- Device for lifting furnace covers. S. H. Brockunier. II Eng & Min J 104:1091 D 22 '17

**Furnaces, Metallurgical—Continued**

- Disadvantages of chrome brick for copper reverberatory furnaces. F. R. Pyne. *Am Inst Min E Bul* 132:2025-7 D '17; Same. *Eng & Min J* 105:9-10 Ja 5 '18; Same. *Met & Chem Eng* 18:20 Ja 1 '18; Discussion. *Am Inst Min E Bul* 135:698; 136:713-14 Mr-Apr '18
- Double pass recuperative furnaces. *diags Iron Tr R* 61:1277-8 D 13 '17; Same. *Foundry* 46:432-4 S '18
- Electric tool tempering furnace. *Il Ry Mech Eng* 93:300 Je '19
- Experiments in fettling reverberatory furnaces. F. Rutherford. *Eng & Min J* 106:109-10 Jl 20 '18
- Experiments in magnetizing roasting. G. J. Young. *diags Eng & Min J* 108:176-7 Ag 2 '19
- Firing system for air furnace. M. W. Arrowood. *Il diag Foundry* 47:677-9 O 1 '19
- Foreign melting practice; a simple furnace for the smelting of metals adapted to be fired by means of crude oil. *Metal Ind* 17:465-6 O '19
- Furnace for brazing copper pipe. *diags Ry Mech Eng* 93:539 S '19
- Furnace for oil-tempering bath. G. E. Baldwin. *diags Am Mach* 49:316 Ag 15 '18
- Furnace for testing refractory materials under load at high temperatures. R. J. Montgomery. *Il diags Met & Chem Eng* 18:18-20 Ja 1 '18
- Furnaces for munitions. *Sci Am S* 86:274 N 2 '18
- Gas-fired electrode annealing furnace. *diags plan Engineer* 126:560 D 27 '18
- Gas fired furnace for refining iron. G. H. Manlove. *Il Foundry* 46:282-4 Je '18
- Gas-fired furnaces for brass melting. A. Forshaw. *Foundry* 47:37-8 Ja '19
- Gas fired melting furnaces without crucibles. *Sci Am S* 87:126 F 22 '19
- Gas-fired shipyard furnace; installation for plates and angles at the Pusey & Jones Co., Wilmington, Del. W. J. Harris, Jr. *Il Iron Age* 101:377 F 7 '18; Same. *Am Gas Eng J* 108:53-4 Ja 19 '18
- Hausfeld non-crucible melting furnace. *Il Metal Ind* 16:427-8 S '18; *Iron Tr R* 63:216 Jl 25 '18; *Foundry* 46:391 Ag '18
- High pressure gas brass melting furnace. *Il Am Gas Eng J* 111:39 Jl 12 '19
- Hydraulic operation of furnace doors. *Il Chem & Met Eng* 19:156-7 Ag 1 '18; *Mach* 24:1151-2 Ag '18
- Improvements in crucible furnaces for melting scrap brass, etc. *diag Metal Ind* 15:500 N '17
- Improvements in the Bates & Peard annealing furnace for non-ferrous metals. D. Bates. *Il diags Metal Ind* 16:91-2 F '18
- Industrial furnace heating with water gas. O. L. Kowalke. *diags Gas Age* 43:444-6 Ap 15 '19
- Johnson no. 650 gas furnace. *Il Am Mach* 49:500 S 12 '18
- Measuring furnace temperature. G. K. Burgess. *Iron Tr R* 65:1248-9 N 6 '19
- Metallurgical furnaces. A. Bregman. *diags Metal Ind* 17:159-62, 218-20 Ap-May '19
- Metallurgical practice on cinnabar at Idria, Austria. R. Sterner-Rainer. *Il diags Chem & Met Eng* 19:721-7 N 15 '18
- Metron roasting furnace for blende. *diags Eng & Min J* 106:569-70 S 28 '18
- Mine smithy reverberatory furnace. R. Craib. *Eng & Min J* 106:752-3 O 26 '18
- Monarch non-crucible tilting metal melting furnace. *Il Metal Ind* 16:184 Ap '18
- Natural draft oil crucible furnace. *diag plan Metal Ind* 15:403 S '17
- New continuous furnace. G. J. Hagan. *diags Iron Age* 104:229-30 Jl 24 '19
- New oil fired tilting furnace. *Il Metal Ind* 15:133 Mr '17
- New oil-fired tilting furnace developed. *Il Foundry* 47:615 S 1 '19
- New type of gas-heated recuperative furnace. *Iron Age* 103:825 Mr 27 '19
- Oil-fired nonferrous melting furnace. *Il Foundry* 46:289 Je '18

Open-flame furnaces at government gun plant. L. T. Clark. *Il Am Gas Eng J* 110:91-4 F 1 '19

- Performance data on a brass-melting furnace. A. S. Witmer. *Elec W* 72:891 N 9 '18
- Problems confronted in metal melting with gas-fired crucible melting furnace. A. Forshaw. *Am Gas Eng J* 107:541-6 D 15 '17
- Pulverized coal for metallurgical furnaces. C. E. Longenecker. *Il Iron Age* 103:351-2 F 6 '19
- Pulverized coal in Canadian steel plant. C. F. Herington. *Il Iron Age* 103:1065-9 Ap 24 '19
- Revolving tilting metal melting furnace. *Il Metal Ind* 16:38-9 Ja '18; *Iron Age* 101:1203 My 9 '18
- Ruck zinc-distilling furnace. *Il diag Eng & Min J* 107:307-8 F 15 '19
- Tilting non-crucible melting furnace. *Il Iron Age* 102:389 Ag 15 '18
- Triad combination hardening, preheating and tempering furnace. *Il Mach* 24:660 Mr '18; *Am Mach* 48:469 Mr 14 '18
- Use of pulverized coal, with special reference to its application in metallurgy. L. C. Harvey. *diags Engineer* 128:50-3 Jl 18 '19
- Valve and port minimize operation loss. *diags Iron Tr R* 65:426 Ag 14 '19
- Waste-heat boiler for malleable furnaces. A. D. Pratt. *diags Foundry* 46:221-6 My '18
- Water-cooled equipment for open-hearth steel furnaces. W. C. Coffin. *diags Am Inst Min Bul* 146:497-515 F '19; Same cond. *Iron Tr R* 64:1356-8 My 22 '19; Discussion. *Am Inst Min Bul* 149:778-84 My '19
- Zinc furnace temperatures. E. M. Johnson. *Met & Chem Eng* 17:300-2; 18:14-17 S 15 '17, Ja 1 '18

*See also* Blast furnaces; Crucibles; Cupola furnaces; Electric furnaces; Open hearth process; Smelting

**Furnaces, Open hearth. See Open hearth process**

Furness Withy & company, Ltd.  
Furness house, Baltimore. E. H. Glidden. *Am Arch* 115:272, pl 56-9 F 19 '19

**Furniture**

- Built-in furniture that adds convenience to the home. P. D. Otter. *Il diags Bldg Age* 40:184-5 Ap '18
- Craftsmanship in furniture design. *Il Am Arch* 116:298-301 S 3 '19
- Eighteenth century American furniture, with special reference to the Palmer collection on exhibition at the Metropolitan museum of art. *Il Am Arch* 114:755-60 D 25 '18
- Fine example of French craftsmanship. *Il Am Arch* 115:706-7 My 21 '19
- Furniture, Common Hall, Abbott's hospital, Worcester; photographed and drawn by W. G. Thomas. (English details) *Am Arch* 113:pl 1-2 Ja 2 '18
- Furniture of the Italian renaissance. W. A. Dyer. *Il Arch Rec* 45:84-9 Ja '19
- Home furnishings production; a part of America's reconstruction job. R. F. Bach. *Arch & Bldg* 51:39-40 My '19
- Hygienic cottage furniture at Shoreditch. *Am Arch* 116:301-2 S 3 '19
- Mobilizing the art industries. R. F. Bach. *Am Ind* 19:21-3 Ag '18
- See also* Beds; Church furniture; Desks; Garden ornaments and furniture; House decoration; Library fittings and supplies; Office furniture; School desks

**Manufacture**

- Installing management methods in the wood-working industry. C. M. Bigelow. *Il chart diags Ind Management* 58:1-8, 124-33, 185-95, 295-305 Jl-O '19
- Furniture, Metallic  
Manufacturing a steel chair. G. F. Wetzel. *Il diags Am Mach* 48:92-3 Ja 17 '18; Discussion. S. A. McDonald. 48:804 My 9 '18
- See also* Beds, Metal

**Furniture Industry**

- Colombian markets for American furniture. H. E. Everley. U S Bur For & Dom Com 162:1-34 '18
- Furniture imports of foreign countries, 1908 and 1913. E. Whitney. U S Bur For & Dom Com misc ser 66:1-31 '18
- Furniture markets of Chile, Peru, Bolivia, and Ecuador. H. E. Everley. U S Bur For & Dom Com 176:1-165 '19
- Wages and hours of labor in the lumber, mill-work, and furniture industries, 1915. U S Bur Labor Statistics Bul 225:274-314 '18
- Fuses. See Blasting; Shells (projectiles)—Manufacture
- Fuses, Electric. See Electric fuses
- Fusible plugs
- Tin fusible boiler-plug manufacture and testing. L. J. Gurevich and J. S. Hromatko. U Am Inst Min Bul 152:1351-60 Ag '19; Discussion. 155:3035-8 N '19
- Fusion
- Fusion of sodium hydroxide with several phenols and sulfonic acids. M. C. Boswell and J. V. Dickson. Am Chem Soc J 40:1786-93 D '18
- Fusion of sodium hydroxide with some inorganic salts. M. C. Boswell and J. V. Dickson. Am Chem Soc J 40:1773-9 D '18
- Fustic
- Fustic: an important dye wood. C. D. Mell. U Sci Am S 84:388-9 D 22 '17
- Fyrox
- Fyrox moving West. Power 47:360 Mr 12 '18

**G****Gabbro**

- Basal phases of the Duluth gabbro near Gabamichigami lake, Minnesota, and its contact effects. M. L. Nebel. U diags map Econ Geol 14:367-402 Ag '19

**Gadolinium**

- Observations on the rare earths; the purification of gadolinium. L. Jordan and B. S. Hopkins. Am Chem Soc J 39:2614-23 D '17

**Gages**

- Accuracy in locomotive repairs. M. H. Williams. diags Ry Mech Eng 92:673-7 D '18
- Accuracy vs. precision, and the gage problem. E. Buckingham and G. F. Matteson. Am Soc M E J 40:158-60 F '18
- American amplifying gage. U Mach 24:756-7 Ap '18
- American precision block. Sci Am 120:658+ Je 21 '19
- Amplifying gage. A. A. Case. U Am Mach 49:541 S 19 '18
- Angle gage with sliding beam. C. W. Shelly. diag Mach 25:156 O '18
- Apparatus for checking screw threads. U Automotive Ind 39:1008-10 D 12 '18
- Arrow thread tool accessories. U Am Mach 50:465-6 Mr 6 '19
- Branch gage laboratory of the Bureau of standards. Mach 24:830 My '18; Same. Am Mach 48:838 My 16 '18
- Bureau of standards gage laboratories. Mech Eng 41:290-1 Mr '19
- Clark adjustable snap gages. U Am Mach 49:318 Ag 15 '18
- Coats precision fluid gage. U Am Mach 49:451 S 5 '18; Mach 25:81 S '18
- Concentricity gage for poppet valves. J. L. Hayes. diags Mach 26:139 O '19
- Conference on limit gauges. Engineer 127:511 My 23 '19
- Contour or profile gages. E. Oberg. U diags Mach 25:301-8 D '18
- Cutting gages aid in securing accuracy. J. L. Gard. U Foundry 47:227 Ap 15 '19
- Davie gaging machine for fine inspection work. U Am Mach 48:160 Ja 24 '18; Mach 24:565-6 F '18
- Developing a gaging system—a comment. A. Jenner. Mach 25:550 F '19

- Developing a gaging system for small arms and heavy ordnance. E. Oberg. U diags Mach 25:93-107 O '18
- Errors in measuring thread pitch diameters with wires. J. H. Billings. diag Am Mach 47:1077-8 D 20 '17
- Examples of gauge making. A. G. Robson. diags Engineer 127:499-501 My 23 '19
- Figuring diameter of three-surface tangent plug. C. C. Soper. diags Am Mach 50:1098 Je 5 '19
- Flush-pin gages. G. E. Maher. diags Mach 25:755 Ap '19
- Flush-pin, sliding bar and hole gages. E. Oberg. U diags Mach 25:404-12 Ja '19
- Flush-pin taper gage. A. A. Dowd. diags Am Mach 48:295-6 F 14 '18
- Flush-pin versus limit gages. A. A. Dowd. diags Am Mach 49:283-4 Ag 15 '18; Abstract. Am Soc M E J 40:866-7 O '18; Discussion. C. F. Rogers. Am Mach 49:464 S 12 '18
- Fool-proof precision gage. U Sci Am 118:456+ My 18 '18
- Formulas for gear plug gage. C. H. Dengler. diag Am Mach 51:76 JI 10 '19
- Gage calipers cylinders automatically. U Motor Age 36:53 O 2 '19
- Gage for depth of recesses. diags Am Mach 48:58, 291 Ja 10, F 14 '18
- Gage for grinding taper spindles. diags Mach 25:732 Ap '19
- Gage for measuring thickness of strips. U Am Mach 49:717 O 17 '18
- Gage for milled slot in valve tappet. W. F. Oliver. diags Am Mach 49:1096 D 12 '18
- Gage for shell timing device. G. Haessler. diags Am Mach 48:237-8 F 7 '18
- Gage for testing concentricity. J. Ahlers. diags Am Mach 49:732-3 O 17 '18
- Gage for testing slots or splines. A. L. Collier. diags Am Mach 48:216 Ja 31 '18
- Gage for testing squareness of end of bearing. C. H. Dengler. diag Am Mach 51:408 Ag 28 '19
- Gage limits in interchangeable manufacture. E. C. Peck. Mech Eng 41:803-5+ O '19; Same cond. Am Mach 51:472-4 S 4 '19
- Gagemaker's inspection of his own product. H. J. B. Powell. Am Mach 48:141-2 Ja 24 '18
- Gages and gaging systems. U Am Mach 49:389-91 Ag 29 '18
- Gauges and standards for manufacturing brass goods. P. W. Blair. U Metal Ind 17:460-2 O '19
- Gages for driving box work. J. H. Hahn. diags Ry Mech Eng 92:164 Mr '18
- Gages used by United States inspectors—75-mm. shrapnel. F. H. Colvin. diags Am Mach 50:315 F 13 '19
- Gages used for testing wood pins and pinholes. U Elec W 71:1088 My 25 '18
- Gaging devices for chasers. J. B. Smith. U Am Mach 50:602-3 Mr 27 '19
- Gaging screws. H. J. B. Powell. Am Mach 48:1045-6 Je 20 '18
- Gaging the recess at bottom of a tapped hole. D. G. Meikle. diags Am Mach 50:602 Mr 27 '19
- Government action on recommendations of committee on standardization of gages. S. W. Stratton. Am Soc M E J 41:185-6 F '19
- Grove indicating gage. diag Mach 25:82 S '18; Am Mach 49:686 O 10 '18
- Handy gage for setting up threading tools. E. Lee. diag Mach 24:155-6 O '17; Discussion. W. S. Rowell. 24:542-3 F '18
- Improved design of "not go" thread gages. H. L. Van Keuren and I. H. Fullmer. diags Mach 25:1076-7 JI '19
- Indicating depth gage. A. Pestel. diag Am Mach 48:253 F 7 '18
- Indicating fixtures for the gaging of automobile parts. A. A. Dowd. diags Am Mach 49:299-302 Ag 15 '18
- Indicator for gaging shells. T. L. Stalker. diags Mach 25:345 D '18
- Indicator gages used in gasoline-engine construction. C. C. Marsh. diags Mach 24:910-13 Je '18
- Influence of time on variation of hardened steel gages. C. Eldridge. Mach 25:373 D '18

**Gages—Continued**

- Inspection and quality control. F. E. Merriam. II Ind Management 56:305-11 O '18
- Inspection gage. M. W. Mann. diags Am Mach 47:1084 D 20 '17
- Johansson angle gages and measuring tools. II Mach 26:178-80 O '19; Automotive Ind 41:611-12 S 25 '19; Am Mach 51:669-70 O 2 '19; Ind Management 58:343-4 O '19; Mech Eng 41:845 O '19
- Johansson, apostle of mechanical accuracy, in America. II Automotive Ind 41:608-10 S 25 '19
- Joint committee on gages of the American society of mechanical engineers and the Society of automotive engineers. Am Soc M E J 40:70-2 Ja '18
- Limits for gauges for holes. Engineer 128:444-5 O 31 '19
- Machining parts of a calculating machine. II Am Mach 48:111-13 Ja 17 '18
- Making a height gage out of a vernier caliper. H. F. Pusep. diags Am Mach 49:732 O 17 '18
- M.C.B. standard hose coupling and packing ring gages. II diags Ry Mech Eng 93:496-7 Ag '19
- Measurement of pitch diameter of 60-deg. thread by 3-wire system. C. P. Colburn. diags Am Soc M E J 41:162-3 F '19
- Measurement of plain rings. R. L. Rankin. II diags Am Mach 50:1137-8 Je 12 '19
- Measurement of screw threads. A. Brooker. Sci Am S 85:71 F 2 '18
- Measuring Morse tapers. P. S. Smith. Am Mach 48:167 Ja 24 '18
- Micrometer clamp attachment for a height gage. L. C. Blomstrom. diags Am Mach 48:338 F 21 '18
- Micrometer internal-groove gage. H. Kurzweil. diags Mach 25:1080 Ji '19
- Micrometer test gages. H. Crowther. diags Mach 24:440 Ja '18
- New gaging idea. D. A. Baker. diags Mach 25:545-6 F '19
- Nose-thickness gage for 5-in. shells. R. S. Myers. diags Am Mach 48:802 My 9 '18
- Optical projection for screw-thread inspection. J. Hartness. chart diags Am Soc M E J 41:127-35 F '19; Same. Am Mach 50:453-6, 485-90 Mr 6-13 '19; Same cond. Iron Age 103:357-8 F 6 '19; Same cond. Iron Tr R 64:383-6 F 6 '19
- Practical ring, plug, and snap gage system. C. J. Fischer. diags Mach 25:219-21 N '18
- Prestwich fluid gage for accurate work. II Automobile 37:596 O 4 '17
- Reclaiming inspection gages at Washington. Am Mach 49:275 Ag 8 '18
- Report of committee on limits and tolerance in screw thread fits. charts diags Am Mach 48:913-26 My 20 '18; Same. Am Soc M E J 40:661-75 Ag '18; Excerpts. Mach 24:1061-2 Ji '18
- Rules for computing gage tolerances. D. D. Demarest. diags Ind Management 56:332-4 O '18
- Salvage of worn gages by electroplating. R. Gibbs. Mach 24:934-5 Je '18
- Scheme of gaging for screwed parts. J. Hartness. diags Am Soc M E J 40:157-8 F '18
- Seaboldt lapped measuring wires. II Mach 24:554-5 F '18
- Simple gauge for transferring marks on steel cabinets and the like. R. Oster. diag Elec R 71:988 D 8 '17
- Snap and plug gages. E. Oberg. II diags Mach 25:194-200 N '18
- Snap, plug and ring gages. J. E. Collins. diags Mach 26:212-18 N '19
- Some types of gages for munitions of war. H. J. B. Powell. Am Mach 48:495-6 Mr 21 '18
- Special depth gage. G. Ramacle. diags Am Mach 48:464 Mr 14 '18
- Specifications for ordnance gages. Am Mach 48:103 Ja 17 '18
- Spline gages. D. A. Baker. diags Mach 25:61 S '18
- Standardized gages for interchangeable manufacture. J. E. Collins. diags Mach 26:171-2 O '19
- Stop-gages for press work. G. M. Piper. diags Mach 25:157 O '18
- Tangent gage for measuring angles. J. T. Clark. diag Am Mach 50:1260 Je 26 '19
- Taper gages and gaging. M. T. Voigt. diags Mach 24:934 Je '18
- Thread gages; wing gages. E. Oberg. II diags Mach 25:502-6 F '19
- Thread-lead gage. Am Mach 47:1092; 48:370 D 20 '17, F 28 '18
- Thread limit gages and master gage. J. K. Long. diags Am Mach 48:804-5 My 9 '18
- Threads and thread gages. C. B. Lord. Mech Eng 41:531-2 Je '19
- Use and abuse of gages. F. H. Korff. Am Mach 48:231-2 F 7 '18
- Use of balls in measuring. G. C. Haneman. diags Mach 25:1077-8 Ji '19
- Wismach American gage blocks. II Automotive Ind 39:965 D 5 '18
- Woldgaard adjustable gauges. diags Engineer 127:529 My 30 '19
- Work of the British engineering standards association on screw threads and limit gages. R. Glazebrook. Am Soc M E J 40:1007-9 D '18

See also Draft gages; Micrometers; Pressure gages; Water gages

**Bibliography**

References on gages and gage making for munition plants. Am Soc M E J 40:278-81 Mr '18

**Manufacture**

- Advance of thread gage making during the war. C. B. Cole. Mach 25:1153-4 Ag '19
- Angular plug-gage making. H. Pusep. diags Am Mach 50:635-40 Ap 3 '19
- Community thread-gage grinding machine. II Mach 24:1047-8 Ji '18
- Effect of tempering on water-quenched gages; abstract. Mech Eng 41:280-1 Mr '19
- Efficiency in the gage-making department. C. B. Cole. Mach 25:1056-7 Ji '19
- Elements of gagemaking. C. A. Macready. diags Am Mach 47:491-3, 661-4, 1112-18; 48:149-52; 49:329-34, 511-19; 51:1033-6 S 20, O 18, D 27 '17, Ja 24, Ag 22, S 19 '18, D 18 '19
- Example of precision gage making. II diag plan Mach 24:378-9 Je '18
- Finishing plug gages. E. J. Higgins. diag Mach 25:347-8 D '18
- Gage making in a shell plant. F. D. Jones. II diags Mach 25:1-6 S '18
- Grinding accurate profile gages by means of master plates. H. M. Darling. diags Am Mach 50:105-6 Ja 16 '19
- Grinding spherical-end pin gages. G. Slider. diags Mach 24:541-2 F '18
- Harris thread-gage lapping machine. II Am Mach 50:227-8 Ja 30 '19; Mach 25:565 F '19
- Holding fixture for grinding flat gages. H. F. Pusep. diags Am Mach 50:755-6 Ap 17 '19
- Interesting examples of gage grinding. S. A. Hand. II Am Mach 48:487-8 Mr 21 '18
- Machine for lapping precision gage blocks. II Am Mach 50:613 Mr 27 '19
- Making accurate squares for gagemakers. J. Teckeer. diags Am Mach 48:1041-3 Je 20 '18
- Making keyway gages. D. A. Baker. diags Mach 25:858 My '19
- Making of plug and ring gages. J. H. Smith. diags Am Mach 48:191-3 Ja 31 '18
- Making some difficult duplicate gages. E. A. Dixie. diags Am Mach 50:162 Ja 23 '19; Discussion. 50:706, 1245; 51:461-2 Ap 10, Je 26, S 4 '19
- Making Whitworth thread gages. W. D. Woodworth and H. H. Bender. II diags Mach 24:483-93 F '18
- Manufacture of Hoke precision gages at the Bureau of standards. H. L. Van Keuren. II Am Mach 50:625-30 Ap 3 '19; Abstract. Mech Eng 41:484 My '19
- Manufacture of measuring wires. E. A. Suverkrop. II Am Mach 50:1251-2 Je 26 '19
- Manufacture of standard thread measuring wires. F. R. Daniels. II Mach 25:606-7 Mr '19
- Milling a rifle gage. G. W. Cook. diags Mach 24:832 My '18
- Notes on general gaging and the manufacture of gages. H. James. diags Am Mach 48:458-60 Mr 14 '18

**Gages—Manufacture—Continued**

- Precision screw-cutting lathe. *II* diags Engineer 126:558-60 D 27 '18; Same cond. Mech Eng 41:281-2 Mr '19
- Present practice in thread-gage making. F. O. Wells. *II* Am Soc M E J 40:1010-13 D '18; Same. Am Mach 50:153-8 Ja 23 '19
- Rapid manufacture of ring gages. diags Am Mach 48:253 F 7 '18
- Screw gauge making at Guildford. *II* Engineer 128:375-8 O 17 '19
- Tempering thin snap gages. J. H. Follen. Am Mach 49:36 JI 4 '18

**Testing**

- Angle and lead testing machine for thread gages. *II* Ry Mech Eng 92:290-1 My '18
- Arrangement and use of projection apparatus as applied to inspection of thread gages. F. D. Jones. *II* diags Mach 24:735-8 Ap '18
- Arrow thread-lead testing device. *II* Am Mach 50:517-18 Mr 13 '19
- Certification of gages at Bureau of standards. H. L. Van Keuren. *II* Mech Eng 41:800-2 O '19
- Checking gages to decrease your scrap pile. H. L. Wittstein. *II* Factory 22:456-7 Mr '19
- Coats lead testing machine. *II* Mach 24:1150 Ag '18
- Coats thread comparator. *II* Mach 24:555-6 F '18; Ind Management 55:244 Mr '18
- Flatness tests at Bureau of standards. R. L. Rankin. *II* Am Mach 50:1218-20 Je 26 '19
- Gage testing plans are far reaching. Iron Tr R 54:632 Mr 6 '19
- Inspection of screw gages for munitions of war. H. J. B. Powell. *II* Am Mach 47:1065-73 D 20 '17; Same cond. Mach 24:452-6 Ja '18; Abstract. Am Soc M E J 40:108-9 Ja '18
- Knapp thread inspection equipment. *II* Mach 25:357-60 D '18
- Lea thread-lead testing machine. *II* Am Mach 48:931-2 My 30 '18
- Measurement of gauges. E. A. Forward. diags Engineer 127:282-3, 294-5 Mr 21-28 '19
- Measurement of thread gages. H. L. Van Keuren. *II* Am Soc M E J 40:913-18 N '18
- Measuring to the millionth part of an inch; practical utilization of light waves. R. I. Clegg. *II* diag Iron Age 103:1345-8 My 22 '19
- Millionth of an inch; how the wave-length of light is used to detect errors of this infinitesimal amount. *II* diags Sci Am 121:62-3+ JI 19 '19
- Optical projection apparatus for testing gauges. diags Engineer 125:346-7 Ap 19 '18
- Pitch measuring machine for screw gauges. diags Engineer 125:126 F 8 '18
- Sheffield thread-lead testing machine for screw gages. *II* Am Mach 49:180 JI 25 '18; Mach 24:1155-6 Ag '18
- Testing gages at the Bureau of standards. Am Mach 49:547-8 S 19 '18
- Use of microscopes in the gage section. Bureau of standards. R. L. Rankin. *II* Am Mach 51:581-2 S 18 '19

**Gaging**

- Fehrenbach fuel gage and meter combined. diag Automobile 37:639 O 11 '17
- Gaging and storage of oil in the mid-continent field. O. U. Bradley. diags Am Inst Min E Bul 135:677-86 Mr '18
- Gasograph dash fuel gage. diag Automotive Ind 38:1005 My 23 '18
- Method of computing gauge table for circular oil storage reservoir with sloping side walls. E. D. Cole. Eng & Contr 51:577-8 My 28 '19; Same abr. Eng N 82:956-7 My 15 '19

**Galters**

- Gauntlets and galters that defy barbed wire. *II* Sci Am 118:571 Je 22 '18

**Galena**

- Gneissic galena ore from the Slovan district, British Columbia. W. L. Uglow. *II* diags Econ Geol 12:643-62 D '17

**Galileo (Galileo Galilei) 1564-1642**

- Galileo and magnetism; a study in loadstones. J. J. Fahie. *II* Inst E E J 56:246-9 Ap '18; Discussion. 56:sup22 My '18

**Gallium**

- Extraction of gallium and germanium from zinc oxide. H. C. Fogg and C. James. Am Chem Soc J 41:947-9 Je '19
- Gallium. L. M. Dennis and J. A. Bridgman. *II* diags Am Chem Soc J 40:1531-61 O '18
- Purification of gallium by electrolysis, and the compressibility and density of gallium. T. W. Richards and S. Boyer. Am Chem Soc J 41:133-4 F '19
- Qualitative separation and detection of gallium. P. E. Browning and L. E. Porter. Sci Am S 85:11 Ja 5 '18
- Sulfite method for the separation and determination of gallium when associated with zinc. L. E. Porter and P. E. Browning. Am Chem Soc J 41:1491-4 O '19

**Gallium chloride**

- Purification by sublimation and the analysis of gallium chloride. T. W. Richards, W. M. Craig and J. Sameshima. Am Chem Soc J 41:131-2 F '19

**Galvanizing**

- De-leading a galvanizing bath. H. P. Smith. diags Metal Ind 17:14 Ja '19
- Electro-galvanizing booster cases, adapters and detonator fuse components for the United States government. T. C. Elchstaedt. *II* diags plan Metal Ind 17:22-4 Ja '19
- Electro-galvanizing via skilled or unskilled help. W. Voss. Metal Ind 16:564-5 D '18
- Industrial processes and appliances using gas. E. F. Davis. *II* Gas Age 41:70-3, 115-17 Ja 15-F 1 '18
- Manufacture of steel sheets. C. F. Poppleton. Iron Age 101:740-1 Mr 21 '18
- Modern practice in galvanizing sheets. C. F. Poppleton. *II* diags Iron Age 102:438-6, 502-5 Ag 22-29 '18
- Overcoming the cracking of galvanizing tanks. Foundry 46:373 Ag '18
- Planning and operating a galvanizing plant. E. P. Later. Foundry 47:289-91 My 15 '19
- Steel base and galvanizing sheets. G. A. White. *II* Iron Age 101:934-5 Ap 11 '18
- Surface combustion applied to galvanizing. W. J. Harris, Jr. *II* diag plan Met & Chem Eng 16:613-14 My 15 '17; Same (Gas for heating galvanizing baths meets coke fuel cost). Am Gas Eng J 106:337-40 Ap 7 '17; Same. Metal Ind 15:156-8 Ap '17; Same cond. Iron Age 99:832-3 Ap 5 '17
- Watrous galvanizing machine. *II* Iron Tr R 62:1112 My 2 '18
- Widening of scope of electro-galvanizing and allied industries combined with coal costs rising out of proportion to gas make this a fertile field for industrial gas development. G. C. Shadwell. *II* diag Am Gas Eng J 111:157-63 Ag 23 '19
- Zincing, commonly known as hot galvanizing. C. V. Henderson. diag Metal Ind 16:13-14 Ja '18
- See also Electroplating; Tin plate

**Galvanometers**

- Self-checking galvanometer pyrometer. H. F. Porter. diags Am Inst Min Bul 153:1803-5 S '19; Discussion. 156:3179-81 D '19
- Study of electromagnet moving coil galvanometers for use in alternating-current measurements. E. Weibel. *II* diags U S Bur Stand Bul 14:23-58 Ap 6 '18

**Galveston, Texas**

- Construction of new arch section of Galveston causeway. *II* diags plan Eng N 82:1190-2 Je 19 '19
- Extending the Galveston sea wall. J. B. Lippincott. *II* diags plans Eng N 83:617-19 S 25 '19

**Game propagation**

- Game farming for pleasure or profit. H. K. Job. Sci Am S 86:90-1 Ag 10 '18
- Wild game as a war weapon; neglected means of increasing and conserving our meat supplies. E. C. MacMechen. *II* Sci Am 118:88-9 Ja 26 '18
- Ganz, Albert Frederick, 1872-1917
- Sketch. por Stevens Ind 34:286-95 O '17
- Garabed. See Power

**Garages**

Being conspicuous on purpose. *il diag plan* Motor Age 36:26-7 JI 3 '19  
 Building garages from doors. *diags Am* Lumberman 2300:52 Je 14 '19  
 Building your own garage. *il plans* Motor Age 34:26-7 JI 18 '18  
 Car owners want convenient garage doors. *E. J. G. Phillips. il Bldg Age* 41:119-21 Ap '19  
 Commodore-Biltmore garage. *Arch & Bldg* 51:36, 38, pl 72-3 Ap '19  
 Community garage—a money maker for contractor and owner. *il diags Bldg Age* 41:16-17 Ja '19  
 Curved drive for automobiles in six-story garage. *il diags plan Eng N* 83:188-9 JI 24 '19  
 East end garage, Chicago, Ill.; view and plans. *Arch Forum* 31:108 S '19  
 Flexible garage. *il Sci Am* 121:463 N 8 '19  
 Garage and entrance turns. *A. D. Taylor. il diags Am Arch* 115:699-704, 777-82 My 21, Je 4 '19  
 Garage for Adam Schantz, Dayton, O.; view and plans. *Am Arch* 116:pl 134 O 1 '19  
 Garage for Edward C. Schaefer, Premium Point, N. Y.; views and plan. *Am Arch* 115:pl 174-5 My 28 '19  
 Garage for motor trucks. *il diags plans Am Arch* 114:296-301 S 4 '18  
 Garage owner's liability for stolen car. *Dom Eng* 84:318-19 Ag 31 '18  
 Garage planning. *diags plans Motor Age* 35:22-3 Mr 13; 26-7 Mr 20; 24-5 Mr 27; 22-3 Ap 3; 22-3 Ap 10; 24-5 Ap 17; 26-7 Ap 24; 30-1 My 1; 21-3 My 8; 34-5 My 15; 28-9 My 22; 26-7 My 29; 26-8 Je 5; 28-9 Je 12; 25-7 Je 19; 32-3 Je 26; 36:34-5 JI 3; 28-9 JI 10; 27-8 JI 17; 30-1 JI 31; 32-3 Ag 14; 34-5 Ag 21; 28-9+ Ag 28; 28-9 S 4; 32-3 S 11; 34-5 S 18; 32-3 S 25; 32-3 O 2; 26-7 O 9; 40-2 O 16; 33-4 O 23; 31-2 O 30; 88-90 N 6; 34-5 N 13; 32-3 N 20; 34-6 N 27 '19  
 Important features in designing the modern commercial garage. *R. Shepard. Bldg Age* 40:292-3 Je '18  
 Is this one the finest garage in all North Carolina? *il plans Motor Age* 36:30-1 S 18 '19  
 It paid this garageman to boss. *diags plans Motor Age* 36:32-3 Ag 21 '19  
 Lessons of efficiency are taught by bus company's garage. *il diags Motor Age* 35:25-7 My 1 '19  
 Lima (Peru) garage efficiently operated. *il Automobile* 37:551-3 S 27 '17  
 Motor-truck garage for Sears, Roebuck & company. *il diag plans Am Arch* 113:169-70 F 6 '18  
 New automobile center, Social Hall avenue, Salt Lake City. *il diags plan Am Arch* 115:281-7 F 19 '19  
 New garage. *T. Wilder. il diags Motor Age* 34:34-5 N 7 '18  
 Planning and lighting a garage. *diag plans Horseless Age* 43:41-2 F 1 '18  
 Plant on entire lot. *plan Motor Age* 36:32 Ag 7 '19  
 Private garage safe and convenient. *diags Motor Age* 34:30-1 Ag 15 '18  
 Profits in housing automobiles. *R. Watson. il Bldg Age* 41:156-7 My '19  
 Pyramid garage. *Arch & Bldg* 50:17, pl 138 JI '18  
 Skyscraper garage. *il Sci Am* 121:247, 259 S 13 '19  
 Standard layout for 50 ft., 65 ft. and 60 ft. garages. *plans Motor Age* 35:33-4 My 15; 36:32-3 JI 3; 26-7 JI 17 '19  
 Star auto co. plan well laid out for corner garage. *diags plan Motor Age* 36:25 JI 31 '19  
 Storing cars in storied elevators. *il Motor Age* 36:32 S 4 '19  
 Two-car garage with chauffeur's living quarters. *il diags plans Bldg Age* 41:252 Ag '19  
 See also Automobile service stations; Gasoline handling

**Accessories department**

See Automobile industry and trade—Automobile accessories

**Accounting**

Over the top in service and repairs; book-keeping and accounting system. *T. P. Bowman. Motor Age* 34:10-11 Ag 29 '18  
 "Plug the leaks in gasoline sales," says Bill Strong. *Motor Age* 35:22-3 Mr 27 '19

**Equipment**

Adjustable lamp stand for garages and shops. *il Elec R* 72:1017 Je 15 '18

**Heating and ventilation**

Conservation of heat in public garages. *E. Stern. Metal Work* 90:133-4 Ag 16 '18  
 Garage heating. *Heat & Ven* 15:50-1 My '18  
 Garage heating from pressure hot water house heating boiler. *diag Dom Eng* 89:381 N 22 '19  
 Garage heating problem. *diag Dom Eng* 89:224 N 1 '19  
 Garage heating problem. *diags Heat & Ven* 15:51-3 F '18  
 Garage heating system. *diags Dom Eng* 82:50-1 Ja 12 '18  
 Garage ventilation. *J. H. Perry. diags Dom Eng* 83:120-2 Ap 27 '18  
 Heating garages by a new method. *il diags Heat & Ven* 15:71 S '18  
 Heating plants for garages. *diags Motor Age* 35:24-7 Je 12 '19  
 Heating private garages. *A. G. King. diags plans Dom Eng* 82:326-8, 440-2 Mr 2, 23 '18  
 Heating three small garages with overhead steam coil. *diags Dom Eng* 86:129-30 Ja 18 '19  
 Heating, ventilating and plumbing equipment for a garage. *C. L. Hubbard. diags Dom Eng* 83:242-4+, 282-4 My 18-25 '18  
 Hot water heating connection to garage. *diags plan Heat & Ven* 15:50-1 Ja; 51-3 F; 58-9 Ap '18  
 How to heat garage by vacuum-vapor system. *diags Dom Eng* 86:173-4 Ja 25 '19  
 Notes on the heating of public and private garages. *F. Grant. diags Dom Eng* 83:201-3+ Ag 2 '19  
 Systems for garage heating. *diags Motor Age* 36:42-3 N 27 '19  
 Ventilation of garage air by automobile exhaust gases. *G. A. Burrell and A. W. Gauger. U S Bur Mines Tech Pa* 216:1-10 '19; Abstract. *Am Arch* 116:257-8 Ag 20 '19

**Hot water supply**

Heating, ventilating and plumbing equipment for a garage. *C. L. Hubbard. diags Dom Eng* 83:282-4 My 25 '18

**Lighting**

Solving garage lighting problem. *Motor Age* 36:30-1 S 4 '19

**Management**

Adapting a master sheet to estimate basis. *H. C. Skinner. Motor Age* 36:7-9 JI 31 '19  
 Appearance is the best advertisement of a garage. *il Motor Age* 36:28-9 JI 31 '19  
 "Cure that tipping evil," says Bill Strong. *Motor Age* 35:20-1 Ap 10 '19  
 Factory efficiency in a garage. *il Motor Age* 34:19 D 19 '18  
 Garageman should be equipped to render efficient service. *Horseless Age* 43:18-22, 24-5 Ap 1 '18  
 Garagemen should talk more. *Motor Age* 35:18-19 F 27 '19  
 Getting on a cash basis. *T. P. Bowman. Motor Age* 35:28-9 Ap 24 '19  
 How to get the Christmas spirit into service and accessory sales. *R. Sanders. il Motor Age* 34:7-11 D 5 '18  
 How to meet the labor shortage. *D. A. Hampson. Horseless Age* 43:23+ Ap 1 '18  
 Meeting the help shortage. *Motor Age* 34:5-6 JI 11 '18  
 Motto for the repair shop owner. *B. M. Ikert. il diags plans Motor Age* 34:7-11 O 24 '18

**Garages—Management—Continued**

Over the top in service and repairs. T. P. Bowman. Motor Age 34:8 Ag 15; 8-9 Ag 22; 10-11 Ag 29; 10-11 S 5; 12-13 S 12; 10-11 S 19; 11 S 26; 10-11 O 3; 10 O 10; 11-12 O 17; 12-13 O 24 '18

Pointers from a small-town garage. plan Motor Age 36:32-3 S 18 '19

Satisfied customer spreads Bill's gospel of cash. Motor Age 35:20-1 Mr 13 '19

Service company that lives up to name. II plan Motor Age 34:22-3 N 7 '18

Service puts win in winter. E. M. Ikert. II diag Motor Age 34:7-9 N 28 '18

Systematizing service. K. Herrick. II Motor Age 36:7-9 Ag 7; 28-30 Ag 14 '18

Three essentials of the repair shop: good foreman, good equipment and good system. E. M. Ikert. diag Motor Age 34:5-7 Ag 22 '18

Three methods for increasing garage business. F. Farrington. Horseless Age 44:33 My 15 '18

**Safety devices and measures**

Garage drainage. J. H. Perry. diag plan Dom Eng 83:202-4 My 11 '18

Safety precautions for garages. L. D. Miller. Cal Safety News 2:13-14 Ap '18

**Garages, Concrete**

Garage built with rigid frames. II Concrete 13:94 S '18

Garage of tile and concrete. II diag plans Concrete 12:224 Je '18

Main beams in concrete garage are forty-nine feet long. II diag plans Eng N 80:1051-4 My 30 '18

**Garages, Electric**

Arthur Jones electric co., Chicago; service exclusively electrical. II Motor Age 34:26-8 Ag 8 '18

New electric truck service ready in Chicago. II Elec R 71:1091-4 D 29 '17; Abstract. Elec W 70:1247-8 D 29 '17

110-truck electric garage. II plan Elec W 73:944-6 My 10 '19

**Garages, Municipal**

Oakland municipal garage and shop. C. W. Geiger. II Munic J 46:260-3 Ap 12 '19

Garbage. See Refuse and refuse disposal

**Garbage cans**

Washing garbage cans. diag plan Munic J 47:69 Ag 2 '19

Garbage collection. See Refuse collection

**Garden cities**

Future of industrial housing. S. Baxter. Arch Rec 46:567-72 Je '19

Size of towns. Am Inst Arch J 7:396-8 S '19

Union Park gardens; a model garden suburb for shipworkers at Wilmington, Del. W. E. Groben. II diag plans map Arch Rec 45:44-64 Ja '19

See also City planning

**Garden ornaments and furniture**

Out-of-door furnishings. P. D. Otter. II Bldg Age 40:83-7 F '18

**Gardening**

City home gardening as a peace measure. L. Chubbock. Eng & Contr 51:42-3 Ja 8 '19

How the war gardens can be made profitable peace gardens. Eng & Contr 51:27 Ja 8 '19

See also Agriculture; Electrohorticulture; Garden cities; Gardens; Landscape gardening

**Gardens**

Formal garden. II Am Arch 115:408-11 Mr 19 '19

Jade fence; Pan American buildings at Washington. D.C. G. N. Rosé. II Arch Rec 46:153-8 Ag '19

Loring garden, San Rafael Heights, Pasadena, Cal.; views and plans. Arch Rec 43:65-78 Ja '18

Suggestions on care and irrigation of gardens and lawns. Eng & Contr 49:464 My 8 '18

See also Landscape gardening

**Gardens, Factory**

Cooperative shop gardening. C. E. Hildreth. II Ind Management 55:204-5 Mr '18

Industry's help through war gardening. C. L. Pack. II Am Ind 18:20-1 Mr '18

Organizing your 1918 war gardens. J. Heywood. II Factory 20:429-31 Mr '18

Shop gardening as a war measure; gardens of the Brown & Sharpe manufacturing company, Providence, R.I. L. D. Burlingame. II Ind Management 55:205-9 Mr '18

Gardens, Sunken. See Sunken gardens

**Garment factories**

Factory management in garment trades. M. Gordon. II Ind Management 57:345-9, 446-51; 58:12-16, 140-5, 230-5, 321-4 My-O '19

**Garnets**

Garnet in North Carolina and the market for abrasive garnet. F. J. Katz. map Eng & Min J 107:903-6 My 24 '19

**Garnsey, Cyrus, Jr., 1861-**

Appointed assistant fuel administrator. Coal Age 13:882 My 11 '18; Am Mach 48:890 My 23 '18

**Gary, Elbert Henry, 1846-**

Judge Gary prominent in development of the Middle West. por Eng & Min J 108:478 S 13 '19

**Gary, Indiana****Rapid transit**

Safety cars in Gary make jitneys unprofitable. II map Elec Ry J 53:967-8 My 17 '19

**Gas**

British gas industry; comparison of gas and electricity in fuel economy. Am Gas Eng J 110:371-80 My 3 '19

Combustion of producer gas. V. Hassredter. Chem & Met Eng 19:213 Ag 15 '18

Comparative study of the thermal decomposition of coal and of some of the products of its carbonization. M. C. Whitaker and J. R. Suydam, Jr. J Ind & Eng Chem 10:431-2 Je '18

Maximum coal economy as a world problem. A. Delamarre. Gas Age 42:10-12 Jl 1 '18

Phenomenon of breathing and the gas industry. E. Karrer. Am Gas Eng J 109:148-9 Ag 17 '18

Power of coals and gas. W. D. Owens. Coal Age 14:312 Ag 15 '18

Rendering efficient service when distributing a mixed coal and water gas. A. C. Howard. Am Gas Eng J 108:265-6 Mr 23 '18

Sulfur in producer gas. F. Crabtree and A. R. Powell. Am Inst Min Bul 153:sup2687-92 S '19

U. S. government to teach use of gas in schools. O. F. Schuette. Gas Age 42:452-3 N 15 '18

Wood gas. L. H. Bacque. Gas Age 41:493-4 Je 1 '18

See also Acetylene; Blast furnace gas; Coal-tar products; Coke-oven gas; Distillation; Flue gas; Gas analysis; Gas and oil engines; Gas appliances; Gas as fuel; Gas burners; Gas cleaning; Gas industry; Gas lighting; Gas manufacture and works; Gas producers; Gases; Mine gases; Oxy-acetylene flame; Petroleum

**Analysis**

See Gas analysis

**Cost**

Producer gas costs. Chem & Met Eng 21:243 S 1 '19

**Ignition**

Needham gas range lighter. II diag Gas Age 41:330 Ap 1 '18

See also Gas and oil engines—Ignition devices

**Laws and regulations**

Law with regard to consumers stealing gas. Gas Age 43:636-8 Je 16 '19

**Manufacture**

See Gas manufacture and works

**Rates**

See Gas rates



## Gas—Continued

## Standards

- British thermal gas unit proposed as U. S. standard; abstract. Am Soc M E J 40:714 Ag '18
- Careful examination where B. t. u. standard has been reduced shows no appreciable increase in individual consumption. L. R. Nash, E. B. Powell and H. Vittinghoff. Am Gas Eng J 109:317-19 O 5 '18
- Experience has shown there is an economic waste in gas standard as high as 520 B. t. u. A. Hewitt. Am Gas Eng J 109:243-4 S 14 '18; Same abr. Gas Age 42:384 N 1 '18
- 400-500 B. t. u. gas proposed for Great Britain. Gas Age 43:569-72 Je 2 '19
- 425 B. t. u. gas ordered for Great Britain. N. H. Humphrys. Gas Age 44:388 N 1 '19
- Gas by the thermal unit. Engineer 127:509-10 My 23 '19
- Gas that will give most satisfactory service in his premises not necessarily the best gas from the consumer's standpoint. Am Gas Eng J 111:49-52 JI 19 '19
- Heat value and composition of commercial gases. J. H. Maxon. Gas Age 41:449-50; Discussion. 457 My 15 '18
- Important revision of gas standards. O. F. Schuette. Gas Age 44:24-5 JI 1 '19
- Indiana commission issues statement regarding B. t. u. tests now being conducted at four different plants. Am Gas Eng J 110:156 F 15 '19
- Low B. t. u. gas. Gas Age 41:149-50 F 15 '18
- Low B. t. u. standard advocated by Pacific men. F. S. Myrtle. Gas Age 44:361-3 O 15 '19
- Low heat unit gas. Gas Age 41:293-4 Ap 1 '18
- Lower heat unit gas recommended for Canada. R. O. Wynne-Roberts. Gas Age 44:201-2 S 1 '19
- Massachusetts commission names 528 B. t. u. as new standard. Am Gas Eng J 107:533-4 D 8 '17
- Massachusetts report on calorific standard. C. D. Jenkins. Gas Age 41:111-14 F 1 '18
- Merits of combination gases of low heat value. W. D. Wilcox. Gas Age 41:398-9 My 1 '18; Discussion. 42:163, 197 Ag 15-S 2 '18
- New standards for gas service in California. Gas Age 44:288-90 O 1 '19
- Opinion general in Great Britain that consumer gets little better value, if any, from a 600 B. t. u. gas than from a 525 B. t. u. gas. N. H. Humphrys. Am Gas Eng J 108:55-6 Ja 19 '18
- Order of Indiana commission on heat unit standard as will apply to all companies where increases are granted. Am Gas Eng J 109:259-60+ S 14 '18
- Portable cubic-foot standard for gas. M. H. Stillman. II diags U S Bur Stand Tech Pa 114:1-13 '19
- Public service commission of Indiana calls a conference on gas standards. Am Gas Eng J 109:377-8, 380-1 O 19 '18
- Question is not what consumer receives but the practical efficiency realized; George Helps recommends pleno gas. N. H. Humphrys. Am Gas Eng J 108:413-14 My 4 '18
- Report on first series of tests to be conducted in Indiana on B. t. u. standard. Am Gas Eng J 110:224 Mr 8 '19
- Standards for gas on a heat-energy basis. Illum Engr 12:115 My '19
- Toluol recovery and standards for gas quality. R. S. McBride. Gas Age 41:63-6 Ja 15 '18; Same. Am Gas Eng J 108:31-4 Ja 12 '18; Same. J Ind & Eng Chem 10:111-14 F '18
- Universal 460 or 480 B. t. u. standard for Canada. Gas Age 42:218-19 S 2 '18

## Testing

## See Gas testing

Gas, Blast furnace. See Blast furnace gas

Gas, Coke-oven. See Coke-oven gas

Gas, Natural

Abandoned gas wells. Coal Age 14:1113 D 19 '18

Analysis of natural gas and the calculation and application of results. R. P. Anderson. J Ind & Eng Chem 11:299-306 Ap '19

Analysis of natural gases. Met & Chem Eng 18:640-1 Je 15 '18

Appeal to consumers of oil and gas well supplies. G. E. Day. Metal Work 90:233 Ag 23 '18

California company is to use natural gas for fuel. Elec W 72:759-60 O 19 '18

Carbon tetrachloride, chloroform and carbon hexachloride from natural gas. G. W. Jones and V. C. Allison. diags J Ind & Eng Chem 11:639-43 JI '19

Commercial production of helium. F. G. Cottrell. II diags Chem & Met Eng 20:104-14 F 1 '19; Excerpt. J Ind & Eng Chem 11:148-63 F '19; Abstract. Am Soc M E J 41:155-8+ F '19

Composition of natural gas. J. Ashworth. Coal Age 13:598 Mr 30 '18

Compressibility of natural gas and its constituents with analyses of natural gas from 31 cities in the United States. G. A. Burrell and I. W. Robertson. diags U S Bur Mines Tech Pa 158:1-14 '17

Conservation of mine gas. Coal Age 12:1029-30; 13:210-12, 345-6 D 15 '17, Ja 26, F 16 '18

Conserve natural gas. S. S. Wyer. Gas Age 42:391-2 N 1 '18

Criminal waste of natural gas. Sci Am S 85: 402 Je 29 '18

Deepest gas well in the world is in West Virginia. Am Gas Eng J 111:225-6 S 13 '19

Deepest wells in the world. Sci Am 121: 137 Ag 9 '19

Depletion of natural gas in the Appalachian field. J. A. Bownocker. diag map Gas Age 44:57-60 JI 15 '19

Designing natural-gas-gathering line system for gasoline plant. E. O. Hickstein. plan Am Gas Eng J 108:415-17 My 4 '18

Determining gasoline in natural gas. W. P. Dykema and R. O. Neal. diags Automotive Ind 40:57-9 Ja 9 '19

Displacing natural gas with manufactured gas. J. H. Maxon. Gas Age 43:583-5 Je 2 '19

Domestic and industrial use of natural gas. J. Gates, Jr. Gas Age 43:470-1 My 1 '19

Dry gas. Sci Am 118:146 F 16 '18

Economy in burning natural gas under boilers. Elec R 73:617 O 19 '18

Effect of natural gas pressure on efficient utilisation. C. V. Critchfield. Gas Age 41: 507-8 Je 1 '18

Extraction of gasoline from natural gas by absorption methods. G. A. Burrell, P. M. Biddison and G. G. Oberfell. II diags U S Bur Mines Bul 120:1-66 '17; Excerpts. Gen Elec R 21:247-8 Ap '18

Facts about the natural gas industry in West Virginia. E. Robinson. Am Gas Eng J 109: 126-8 Ag 10 '18

Formation of aromatic hydrocarbons from natural gas condensate. J. G. Davidson. diags J Ind & Eng Chem 10:901-10 N '18

Gas and oil fields of western Canada. P. Thompson. Eng & Min J 105:1099-1100 Je 15 '18

Historical notes on the evolution of water heating. H. H. Manchester. II Gas Age 41: 453-4 My 15 '18

Horse-power and displacement chart for natural gas compressors. E. O. Hickstein. chart Am Gas Eng J 110:375-7 My 3 '19

Increase in production of natural gas. J Fr Inst 185:27 Ja '18

Manufacture of gasoline from natural gas. J. C. McDowell. Gen Elec R 21:249-51 Ap '18

Manufactured gas to supplement natural gas. K. C. Krick. Gas Age 43:567-8 Je 2 '19

Measurement of natural gas in large quantities. W. M. Ackerman. Am Gas Eng J 108:465-70 My 18 '18

Movements of oil and gas through rocks. V. Ziegler. bibliog Econ Geol 13:335-48 JI '18; Same. Sci Am S 86:374-5 D 14 '18

Natural gas and petroleum wartime activities. C. C. Smith. Gas Age 44:90-2 Ag 1 '19

Natural gas as a fuel for power purposes. S. S. Wyer. Am Soc M E J 40:pt 2, 655 JI '18; Same. Power 48:181 JI 30 '18; Excerpt. Gas Age 42:116 Ag 1 '18

**Gas, Natural—Continued**

- Natural gas in Elk Hills, Kern county, Cal. R. P. McLaughlin. Eng & Min J 108:654-5 O 18 '19
- Natural gas in Italy. Iron Tr R 65:696 S 11 '19
- Natural gas in 1916. J. D. Northrop. J Ind & Eng Chem 10:662-3 Ag '18
- Natural gas: its production, service, and conservation. S. S. Wyer. Il diag maps U S National Museum Bul 102, pt 7:1-66 '18; Same cond. Gen Elec R 22:636-48, 760-6 Ag, O '19
- Natural gas saving educational campaign. E. C. Jennings. Gas Age 44:168 Ag 15 '19
- Natural-gas storage. L. S. Panyity. diag Am Inst Min E Bul 145:23-5 Ja '19; Discussion. 148:716-18; 149:774-5 Ap-May '19
- Natural gas used for lighting at Pisa, Italy. Sci Am S 86:96 Ag 10 '18
- Need of department in natural gas companies to see that consumers get the most out of the gas they burn. F. H. Mugg. Il Am Gas Eng J 110:457-61 My 31 '19
- New natural gas financing to come this summer. E. C. Jennings. Gas Age 43:666-7 Je 16 '19
- Oil and gas fields of Illinois. H. A. Wheeler. Il map Eng & Min J 105:181-4 Ja 26 '18
- Oil and gas in Utah. F. R. Clark. Eng & Min J 108:696-7 O 25 '19
- Pipe-line flow capacities for natural gas. E. O. Hickstein. chart Am Gas Eng J 110:483-4 Je 7 '19
- Possible oil and gas fields in the cretaceous beds of Alabama. D. Hager. map Am Inst Min E Bul 134:469-76 F '18; Discussion. 136:819-22 Ap '18
- Question of utilization of natural gas has become as important as its production. F. H. Mugg. Am Gas Eng J 111:393-5 O 25 '19
- Recent developments in the absorption process for recovering gasoline from natural gas. W. P. Dykema. Il diag plans U S Bur Mines Bul 176:1-90 '19
- Recovery of gasoline from casing-head and natural gas. P. Diserens. chart diag plan Am Soc M E J 40:834-8 O '18
- Recovery of gasoline from natural gas by compression and refrigeration. W. P. Dykema. flow sheets Il diag plan U S Bur Mines Bul 151:1-117 '18; Summary. Automotive Ind 39:103-4 Jl 18 '18
- Safeguarding the future natural gas supply. C. W. Sears. Gas Age 43:588-90 Je 2 '19
- Sale of natural gas carbon black increasing. F. H. West. Gas Age 42:535-6 D 16 '18
- Southern counties supplies natural gas for driving huge steam engines watering 15,000 acres of orchards. Am Gas Eng J 111:101 Ag 2 '19
- Statistical sidelights on our national fuel problem. charts Coal Age 16:440-2 S 11 '19
- Strict conservation needed to save natural gas. Gas Age 43:602-4 Je 2 '19
- Testing natural gas for gasoline. G. G. Oberfell. diag J Ind & Eng Chem 10:211-14 Mr '18
- Testing natural gas for gasoline content. G. G. Oberfell, S. D. Shinkle and S. B. Messer. diag plan J Ind & Eng Chem 11:197-200 Mr '19
- Transportation and distribution of natural gas. H. A. Quay. Gas Age 44:102-3 Ag 1 '19
- Traps for saving gas at oil wells. W. R. Hamilton. Il diag plans U S Bur Mines Tech Pa 209:1-31 '19
- United States Fuel administration investigating natural gas resources says wasteful practices may be traced in last analysis to cheapness. Am Gas Eng J 111:246+ S 20 '19
- Use of natural gas in ancient times. H. H. Manchester. Il Gas Age 42:13-14 Jl 1 '18
- Utilization and conservation of natural gas. L. L. Graham. Gas Age 43:477-8 My 1 '19
- Whole natural gas industry today responsive to problem of chemical possibilities of natural gas. J. B. Garner. Il Am Gas Eng J 108:489-95, 505-8 My 26 '18; Same cond. Gas Age 41:555-60 Je 15 '18

Why natural gas is sold for industrial purposes. D. B. McCune. Gas Age 44:428-9 N 1 '19

**Bibliography**

Petroleum and allied substances, 1915. E. H. Burroughs. U S Bur Mines Bul 149:1-147 '18

**Laws and regulations**

- California laws relating to oil and gas wells. F. B. Tough. bibliog U S Bur Mines Bul 163:97-115 '18
- Discriminatory restriction of natural gas illegal. Gas Age 44:60-1 Jl 15 '19
- Federal control and statistics of natural gas. T. B. Gregory. Gas Age 43:846-7 Je 16 '19
- Natural gas making history. E. C. Jennings. Gas Age 43:534 My 15 '19
- Pennsylvania begins fight. E. C. Jennings. Gas Age 43:535-6 My 15 '19
- Practical value of oil and gas bureaus. W. G. Matteson. Am Inst Min E Bul 126:979-81 Je '17; Discussion. 130:1857-62; 133:75-88 O '17, Ja '18

**Taxation**

How to compute natural gas taxes. Gas Age 43:440-1 Ap 15 '19

**Water problem**

Methods of shutting off water in oil and gas wells. F. B. Tough. bibliog Il diag U S Bur Mines Bul 163:1-115 '18

**Gas, Water**

- All-new water gas plant results at Providence. W. Russell. Il diag Gas Age 43:277-82, 364-6 Mr 15-Apr 1 '19
- Costs of industrial gases to replace natural gas. Gas Age 44:234 S 1 '19
- Economy in gas plant operation. F. L. Weiser. Am Gas Eng J 110:531 Je 21 '19
- Exhaust steam in water gas machines. R. L. Greene. Il diag plan Gas Age 44:1-5 Jl 1 '19
- Experiments with bituminous coal in the manufacture of water gas. R. G. Krumrey. Am Gas Eng J 110:291-2, 293-302 Ap 5 '19
- Gas machine factors involved in the manufacture of carbureted water gas. R. B. Harper. Am Gas Eng J 110:312-16, 320-4 Ap 12 '19
- Generator improvements. Gas Age 44:253-4 S 15 '19
- Giving water gas an odor. Am Gas Eng J 110:24 Ja 11 '19
- In order to determine the relative efficiency of a gas machine it is necessary to be able to determine at any time the quantity and quality of gas which the machine is producing. R. A. Carter, jr. Il diag charts Am Gas Eng J 111:359-62 O 18 '19
- Manufacturing plant of the Providence gas co. W. M. Russell. Il diag plan Chem & Met Eng 21:88-95 Jl 15 '19
- Operating a water gas set without a relief holder in parallel with by-product coke ovens. A. H. Harris, jr. Il diag chart Am Gas Eng J 110:185-8 Mr 1 '19
- Operation and chemical control of water gas sets in small plants. H. Vittinghoff. diag Am Gas Eng J 110:163-4, 172-5 F 22 '19; Same. Gas Age 43:234-6, 283-4 Mr 1-15 '19
- Shortcomings of the water-gas process. J. Harger. Am Gas Eng J 111:186-7 Ag 30 '19
- Use of gas coal in water gas sets presents disadvantages, but shows money saving in cost of make. A. C. Howard. Am Gas Eng J 109:385-6 O 26 '18
- Water gas process has seen its best days and is now on decline. S. W. Parr. Am Gas Eng J 110:66-9 Ja 25 '19
- Gas accidents**
- Safety for the household. Il diag U S Bur Stand Circ 75:54-81 '18
- See also Gas fires
- Gas advertising.** See Gas industry—Advertising
- Gas analysis**
- Analysis of natural gas and the calculation and application of results. R. P. Anderson. J Ind & Eng Chem 11:299-306 Ap '19
- Analysis of natural gases. Met & Chem Eng 18:640-1 Je 15 '18

**Gas analysis—Continued**

- Analysis of sulphur burner gases; abstract. F. M. Williams. *Met & Chem Eng* 18:314 Mr 15 '18
- Application of the differential pressure method to the estimation of the benzene and the total light oil content of gases. H. S. Davis, M. D. Davis and D. G. MacGregor. *diag J Ind & Eng Chem* 10:712-18 S '18
- Application of the interferometer to gas analysis. J. D. Edwards. *U S Bur Stand Tech Pa* 131:1-19 '19
- Compressibility of natural gas and its constituents with analyses of natural gas from 31 cities in the United States. G. A. Burrell and I. W. Robertson. *diags U S Bur Mines Tech Pa* 158:1-14 '17
- Determination of methyl chloride in gas mixtures. V. C. Allison and M. H. Melghan. *diag J Ind & Eng Chem* 11:943-6 O '19
- Determination of SO<sub>2</sub> in gases. O. D. Burke. *diag Chem & Met Eng* 20:541 My 15 '19
- Differential pressure method for the quantitative estimation of vapors in gases. H. S. Davis and M. D. Davis. *diags J Ind & Eng Chem* 10:709-12 S '18
- Direct determination of sulphur dioxide in burner gases. F. M. Williams. *II Chem & Met Eng* 19:390 S 25 '18
- Freezing method for testing benzol in Paris gas. E. St. C. Deville. *diags Gas Age* 43: 418-19 Ap 15 '19
- Gas analysis with very small quantities. *Chem & Met Eng* 19:390 S 25 '18
- Gas interferometer calibration. J. D. Edwards. *U S Bur Stand Bul* 14:473-7 Je 24 '18
- Industrial analysis of gas mixtures by the refractometric method. *II diags Chem & Met Eng* 21:392-5 S 15 '19
- Operation and chemical control of water gas sets in small plants. H. Vittinghoff. *diag Am Gas Eng J* 110:163-4, 172-5 F 22 '19; Same. *Gas Age* 48:234-6, 288-4 Mr 1-15 '19
- Quantitative analysis of small quantities of gases. H. M. Ryder. *diags Am Chem Soc J* 40:1656-62 N '18
- Reagents for use in gas analysis; the absorption of hydrogen by sodium oleate. R. P. Anderson and M. H. Katz. *J Ind & Eng Chem* 10:23-4 Ja '18
- Reagents for use in gas analysis; the determination of benzene vapor. R. P. Anderson. *J Ind & Eng Chem* 10:25-6 Ja '18
- Sodium pyrogallate solution as an absorbent for oxygen. G. W. Jones and M. H. Melghan. *diags J Ind & Eng Chem* 11:311-16 Ap '19
- Use of the interferometer in gas analysis. F. M. Selbert and W. C. Harpster. *II diags plan U S Bur Mines Tech Pa* 185:1-16 '18
- See also Flue gas—Analysis; Gas purification
- Gas and oil engines**
- Advantage of compression in internal combustion engines. J. S. A. Johnson. *diags Power* 50:258-9 Ag 12 '19
- Average coal consumption for power of 5 lb. per h.p. hour could be reduced to 1½ lb. if gas engines were adopted. P. N. Everett. *Am Gas Eng J* 108:395-6 Ap 27 '18
- Brake test of small gas engine. *diag Power* 48:821 D 3 '18
- Bringing the gas engine up to a 50 per cent thermal efficiency. D. G. Griffin. *Am Gas Eng J* 111:511-12 N 29 '19
- British two-stroke motor. *diags Engineer* 127:182-3 F 21 '19
- Buckeye Barrett crude oil engine. *II Ind Management* 57:72-3 Ja '19
- Bulb experiments on hot bulb engines. *diags Engineer* 124:112-13, 149, 161, 215 Ag 10-24, S 7 '17; Same (pt 1). *Automobile* 37: 504-6 S 20 '17; Abstract. *Am Soc M E J* 39:889-90 O '17
- Calculations for the farm engine. *II Sci Am* 118:413+ My 4 '18
- Care of gas engine bearings. A. L. Brennan, Jr. *Power* 46:859 D 25 '17
- Crossley cold-starting heavy oil engine. *diags Engineer* 128:252-4 S 12 '19; Abstract. *Mech Eng* 41:896-7 N '19
- Doxford oil engine. *diags Engineer* 128:64-5 JI 18 '19; Abstract. *Mech Eng* 41:768 S '19
- Economy of heat engines. H. R. Savkey. *Engineer* 124:489-91 D 7 '17
- Effect of neutral gases on the temperature of the working fluid in an internal-combustion engine. K. Takemura. *Mech Eng* 41:768-9 S '19
- Engine for 24-kilowatt electric lighting set—Crossley bros. *diags Engineer* 127:628 Je 27 '19
- Features of low-compression oil engines. L. H. Morrison. *diags Power* 48:123-7, 196-8, 263-5, 376-9, 455-8, 522-4 JI 23, Ag 6, 20, S 10, 24, O 8 '18
- From superheated steam to blast furnace gas engines. A. L. Fritz. *Power* 47:615 Ap 30 '18
- Gas engine of to-day no longer the uncertain quantity it once was. F. H. Bivens. *diag Am Gas Eng J* 111:319-20 O 11 '19
- Gas-engine troubles and remedies. A. L. Brennan, Jr. *Power* 47:149-50 Ja 29 '18
- Gas engine vibration. M. Meredith. *Am Gas Eng J* 111:46+ JI 19 '19; Same. *Gas Age* 44: 249-50 S 15 '19
- Gasoline engine efficiency. W. F. Schaphorst. *Munic Eng* 54:75 F '18
- Gile engine employs sub-piston. *diags Automotive Ind* 39:229+ Ag 8 '18
- Greater efficiency in internal combustion. C. E. Sargent. *Power* 47:845 Je 11 '18
- Gyratory valve for high speed internal combustion engines. R. J. Glicher. *diags Sibley J* 33:8-10 O '18
- Heavy-oil engine. *Mech Eng* 41:438 My '19
- Heavy oil engine. C. E. Lucke. *Sci Am S* 86:50-1, 78-80 JI 27-Ag 3 '18; Same. *Int Marine Eng* 23:579-83, 625-9 O-N '18; Excerpts. *Engineer* 126:80-3 JI 26 '18
- High-speed internal-combustion engines. H. R. Ricardo. *Sci Am S* 86:270-2 O 26 '18; Same. *Int Marine Eng* 23:650-1, 675-7 N-D '18
- Hot water from oil engines; utilization of jacket water from internal combustion engines in manufacturing. W. L. H. Doyle. *diag Textile World* 54:77+ JI 6 '18
- How will the gasoline engine develop? H. Warren. *Sci Am* 120:285+ Mr 22 '19
- Howard cuff-valve engine. *diags Am Soc M E J* 40:195 F '18
- Hvid engine. *Automotive Ind* 38:1098-9 Je 6 '18
- Internal combustion engines. *Engineer* 125:227, 273, 316, 382 Mr 15, 29, Ap 12, My 3 '18
- Internal combustion vs. steam engines for small plants. C. A. Lichty. *Ry Age* 66: 1386 Je 6 '19
- Investigation of the governing of a gas engine. A. Gramberg. *diag Am Soc M E J* 40:1047-9 D '18
- Limits of thermal efficiency in internal combustion engines. D. Clerk. *II Engineer* 128: 40-3 JI 11 '19; Abstract. *Power* 50:378-9 S 2 '19
- Lyons Atlas heavy-oil engine. *II Power* 47:658-9 My 7 '18
- Market for gas engines in Australia. *Automotive Ind* 39:421 S 5 '18
- Mounting the gasoline engine. P. B. Potter. *diags Sci Am* 119:36 JI 13 '18
- New heavy fuel engine—the Hvid. *diags Automotive Ind* 38:732-3 Ap 11 '18
- Notes on working gas and oil engines. M. Meredith. *Textile World* 53:4051 Mr 2 '18
- Operation of large gas engines. F. Foster. *Power* 50:100-2 JI 15 '19
- Outlook for the heavy-oil engine. *Power* 49: 766-9 My 20 '19
- Owen automatic lighting and power unit. P. M. Heldt. *II diags Automotive Ind* 39:806-9 N 7 '18
- Performance of fuel oil engines in water works service; with cost comparisons. S. N. Connally. *diag Munic Eng* 55:113-14 S '18
- Place for oil-engine-driven generators. *Elec W* 73:519-20 Mr 15 '19
- Possibilities of the Hvid engine. E. B. Blakely. *II Motor Age* 33:25-6 Je 6 '18; Discussion. 33:31 Je 20 '18

**Gas and oil engines—Continued**

- Practical brake horse power formula for internal combustion engines. H. Lemp. *Il Gen Elec R* 22:808-9 O '19
- Practical hints on running a gas engine. A. P. Yerkes. *U S Agric Farmers' Bul* 1013:1-16 '19
- Providing the power for increased production in a textile mill. W. L. H. Doyle. *Il Elec W* 70:1194-5 D 22 '17; Same. *Textile World* 53:3593+ F 2 '18
- Sterling gasoline motor for driving centrifugal pumps and electric generators. *diag Munic J* 46:460 Je 21 '19
- Suggestions for the safe operation of gasoline engines in mines. R. H. Kudlich and E. Higgins. *diags U S Bur Mines Tech Pa* 174:1-16 '17; Summary. *Eng & Contr* 49:395 Ap 17 '18
- Three-crank double-acting gas engine. *Il Engineer* 125:452-3 My 24 '18
- Truck and tractor engine discards carbureter; Hvid design is adapted to low-grade fuels. D. S. Hatch. *Il Motor Age* 33:24-5 Je 6 '18
- Turning the world's wheels. *Sci Am* 121:40 Jl 12 '19
- Uniformity of internal-combustion motors with 6 and 8 cylinders; abstract. E. Pistolesi. *Am Soc M E J* 40:194-5 F '18
- Unique gas engine mixer. T. F. Dougherty. *diag Gas Age* 40:580 D 15 '17
- Using indicator on internal combustion engines. R. Miller. *diags Power* 50:422-3 S 9 '19
- Why does a crankcase breathe? *Sci Am* 120:685 Je 28 '19
- See also* Airplane engines; Automobile engines; Carbureters; Cylinders (engines); Diesel engines; Heat engines; Locomotives, Gas and oil; Magnetos; Motor boats; Motor cars (railroad); Motor cars (street railroad); Motor ships; Still engine; Tractors

**Accidents**

- Have you ever counted gas engine explosions. N. G. Near. *Concrete* 13:64 Ag '18

**Bibliography**

- Internal combustion engines. E. H. Burroughs. *U S Bur Mines Bul* 149:98-115 '18

**By-products**

- Nitric acid as a by-product of internal combustion engines. A. W. H. Gripe. *diags Am Gas Eng J* 109:487-9+ N 23 '18

**Cooling**

- Cooling losses in internal-combustion engines as affecting their design. C. A. Norman. *diag Am Soc M E J* 40:1021-5 D '18; Same. *Am Gas Eng J* 109:523-5+ D 7 '18
- Cooling-water temperature. E. E. Snow. *Power* 50:114 Jl 15 '19
- Curing a chronic case of cracked head. D. L. Fagnan. *Power* 49:459 Mr 25 '19
- New method of cooling gas engines. M. Meredith. *Mach* 25:375+ D '18
- Talks on Diesel engines. L. H. Morrison. *diags Power* 49:724-7 My 13 '19

*See also* Automobile engines—Cooling

**Exhaust**

- Escape of exhaust gas in two-stroke-cycle engines; abstract. G. B. Petter. *diag Am Soc M E J* 40:273-4 Mr '18
- Exhaust pits for low-compression oil engines. L. H. Morrison. *diags Power* 47:586-7 Ap 23 '18
- Oil-engine exhaust heating. *Il Power* 46:823-4 D 18 '17
- Oil engine smokes. E. E. Snow. *diag Power* 50:148 Jl 22 '19
- Utilizing waste heat from gas and oil engines. C. L. Hubbard. *diags Dom Eng* 86:343-5+, 382-4, 430-1 F 22-Mr 8 '19

*See also* Automobile engines—Exhaust

**Fuel**

- Alcohol as a fuel for internal combustion engines; abstracts. *Mach* 24:708 Ap '18; *Sci Am S* 86:271 Ap 27 '18

- Diesel engine as related to the 6,200,000,000 horse-power hours wasted in 1917 in bee-hive coke ovens. P. L. Scott. *Sibley J* 33:10-11 O '18
- Diesel engine; its fuels and its uses. H. Haas. *U S Bur Mines Bul* 156:77-94 '18
- Engineers discuss the oil engine. *Power* 49:587 Ap 15 '19
- Fuel consumption of low-compression oil engines. L. H. Morrison. *Power* 47:367 Mr 12 '18
- Kerosene as a fuel in high-speed engines. L. F. Seaton. *Il Mech Eng* 41:881-2 N '19
- New device for running petrol engines on paraffin or heavy oils. *Engineer* 127:110 Ja 31 '19
- New Liberty fuel. *Power* 48:885-6 D 17 '18
- Possibilities of new fuel mixtures for internal-combustion engines. E. Humboldt. *Il Power* 50:418-20 S 9 '19
- Properties of Liberty fuel and results of economy tests. *Power* 49:9 Ja 7 '19
- Talks on Diesel engines. L. H. Morrison. *diags Power* 49:685-8 My 6 '19; Same. *Eng & Min J* 106:138-41 Jl 26 '19
- Tar oil in Diesel engines. *Sci Am S* 86:406 D 28 '18
- Tar oils for use in internal-combustion engines. A. V. Clark. *Power* 47:855 Je 11 '18
- Use of crude naphthalene as fuel for internal combustion engines. *Sci Am S* 86:205 S 28 '18
- Use of raw tars as fuel for Diesel engines. H. Moore. *Sci Am S* 88:270-1 N 8 '19
- See also* Automobile engines—Fuel; Liberty fuel; Natalite; Oil as fuel

**Fuel Injection**

- High-compression oil engines. W. G. Germandt. *Automotive Ind* 40:10 Ja 2 '19; Abstract. *Mech Eng* 41:279-80 Mr '19
- Liquid fuel injector. H. B. Higgins, jr. *diags Automotive Ind* 40:1076-7 My 15 '19

**Ignition**

- Heavy-fuel engine with detonating igniter; abstract. *Am Soc M E J* 40:503-4 Je '18
- Ignition work at the Bureau of standards. F. B. Silabee. *Il diag Automotive Ind* 40:1294-9 Je 12 '19
- New method of determining rate of flame propagation. P. M. Heldt. *Il diags Automotive Ind* 40:1256-8 Je 12 '19
- Relation of time of ignition to the economy of the gasoline engine. J. P. Calderwood and A. J. Mack. *diags Power* 50:532-3 S 30 '19
- Troubles and their remedies in gas-engine ignition systems. A. L. Brennan, jr. *Power* 47:259-60 F 19 '18
- See also* Airplane engines—Ignition; Automobile engines—Ignition

**Lubrication**

- Internal-combustion-engine lubrication. W. F. Osborne. *Power* 47:342-3 Mr 5 '18
- Internal-combustion engine lubrication and lubricants. P. H. Conradson. *Power* 48:107 Jl 16 '18; Same. *Int Marine Eng* 23:533-4 S '18
- Lubricating oil program of the Bureau of standards. *Automotive Ind* 40:1230-2 Je 5 '19

**Manufacture**

- Analysis of crankshaft stresses. O. M. Burkhardt. *diags Automotive Ind* 37:925-7, 966-8+ N 22-29 '17; Same. *Am Soc M E J* 40:212-19 Mr '18
- Building motors with general-purpose machines. *Il Am Mach* 48:288-90, 332-4, 453-5 F 14-21, Mr 14 '18
- California jobbing shop. F. A. Stanley. *Il diags Am Mach* 49:121-3 Jl 18 '18
- Gas-engine work on the Pacific coast. F. A. Stanley. *Il diags Am Mach* 49:343-7 Ag 22 '18
- Indicator gages used in gasoline-engine construction. C. C. Marsh. *diags Mach* 24:910-13 Je '18
- Machining gasoline-engine parts. M. E. Hoag. *Il Am Mach* 48:739-40 My 2 '18

**Gas and oil engines—Manufacture—Continued**  
Machining pistons, flywheels and cylinders of gasoline engines. M. E. Hoag. *Il Am Mach* 49:443-4 S 5 '18

Patterns and core boxes for gas engine beds. J. Horner. *diags plan Foundry* 46:100-3 Mr '18

#### Rating

Suggested formula for rating kerosene engines. D. L. Arnold. *Mech Eng* 41:672-3 Ag '19; Same. *Power* 50:199-200 JI 29 '19; Abstract. *Automotive Ind* 40:1381 Je '19 '19; Discussion. *Mech Eng* 41:681 Ag '19

#### Repair

Repairing a cracked water jacket. B. Z. Reiter. *diags Power* 49:67 Ja 14 '19

#### Starting devices

Quick starting device for oil engines. *Il diag Engineer* 125:37-8 Ja 11 '18

#### Testing

Atmospheric humidity and the testing of internal-combustion engines. C. Bolleau. *diag Mech Eng* 41:545-7 Je '19

Guarantee test of oil engine. *Power* 47:671 My 7 '18

Test results of the Hvid engine. *Automotive Ind* 38:1220-2 Je 20 '18

#### Water Injection

Effect of water injection on gasoline engines. *Automotive Ind* 40:1225 Je 5 '19

Function of water in i. c. engines. C. W. Weiss. *Automobile* 37:510 S 20 '17

Water injection in oil engines. A. F. Van Amstel. *Automotive Ind* 40:794 Ap 10 '19

Water injection in semi-Diesel engines. H. F. Shepherd. *Power* 49:935-6 Je 17 '19

Why water injection may cause an increase of power. P. M. Heldt. *Automotive Ind* 37:1081-3 D 20 '17

#### Gas and oil engines, Marine

Crankcases for sub chaser engines are molded and cast. H. C. Estep. *Il Foundry* 46:244-7 Je '18; Same. *Iron Tr R* 63:139-42 JI 18 '18

Crude-oil motors vs. steam engines in marine practice. J. W. Morton. *Mech Eng* 41:609-12 JI '19; Excerpt. *Int Marine Eng* 24:703-5 O '19; Discussion. *Mech Eng* 41:679-81+ Ag '19

Emergency fleet engines. *Il diags Power* 47:774-5 Je 4 '18

Heat treatment of steel for small petrol marine engines. *Engineer* 127:159-60 F 14 '19

Internal-combustion marine engines. G. Chiessa. *diags Sci Am* S 87:140-2 Mr 1 '19

Manufacture of marine gas engines. J. V. Hunter. *Il diags Am Mach* 50:787-91 Ap 24 '19

Motor fishing vessels use oil engines. *Sci Am* S 85:87 F 9 '18

New type of marine oil engine. *Il diags Int Marine Eng* 23:563-6 O '18

Novel features in a two-cylinder marine set. *Il diags Automotive Ind* 40:1449-51 Je 26 '19

Oil fuel in merchant ships. *Engineer* 127:107-8 Ja 31 '19

Pittsburgh marine oil engine. *Il Int Marine Eng* 24:629+ S '19

Reversible engines for marine work. *diags Automotive Ind* 38:418 F 21 '18

Starter and generator mountings on motor boat engines; drawings. *Automotive Ind* 38:358-9 F 14 '18

350 b.h.p. Kromhout marine engine. *Il diags Engineer* 125:36-7 Ja 11 '18; Abstract. *Am Soc M E J* 40:274-5 Mr '18

See also Diesel engines, Marine; Motor ships

#### Standards

S. A. E. standardization work in 1918. *diags Automotive Ind* 40:165-7 Ja 16 '19

#### Gas appliances

Appliances sold by installments; rights of gas company if consumer defaults in payment. C. Mileur. *Gas Age* 42:177-8 Ag 15 '18

Effect of proper burner and appliance design on industrial sales. G. C. Shadwell. *Am Gas Eng J* 108:107 F 2 '18

Encourage dealers to sell gas appliances. E. M. Patterson. *Gas Age* 44:230 S 1 '19

Gas appliance a detriment to the company unless it is performing its work thoroughly. C. W. Johnson. *Am Gas Eng J* 111:331-2+ O 11 '19

Gas appliance testing laboratory. H. M. Riley and L. B. Wilson, jr. *diags plans Am Gas Eng J* 107:369-75, 425-7, 430-3, 489-94; 108:1-6, 77-82, 169-72, 176-9, 341-9, 561-7; 109:217-23, 481-5; 110:117-21 O 27, N 10, D 1 '17, Ja 5, 26, F 23, Ap 13, Je 15, S 7, N 23 '18, F 8 '19

Gas in the chemical and associated industries. G. C. Shadwell. *Il Am Gas Eng J* 109:267-71 S 21 '18

Gas multiplies bread wrapping operation ten times. *Am Gas Eng J* 111:230 O 4 '19; Excerpt. *Gas Age* 44:334 O 1 '19

How Chicago popularized gas laundry appliances. W. D. Roberts. *Gas Age* 44:266 S 15 '19

Less coddling and more real work in selling gas. R. A. Zeigler. *Am Gas Eng J* 110:385-8+ My 3 '19; Same. *Gas Age* 44:131-2, 134+ Ag 1 '19

McKee proportional mixer. *Il Am Mach* 48:512 Mr 21 '18

Make new business department self supporting; mistake to sell appliances at a loss. *Gas Age* 42:30-2 JI 1 '18

Making architects boosters for gas appliances. R. J. Meyers. *Gas Age* 44:330-1 O 1 '19

Merchandising gas appliances and putting the retail department on a self-supporting basis. A. P. Post. *Am Gas Eng J* 108:207-10+ Mr 2 '18; Same cond. *Gas Age* 41:223-5 Mr 1 '18

Methods of selling standard industrial appliances. G. C. Shadwell. *Am Gas Eng J* 107:575-6 D 22 '17

Natural gas companies should go into the appliance merchandising business. K. Emmerling. *Am Gas Eng J* 108:519+ Je 1 '18

Need for higher prices shown; error of selling appliances at a loss. C. J. DeMers. *Gas Age* 42:33-4 JI 1 '18

Presenting gas stoves and appliances attractively. W. B. Stoddard. *Am Gas Eng J* 111:429-30 N 1 '19

Sales manager must be man of wide grasp on affairs and with a foresight which will enable him to know that the sale of appliances to-day is not the important thing in his daily work. R. Elsmann. *Am Gas Eng J* 109:541-2 D 14 '18

Silk ribbon substitute and braid for millinery trade made from milkweed and wood pulp with the aid of gas. S. E. Wardell. *Il diag Am Gas Eng J* 108:121-2 F 9 '18

Specially designed roaster for starch. S. E. Wardell. *Am Gas Eng J* 107:561-3 D 22 '17

Teaching salesmen how to sell more gas appliances. J. E. Bullard. *Gas Age* 44:364-5 O 15 '19

There is no more convenient and modern help for the home than gas as used through appliances. W. Gould. *Am Gas Eng J* 111:519-22 N 29 '19

Use of gas in coloring brass goods. G. C. Shadwell. *Il Am Gas Eng J* 111:285-90 O 4 '19

Use of gas in connection with the manufacture of pens. G. C. Shadwell. *Am Gas Eng J* 111:24-6 JI 12 '19

When appliance sales efforts decrease there is a decided decrease in use of gas. *Am Gas Eng J* 111:442-3 N 8 '19

When gas heating appliances give best results. H. Erikson. *diags Gas Age* 44:367-8+ O 15 '19

See also Gas cooking; Gas industry; Gas irons; Gas ovens; Gas stoves; Gas water heaters

**Gas as fuel**

Advantage of gas as a fuel for tin plating. W. J. Harris, jr. *Il Am Gas Eng J* 107:513-14 D 8 '17

Advantages of gas for brass melting. C. C. Krausse. *Il diags charts Am Gas Eng J* 108:193-9 Mr 2 '18

**Gas as fuel—Continued**

- Advantages of using power gas. M. Meredith. *Coal Age* 14:689 O 10 '18
- Advantages to the maker of asphalt roofing material and shingles. C. H. Kallstedt. *Il diags Am Gas Eng J* 108:509-12 Je 1 '18
- Appearance, disappearance and probable reappearance of the gas bag in English traffic. T. Sington. *Am Gas Eng J* 111:317-18 O 11 '19
- Artificial drying, with special reference to the use of gas. G. C. Shadwell. *Il diags Am Soc Heat & V E* 23:231-49; Discussion. 249-54 '17
- Automatic gas-fired furnace for heat treating artillery shell. W. J. Harris, jr. *Il diags Am Gas Eng J* 109:169-73 Ag 24 '18; Same. *Iron Age* 102:565-8 S 5 '18; Same. *Gas Age* 42:366-7 O 15 '18
- British engineers approve coal gas as fuel. *Automotive Ind* 38:1063-5 My 30 '18
- Burning gas in furnaces. *diag Factory* 20:320 F '18
- Burning lime in a gas-fired continuous kiln. W. D. Mount. *Il Chem & Met Eng* 20:428-30 Ap 15 '19; Same abn. *Concrete* 14:sup 63-4 Je '19
- Canton sanitary clothes dryer uses gas. *Il diags Gas Age* 43:220-1 F 15 '19
- City gas has big place as motor fuel. *Am Gas Eng J* 111:201-3, 209-11 S 6 '19
- Coal gas as motor vehicle fuel. R. P. Skinner. *Gas Age* 41:22 Ja 1 '18
- Coal gas for motor vehicles. *Il Engineer* 124:226 S 14 '17; Same. *Automobile* 37:726-7 O 25 '17; Same. *Sci Am S* 84:300-1 N 10 '17
- Coal gas for motor vehicles in England. *Sci Am S* 87:10 Ja 4 '19
- Concerning fuel. A. C. Laut. *Sci Am* 118:234+ Mr 16 '18; Discussion. R. H. Pierce. 118:567 Je 22 '18
- Costs of industrial gases to replace natural gas. *Gas Age* 44:234 S 1 '19
- Displacing an electric furnace with gas. J. E. Bullard. *Il Gas Age* 43:503-4 My 1 '19
- Efficient gas-fired boiler installation. J. C. Hobbs. *diags Eng Soc W Pa* 33:421-42 O '17; Abstract. *Am Soc M E J* 40:112-14 Ja '18; Discussion. *Eng Soc W Pa* 33:442-56 O '17
- English motor fuel restrictions. H. A. McBride. *Gas Age* 41:466-7 My 15 '18
- Filling of gas containers on automobiles; discussion at annual meeting of British commercial gas association. N. H. Humphrys. *Am Gas Eng J* 108:226-7 Mr 9 '18
- First automobile using artificial gas as fuel in this country, makes its appearance in New York city. *Il Am Gas Eng J* 107:555-6 D 15 '17; Same. *Gas Age* 40:594 D 15 '17
- Fish cannery calls upon gas for assistance in lowering costs. F. H. Mugg. *Il Am Gas Eng J* 108:485-7 My 25 '18
- From spoons to headache powder, gas is used. G. W. Allen. *Il Gas Age* 43:554-5 My 15 '19
- Fuel bill with gas only \$57 a month higher than with coal in carbonizing installation, but four times as much work is turned out. E. A. Pilnacek. *Il Am Gas Eng J* 110:71-2 Ja 25 '19
- Gas an important factor in the manufacture of fountain pens. G. C. Shadwell. *Il diags Am Gas Eng J* 111:247-50, 254-9 S 20 '19
- Gas and electric heating; abstract. C. O. Bastian. *Elec W* 72:265 Ag 10 '18
- Gas and its competitors as an industrial fuel. T. King. *Am Gas Eng J* 110:113-16 F 8 '19
- Gas-bag bus—it will not down. *Il Sci Am* 118:169 F 23 '18
- Gas burners underneath and a gas-flame torch playing on the agitated mixture from above reclaims \$12,000 worth of contaminated lubricating oil. *Il Am Gas Eng J* 110:397-8 My 10 '19
- Gas company president tries his hand at selling. L. Resnick. *Il Am Gas Eng J* 110:485-8 Je 7 '19
- Gas fired furnace for refining iron. G. H. Manlove. *Il Foundry* 46:282+ Je '18
- Gas fired ovens for baking and drying cores. B. Rahn. *Il Foundry* 46:250-1 Je '18
- Gas-fired shipyard furnace; installation for plates and angles at the Pusey & Jones co., Wilmington, Del. W. J. Harris, jr. *Il Iron Age* 101:377 F 7 '18; Same. *Am Gas Eng J* 108:53-4 Ja 19 '18
- Gas firing boilers. T. M. Hunter. *Inst E E J* 56:57-74 Ja '18; Same cond. *Am Gas Eng J* 108:441-6, 456-60 My 11 '18; Discussion. *Inst E E J* 56:74-91, 163-8, 209-11, 325-30 Ja-Mr, My '18
- Gas for raising steam. *Sci Am S* 87:179+ Mr 22 '19
- Gas fuel used in 18 different processes by one manufacturer. *Am Gas Eng J* 109:458 N 16 '18
- Gas furnaces in big shipyard. W. J. Harris, jr. *Il Gas Age* 43:400-1 Ap 1 '19; Same. *Int Marine Eng* 24:345-6 My '19
- Gas has become a recognized fuel for industrial purposes in shipbuilding. J. J. Mulgrew. *Il Am Gas Eng J* 111:243-6 S 20 '19
- Gas in artificial flower making. R. E. Livingston. *Il Am Gas Eng J* 108:389-90 Ap 27 '18
- Gas in the chemical and associated industries. G. C. Shadwell. *Il Am Gas Eng J* 109:267-71 S 21 '18
- Gas used in twenty-one manufacturing processes. F. M. Lester. *Il Gas Age* 43:102-4 Ja 15 '19
- Graf gas consuming furnace. J. Nelson. *diags Iron Age* 102:339 Ag 8 '18; Same cond. *Am Soc M E J* 40:862-3 O '18
- Hot water service requirements; 300,000 new houses with gas cookers and gas water heaters to be built in Britain. *Il Metal Work* 91:605-7 My 16 '19
- Humidity machine an interesting use of gas in the tobacco factory. *Am Gas Eng J* 109:123-4 Ag 10 '18
- Improving performance of gas-fired boilers; abstracts. L. A. White. *Elec R* 72:772 My 4 '18; *Elec Ry J* 51:976 My 18 '18; *Elec W* 71:1142-3 Je 1 '18; *Gas Age* 41:532 Je 1 '18; *Am Gas Eng J* 108:548 Je 8 '18
- In manufacture of car wheels gas cuts time of operation in two. *Am Gas Eng J* 110:401 My 10 '19
- Incubator business as an industrial field for gas. G. C. Shadwell. *Il Am Gas Eng J* 111:1-5 Ji 5 '19
- Industrial furnace heating with water gas. O. L. Kowalke. *diags Gas Age* 43:444-6 Ap 15 '19
- Industrial gas as related to photo-engraving. G. C. Shadwell. *Il Am Gas Eng J* 110:501-5 Je 14 '19
- Industrial gas installation for the butt-treating of poles. C. F. A. Schultdt. *diag Gas Age* 41:450 My 15 '18
- Industrial gas sales; abstracts. C. D. Shimpin. *Am Gas Eng J* 109:199-202 Ag 31 '18; *Gas Age* 42:276-8 S 16 '18
- Industrial heating prospects. H. O. Loebell. *Gas Age* 41:319 Ap 1 '18
- Industrial processes and appliances using gas. E. F. Davis. *Gas Age* 38:395-8, 458, 519-20, 612-13, 652-4; 39:65-7, 136-7, 193, 245-8, 288-91, 356-8, 414-16, 471-2, 538-9, 592-3, 638-41; 40:21-3, 71-3, 117-19, 163-7, 212-16, 259-63, 307-10, 363-4, 410-13, 465-8, 513-16, 560-3; 41:21-2, 70-3, 115-18, 168-71, 209-12, 265-6, 309-11, 361-2, 408-10, 463-4, 513-15, 561-4 O 16-D 15 '16, Ja 15 '17-Je 15 '18
- Installation of 16 meters made at New Jersey ship yard. H. Ellis. *Am Gas Eng J* 108:570 Je 15 '18
- Lack of standard performance data tends to prevent improvement in efficiency of gas-consuming devices. I. Lundgaard. *Am Gas Eng J* 111:420-1+ N 1 '19
- Making the coal go farther. L. W. Alwyn-Schmidt. *Am Gas Eng J* 111:265-7 S 27 '19
- Manufactured gas used to produce oil; still will extract oil from shale at a low cost. J. E. Darst. *Am Gas Eng J* 111:184 Ag 30 '19
- Manufacturers producing major part of automobile and aeroplane radiators use gas for every operation requiring heat. C. A. Drum. *Il Am Gas Eng J* 111:505-8 N 29 '19
- Metal melting in gas furnaces; cost. *Metal Ind n s* 15:23 Ja '17

**Gas as fuel—Continued**

- New industrial markets for gas are never ending—the St Louis company finds gratifying possibilities among the egg sterilizers. J. E. Darst. Am Gas Eng J 111:241-2 S 20 '19
- New uses for industrial fuel gas. C. H. Kallstedt. Am Gas Eng J 108:243-4, 259-62 Mr 16 '18; Same cond. Gas Age 41:315-19 Ap 1 '18
- Newspapers are likely customers for industrial fuel gas. H. L. Wolfe. Il Am Gas Eng J 109:178-9+ Ag 24 '18
- Ofeldt gas-fired boiler. Il Am Gas Eng J 110:sup20 Mr 15 '19
- Open-flame furnaces at government gun plant. L. T. Clark. Il Am Gas Eng J 110:91-4 F 1 '19
- Operating the farm tractor with coal gas. Il Sci Am 118:436 My 11 '18
- Opportunity for sale of industrial gas; uses of gas by photographers, butchers, building trades, etc. Il diags Gas Age 42:126-31 Ag 1 '18
- Oxy-city gas appliance provides tremendous heat necessary for the manufacture of artificial gems. R. E. Livingston. Il Am Gas Eng J 108:241-2 Mr 16 '18
- Possibilities for industrial fuel business in small cities in inland agricultural districts. Am Gas Eng J 108:543-5+ Je 8 '18
- Problems confronted in metal melting with gas-fired crucible melting furnace. A. Forshaw. Am Gas Eng J 107:541-6 D 15 '17
- Producer gas as fuel. E. E. Adams. Gas Age 44:36 Jl 1 '19
- Some consideration with regard to fuel gas. F. Crabtree. Eng Soc W Pa 35:117-25; Discussion. 126-39 Ap '19
- Specially designed roaster for starch. S. E. Wardell. Il Am Gas Eng J 107:561-3 D 22 '17
- Stockton, Cal., company interested in replacing fuel oil and gasoline with gas for power generation and industrial work. D. E. Widdersheim. Il Am Gas Eng J 108:609-15 Je 29 '18
- Supplying gas for hatching and brooding. G. C. Shadwell. Il Am Gas Eng J 108:289-91 Mr 30 '18
- Tendency of bakers to take on sidelines opens wide field for gas-fired coffee roasters. Am Gas Eng J 108:475-6 My 18 '18
- 2,600,000 cu. ft. of gas used to heat the rivets for an 8,800-ton ship. E. W. Florence. Am Gas Eng J 110:234 Mr 15 '19
- Use of city gas as motor fuel to be permanent and to increase vastly in volume. J. Richmond. Am Gas Eng J 109:53-4 Jl 20 '18
- Use of gas for automobiles; French discussion upon intensive trials both in England and France. Gas Age 42:199-200 S 2 '18
- Use of gas in automobile traction. Il diag Gas Age 41:126-7 F 1 '18
- Use of gas in lithographing and tin plating. G. C. Shadwell. Il Am Gas Eng J 110:403-4 My 10 '19
- Use of gas in manufacture and utilization of glue, inks and similar substances. G. C. Shadwell. Il Am Gas Eng J 109:25-30 Jl 13 '18
- Use of gas in perfumery trade. G. C. Shadwell. Am Gas Eng J 111:137-8+ Ag 16 '19
- Use of gas in the coffee roasting industry. E. F. Davis. Il diag Gas Age 42:60-5 Jl 15 '18
- Use of gas in the manufacture of cheese. G. C. Shadwell. Am Gas Eng J 111:73 Jl 26 '19
- Use of gas in the manufacture of drinks of the beer type. G. C. Shadwell. Am Gas Eng J 111:204-6+ S 6 '19
- Use of gas in the manufacture of soaps and similar compounds. G. C. Shadwell. Il diag Am Gas Eng J 109:313-17 O 5 '18
- Use of methane as a fuel. G. W. Williams. Il Coal Age 14:988-9 N 28 '18
- Uses of gas in manufacture of rubber in its various forms. G. C. Shadwell. Il Am Gas Eng J 109:145-7 Ag 17 '18
- When you haven't the gas to sell them for brass melting help them to use oil. L. Resnick. Il Am Gas Eng J 109:129-30 Ag 10 '18
- Where gas enters in the making of syrups. G. C. Shadwell. Am Gas Eng J 111:188, 191-2 Ag 30 '19
- Why electricity cannot be an economical competitor of gas for heating. J. A. Britton. Am Gas Eng J 109:413-14 N 2 '18
- With 550 B.t.u. gas at 35 to 50 cents a thousand not even producer gas can compete as industrial fuel. E. J. Caspers. Am Gas Eng J 110:371-3 Mr 29 '19
- With the same equipment output is increased 30 per cent by using gas for coffee roasting. E. Rahn. Il diag Am Gas Eng J 108:461-4 My 18 '18
- See also* Blast furnace gas; Coke ovens; Combustion, Surface; Gas and oil engines; Gas burners; Gas cooking; Gas heating; Gas ovens; Gas producers; Gas stoves
- Gas association, American. *See* American gas association
- Gas bench. *See* Gas manufacture and works
- Gas burners
- Adapto gas burners for all kinds of coal furnaces. Il Gas Age 42:237-8 S 2 '18
- Applying gas burners to existing appliances using other fuels. G. C. Shadwell. diag Am Gas Eng J 109:1-5 Jl 6 '18
- Burning blast furnace gas under boilers; discussion. diags Eng Soc W Pa 33:167-98 Ap '17; Same cond. Iron Age 100:1534-6 D 27 '17; Abstract. Am Soc M E J 39:565-6 Je '17; Excerpt. H. C. Cronmeyer. Iron Tr R 61:191-2 Jl 26 '17
- Close manual control of gas burners. diag Elec R 73:462 S 21 '18
- Combined coal and gas firing. diags Elec W 72:1177 D 21 '18
- Disappearing open flame. Am Gas Eng J 109:388 O 26 '18
- Gas-fired electrode annealing furnace. diags plan Engineer 126:560 D 27 '18
- Gas in bakers' ovens. W. J. Harris, Jr. Il Am Gas Eng J 107:585-7 D 29 '17
- Gas in the chemical and associated industries. G. C. Shadwell. Il Am Gas Eng J 109:267-71 S 21 '18
- Improved gas burner. E. O. Gilson. diag Am Mach 49:542 S 19 '18
- Maxon Premix burner. Il Metal Ind 16:136-7 Mr '18
- Open flame replaced by thrift burner. Il Gas Age 43:84 Ja 1 '19
- Quick service sells 100,000 lamps in Philadelphia. Il Gas Age 43:317-20 Mr 15 '19
- Reducer for gas burners. W. H. Dance. diags Power 47:94 Ja 15 '18
- Use of gas in the coffee roasting industry. E. F. Davis. Il diag Gas Age 42:60-5 Jl 15 '18
- Use of gas in the manufacture of drinks of the beer type. G. C. Shadwell. Am Gas Eng J 111:204-6+ S 6 '19
- Gas cleaning**
- Cleaning furnace gases without the use of water. J. C. Barrett. Il Chem & Met Eng 20:359-61 Ap 1 '19
- Cleaning gas by effective method. G. B. Cramp. diags Iron Tr R 65:506-7 Ag 21 '19
- Dry gas cleaner; installation at Ohio works of the Carnegie steel co., Youngstown. Il Iron Age 103:766-7 Mr 20 '19
- Method of testing cleanness of producer gas. H. F. Smith. Iron Age 104:493-4 Ag 21 '19; Same cond. Iron Tr R 64:1693-4 Je 26 '19
- See also* Blast furnace gas; Flue gas; Gas purification; Gas washers
- Gas companies**
- Consolidated gas company of New York, largest gas utility company in the world. Il diag Gas Age 43:335-3 Ap 1 '19
- Electric and gas utilities in 1917 and 1918. W. H. Hodge. Elec R 72:15 Ja 5 '18; Same. Gas Age 41:39 Ja 1 '18
- Operating facts of Lynn, Mass., company. Am Gas Eng J 107:sup18 D 22 '17
- See also* Gas industry; Gas lighting; Gas manufacture and works; Gas rates

## Gas companies—Continued

## Accounting

- Cost accounting as applied to selling gas. R. L. Ellis. Gas Age 44:184, 186+ Ag 15 '19
- Method of determining gross income by applying block rate to some previous months' sales. A. C. Howard. Am Gas Eng J 109: 501-2 N 30 '18
- Rates for public utilities service. J. M. Spitzglass. Gas Age 41:305-8 Ap 1 '18; Same cond. Am Gas Eng J 108:269-72 Mr 23 '18
- Uniform accounts for natural gas companies. E. C. Jennings. Gas Age 44:118-19, 218-19 Ag 1, 8 1 '19

## Advertising

## See Gas industry—Advertising

## Complaints

- Charge consumers for complaint and trouble service. C. A. Nash. Am Gas Eng J 110:557-8 Je 28 '19
- He forgets the unimportant departures from the usual—hence the higher bill complaint. C. L. Barrett. Am Gas Eng J 110:273-4 Mr 29 '19
- Instructions for handling gas complaints. G. Wehrle. *il* diag Gas Age 43:291-4, 359-60 Mr 15-Ap 1 '19
- New Jersey company makes reply to service complaints. J. L. O'Toole. Am Gas Eng J 108:19-20 Ja 5 '18
- Profit that lies in adjusting all complaints. J. E. Bullard. *il* Gas Age 43:620-2 Je 2 '19

## Employees

- Art of training saleswomen. Gas Age 42:496-7 D 2 '18
- Brockton plan of developing gas business; employing women in maintenance-selling department. C. W. Wardell. *il* Gas Age 41:249-53 Mr 15 '18
- Developing ambition and confidence in employees. G. Wehrle. Gas Age 43:129-31 F 1 '19
- Different attitude towards sales forces would mean millions of dollars saved to the utilities. J. E. Bullard. Am Gas Eng J 111:11-13 Jl 5 '19
- Experience with women workers in London gas works. C. Roberts. *il* Gas Age 41:297-300 Ap 1 '18
- In the service of New England gas companies woman worker has demonstrated that she merits a place in the gas industry. G. H. Priest. Am Gas Eng J 110:168-70 F 22 '19
- Instructions for gas company fitters. G. Wehrle. Gas Age 41:14-16, 67-9, 119-21, 165-7, 213-17, 260-2, 312-14, 355-7, 400-3, 448, 509-10; 42:15-18, 66-7 Ja 1-Jl 15 '18
- Necessity of the commercial man's selling himself to his own company the theme of the evening at the April meeting of the Gas sales association of New England. F. L. Carter. Am Gas Eng J 110:361-3, 368-9 Ap 26 '19
- New York gas company's women appliance inspectors. Am Gas Eng J 108:464 My 18 '18
- Place of women in the industries; employment in gas works of London. *il* Gas Age 41:345-7 Ap 15 '18
- Securing gas help by moving picture slides. E. A. Dench. Am Gas Eng J 108:598 Je 22 '18
- Systems of remuneration for salesmen. E. J. Stephany. Am Gas Eng J 108:267-8+ Mr 23 '18
- Teaching salesmen how to sell more gas appliances. J. E. Bullard. Gas Age 44:364-5 O 15 '19
- Women reading meters for Consolidated gas company also help housewives to save gas. *il* Am Gas Eng J 109:404-5 O 26 '18
- Women's latest field—in the retort-house. Am Gas Eng J 108:460 My 11 '18
- World policies; English women workers in retort house. Gas Age 41:442-3 My 15 '18

See also Gas companies—Salesmen

## Equipment

- Boston safety service; modern equipped emergency truck. *il* Gas Age 44:433 N 1 '19

## Finance

- Bond houses review the gas security situation. Gas Age 43:513-15 My 15 '19
- Bond issue for construction of forty new coke ovens authorized by Public service commission of Indiana. Am Gas Eng J 108:523-5, 575-6 Je 1, 15 '18
- Earnings of Cities service company. Am Gas Eng J 109:520 N 30 '18
- Financial stability and the gas security market. Gas Age 43:509-12 My 15 '19
- Flat rate of 60 cents for Indianapolis consumers. Am Gas Eng J 108:480-3 My 18 '18
- Grand jurors discuss financial needs of gas co. Gas Age 42:475-6 D 2 '18
- Increasing costs of operation and raw materials. F. L. Marshall. Gas Age 41:511-12 Je 1 '18
- Indiana commission adopts definite policy as to depreciation funds. Am Gas Eng J 109: 103-4 Ag 3 '18
- Investment condition faced by gas industry in connection with the distribution system and development of new territory. W. J. Bertke. Am Gas Eng J 111:27-9 Jl 12 '19
- New capital subscribed by local investors. Gas Age 43:573-4 Je 2 '19
- Pacific gas & electric company sells stock worth \$8,203,000 locally. Elec W 71:1315-16 Je 22 '18
- Paris gas works in war time. Gas Age 41:418-19 My 1 '18
- Peoples company files brief showing financial condition in rate increase case. Am Gas Eng J 109:115-17 Ag 3 '18
- Rate of return. Gas Age 41:491-3 Je 1 '18
- Seeking a solution of the problem on which its existence depends the gas industry turns to consideration of the by-product coke oven. C. B. Cooke, jr. chart Am Gas Eng J 111:485-91 N 22 '19
- Selling preferred stock to local investors. Gas Age 43:579-82 Je 2 '19
- Stapleton activities may be hampered by curtailment of gas supply. Am Gas Eng J 108: 578-80 Je 15 '18
- To sell securities win over local bankers. J. R. McMillin. Gas Age 43:48-9 Ja 1 '19
- Unprofitable consumers. H. J. Hoover. Gas Age 43:585-6 Je 2 '19

## Franchises

- Rate fixed by franchise not binding according to New York Public service commission, Second district. Gas Age 41:277 Mr 15 '18
- Validity and construction of contract to pay municipality percentage of receipts. Gas Age 41:179-80 F 15 '18

## Law

- Compulsory extension of mains; Supreme court decision. Gas Age 41:30-1 Ja 1 '18
- Contracts for free gas. Gas Age 42:269 S 16 '18
- Extension of service. Gas Age 42:114 Ag 1 '18
- Inspection of gas ranges—companies not liable for explosions. Gas Age 42:38 Jl 1 '18
- Inspection of service pipes on installing meters. Gas Age 42:38 Jl 1 '18
- Jurisdiction over rates. Gas Age 42:304 O 1 '18
- Law against stealing gas in Texas. Gas Age 40:584 D 15 '17
- Legality of a meter deposit upheld in Kansas. Gas Age 44:147 Ag 15 '19
- Reduction of fee for inspection of mains and conduits. Gas Age 41:31 Ja 1 '18
- Right to cut off supply. Gas Age 41:228 Mr 1 '18

## Management

- Baltimore plan abolishes flat flame burners. *il* Gas Age 42:291-6, 333-40 O 1-15 '18
- Branch stores pay well says Montreal manager. C. W. Pierson. *il* plan Gas Age 43: 548-53 My 15 '19



**Gas companies—Management—Continued**

- Brockton plan of developing gas business; employing women in maintenance-selling department. C. W. Wardell. *Il Gas Age* 41: 249-53 Mr 15 '18; Abstract. *Illum Engr* 11: 159-60 Je '18
- Checking up service. E. Dean. *Am Gas Eng J* 110:21-2 Ja 11 '19
- Credit department fails to co-operate with Peterson. S. G. Addison. *Am Gas Eng J* 111: 229-30 S 13 '19
- Economy beginning at the gas standard set and running all the way to the cheapest and most efficient consuming appliance. J. D. Kuster. *Am Gas Eng J* 111:268-70, 275-6 S 27 '19
- Efficient management entitled to liberal profit; declaration of principles by the Illinois public utilities commission. *Gas Age* 44:141-2 Ag 15 '19
- Efficient management of gas plants. *Gas Age* 44:139-40 Ag 15 '19
- Eliminating waste. A. B. Day. *Gas Age* 41:255-6 Mr 15 '18
- Executive foresight and loyally co-operating organizations enable gas companies of nation's greatest city to carry through against unprecedented loads. E. C. Miles. *Am Gas Eng J* 108:25-8 Ja 12 '18
- Expresses belief that gas companies will eventually confine their merchandising to gas itself. T. Crawford. *Am Gas Eng J* 111: 23-4 Jl 12 '19
- F. W. Frueauff tells how he runs 130 companies. B. C. Forbes. *Gas Age* 43:52-3 Ja 1 '19
- Gas-mantle lighting conditions in ten large cities in the United States. R. S. McBride and C. E. Reinicker. *U S Bur Stand Tech Pa* 99:1-37 '17
- Growth and present status of systems used in the maintenance of gas lamps in residences. E. E. Myers. *Illum Eng Soc* 12:425-9; Discussion. 430-2 no 8 '17
- How gas companies use motor vehicles. J. E. Bullard. *Il Gas Age* 43:556-9 My 15 '19
- How the purchasing departments may determine if they are purchasing quantity or quality. *Am Gas Eng J* 107:563-7 D 22 '17
- Ideas to cut meter reading costs. *Gas Age* 42: 323 O 1 '18
- Instruction for gas company fitters. G. Wehrle. *Gas Age* 42:426-30 N 15 '18
- Interesting personal observations gathered from behind the counter of a retail appliance store. *Am Gas Eng J* 111:57-8 Jl 19 '19
- Larger piping installation than consumer's immediate needs require—an essential to building up industrial gas business. H. Dobrin. *Am Gas Eng J* 111:133-4 Ag 16 '19
- Lessons the war emergencies have taught New England companies. J. A. Norcross. *Am Gas Eng J* 110:189-93 Mr 1 '19; Same abr. *Gas Age* 43:268-9 Mr 1 '19
- Making the gas plant an important economic factor in the country community. L. W. Alwyn-Schmidt. *Am Gas Eng J* 110: 417-19 My 17 '19
- Making the manager's salary dependent upon the output. *Am Gas Eng J* 108:56-7 Ja 19 '18
- Making the new consumer feel his importance. W. A. Fairservis. *Am Gas Eng J* 109:105 Ag 3 '18
- Motor cycle obsolete in transportation system of Des Moines company. D. P. Allen. *Il Am Gas Eng J* 110:507-10, 512-18 Je 14 '19
- Need of scientific management in gas works. C. E. Teasdale. *Am Gas Eng J* 108:418-19 My 4 '18
- Nothing intricate to the labor problem. G. E. Cortelyou. *Am Gas Eng J* 111:349-50+ O 18 '19; Same abr. *Gas Age* 44:351-2 O 15 '19
- Now that cost of business is steadily climbing it is more important than ever that all sales resistance be reduced to a minimum. J. E. Bullard. *Am Gas Eng J* 111: 93-4 Ag 2 '19
- Plea for lighting departments. C. S. Gravatt. *Gas Age* 42:406-7 N 1 '18
- Ratio of customers promises to fulfillment. A. G. Drury. *Gas Age* 41:571 Je 15 '18
- Teaching the consumer economy in the use of gas. H. E. Danner. *Am Gas Eng J* 110: 532 Je 21 '19
- Value of gas company architectural service bureau; report of National commercial gas association committee. *Am Gas Eng J* 108: 7-11 Ja 5 '18
- See also Gas companies—Complaints; Gas industries

**Offices**

- Gas office in New York city lighted by gas. *Il Gas Age* 41:445-7 My 15 '18

**Public relations**

- Chief clerk and his subordinates supreme in control of good-will. J. K. Swanson. *Am Gas Eng J* 111:290-1 O 4 '19
- Getting intimate with the public. J. E. Bullard. *Am Gas Eng J* 111:217-18 S 13 '19
- Greatest asset of any gas company consists in the reliable information and help it gives its consumers. F. J. Schafer. *Am Gas Eng J* 111:497-500 N 22 '19
- How Brockton visualized rising costs of gas making in its windows. *Il Gas Age* 42:222-3 S 2 '18
- Putting it up to the public. R. Elsmann. *Am Gas Eng J* 108:569 Je 15 '18
- Two gas rate increases secured by advertising. R. W. Woodward. *Gas Age* 43:44-6 Ja 1 '19
- When in doubt as to what should be done, devise some new means of developing good will. E. Dean. *Am Gas Eng J* 109:543-4 D 14 '18

**Rates**

See Gas rates

**Records**

- Mapping and recording distribution and transmission systems of gas companies. G. E. Steller. *diags Am Gas Eng J* 108:370-4 Ap 20 '18
- Method of locating gas mains in Cleveland. *map Gas Age* 42:53 Jl 15 '18

**Regulation**

- Discriminatory restriction of natural gas illegal. *Gas Age* 44:60-1 Jl 15 '19
- Duty to furnish natural gas. *Gas Age* 41:326 Ap 1 '18
- Illinois standards for gas service. F. D. Fletcher. *Am Gas Eng J* 108:247-51+ Mr 16 '18
- Indianapolis company will make extensions in accordance with order. *Am Gas Eng J* 109:42-3 Jl 13 '18
- Natural gas distribution decision. *Gas Age* 43:515 My 15 '19
- New gas service rules Sept. 1. W. R. Williams. *Gas Age* 44:215 S 1 '19
- New standards for gas service in California. *Gas Age* 44:288-90 O 1 '19
- Ordinance on gas fittings passed by Brockton (Mass.) council. *Am Gas Eng J* 108:528-9 Je 1 '18
- Ordinance requiring gas companies to bear cost of service connections held invalid. *Gas Age* 41:419-20 My 1 '18
- Rate making power of legislatures and courts. *Gas Age* 42:115-16 Ag 1 '18
- Relation of Public service commissions to the gas consuming public and to the gas companies. W. Clark. *J Fr Inst* 186:649-74 D '18
- Responsibility for adequate extensions of gas company plants up to the regulatory commissions. W. Clark. *Am Gas Eng J* 109: 225-7, 229-35 S 7 '18; Excerpts. *Gas Age* 42: 297-300 O 1 '18

See also Gas—Standards

**Salesmen**

- Boost appliance sales by paying salesmen better. E. J. Stephany. *Gas Age* 43:42-3 Ja 1 '19
- High-grade salesmen in lesser numbers more productive and less expensive than mediocre type in large array. J. P. Hanlan. *Am Gas Eng J* 110:255-6+ Mr 22 '19

**Gas companies—Salesmen—Continued**

How to organize the sales force most effectively. C. W. Johnson. Gas Age 44:432 N 1 '19  
 Personal side of salesmanship. W. Gould. Gas Age 41:220-2 Mr 1 '18  
 Remuneration of salesmen. E. J. Stephany. Gas Age 41:365-9 Ap 15 '18  
 Would permit no one to sell industrial gas who is without experience in selling domestic business. C. M. Robert. Am Gas Eng J 111:311-12+ O 11 '19

**Valuation**

Going value in rate making cases. Gas Age 41:274 Mr 15 '18  
 Rational basis for determining working capital. G. S. Jacobs. Eng N 80:1041-5 My 30 '18

**War service**

How gas companies can help to win the war. W. S. Blauvelt. Gas Age 42:320-2 O 1 '18  
 How gas companies cooperated during the war. H. C. Porter. Il Gas Age 43:521-6 My 15 '19

**Gas compressors**

Horse-power and displacement chart for natural gas compressors. E. O. Hickstein. Il Am Gas Eng J 110:375-7 My 3 '19

**Gas conservation. See Gas, Natural****Gas cooking**

Bellerive country club, St. Louis, tries coal first, electricity next, then turns to gas for cooking. L. Resnick. Il Am Gas Eng J 109:55-6 Jl 20 '18  
 Big field for equipment of hotel kitchens. Il Gas Age 42:404-6 N 1 '18  
 Biggest all-gas kitchen is at Princeton university. C. H. French. Il plan Gas Age 43:390-3 Ap 1 '19  
 Cafeteria seats 280—with gas 2,000 are served. F. N. Clement. Il Gas Age 44:125 Ag 1 '19  
 Coal range converted to gas for high duty hotel use. L. N. Yetter. Am Gas Eng J 109:33-4 Jl 15 '18  
 Field for auxiliary appliances in hotels and restaurants. G. C. Shadwell. Il Am Gas Eng J 107:537-40 D 15 '17  
 Gas cooking in French schools. Gas Age 41:124 F 1 '18  
 Gas cooks meals for 800 steel works employees. Il Gas Age 44:267-8 S 15 '19  
 Gas cooks 2,400 meals a day at the Martinique. A. Brentwood. Il Gas Age 44:327 O 1 '19  
 Heat utilization. Gas Age 43:143-4 F 1 '19  
 Hotel and restaurant fuel sales. W. E. Dugdel. Gas Age 41:122-3 F 1 '18  
 Hotels offer a big market for the sale of gas. R. V. Howe. Il Gas Age 44:426-7 N 1 '19  
 In the large kitchens of New York's biggest hotels gas is used for cooking. C. S. Milleur. Il Gas Age 44:332-3 O 1 '19  
 Low gas pressure best for cooking. Gas Age 42:134 Ag 1 '18  
 New Orleans gas kitchens. C. B. Forbes. Il Gas Age 41:267-70 Mr 15 '18  
 One kitchen cooks meals for seven restaurants. C. W. Plerson. Il Gas Age 44:179 Ag 15 '19  
 Opportunity now to campaign all-gas kitchens. C. J. De Mers. Il Gas Age 42:226-8 S 2 '18  
 Popularize all gas kitchens. J. E. Bullard. Il Gas Age 44:34-6 Jl 1 '19  
 Public is hungry for good gas-baked bread. C. H. French. Gas Age 43:564+ My 15 '19  
 St. Vincent's hospital installation. R. B. Scarlett. Il Am Gas Eng J 108:275+ Mr 23 '18  
 Sell all-gas kitchens now. C. J. De Mers. Gas Age 42:178-9 Ag 15 '18  
 35,000 cu. ft. a day used in St. Louis' biggest kitchen. L. Resnick. Il Am Gas Eng J 109:393-5 O 26 '18  
 War time installations in English plants. J. Y. Dunlop. Il diags plan Metal Work 88:679-81 D 7 '17  
 When gas heating appliances give best results. H. Erikson. diags Gas Age 44:367-8+ O 15 '19

*See also* Gas ovens; Gas stoves

**Cost**

How to compare gas and electric cooking costs. G. C. Shadwell. Gas Age 44:228-9 S 1 '19

**Gas detectors**

Burrell gas detector. G. Wilkinson. Coal Age 15:1094-5 Je 12 '19  
 New forms of instruments for showing the presence and amount of combustible gas in the air. E. R. Weaver and E. E. Weibel. Il diags U S Bur Stand Sci Pa 334:47-90 '19

**Gas distribution**

Automatic booster for low pressure system. F. J. Myers. diags Gas Age 42:54 Jl 15 '18  
 High pressure as a means of getting better returns from investments in mains. Am Gas Eng J 107:515-16 D 8 '17  
 How a company that serves several cities, towns and villages handles high pressure distribution. G. T. Macbeth. Am Gas Eng J 111:351-3 O 18 '19  
 Increasing capacity of low-pressure mains by admitting gas at more than one point. A. C. Howard. Am Gas Eng J 110:329-31 Ap 19 '19  
 Installation of service stubs. A. G. Drury. Gas Age 42:163-4 Ag 15 '18  
 Instruction for gas company fitters. G. Wehrle. Il Gas Age 42:382-4 N 1 '18  
 No appreciable loss results to consumer meter registration through fallen pressure but considerable loss indirectly follows from sluggish flow of gas. C. V. Critchfield. Il Am Gas Eng J 109:31-2+ Jl 13 '18  
 Perfection in the way of uniform pressure at the consumer's burner can be attained only by high-pressure transmission. C. C. Boardman. chart Am Gas Eng J 110:357-8+ Ap 26 '19  
 Predetermined pressures can be maintained by clockwork. M. D. Dexter. diags Am Gas Eng J 110:140-1 F 15 '19  
 Pressure mains with accompanying equipment and auxiliaries reduce inadequacy and obsolescence of distribution mains to a negligible quantity. S. C. Singer. Am Gas Eng J 111:7-8 Jl 5 '19  
 Pressures during increased demand. C. C. Boardman. Gas Age 43:434-5 Ap 15 '19  
 Rural gas distribution. B. F. Buck. Gas Age 43:576-8 Je 2 '19  
 Selective service pressures. M. D. Dexter. diags Gas Age 43:612-13 Je 2 '19  
 Terre Haute installs booster system to give adequate service in northern section of its territory. A. C. Howard. diags Am Gas Eng J 109:409-11 N 2 '18  
 Transportation and distribution of natural gas. H. A. Quay. Gas Age 44:102-3 Ag 1 '19

*See also* Gas flow; Gas pipes

**Gas engineers.** New England association of. See New England association of gas engineers

**Gas engines.** See Gas and oil engines

**Gas explosions.** See Explosions

**Gas-filled lamp.** See Electric lamps, Tungsten

**Gas fires**

Eight million cu. ft. of manufactured gas burned in a few seconds, lighting up all London. H. Townsend. Il Am Gas Eng J 110:551-4+ Je 28 '19

Extinguishing and preventing oil and gas fires. C. P. Bowie. bibliog Il diags U S Bur Mines Bul 170:1-45 '18; Abstract. Mech Eng 41:436-7 My '19

**Gas fitting**

Gas company should have right to demand that piping be installed in such manner as to establish greatest factor of safety and convenience. E. H. Caughell. Am Gas Eng J 109:202-3 Ag 31 '18; Same. Gas Age 42:230-1 S 2 '18

Installation of gas appliances. E. H. Caughell. Gas Age 42:230-1 S 2 '18

Instructions for gas company fitters. G. Wehrle. Gas Age 41:14-16, 67-9, 119-21, 165-7, 213-17, 260-2, 312-14, 355-7, 400-3, 448,

**Gas fitting—Continued**

509-10; 42:15-18, 66-7, 108-11, 150-3, 201-5, 261-2, 305-6, 347-8, 382-4, 426-30, 477 Ja 1-D 2 '18

**Gas fittings**

Ordinance on gas fittings passed by Brockton (Mass.) council. Am Gas Eng J 108:528-9 Je 1 '18

**Gas fixtures**

Failure to install fixtures on a par with the furnishings a serious setback to gas lighting. J. E. Bullard. Am Gas Eng J 111:437-8 N 8 '19

Gas fixtures real property. Gas Age 43:417 Ap 15 '19

Historical lighting of Independence Square, Philadelphia. E. F. Kingsbury. Il diag plan Illum Eng Soc 12:449-56; Discussion. 456-63 no 9 '17

Outside lighting of cinema halls by gas. Illum Engr 10:294 N '17

See also Gas lamps

**Gas flow**

Automatic compensating flow meter. G. G. Overfell and R. P. Mase. diag J Ind & Eng Chem 11:294-6 Ap '19

Determining the most satisfactory formula for measuring the flow of natural gas through pipe lines. E. O. Hickstein. Am Gas Eng J 108:101-2 F 2 '18

Gas flow meters for small rates of flow. A. F. Benton. diag J Ind & Eng Chem 11: 623-9 Jl '19

Pipe-line flow capacities for natural gas. E. O. Hickstein. chart Am Gas Eng J 110: 483-4 Je 7 '19

Velocity measured by impact tube. S. A. Moss. Il diag Iron Tr R 62:777-85 Mr 28 '18

See also Air flow; Anemometer; Gas measurement

**Gas fuel. See Gas as fuel****Gas generators. See Gas producers****Gas governors**

Gas-pressure regulators and working assemblies. E. Viall. Il diag Am Mach 50: 1237-43 Je 26 '19

New type of district governor for pressure control. C. H. Smoot. Il diag Gas Age 43: 188-9 F 15 '19

Roots governor offered for close pressure regulation of gas exhausters and boosters. diag Gas Age 43:496-7 My 1 '19; Same. Chem & Met Eng 21:99-100 Jl 15 '19; Same cond. Iron Tr R 64:1086 Ap 24 '19; Abstract. Mech Eng 41:539 Je '19

Station and district governors—clock control has stood test of time. M. D. Dexter. Am Gas Eng J 110:464-6 My 31 '19

**Gas heaters**

Chemicals used to make odorless gas radiator. Il diag Gas Age 42:500 D 2 '18

Detroit gas auxiliary house heater. diag Heat & Ven 14:62 D '17

Hawks has radiators for the fall campaign. diag Gas Age 42:138 Ag 1 '18

Rounding up slacker consumers this spring. R. Falconer. Il Gas Age 43:324-5 Mr 15 '19

Welsbach thrift gas heaters. Il Gas Age 44: 359 O 15 '19

See also Gas water heaters

**Gas heating**

Answering fuel needs with a new heating system. G. S. Barrows. diag Am Soc Heat & V E 24:143-56 '18; Same (Operating the Rector gas heating system). Am Gas Eng J 108:124-30 F 9 '18; Discussion. Am Soc Heat & V E 24:157-63 '18

Baltimore heats big office building with gas. E. D. Milener. Il Gas Age 43:389 Ap 1 '19

Between-season gas heating. Il plans Heat & Ven 16:41-6 S '19

Developing house heating business. G. S. Barrows. Am Gas Eng J 108:580-3 Je 15 '18

Experience of dwellers in single-family houses during past winter an evidence of what can be accomplished with minimum heating equipment using gas. E. Dean. Il Am Gas Eng J 108:217-20 Mr 9 '18

Gas-appliance testing laboratory. H. M. Riley and L. B. Wilson, jr. diag Am Gas Eng J 109:217-23 S 7 '18

Gas for house heating. Am Gas Eng J 108:313-16 Ap 6 '18

Gas for house heating is found to be economical. E. V. Dally and F. Kelsey. Am Gas Eng J 108:153-5+ F 16 '18

Gas heating plants for French apartment houses. diag Gas Age 42:431-3 N 15 '18

Gas-heating problem in France. F. Miltoun. Am Gas Eng J 108:149-50 F 16 '18

Gas heating proves ideal in big dance hall. H. E. Branch. Il diag Gas Age 43:394-6 Ap 1 '19

Gas house heating cheaper than coal. H. Stansfield-Dodd. Am Gas Eng J 111:165-6 Ag 23 '19; Same. Gas Age 44:227 S 1 '19

Gas versus coke and anthracite heating. Metal Work 91:677+ My 30 '19

Heating factories with gas. J. F. Hutchins. Il Gas Age 41:528-9 Je 1 '18

Many homes in New York now entirely heated by gas. Am Gas Eng J 111:327-8 O 11 '19

Necessary to deal with domestic heating as a major branch of commercial department activities if maximum sales are to be expected. W. H. Schofield. Am Gas Eng J 108:357-9 Ap 13 '18

Pictures taken from life boom results in Portland gas heating effort. J. H. Hartog. Il Am Gas Eng J 111:427-8 N 1 '19

Possibilities of radiant heat. J. P. Conroy. Gas Age 41:77-8 Ja 15 '18

Progress of gas house-heating. Heat & Ven 15:50 Jl '18

Radiant heat more effective than convected or direct contact heat. J. N. Cadby. Am Gas Eng J 108:321-2+ Ap 6 '18

This 17 room house is heated by gas. W. T. Rasch. Il Gas Age 44:328-9 O 1 '19; Same. Metal Work 92:527-8 O 31 '19

Toronto company's campaign for house heating business. G. W. Allen. Il Am Gas Eng J 109:151-4 Ag 17 '18

Why fear electric competition? G. W. Allen. Gas Age 42:132-3 Ag 1 '18

See also Gas heaters; Gas water heaters

**Gas holders**

Converting a small gas holder into a gas oil tank. A. C. Howard. diag Am Gas Eng J 108:225 Mr 9 '18

Wherein a joint in the outlet pipe from a 2,000,000 cu. ft. holder 18 ft. from tank bottom and a diver cleans out bottom with holder full of gas. A. H. Harris, jr. Il diag Am Gas Eng J 110:525-30 Je 21 '19

**Gas ignition. See Gas—Ignition****Gas industry**

Army post at Atlanta equals gas consumption of small city. Am Gas Eng J 110:141-2 F 15 '19

Better merchandising methods needed now. F. Kelsey. Gas Age 43:447-9 Ap 15 '19; Same. Am Gas Eng J 110:296, 305-8 Ap 5 '19

Broader vision, liberality and confidence desired. F. K. Lane. Gas Age 44:7-9 Jl 1 '19

By-product oven looms up as a serious factor in the gas business. A. H. Harris, jr. Am Gas Eng J 111:372-6 O 18 '19

Changing about in industrial alignment offers opportunities without parallel to gas industry. E. D. Carpenter. Am Gas Eng J 110:289-90 Ap 5 '19

City gas maker must aim for cheaper selling price or lose out in industrial field to producer gas. Am Gas Eng J 110:5-6 Ja 4 '19

Commercial dept. under war conditions. N. Clay. Gas Age 41:516 Je 1 '18

Discount of 15 cents sells 453 water heaters. E. B. Baker. Gas Age 44:129-30 Ag 1 '19

Filling the valleys in gas and appliance sales. W. Gould. Gas Age 44:424-5 N 1 '19

Future of gas is industrial. Am Gas Eng J 111:305-8 O 4 '19

Future of the gas industry. Engineer 125: 494-5; 126:350 Je 7, O 25 '18

Gas, although manufactured as an industrial product, is, economically, nevertheless a basic industrial material. L. W. Alwyn-Schmidt. Am Gas Eng J 111:21-3 Jl 13 '19

**Gas Industry—Continued**

- Gas and electricity being merchandising specialties must be sold accordingly. C. A. Magee. *Am Gas Eng J* 107:527-30 D 8 '17; Same. *Gas Age* 40:568-70 D 15 '17
- Gas business in the forefront of industry. *Gas Age* 43:344-7 Ap 1 '19
- Gas business won against lowest electric rate. G. W. Allen. *Il Gas Age* 43:450-2 Ap 15 '19
- Gas industry has advanced a generation within the past five years. C. D. Shaul. *Am Gas Eng J* 110:402 My 10 '19
- Gas industry of Europe after the war. *Gas Age* 42:55-6 Jl 15 '18
- Gas iron and an effective way to sell it. H. H. Lackey. *Il Am Gas Eng J* 108:231-3 Mr 9 '18
- Gas used in twenty-one manufacturing processes. F. M. Lester. *Il Gas Age* 43:102-4 Ja 15 '19
- Gas versus electricity. C. N. Chubb. *Gas Age* 41:172-5 F 15 '18
- Gas vs. its various competitors in the future. W. N. Booth. *Am Gas Eng J* 108:123-4 F 9 '18
- Getting ready for the gas industry of tomorrow. E. Dean. *Am Gas Eng J* 110:1-3 Ja 4 '19
- Goal of the gas industry. F. C. Weber. *Gas Age* 43:338 Ap 1 '19
- How Chicago popularized gas laundry appliances. W. D. Roberts. *Gas Age* 44:266 S 15 '19
- How to sell city gas for industrial purposes. F. M. Lester. *Gas Age* 43:158-9 F 1 '19
- How to sell gas lighting. C. A. Luther. *Am Gas Eng J* 108:245-7 Mr 16 '18
- Increasing the sale of gas for industrial uses. J. W. Smith. *Gas Age* 43:506+ My 1 '19; Same. *Am Gas Eng J* 110:381-2+ My 3 '19
- Industrial gas sales; abstracts. C. D. Slimpin. *Am Gas Eng J* 109:199-202 Ag 31 '18; *Gas Age* 42:276-8 S 16 '18
- Industrial processes and appliances using gas. E. F. Davis. *Gas Age* 38:395-8, 458, 519-20, 612-13, 652-4; 39:65-7, 136-7, 193, 245-8, 288-91, 356-8, 414-16, 471-2, 538-9, 592-3, 638-41; 40:21-3, 71-3, 117-19, 163-7, 212-16, 259-63, 307-10, 363-4, 410-13, 465-8, 513-16, 560-3; 41:21-2, 70-3, 115-17, 168-71, 209-12, 265-6, 309-11, 361-2, 408-10, 463-4, 513-15, 561-4 O 16-D 15 '16, Ja 15 '17-Je 15 '18
- Industry cannot be made great by cheapening it. E. Dean. *Am Gas Eng J* 109:581-3 D 28 '18
- Instruction for gas company fitters; history and progress of the gas industry. G. Wehrle. *Il maps Gas Age* 42:108-11, 150-3, 201-5, 261-2 Ag 1-S 16 '18
- Longer campaigns bring better results. R. R. Williams. *Gas Age* 44:176+ Ag 15 '19
- Looking at business through the consumers' eyes. M. C. Robbins. *Gas Age* 44:419-21 N 1 '19
- Making the coal go farther. L. W. Alwyn-Schmidt. *Am Gas Eng J* 111:265-7 S 27 '19
- Making the new business department an asset. J. E. Bullard. *Il Am Gas Eng J* 108:397-9 Ap 27 '18
- Methods of selling standard industrial appliances. G. C. Shadwell. *Am Gas Eng J* 107:575-6 D 22 '17
- Methods that insure success in merchandising gas. *Am Gas Eng J* 108:39-42+ Ja 12 '18
- No stoppage due to war in work of commercial department run on self-supporting basis. W. B. Johnson. *Am Gas Eng J* 109:208+ Ag 31 '18
- Opportunity for sale of industrial gas; uses of gas by photographers, butchers, building trades, etc. *Il diag Gas Age* 42:126-31 Ag 1 '18
- Paris echoes in the gas industry. F. Miltoun. *Am Gas Eng J* 109:242-3 S 14 '18
- Photographers, dentists and others use gas. G. W. Allen. *Il Gas Age* 44:38-9 Jl 1 '19
- Possibilities for industrial fuel business in small cities in inland agricultural districts. *Am Gas Eng J* 108:543-6+ Je 8 '18
- Possibilities of future for gas companies from British standpoint. N. S. Cox. *Am Gas Eng J* 109:539-41 N 9 '18
- Present and prospective status of the gas industry. S. W. Parr. *W Soc E J* 24:177-83; Discussion. 183-4 Mr '19
- Proper installations must follow sales immediately. G. I. Vincent. *Gas Age* 44:430-1 N 1 '19
- Reduction in price of gas to the consumer a way to prosperity for the gas industry. L. W. Alwyn-Schmidt. *Am Gas Eng J* 111:417-19 N 1 '19
- Reorganizing commercial departments for profit. A. P. Post. *Gas Age* 43:154-6 F 1 '19
- Save and work up by-products into saleable form. J. A. Norcross. *Gas Age* 43:268-9 Mr 1 '19
- Seeking a solution of the problem on which its existence depends the gas industry turns to consideration of the by-product coke oven. C. E. Cooke, jr. *chart Am Gas Eng J* 111:485-91 N 23 '19
- Service builds up sales. W. B. Stoddard. *Am Gas Eng J* 111:212-13 S 6 '19
- Significant gas sales facts and figures. W. Gould. *Am Gas Eng J* 110:37-8+ F 1 '19
- Some needs of the gas industry. H. E. Gilbert. *Gas Age* 43:83-4 Ja 15 '19
- Time is ripe for merchandising and the need is more imperative than ever before. E. Dean. *Am Gas Eng J* 109:561-2 D 21 '18
- To be a good commercial man is to be something well worth while. H. E. Danner. *Am Gas Eng J* 108:447+ My 11 '18
- True industrial field lies in the hands of the average consumer and not with the largest factories. H. M. Crawford. *Am Gas Eng J* 111:321-2 O 11 '19
- Unsold market for gas in homes. C. E. Bartlett. *Gas Age* 44:422-3 N 1 '19
- Unsold market for gas so much greater than the sold that no one need worry as to its limits. C. E. Bartlett. *Am Gas Eng J* 111:357-8, 386-8 O 18 '19
- Vital issues in the gas industry ably discussed. J. W. St John. *Gas Age* 43:412-14 Ap 15 '19
- War is over—now to rebuild. *Gas Age* 42:419-20 N 15 '18
- Why not sell cooking utensils? W. B. Johnson. *Gas Age* 42:228 S 2 '18
- Widening of scope of electro-galvanizing and allied industries combined with coal costs rising out of proportion to gas make this a fertile field for industrial gas development. G. C. Shadwell. *Il diag Am Gas Eng J* 111:157-63 Ag 23 '19
- With the generating plant representing only third of the investment, load factor in the gas industry becomes of real importance. T. King. *charts Am Gas Eng J* 110:545-50 Je 28 '19
- Your competitor may be an important factor in the economic scheme of the nation. L. W. Alwyn-Schmidt. *Am Gas Eng J* 111:70-2 Jl 26 '19
- See also Gas, Natural; Gas appliances; Gas as fuel; Gas companies; Gas cooking; Gas distribution; Gas heating; Gas lamps; Gas lighting

**Advertising**

- Advertising gas with appliances. A. L. Crane. *Gas Age* 41:175-6 F 15 '18
- Boys' and girls' canning clubs; the Food administration, the board of education and the gas company worked hand in hand in Missouri. L. Resnick. *Il Am Gas Eng J* 109:248-50 S 14 '18
- Business in an unusual way; gas range campaign. R. Weidaw. *diag Gas Age* 41:413-14 My 1 '18
- Co-operative publicity. B. Phillips. *Gas Age* 44:232 S 1 '19
- Domestic science school as a sales producer. J. E. Philpott. *Am Gas Eng J* 111:173-4 Ag 23 '19; Same. *Gas Age* 44:226-7 S 1 '19
- Effective window demonstration. I. R. Merritt. *Am Gas Eng J* 109:527-8 D 7 '18
- English gas window displays impress trade observer as being much behind American attainment. E. A. Dench. *Il Am Gas Eng J* 111:829-30 O 11 '19

**Gas Industry—Advertising—Continued**

- Gas educational lecturer can find enough of the colorful and dramatic not only to attract, but to hold audiences. G: W. Allen. Am Gas Eng J 110:137-9 F 15 '19
- Get ready for gas range week May 12 to 17. C. W. Pierson. Il Gas Age 43:500-2 My 1 '19
- How H. M. Byllesby & co. sell stock to consumers. S. C. Lambert. Gas Age 43:106-7 Ja 15 '19
- How John Bull advertises gas and appliances. C. W. Pierson. Il Gas Age 44:76-8 Jl 15 '19
- How John Kolbe uses plans to sell appliances. B. B. Baker. diag. plan Gas Age 44:264-5 S 15 '19
- How movies can be used to popularize gas. H. Levey. Il Gas Age 43:214-15 F 15 '19
- Is it necessary to ask will it pay the gas company to avail itself of its possibilities? G. D. Mantle. Am Gas Eng J 111:298-301 O 4 '19
- Leverage to the hidden revenue. M. L. Kane. Am Gas Eng J 110:254 Mr 22 '19
- Mail advertising has been proved most effective in co-operative sales service of manufacturer and dealer. H. G. Mentzer. Am Gas Eng J 108:59+ Ja 19 '18
- Make sure that the story will get home by addressing a circular to the child. Am Gas Eng J 110:471-3 My 31 '19
- Making best use of advertising in war time. G: W. Allen. Gas Age 42:174-6 Ag 15 '18
- Merchandising efforts necessary on the part of gas companies in wartime. J. E. Bullard. Am Gas Eng J 108:183-6 F 23 '18
- Needed! a new viewpoint on publicity. E. Dean. Am Gas Eng J 110:161-3 F 22 '19
- 1917 report of the N. C. G. A. window display committee. Am Gas Eng J 108:64 Ja 19 '18
- Pawtucket window display of products made in the city. C. E. Lasher. Il Gas Age 41:415-16 My 1 '18
- Pictures taken from life boom results in Portland gas heating effort. J: H. Hartog. Il Am Gas Eng J 111:427-8 N 1 '19
- Poor working girl now a home builder. I. R. Merritt. Am Gas Eng J 109:568-9 D 21 '18
- Practical hints for advertising gas service. J. Weedon. Gas Age 44:270+ S 15 '19
- Preparation of gas company publicity. F. M. Lester. Am Gas Eng J 108:255-8 Mr 16 '18
- Restrictions of the use of gas and electricity in England. Illum Engr 11:92-3 Mr '18
- St. Louis company's bread cast upon the waters is returned many fold. L: Resnick. Il Am Gas Eng J 108:617-19+ Je 29 '18
- Schenectady window display of Radiantfire heaters. Il Gas Age 41:320 Ap 1 '18
- Scope of the advertising section of the American gas association. Am Gas Eng J 111:377-8 O 18 '19
- Selling gas to school children. J. E. Darst. Il Am Gas Eng J 111:139-40+ Ag 16 '19
- Selling 1,000 thrift lights on a rainy afternoon. C. W. Pierson. Il Gas Age 43:210-13 F 15 '19
- Sold: 178 ranges in 62 hours. W. M. Williams. Il Gas Age 44:126+ Ag 1 '19
- Value of direct mail advertising in the gas business. J. E. Bullard. Am Gas Eng J 111:67-8 Jl 26 '19
- Window display as a selling force. O: Lasche. Il Gas Age 41:369-70 Ap 15 '18
- Window display during range week. O: S. Lasche. Il Gas Age 41:414-15 My 1 '18
- Window display to push gas ranges. O: S. Lasche. Il Gas Age 41:565 Je 15 '18
- Would have central publicity agency of gas field map out line of campaign and leave to local companies much of the work of carrying it on in its territory. R. Elzman. Am Gas Eng J 111:65-6 Jl 26 '19

**Exhibitions**

- Exhibit of the American gas association convention. Am Gas Eng J 111:384-5 O 18 '19

**Statistics**

- Instruction for gas company fitters. G: Wehrle. Gas Age 42:262 S 16 '18

**War measures**

- Effect of war on gas lighting; abstracts. T. P. Piser. Gas Age 41:236, 284 Mr 1-15 '18; Am Gas Eng J 108:349-51 Ap 13 '18; Discussion. Gas Age 41:206 Mr 1 '18
- Efforts to ration gas in England thus far have proved that a fair and equitable restriction is a difficult problem. N. H. Humphrys. Am Gas Eng J 109:125-6 Ag 10 '18
- Gas supply may be curtailed to save coal. Gas Age 42:51-2 Jl 15 '18
- Gas works carbonise charcoal for gas masks. W. E. Brophy. Il diag. flow sheet Gas Age 44:189-92 S 1 '19
- Paris gas works in war time. Gas Age 41:418-19 My 1 '18
- Restrictions on use of gas in Germany. Gas Age 41:79-80 Ja 15 '18
- With more coal fields shut down Paris turns to gas to conserve the part of its coal supply that remains. F. Miltoun. Am Gas Eng J 108:615-16 Je 29 '18
- Working of the new gas regime in Paris. F. Miltoun. Am Gas Eng J 108:420-1 My 4 '18

**Canada**

- Lower heat unit gas recommended for Canada. R. O. Wynne-Roberts. Gas Age 44:201-2 S 1 '19

**France**

- French gas industry after the war. F. Rouland. Gas Age 42:385-6 N 1 '18
- Improvement in coal supply situation in France makes possible the restarting of 111 gas works. F. Miltoun. Am Gas Eng J 108:51 Ja 19 '18

**Germany**

- Gas coke price escapes regulation in Germany. Gas Age 43:140-2 F 1 '19
- German gas industry during the war. L. W. Alwyn-Schmidt. Gas Age 43:237-9 Mr 1 '19
- How war affected the German gas industry. Gas Age 42:378-80 N 1 '18
- Meeting of the German gas association. Gas Age 41:225-8 Mr 1 '18

**Great Britain**

- Coal and gas situation in England. Gas Age 41:100-1 F 1 '18
- Effects of war conditions on British gas industry. N. H. Humphrys. Gas Age 44:144-6 Ag 15 '19
- English gas company reports for first half of the current year. N. H. Humphrys. Am Gas Eng J 107:514-15 D 8 '17
- Financial status of British gas undertakings. N. H. Humphrys. Gas Age 44:238-9 S 15 '19
- Gas efficiency. Gas Age 44:253 S 15 '19
- Present conditions in the British gas industry. D. M. Watson. Gas Age 44:97-8 Ag 1 '19

**Indiana**

- Data filed showing artificial gas production and consumption in Indiana. Am Gas Eng J 109:149-50 Ag 17 '18

**Italy**

- Effect of war on Italian gas industry. Gas Age 42:12 Jl 1 '18

**Michigan**

- Michigan gas affairs and future prospects. S: Ball. Gas Age 44:392-4 N 1 '19

**New England**

- Discussion at March meeting of Gas sales association of New England. Am Gas Eng J 108:323-5+ Ap 6 '18
- Gas sales association of New England held regular monthly meeting Feb. 14. Am Gas Eng J 110:235-6, 239-40+ Mr 15 '19
- New England gas progress. J. F. Wing. Gas Age 41:203-5 Mr 1 '18

**New York (city)**

- New York welcomes the gas men of the nation. Il map Gas Age 44:273-5 O 1 '19
- Record gas output in New York city. Gas Age 41:181 F 15 '18

## Gas Industry—Continued

## United States

- Artificial gas and byproducts in 1917. Coal Age 16:278 Ag 14 '19
- Committee devoted to vigorous pushing of development of gas industry needed. G. W. Allen. Am Gas Eng J 108:197-8+ Ag 31 '18
- Displacing natural gas with manufactured gas. J. H. Maxon. Gas Age 43:532-5 Je 2 '19
- Foresee gas companies supplying all fuel needs of their territories. C. G. Gilbert and J. E. Pogue. Am Gas Eng J 108:391-2 Ap 27 '18
- Gas industry may be means by which American scale of wages may be retained while nation competes successfully with European nations in the foreign market. E. Dean. Am Gas Eng J 109:521-2 D 7 '18
- Gas manufactured in United States in 1917. C. E. Lasher. Am Gas Eng J 110:165-6 F 22 '19
- Government urges restriction on business and manufacture of lesser importance. Am Gas Eng J 109:214 Ag 31 '18
- Industry exists for a higher purpose than that merely of supporting its promoters and giving employment to men and women. G. B. Cortelyou. Am Gas Eng J 110:251-4 Mr 22 '19; Same cond. Gas Age 43:295-6 Mr 15 '19
- Our national coal supply and its utilization. C. G. Gilbert and J. E. Pogue. Gas Age 42:100 Ag 1 '18
- Unsold market for gas so much greater than the sold that no one need worry as to its limits. C. E. Bartlett. Am Gas Eng J 111:357-8, 386-8 O 18 '19
- Vital issues affecting the gas industry today. J. F. Kuster. Gas Age 44:339-43 O 15 '19
- Gas industry and the plumbing trade**
- No reason why quality in installations should be sacrificed in securing co-operation of plumbers in increasing use of gas. E. M. Paterson. Am Gas Eng J 111:169-73 Ag 23 '19
- Now that cost of business is steadily climbing it is more important than ever that all sales resistance be reduced to a minimum. J. E. Bullard. Am Gas Eng J 111:93-4 Ag 2 '19
- Gas irons**
- Gas iron and an effective way to sell it. H. H. Lackey. Il Am Gas Eng J 108:231-3 Mr 9 '18
- Gas lamps**
- Gas-mantle lighting conditions in ten large cities in the United States. R. S. McBride and C. E. Reinicker. U S Bur Stand Tech Pa 99:1-37 '17
- Growth and present status of systems used in the maintenance of gas lamps in residences. E. B. Myers. Illum Eng Soc 12:425-9; Discussion. 430-2 no 8 '17
- Influence of quality of gas and other factors on the efficiency of gas-mantle lamps. R. S. McBride and others. Il U S Bur Stand Tech Pa 110:1-49 '18; Excerpts. Gas Age 42:468-70, 519-21 D 2-16 '18
- Viewpoint of a field man before and after visiting a lamp factory. J. B. Anderson. Am Gas Eng J 110:275-6+ Mr 29 '19
- See also Acetylene lamps; Gas burners; Gas fixtures; Gas lighting; Gas mantles
- Gas lighting**
- Ability to talk people out of purchases not to be classed as salesmanship. J. E. Bullard. Am Gas Eng J 110:269-70 Mr 29 '19
- All-gas skating rinks now. Il Gas Age 42:229-30 S 2 '18
- Capitalizing the lure of light to rent and sell stores. J. E. Bullard. Il Am Gas Eng J 110:229-31 Mr 15 '19
- Church light a help towards filling in a valley in the load curve. J. E. Bullard. Am Gas Eng J 110:481-2 Je 7 '19
- Discussion of the present status of gas lighting. Illum Eng Soc 12:438-505 no 9 '17; Excerpt. Gas Age 41:140 F 1 '18
- Do you believe in gas lighting? C. A. Luther. Gas Age 41:302-3, 380, 432, 484, 534 Ap 1-Je 1 '18
- Effect of war on gas lighting; abstracts. T. H. Piser. Gas Age 41:236, 334 Mr 1, Ap 1 '18; Am Gas Eng J 108:349-51 Ap 13 '18; Discussion. Gas Age 41:206 Mr 1 '18
- Entire factory equipped with gas lights. S. E. Wardell. Il Am Gas Eng J 108:145-6 F 16 '18
- Failure to install fixtures on a par with the furnishings a serious setback to gas lighting. J. E. Bullard. Am Gas Eng J 111:437-8 N 8 '19
- Gas arcs produce highest quality of daylight. C. A. Luther. Am Gas Eng J 111:405-6 O 25 '19
- Gas displaces electricity in church lighting. Il Gas Age 41:201-2 Mr 1 '18
- Gas lighting of streets and highways in France. F. Miltoun. Am Gas Eng J 108:291 Mr 30 '18
- Gas lighting opportunities offered by prohibition. J. E. Bullard. Am Gas Eng J 110:473-4 My 31 '19
- Gas office in New York city lighted by gas. Il Gas Age 41:445-7 My 15 '18
- Gas used for residential lighting. J. C. Aaron. Gas Age 41:391-2 My 1 '18
- Gas vs. electric lighting in regard to the solution of wartime problems. R. ff. Pierce. Am Gas Eng J 108:134 F 9 '18
- Group and duct system of high-pressure gas lighting; abstract. F. Pykett. Illum Engr 12:108 Ap '19
- How prestige of gas street lighting has been enhanced through the transportation of some millions of American soldiers to Europe. J. E. Bullard. Am Gas Eng J 110:89-90 F 1 '19
- How to sell gas lighting. C. A. Luther. Am Gas Eng J 108:245-7 Mr 16 '18
- Industrial lighting a field of wide opportunity. R. ff. Pierce. Am Gas Eng J 108:317-18 Ap 6 '18
- Influence of quality of gas and other factors on the efficiency of gas-mantle lamps. R. S. McBride and others. Il U S Bur Stand Tech Pa 110:1-49 '18; Excerpts. Gas Age 42:468-70, 519-21 D 2-16 '18
- Lighting ration in practice. Illum Engr 11:177-81 Ji '18
- Meeting of the Gas sales association of New England at Boston, Dec. 14. Am Gas Eng J 107:599-602 D 29 '17
- Not for one second in 96 years have New York companies gas coals burned out. Am Gas Eng J 110:231-2 Mr 15 '19
- Practical reasons why gas lighting should be easily sold to butchers. J. E. Bullard. Il Am Gas Eng J 110:209-11 Mr 8 '19
- Reasons why gas is best light for churches and other places where large groups of people congregate. Il Am Gas Eng J 110:193-4, 197-8 Mr 1 '19
- Report of the Illuminating engineering society committee on progress. Illum Eng Soc 12:346-50 no 8 '17
- Report of the Illuminating engineering society committee on progress. Illum Eng Soc 13:452-6 no 9 '18; Same cond. Gen Elec R 22:47-8 Ja '19; Abstract. Illum Engr 11:236 O '18
- Selling gas lighting to big institutions. P. Eves. Il Gas Age 43:266-7 Mr 1 '19
- System for gas lighting maintenance. Gas Age 42:183 Ag 15 '18
- Value of illuminating engineering to the gas industry. R. ff. Pierce. Illum Eng Soc 13:170-81; Discussion. 181-4 no 2 '18
- War time shoe factory lighting. Il Gas Age 41:321-3 Ap 1 '18
- See also Acetylene; Acetylene lamps; Gas fixtures; Gas lamps; Gas mantles; Gas meters

## Rates

## See Gas rates

## Gas machines

- In order to determine the relative efficiency of a gas machine it is necessary to be able to determine at any time the quantity and quality of gas which the machine is producing. R. A. Carter, jr. Il diag charts Am Gas Eng J 111:359-62 O 18 '19
- Gas mains. See Gas pipes

**Gas mantles**

- Baltimore plan abolishes flat flame burners. *Il Gas Age* 42:291-6, 333-40 O 1-15 '18
- Gas logic finds another sin to be charged against the open flame burner. *Il Am Gas Eng J* 109:392+ O 26 '18
- Gas mantle infringement suit. *Gas Age* 40: 576 D 15 '17
- Physical study of the Welsbach mantle. H. E. Ives, E. F. Kingsbury and E. Karrer. *Il diags J Fr Inst* 186:401-38, 585-625 O-N '18; *Abstract. Illum Engr* 11:237 O '18
- Temperature measurements of incandescent gas mantles. H. E. Ives. *Am Inst Min Bul* 153:1681-6 S '19
- Welsbach company puts out new mantle for doing away with open flame burner. *Il Am Gas Eng J* 110:17-18 Ja 4 '19

**Manufacture**

- Recovery of solvents from air-vapor mixtures. E. L. Knoedler and C. A. Dodge. *Il diags J Ind & Eng Chem* 10:593-5 Ag '18
- Recovery of solvents in mantle manufacture. *Am Gas Eng J* 110:49 Ja 18 '19
- Welsbach co. plant. *Il Chem & Met Eng* 21: 497-502 O 15 '19
- Gas manufacture and works**
- Advantages of using power gas. M. Meredith. *Coal Age* 14:689 O 10 '18
- All-new water gas plant results at Providence. W. Russell. *Il diags Gas Age* 43:277-82, 364-6 Mr 15-Ap 1 '19
- Carbonization committee report shows distinct trend of gas industry towards by-product oven. *Am Gas Eng J* 111:396-402+ O 25 '19
- Carbonization of wood in inclined retorts at Varta gasworks, Stockholm. *Sci Am S* 86: 192 S 21 '18
- Carbonization of wood in the Stockholm gas works. *Il Gas Age* 43:74-6 Ja 15 '19
- Coal carbonization. M. Meredith. *Coal Age* 14:129 Jl 20 '18
- Complete gasification of coal. M. Meredith. *Coal Age* 14:982 N 28 '18
- Continuous liquor sampler. K. Norton. *diags Gas Age* 42:112 Ag 1 '18
- Definite attempt made in England to make the most economic use of coal in gas making. *Am Gas Eng J* 111:508-10 N 29 '19
- Dellwik process for completely gassifying coal. *Sci Am S* 86:377 D 14 '18
- Description of benches of sixes with through reports manufactured by Russell engineering company, St Louis. *diags Am Gas Eng J* 110:sup16 Je 14 '19
- Details of operation of a gas producer plant. J. S. McClimon. *Il Gas Age* 43:421-3 Ap 15 '19; *Same. Iron Age* 103:1141-3 My 1 '19; *Abstract. Iron Tr R* 64:961-2 Ap 10 '19
- Double gas output per ton of coal obtained by making water gas in continuous vertical retorts. H. M. Balsam. *Il Am Gas Eng J* 108: 73-6 Ja 26 '18
- Easily effected economies in the retort house. C. B. Wyckoff. *diags Am Gas Eng J* 111:271-2, 276-83 S 27 '19
- Effect of various condensing systems upon quality of gas. C. S. Heath. *Am Gas Eng J* 110:399-401 My 10 '19; *Same (How scrubbers retain light oils). Gas Age* 43:425-6 Ap 15 '19
- Efficiency of operation of the Chicago gas plants. *Gas Age* 44:193-7 S 1 '19
- Electricity in British gas works. *Gas Age* 44:252 S 15 '19
- European countries are experiencing great difficulties in keeping up the manufacture of gas. *Am Gas Eng J* 109:387-8 O 26 '18
- European ideas on making and testing gas. *diags Gas Age* 42:344-6 O 15 '18
- European substitutes for coal in gas making. *map Gas Age* 41:5-7 Ja 1 '18
- Extensions to the La Villette gas works in Paris. *diags Gas Age* 42:522-3 D 16 '18
- Federated improvement association approves of plan to make gas from coal in Cincinnati. *Am Gas Eng J* 109:89-90 Jl 27 '18
- Fifteen ovens of Michigan light company at Kalamazoo have capacity of 1,250,000 cu. ft. of high-grade gas per day. L. Resnick. *Il diags Am Gas Eng J* 110:373-5 My 3 '19

- Future gas-making practice—steaming in retorts. *Am Gas Eng J* 110:351-2 Ap 26 '19
- Gas for balloon use. F. L. Weissner. *Am Gas Eng J* 109:99-101 Ag 3 '18
- Gas machine factors involved in the manufacture of carbureted water gas. R. B. Harper. *Am Gas Eng J* 110:312-16, 320-4 Ap 12 '19
- Gasteam plant at Ford City, Ontario. *Il diags plan Power* 48:186-93 Ag 6 '18; *Abstract. Chem & Met Eng* 19:560 O 1 '18
- Government rolling mill, Southampton. *Il Engineer* 127:193, 202 F 28 '19
- Heat efficiency of gas oil. F. L. Weissner. *Gas Age* 41:253-4 Mr 15 '18
- Heavy duty through retort operation in St Louis. J. L. Elgenbrot. *Il Gas Age* 44:395-6 N 1 '19
- High carbonizing results obtained in England by steaming the charge in Glover-West vertical retorts. N. H. Humphrys. *Il Am Gas Eng J* 108:147-8 F 16 '18
- How war affected the German gas industry; gas plants versus coke ovens. *Gas Age* 42: 378-80 N 1 '18
- Importance of eliminating even the smallest leaks in obtaining manufacturing results. T. Rice. *Am Gas Eng J* 108:541-2 Je 8 '18
- Inclined retort plant at Rome a success. S. B. Russell. *Il diags Gas Age* 42:463-6 D 2 '18
- Instruction for gas company fitters. G. Wehrle. *Il Gas Age* 42:347-8 O 15 '18
- Lignite gas under favorable conditions promises to satisfy reasonable requirements at a much lower cost provided calorific standard is suitable. R. O. Wynne-Roberts. *Am Gas Eng J* 111:166+ Ag 23 '19
- Manufacturing plant of the Providence gas co. W. M. Russell. *Il Chem & Met Eng* 21: 34-9, 88-95, 147-53 Jl 1-Ag 1 '19
- Model gas plant for Bath, Me. *Am Gas Eng J* 109:240 S 7 '18
- Need of labor saving paramount factor in design of new plant at Ypsilanti, Mich. *Am Gas Eng J* 111:223 S 13 '19
- New coke ovens at the Providence gas works. E. H. Bauer. *Il diags plan Gas Age* 43:461-5, 516-20 My 1-15 '19
- Operating a water gas set without a relief holder in parallel with by-product coke ovens. A. H. Harris, jr. *Il diags chart Am Gas Eng J* 110:185-3 Mr 1 '19
- Operating with low grade materials. G. I. Vincent. *Gas Age* 43:353 Ap 1 '19
- Operation and chemical control of water gas sets in small plants. H. Vittinghoff. *diags Am Gas Eng J* 110:163-4, 172-5 F 22 '19; *Same. Gas Age* 43:234-6, 283-4 Mr 1-15 '19
- Operation of Buenos Aires gas plant. *Gas Age* 43:131 F 1 '19
- Place of research in the gas industry. S. W. Parr. *Gas Age* 43:135-6 F 1 '19
- Plant at Fond du Lac first of its kind to be erected in medium-sized city. *Il Am Gas Eng J* 109:337-8 O 12 '18
- Poor housekeeping responsible for most of the fires in gas plants. H. A. Johnson. *Am Gas Eng J* 108:539-40+ Je 8 '18
- Possible to remove a purifying unit for re-vivification without interfering with operation of other units in new system. C. H. Clower. *diags Am Gas Eng J* 108:394-5 Ap 27 '18
- Practical hints on retort house operation. C. B. Wyckoff. *diags Gas Age* 44:345-50, 389-92 O 15-N 1 '19
- Producer gas, its manufacture and use; with bibliography. C. S. Palmer. *diags Eng Soc W Pa* 34:331-53; *Discussion. 354-53 My '18*
- Putting in operation a vertical retort plant, Schenectady (N. Y.). G. Bubb. *Il map Gas Age* 42:1-4 Jl 1 '18
- Refractory problems of the gas industry. W. H. Fulweiler and J. H. Taussig. *Il diags J Ind & Eng Chem* 11:1153-7 D '19
- Replacement of natural gas; abstract with discussion. F. Crabtree. *Iron Age* 104:519 Ag 21 '19
- Republic by-product coke plant at Youngstown. *Il Gas Age* 43:13-15 Ja 1 '19

**Gas manufacture and works—Continued**

- Retorting under pressure promises a means of utilizing lignite for gas making. F. Schoch. *Am Gas Eng J* 109:102-3 Ag 3 '18
- Returns in England indicate that make of 18,000 cu. ft. of 500 B.t.u. gas is possible, using steam in retorts. N. H. Humphrys. *Am Gas Eng J* 109:265-6 S 21 '18
- Studies on the absorption of light oils from gases. H. S. Davis and M. D. Davis. *diags J Ind & Eng Chem* 10:718-25 S '18
- Substitution of water for oil. *Gas Age* 41:520 Je 1 '18
- Ten vital points for gas association work. E. C. Jennings. *il Gas Age* 44:305 O 1 '19
- Time has come when gas works ought to send out a greater proportion of coal's potential energy. W. A. Bone. *Am Gas Eng J* 111:513-14, 517-18 N 29 '19
- Treatment of gas works waste. L. R. Dutton. *diag plan Gas Age* 43:420 Ap 15 '19
- Unusual carbonizing methods. J. A. Brown. *Gas Age* 42:387-8 N 1 '18
- Up to 225,000 cu. ft. daily stop-end benches can be operated with as little or less expense than any other type. L. G. Crenshaw. *Am Gas Eng J* 110:491-3 Je 7 '19
- Use of electric instruments to measure gas. *il Elec R* 74:60-1 Ja 11 '19
- Value of the chemist in the large and small gas plants. E. J. Murphy. *Am Gas Eng J* 111:422-4 N 1 '19; Excerpts. *Gas Age* 44:397 N 1 '19
- Wood a satisfactory carbonizing material and can be made to partly or wholly displace coal in gas manufacture. H. M. Balsam. *Am Gas Eng J* 109:97-8 Ag 3 '18
- Work of the technical committee on gas, by-products and public utilities. *Am Gas Eng J* 110:285-6 Mr 29 '19
- Working of plant in Ireland, where turf, timber and coal were used for gas making. R. Young. *Am Gas Eng J* 109:507-1 N 30 '18
- See also* Gas—Standards; Gas companies; Gas holders; Gas machines; Gas producers; Gas retorts; Gas testing; Tar
- Accidents**
- Only 4.2 per cent of the accidents in gas plant peculiar to gas industry. H. A. Johnson. *Am Gas Eng J* 108:591-4 Je 22 '18
- Bibliography**
- Producer gas, its manufacture and use. C. S. Palmer. *Eng Soc W Pa* 34:347-53 My '18
- By-products**
- Application of the differential pressure method to the estimation of the benzene and the total light oil content of gases. H. S. Davis, M. D. Davis and D. G. MacGregor. *diag J Ind & Eng Chem* 10:712-18 S '18
- Benzol as an important gas works product. J. E. Bullard. *diags Gas Age* 41:363-4 Ap 15 '18
- Building a home-made crude benzol recovery plant. C. F. W. Rendle. *Gas Age* 41:167-8 F 15 '18
- By-product ovens produce light oils in excess of normal demand. *Am Gas Eng J* 110:261-3 Mr 22 '19
- Coke from small coal gas plants for domestic use. C. J. Hauschildt. *Am Gas Eng J* 111:8-11 J 5 '19
- Copper bulbs for testing wash oil. *diags Gas Age* 41:331 Ap 1 '18
- Cracking oil in coal gas bench and removing light oil from the gas. C. D. Shaul. *Am Gas Eng J* 108:417-18 My 4 '18
- De-tarring of gas by electrical precipitation. J. G. Davidson. *diags Canada Honorary Advisory Council for Scientific and Industrial Research Report* 3:1-45 '18
- Extraction of benzol and toluol from gas. *Gas Age* 41:371-2 Ap 15 '18
- Extraction of toluol; investigation by California railroad commission. *bibliog Gas Age* 41:421 My 1 '18
- Feld process for recovery of sulphur. *diag Gas Age* 42:198-9 S 2 '18
- Gas manufactured in United States in 1917. C. E. Leshner. *Am Gas Eng J* 110:165-6 F 22 '19

- Gasworks and the supply of motor spirit. *diags Engineer* 127:196-7 F 28 '19
- Given process for sulphur removal restores oxide. *Am Gas Eng J* 107:519 D 8 '17
- Going in for the production of by-products linked with many important considerations. L. W. Alwyn-Schmidt. *Am Gas Eng J* 110:309-11 Ap 12 '19
- How gas companies cooperated during the war. H. C. Porter. *il Gas Age* 43:521-6 My 15 '19
- Importance of by-products during the war. C. G. Atwater. *il Gas Age* 43:339-43 Ap 1 '19
- Intensive toluol production. F. E. Lichten-thaler. *il Gas Age* 41:55-62, 103-10 Ja 15-18 '18; Same. *Met & Chem Eng* 18:144-52, 195-202 F 1-15 '18; Discussion. B. Duglin-son. 18:620-1 Je 15 '18
- Laboratory methods for benzol-recovery plant operation. F. W. Sperr, Jr. *il diags plan Met & Chem Eng* 17:548-55, 586-8, 642-7 N 1-D 1 '17; Correction. 18:169 F 15 '18
- Liquid ammonia in a Dutch gas plant. M. Cluven. *Gas Age* 41:176-7 F 15 '18
- New by-product plant will utilize Illinois coal for gas making and appurtenant products. *Am Gas Eng J* 111:156 Ag 16 '19
- Notes on the recovery of toluol from gas. F. W. Sperr, Jr. *il diags Gas Age* 41:393-7 My 1 '18
- Outlook for the sale of benzol. *Gas Age* 41:197 Mr 1 '18; Discussion. L. P. Lowe. 41:343-4 Ap 15 '18
- Purification of gas by ammonia. W. A. Twine. *Am Gas Eng J* 109:562-4 D 21 '18
- Recovery of light oils and refining of toluol; report by Bureau of standards. *plan J Ind & Eng Chem* 10:51-60 Ja '18
- Results from vertical retorts at Meriden. *il plan Gas Age* 43:633-4 Je 16 '19
- Seventy per cent of all toluol made in government works came from New York city's gas. *il Am Gas Eng J* 110:41-6 Ja 18 '19
- Tar disposal in Ford producer-gas plants. *diag Power* 50:66-7 J 8 '19
- Toluol and benzol recovery results at Cambridge, Mass. I. T. Haddock. *Gas Age* 41:257-9 Mr 15 '18; Same. *Am Gas Eng J* 108:173-5 F 23 '18
- Toluol production can be doubled without materially inconveniencing gas consumers. F. E. Dodge. *diag Am Gas Eng J* 108:319-20+ Ap 6 '18
- Toluol recovery. R. S. McBride, C. E. Reinicker and W. A. Dunkley. *diags U S Bur Stand Tech Pa* 117:1-60 '18
- Toluol recovery and standards for gas quality. R. S. McBride. *Gas Age* 41:63-6 Ja 15 '18; Same. *Am Gas Eng J* 108:31-4 Ja 12 '18; Same. *J Ind & Eng Chem* 10:111-14 F '18
- Toluol recovery operations in Greater New York. W. J. McGurty. *il diag Gas Age* 43:175-80 F 15 '19
- Use old tubular boiler for light oil still at Des Moines works. H. C. Adams. *Am Gas Eng J* 108:536-8 Je 8 '18
- What can be done with light oil plants. W. H. Fulweiler. *il Gas Age* 43:415-17 Ap 15 '19
- See also* Ammonia; Carbocoal; Coal tar
- Costs**
- Efficient management of gas plants. *Gas Age* 44:139-40 Ag 15 '19
- Increase in cost of gas oil alone adds \$1,800,000 to gas manufacturing cost; report of New York consolidated gas company. *Am Gas Eng J* 108:87-8+ Ja 26 '18
- Gas manufacture and works, Municipal**
- Bellefontaine (Ohio) has new municipal plant. *Am Gas Eng J* 109:67-9 J 20 '18
- Locating—or relocating—the city gas plant. L. W. Alwyn-Schmidt. *Am Gas Eng J* 111:181-3 Ag 30 '19
- Gas-mask carbon. See Charcoal**
- Gas masks**
- Anti-dimming compositions for use in the gas mask. P. W. Carleton. *J Ind & Eng Chem* 11:1105-11 D '19



**Gas masks—Continued**

- Anti-dimming preparations for gas masks. H. N. Holmes and others. *J Ind & Eng Chem* 11:1111-16 D '19
- Army gas masks. *Eng & Min J* 107:1008-9 Je 7 '19
- Development of activated charcoal. F. M. Dorsey. *Il diags J Ind & Eng Chem* 11:282-7 Ap '19
- Effect of exposure to weather on rubber gas mask fabrics. G. St. J. Perrott and A. E. Plumb. *J Ind & Eng Chem* 11:438-43 My '19
- Gas mask absorbents. A. B. Lamb, R. E. Wilson and N. K. Chaney. *Il J Ind & Eng Chem* 11:420-38 My '19
- Gas mask in industry. *Il Sci Am* 121:421+ O 25 '19
- Gas masks for horses. *Am Gas Eng J* 110:69 Ja 25 '19
- Gas masks have industrial limitations. *Il Iron Tr R* 64:1559-60 Je 12 '19; *Eng & Min J* 107:472-3 Mr 15 '19; *Chem & Met Eng* 20:220-1 Mr 1 '19; *Sci Am S* 87:254 Ap 19 '19; *Iron Age* 103:755 Mr 20 '19
- Gas works carbonise charcoal for gas masks. W. E. Brophy. *Il diags flow sheet Gas Age* 44:189-92 S 1 '19
- Peace uses of gas masks. *Il Sci Am* 120:403 Ap 19 '19
- Protection afforded by army gas masks against various industrial gases. A. C. Fieldner, M. C. Teague and J. H. Yoe. *J Ind & Eng Chem* 11:622-3 Jl '19
- Use of army gas masks in atmospheres containing sulphur dioxide. A. C. Fieldner and S. H. Katz. *Il Chem & Met Eng* 20:582-6 Je 1 '19; *Excerpts. Eng & Min J* 107:693-5 Ap 19 '19
- Wood charcoal as a catalyzer and its use as an adsorbent in gas masks. R. F. Bacon. *J Ind & Eng Chem* 11:891-2 S '19

**Manufacture**

- In the gas-mask factory. *Il Sci Am* 119:275 O 5 '18
- Production of gas defense equipment for the army. B. Dewey. *Il diags J Ind & Eng Chem* 11:185-97 Mr '19

**Testing**

- Automatic compensating flow meter. G. G. Oberfell and R. P. Mase. *diag J Ind & Eng Chem* 11:294-6 Ap '19
- Methods of testing gas masks and absorbents. A. C. Fieldner and others. *Il diags plans J Ind & Eng Chem* 11:519-40 Je '19
- Gas measurement**
- Magnetic gas circulator. S. H. Katz. *diag Am Chem Soc J* 39:2638-9 D '17
- Measurement of natural gas in large quantities. W. M. Ackerman. *Am Gas Eng J* 108:465-70 My 18 '18
- Measuring coke oven gas. T. E. Estep, jr. *Il diags Gas Age* 43:381 Ap 1 '19
- Measuring gas electrically; abstracts. J. C. Wilson. *Elec R* 74:906 My 31 '19; *Elec W* 73:1262 Je 14 '19

*See also Gas flow; Gas meters*

**Gas meters**

- Accounting meter. *Il Gas Age* 41:134 F 1 '18
- Consumers benefit by daily lessons on meter reading. *Am Gas Eng J* 109:589 D 28 '18
- C-H meter for measuring coke oven gas. *Il Elec W* 71:438 F 23 '18; *Iron Age* 101:493 F 21 '18
- Explosions within meters at Ford City, Canada, caused by air mixture forced into main by compressor serving rivet furnace. *Am Gas Eng J* 109:504-7 N 30 '18
- Gas meter that can be read as easily as mileage on automobile speedometer suggested for Peoples company. J. F. Weedon. *Am Gas Eng J* 110:300-1 Mr 1 '19
- How to read gas, electric and water meters. *Il Bldg Age* 41:90-1 Mr '19
- How Topeka avoids meter reading controversies. *Am Gas Eng J* 110:10-11 Ja 4 '19
- Improved instrument panel for Thomas electric gas-meter. *Il Elec R* 74:158 Ja 25 '19; *Iron Tr R* 64:325 Ja 30 '19

**Making consumers partners in giving service.**

- F. N. Clement. *Gas Age* 43:47 Ja 1 '19
- New type of meter holder and connections by Lattimer-Stevens co. *Il Am Gas Eng J* 111:sup38 O 18 '19
- Prepayment gas meter. H. C. Crafts. *Am Gas Eng J* 108:135-6+; *Discussion. 142-3 F 9 '18*
- Safety device for gas meters. *diags Gas Age* 41:177-8 F 15 '18
- Thomas electric gas meter. *Il Sci Am* 119:416+ N 23 '18
- Thomas meter for measuring gas in steel mills. *Il Elec R* 72:352-3 F 23 '18; *Chem & Met Eng* 19:210 Ag 15 '18
- Use of electric instruments to measure gas. *Il Elec R* 74:60-1 Ja 11 '19

*See also Gas flow*

**Repair**

- All meters ten years in service should be opened up for repairs. H. A. Norton. *Am Gas Eng J* 110:505-6 Je 14 '19; *Same. Gas Age* 43:635-6 Je 16 '19
- Graphic representation reduces travel in meter repair shop hundreds of miles with consequent saving in costs. H. M. Riley. *diags Am Gas Eng J* 111:461-7 N 15 '19

**Testing**

- Keeping meters within allowable error. J. H. Gumz. *Gas Age* 41:323 Ap 1 '18

**Gas ovens**

- Enamelling oven design with relation to safety. R. A. Shaw. *Automotive Ind* 37:838 N 8 '17
- Experiences with horizontal slot ovens. H. W. Douglas. *Gas Age* 42:307-8 O 1 '18
- Gas can monopolize fuel end of bakery industry. E. F. Davis. *Il diag Am Gas Eng J* 108:585-90 Je 22 '18
- Gas in bakers' ovens. W. J. Harris, jr. *Il Am Gas Eng J* 107:585-7 D 29 '17
- Heating oven furnaces. *diag Gas Age* 41:185 F 15 '18
- Type of oven used for jappanning adapted to bakery use and output of 10,000 loaves of bread a day obtained. *Il Am Gas Eng J* 108:533-5 Je 8 '18

*See also Gas retorts*

**Gas pipes**

- California company is to use natural gas for fuel. *Elec W* 72:759-60 O 19 '18
- Cast iron pipe joint tests made at Schenectady. V. Starzenski. *Il diag Gas Age* 44:383-7 N 1 '19
- Cold weather and mains in Duluth. D. A. Reed and E. W. Kelley. *Munic J* 46:6-7 Ja 4 '19
- Cost of installing gas services. *Gas Age* 41:517-18 Je 1 '18
- 8-in. main across 1300-ft. estuary placed in single day. W. M. Henderson. *Il Am Gas Eng J* 109:459-63 N 16 '18
- Fuel administration interests itself in electrolysis in natural gas mains. F. H. West. *Il Am Gas Eng J* 110:22-3 Ja 11 '19
- Gas leakage of pipes underground is 80 per cent as great as increase of pressure put on them. F. S. Wade. *Am Gas Eng J* 107:594-5 D 29 '17
- Gas main precautions in Paris during air raid period. *Am Gas Eng J* 111:392 O 18 '19
- Gas pipe line through rock. *Il Gas Age* 41:161 F 15 '18
- Largest gas line in the United States being constructed. *Il diag Eng N* 82:706-7 Ap 10 '19
- Method of tapping large gas mains. M. W. Walsh. *diags Gas Age* 42:53-4 Jl 15 '18
- Oxy-acetylene pipe welding and cutting. *Il Gas Age* 43:27-8, 85-8 Ja 1-15 '19
- Pipe line laid under 30-ft. depth estuary. *Am Gas Eng J* 109:5-6 Jl 6 '18
- Standardised method for connecting gas mains. D. D. Ransdell. *chart diag Gas Age* 44:137-9 Ag 15 '19
- Submerged gas main. *Gas Age* 42:466 D 2 '18
- Testing newly laid mains by air pressure. R. O. Wynne-Roberts. *Eng & Contr* 49:461 My 8 '18

*See also Gas distribution; Gas flow; Pipe joints*

## Gas pipes—Continued

## Repair

Methods of handling street leaks. C. C. Bahr.

Gas Age 44:206 S 1 '19

Quick repair to broken and leaking gas main. C. C. Bahr. *Il Gas Age* 44:54 J 15 '19

Repair clamp for gas leak on submarine high pressure pipe line. *Am Gas Eng J* 111:376+ O 18 '19

Repairing leaking submarine main. *Gas Age* 44:352 O 15 '19

Gas plants. See Gas manufacture and works

## Gas producers

Ammonia in producer gas. F. K. Ovitz. *Chem & Met Eng* 21:253-5 S 1 '19

Automatic fuel feed for gas producer. *Il Iron Age* 102:1212 N 14 '18

By-product coke available as generator fuel. *Gas Age* 44:143-4 Ag 15 '19

Details of operation of a gas producer plant. J. S. McClimon. *Il Gas Age* 43:421-3 Ap 15 '19; Same. *Iron Age* 103:1141-3 My 1 '19; Abstract. *Iron Tr R* 64:961-2 Ap 10 '19

Floating agitator for gas producers. *Il Met & Chem Eng* 13:102-3 Ja 15 '18

Gas producer of concrete staves. *Il Iron Age* 102:745 S 26 '18

Gas-producer practice at western zinc plants. G. S. Brooks and C. C. Nitchie. *Il chart diags Am Inst Min Bul* 153:sup2721-73 S '19; Excerpts. *Am Gas Eng J* 111:469-70, 472-8 N 15 '19

Gas producer using gasworks coke. A. B. Roxburgh. *Il diag Engineer* 125:369 Ap 26 '18

Gas producers for kilns. *Am Gas Eng J* 111:468 N 15 '19

Gasteam plant at Ford City, Ontario. *Il diags plan Power* 48:186-93 Ag 6 '18; Abstract. *Chem & Met Eng* 19:560 O 1 '18

Low-grade fuels; possible methods of disposal. J. W. Cobb and W. Chaney. *Sci Am S* 86:191-2 S 21 '18

Machine shop for gas producer work. *Il diag plan Iron Age* 102:1373-8 D 5 '18

New coke-fired German gas producer. *diags Iron Age* 103:180-1 Ja 16 '19

Power gas producers. *Am Gas Eng J* 111:491-2+ N 22 '19

Slagging gas producer. *Chem & Met Eng* 20:192 F 15 '19

Tar disposal in Ford producer-gas plants. *diag Power* 50:56-7 J 1 8 '19

To what extent and where will the gas producer be used to produce economies? R. H. Fernald. *Am Soc M E J* 40:pt 2, 654-5 J 1 '18; Same. *Power* 48:180-1 J 1 30 '18

## Gas purification

Abrupt condensation of naphthalene. *Gas Age* 42:430 N 15 '18

Ammonia in gas purification. M. Meredith. *Gas Age* 43:193-4 F 15 '19

Principles of gas purification and purifier design. F. W. Steere. *Il Gas Age* 43:227-31, 285-90, 361-3 Mr 1-Ap 1 '19

Purification by oxide in water. *Gas Age* 43:475-6 My 1 '19

Purification of coal gas by electricity. M. Meredith. *Coal Age* 14:1071 D 12 '18

Purification of gas by ammonia. W. A. Twine. *Am Gas Eng J* 109:562-4 D 21 '18

Purification problems. *Gas Age* 43:260 Mr 1 '19

Removal of sulfur from illuminating gas. W. W. Odell and W. A. Dunkley. *Am Inst Min Bul* 153:sup2301-11 S '19; Excerpts. *Am Gas Eng J* 111:362 O 18 '19

Studies on the absorption of light oils from gases. H. S. Davis and M. D. Davis. *diags J Ind & Eng Chem* 10:718-25 S '18

See also Electric precipitation; Gas cleaning; Gas washers

Gas ranges. See Gas stoves

## Gas rates

Adequate return reason for rate order injunction. *Gas Age* 43:186-7 F 15 '19

Ann Arbor (Mich.) rates system. *Gas Age* 42:310 O 1 '18

Application of the index number of commodity prices in adjustments of gas rates a way out of a vicious cycle. W. S. Blauvelt. *Am Gas Eng J* 111:313-14 O 11 '19

Atlanta company gives reasons why increase is asked for in advertisement. *Am Gas Eng J* 109:515-17 N 30 '18

Automatic adjusting rate in Indiana. *Gas Age* 41:473-4 My 15 '18

Bangor gas company submits new schedule of rates. *Am Gas Eng J* 109:212 Ag 31 '18

British fuel research board recommends charging for gas by heat units. *Am Gas Eng J* 110:420-3 My 17 '19

Bureau of labor statistics on increased gas rates in American cities. *Am Gas Eng J* 111:48 J 19 '19

California railroad commission decision in application of Southern counties gas company for reasonable rates. *Am Gas Eng J* 109:63-5 J 20 '18

Causes necessitating increased gas rates. F. C. Hamilton. *Gas Age* 43:648-50 Je 16 '19

Charles E. Hughes, referee, allows higher gas rate in Brooklyn. *Munic J* 45:154-5 Ag 24 '18

Chicago asks for square deal on rates; chart. *Gas Age* 44:211 S 1 '19

Commerce board recommends rate of \$1.07 as fair rate for New Bedford gas & Edison light co. *Am Gas Eng J* 109:137-8 Ag 10 '18

Commissions' rate authority superior to contract. *Gas Age* 44:56-6 J 15 '19

Consolidated company seeks injunction to prevent officials from enforcing 80 cent rate. *Am Gas Eng J* 110:82-4 Ja 25 '19

Consolidated gas company of New York begins action for higher rates. R. E. Livingston. *Gas Age* 43:167 F 1 '19

Construction of agreement to arbitrate as to gas rates; legal decision. *Gas Age* 41:275 Mr 15 '18

Cost of operation during war period; increase granted to Chicago company. *Am Gas Eng J* 109:255-6 S 14 '18

Council for Illinois commission makes clear statement of commission's attitude on general rate increase. H. H. Hartman. *Am Gas Eng J* 107:559-60 D 15 '17

Decision in the Peoples gas, light & coke co. of Illinois. *Am Gas Eng J* 111:102-3 Ag 2 '19

Decision of ex-judge Hughes in Brooklyn borough case. *Am Gas Eng J* 109:119 Ag 3 '18

Decisions affecting gas rates. *Gas Age* 44:192 S 1 '19

Doherty plan of selling heat units. R. G. Griswold. *Am Gas Eng J* 109:244-7 S 14 '18

Flat rate of 60 cents for Indianapolis consumers. *Am Gas Eng J* 108:480-3 My 18 '18

Gas profiteering. *Munic J* 45:187 S 7 '18; Discussion (Resurrecting the old-time bogey man). *Am Gas Eng J* 109:252-4 S 14 '18

Gas rate increases from May 18 to July 13. *Gas Age* 42:234-5 S 2 '18

Gas rate increases in 36 states and Canada. *Gas Age* 41:81-2 Ja 15 '18

Gas rate litigation. *Gas Age* 42:517-18 D 16 '18

How increased rates affect gas and electric revenue. *Elec W* 72:604 S 28 '18

Hughes decides for Brooklyn gas company. *Gas Age* 42:171 Ag 15 '18

Jurisdiction over rates. *Gas Age* 42:304 O 1 '18

Miami went to the voters and they said yes. J. M. Baird. *Gas Age* 43:313 Mr 15 '19

New rate schedule for Providence, R.I. *Am Gas Eng J* 108:309-10 Mr 30 '18

New schedule of rates filed by Hagerstown, Md., company. *Am Gas Eng J* 109:282 S 21 '18

No gas rates based on coal cost in Wisconsin. *Gas Age* 41:327-8 Ap 1 '18

Opinions accompanying recent rate increases. *Gas Age* 42:301-3 O 1 '18

Ordinance fixing gas rate held invalid. *Gas Age* 41:523-4 Je 1 '18

Peoples company files brief showing financial condition in rate increase case. *Am Gas Eng J* 109:115-17 Ag 3 '18

**Gas rates—Continued**

- Peoples company finally succeeds in securing rate increase. *Am Gas Eng J* 109:135-6 Ag 10 '18
- Points in San Francisco rate case. *Gas Age* 41:131 F 1 '18
- Rate fixed by franchise not binding according to New York Public service commission, Second district. *Gas Age* 41:277 Mr 15 '18
- Rate making power of legislatures and courts. *Gas Age* 42:115-16 Ag 1 '18
- Rates for public utilities service. J. M. Spitzglass. *Gas Age* 41:305-8 Ap 1 '18; Same cond. *Am Gas Eng J* 108:269-72 Mr 23 '18
- Rates increased. *Gas Age* 42:213-14 S 2 '18
- Schedule of rates fixed for Santa Ana, Cal. *Am Gas Eng J* 109:185-6 Ag 24 '18
- Selling gas on a B.t.u. basis is most efficient way. R. G. Griswold. *Gas Age* 42:493-4 D 2 '18
- Status of test rates. *Gas Age* 42:260 S 16 '18
- Step rate for Seattle. *Gas Age* 41:278 Mr 15 '18
- 30 cent increase granted Providence company. *Am Gas Eng J* 109:250-1 S 14 '18
- Thirty per cent gas rate increase in Providence, R.I. *Munic J* 45:333-4 O 26 '18
- Two gas rate increases secured by advertising. R. W. Woodward. *Gas Age* 43:44-6 Ja 1 '19

**Gas regulators.** See Gas governors

**Gas retorts**

- Continuous vertical retorts. R. E. Wyant. *Am Gas Eng J* 108:201-3+ Mr 2 '18
- Heavy duty through retort operation in St. Louis. J. L. Eigenbrot. *Il Gas Age* 44:395-6 N 1 '19
- Practical hints on retort house operation. C. B. Wyckoff. *diags Gas Age* 44:345-50, 389-92 O 15-N 1 '19
- Up to 225,000 cu. ft. dally stop-end benches can be operated with as little or less expense than any other type. L. G. Crenshaw. *Am Gas Eng J* 110:491-3 Je 7 '19
- Vertical retort steaming tests at Springfield. L. J. Willien. *Gas Age* 43:232-3 Mr 1 '19; Same. *Am Gas Eng J* 110:211-13 Mr 8 '19
- Vertical retorts lend themselves to steaming with better results than in the case of horizontals. L. J. Willien, Jr. *Am Gas Eng J* 111:367-71+ O 18 '19

See also Gas manufacture and works

**Gas safety code, National.** See National gas safety code

**Gas sales association of New England**

- Annual meeting, Boston, May 10. *Am Gas Eng J* 108:571+ Je 15 '18
- Annual meeting, Boston, May 9. *Am Gas Eng J* 110:560-1+ Je 28 '19
- Meeting, Boston, Dec. 14. *Am Gas Eng J* 107:599-602 D 29 '17

**Gas sampling**

- Outfit for taking continuous flue-gas samples. *diag Elec W* 71:153-4 Ja 19 '18

**Gas societies**

- Association organization. *Gas Age* 40:546-7 D 15 '17
- Joint meeting of Pennsylvania and New Jersey associations, April 10. *Am Gas Eng J* 108:361-2 Ap 13 '18; *Gas Age* 41:351-2 Ap 15 '18

**Gas standards.** See Gas—Standards

**Gas stoves**

- Convert standard army coal and wood ranges to gas and secure cooking load at military reservation. C. Potter. *Il Am Gas Eng J* 108:437-40 My 11 '18
- Gas appliance testing laboratory. H. M. Riley and L. B. Wilson, Jr. *diag Am Gas Eng J* 108:77-82; 109:481-5 Ja 26, N 23 '18
- Get ready for gas range week May 12 to 17. C. W. Pierson. *Il Gas Age* 43:500-2 My 1 '19
- Los Angeles cooperative campaign sells ranges. B. B. Baker. *Gas Age* 43:627-8 Je 2 '19
- Make sure that the story will get home by addressing a circular to the child. *Am Gas Eng J* 110:471-3 My 31 '19

- Need of department in natural gas companies to see that consumers get the most out of the gas they burn. F. H. Mugg. *Il Am Gas Eng J* 110:457-61 My 31 '19
- New ideas in gas ranges. *Il Gas Age* 43:270 Mr 1 '19

Rochester company gives terse instructions on care and use of gas ranges. *Gas Age* 42:36 J1 1 '18

See also Gas ovens

**Gas tanks**

- Tank welding by the oxy-acetylene process. C. C. Phelps. *Il Mach* 25:1071-2 J1 '19

**Gas testing**

- Ammonia in producer gas. F. K. Ovitz. *Chem & Met Eng* 21:253-5 S 1 '19
- Continuous testing of gas with special reference to acid or alkaline constituents; abstract. C. A. King. *diag Chem & Met Eng* 20:645 Je 15 '19
- Heat units and efficiency. *Gas Age* 43:89-91 Ja 15 '19
- Influence of quality of gas and other factors on the efficiency of gas-mantle lamps. R. S. McBride and others. *Il U S Bur Stand Tech Pa* 110:1-49 '18; Excerpts. *Gas Age* 42:468-70 D 2 '18
- Influence of quality of gas on incandescent burners. *Illum Engr* 11:215 S '18
- Method of testing cleanness of producer gas. H. F. Smith. *Iron Age* 104:493-4 Ag 21 '19; Same cond. *Iron Tr R* 64:1693-4 Je 26 '19
- New gas tester. *Il Am Gas Eng J* 111:sup20 Ag 2 '19
- Quantitative determination of suspended tarry matter in gas. F. W. Steere. *Il Chem & Met Eng* 19:686-9 N 1 '18
- Testing natural gas for gasoline content. G. G. Oberfell, S. D. Shinkle and S. B. Meserve. *diags plan J Ind & Eng Chem* 11:197-200 Mr '19
- Testing of benzene and toluene in gas. *Gas Age* 42:346 O 15 '18

See also Gas sampling

**Gas torch**

- Modern welding and cutting. E. Viall. *Il Am Mach* 50:675-9, 977-83, 1081-7, 1237-43; 51:61-5, 117-22 Ap 10, My 22, Je 5, 26, J1 10-17 '19
- Omaha uses portable gas torch with single hose line. *Il Elec Ry J* 52:1104 D 21 '18
- Unique blow torch gives high temperatures. *Il Iron Tr R* 64:631 Mr 6 '19

See also Oxyacetylene flame

**Gas tubes**

- Gas appliance testing laboratory. H. M. Riley and L. B. Wilson, Jr. *diags Am Gas Eng J* 110:117-19 F 8 '19
- Tests of flexible gas tubing. R. S. McBride and W. M. Berry. *J Fr Inst* 188:562-3 O '19

**Gas turbines**

- Skew-gear type of pressure gas turbine; abstract. *diags Mech Eng* 41:898-9 N '19

**Gas warfare.** See Gases in warfare

**Gas washers**

- Centrifugal scrubbers. *Il Am Gas Eng J* 110:sup20 Je 7 '19
- Centrifugal type gas washers. *Il diags Engineer* 124:502 D 7 '17
- Cleaning gas by effective method. G. B. Cramp. *diags Iron Tr R* 65:506-7 Ag 21 '19
- Gas washers; abstract. G. B. Cramp. *diags Mech Eng* 41:836 O '19
- High speed air and gas washers. J. L. Alden. *diags Am Soc M E J* 40:390-2 My '18; Same cond. *Iron Tr R* 62:1428-9 Je 6 '18

**Gas water heaters**

- Gas appliance testing laboratory. H. M. Riley and L. B. Wilson, Jr. *diags Am Gas Eng J* 108:341-9 Ap 13 '18
- Gas heating plants for French apartment houses. *diags Gas Age* 42:431-3 N 15 '18
- How to sell automatic instantaneous and automatic water heaters. *Am Gas Eng J* 109:sup16 N 23 '18

**Gas water heaters—Continued**

- Kompak water heater now equipped with automatic pilot. *diag* Am Gas Eng J 111:sup 40 O 18 '19
- Lovekin automatic boiler and gas water heater. *diag* Am Gas Eng J 111:sup16 N 8 '19
- National gas water heater week June 9-14. *diags* Am Gas Eng J 110:429-30 My 17 '19
- Points on how to sell gas water heaters. Gas Age 42:278-9 S 16 '18
- Saving by using gas heaters. *il* Factory 23: 150-1 J1 '19
- Selling gas water heaters is profitable and worth pushing. F. A. Lemke. *Dom* Eng 87: 99 Ap 19 '19
- Toronto to launch big water heater campaign. N. E. Gerry. Gas Age 43:263 Mr 1 '19
- Two Kompak heaters for household use. *il* Gas Age 43:168 F 1 '19
- Types of water heaters. R. A. Cameron. Gas Age 44:272 S 15 '19
- Unsold field for water heaters. F. A. Lemke. Gas Age 42:495 D 2 '18
- Van Zandt company has produced new gas water-heater. Am Gas Eng J 111:sup16 N 15 '19
- Water-heater sales campaign. Am Gas Eng J 108:16-18 Ja 5 '18
- When you haven't the gas to sell them for brass melting help them to use oil. L. Resnick. *il* Am Gas Eng J 109:129-30 Ag 10 '18

**Gas wells.** See Gas, Natural

**Gas works.** See Gas manufacture and works

**Gases**

- Absorption of gases on plane surfaces of glass, mica and platinum. I. Langmuir. Am Chem Soc J 40:1361-1403 S '18
- Accurate method for measuring the density of gases. O. Maass and J. Russell. *diag* Am Chem Soc J 40:1847-52 D '18
- Action of reducing gases on hot solid copper. N. B. Pilling. *il* *diag* Am Inst Min E Bul 142:1567-80 O '18; Abstract. J Fr Inst 186: 373-4 S '18
- Adiabatic and isothermal expansion and compression. Power 47:779 My 28 '18
- Alignment chart for the gas laws. A. G. Wikoff. Chem & Met Eng 21:195 Ag 15 '19
- Application of graphics to gas mixtures. E. J. Brady. J Fr Inst 185:280-1 F '18; Same. Am Gas Eng J 108:200 Mr 2 '18
- Determination of gases in metals. H. M. Ryder. Met & Chem Eng 18:503-4 My 15 '18
- Determining gases in steel and the deoxidation of steel. J. R. Cain. Am Inst Min Bul 152:1309-22 Ag '19; Discussion. 155:3027-32; 156:3119-21 N-D '19
- Diffusion of gases. Coal Age 14:145 J1 20 '18
- Joule-Thomson effect and the equation of state for gases at small pressures; abstract. M. Jakob. Am Soc M E J 40:1054-5 D '18
- Measuring the temperature of gases in boiler settings. H. Kreislinger and J. F. Barkley. *diags* U S Bur Mines Bul 145:1-66 '18
- Molecular consistency of gases. Coal Age 14: 401 Ag 29 '18
- Molecular heat of gases. W. C. M. Lewis. Sci Am S 85:240 Ap 13 '18
- Occluded gases in ferrous alloys. G. Alleman and C. J. Darlington. *diags* J Fr Inst 185:161-98, 333-57, 461-80 F-Ap '18; Abstract. Chem & Met Eng 19:42 J1 '18
- Occlusion of gases by metals. Engineer 126: 444 N 22 '18
- Preventing occlusion of gases. R. Hadfield. Iron Tr R 65:504-5 Ag 21 '19
- Some non-poisonous gases and their uses. Sci Am 120:140-1 F 15 '19
- Starting and stability phenomena of ammonia-oxidation and similar reactions. F. G. Liljenroth. Chem & Met Eng 19:287-93 S 15 '18; Same. Gen Elec R 21:807-15 N '18
- See also Acetylene; Aerodynamics; Air; Argon; Blast furnace gas; Chemistry; Chlorine; Coke-oven gas; Electric discharges thru gases; Firedamp; Flue gas; Gas; Gas and oil engines; Gases in warfare; Helium; Hydrogen; Inflammable mixtures; Ionization; Liquefaction of gases; Mine gases; Nitrogen; Oxygen; Ozone; Vapor pressure

**Analysis**

See Gas analysis

**Gases, Asphyxiating and poisonous**

- Poisonous fumes and vapors. C. C. Sherlock. Power 48:672-3 N 5 '18
- Traces of gas. Sci Am 119:501 D 21 '18
- See also Arsenic trichloride; Carbon disulfide; Carbon monoxide; Carbonyl chloride; Chloropicrin; Gases in warfare; Methylidichlorarsine; Mine gases

**Manufacture**

- Gas offense in the United States a record achievement. *il* map J Ind & Eng Chem 11: 5-12 Ja '19; Same cond. Sci Am S 87:180-2 Mr 22 '19
- Manufacture of war gases in Germany. J. F. Norris. *diags* J Ind & Eng Chem 11: 817-29 S '19
- United States chemical warfare service. *il* Sci Am 120:318-19+, 372-3 Mr 29, Ap 13 '19
- Gases, Kinetic theory of**
- Equation of state for liquids and vapors; the vapor phase of ethyl ether. F. G. Keyes and W. A. Felsing. *diags* Am Chem Soc J 41:589-619 Ap '19

**Gases in warfare**

- American chemists' defensive measures against gas attacks in France. R. K. Tomlin, jr. *il* Met & Chem Eng 18:636-9 Je 15 '18
- Artillery gas attack. B. C. Goss. *il* *diags* J Ind & Eng Chem 11:829-36 S '19
- Battle of poisonous gases. Sci Am 119:191 S 7 '18
- Chemical warfare. W. L. Sibert. J Ind & Eng Chem 11:1060-2 N '19
- Chemical warfare—a new weapon. E. Hendrick. Chem & Met Eng 20:152-4 F 15 '19
- Chemical warfare research. W. D. Bancroft. J Ind & Eng Chem 10:785-6 O '18; Abstract. Chem & Met Eng 19:544 O 1 '18
- Chemical warfare service; order creating the division, organization and personnel. J Ind & Eng Chem 10:675-84 S '18
- Chloropicrin. O. R. Sweeney. Sci Am S 86: 259 O 26 '18
- Commercial uses of chlorine. V. R. Kokatnur. Chem & Met Eng 19:668 N 1 '18
- Competition in poison gas. Sci Am 120:518 My 17 '19
- Development of gas warfare work by the Bureau of mines. V. H. Manning. Am Inst Min E Bul 141:sup11-13 S '18
- Development of mustard gas. F. M. Dorsey. *il* *diags* J Ind & Eng Chem 11:287-91 Ap '19
- First gas regiment. J. C. Webster. *il* J Ind & Eng Chem 11:621-2 J1 '19
- Gas attack and liquid fire in modern warfare. Sci Am S 85:189 Mr 23 '18
- Gas in warfare. Sci Am 119:228 S 21 '18
- Gas, smoke, and flame in this war and the next. W. H. Walker. *il* Eng Soc W Pa 35: 195-214 My '19
- Gas warfare at the front. B. C. Goss. *il* Eng Soc W Pa 35:181-94 My '19
- Gas warfare, both offensive and defensive. H. W. Dudley. *il* Chem & Met Eng 19:705-9 N 15 '18
- How we are training our specialists in gas warfare. Sci Am 119:186 Ag 17 '18
- Humanity of poison gas. Sci Am 120:310 Mr 29 '19
- Interallied organizations for chemical warfare. J. E. Zanetti. J Ind & Eng Chem 11:721-3 Ag '19
- Manufacture of war gases in Germany. J. F. Norris. *diags* J Ind & Eng Chem 11:817-29 S '19
- Methods of gas warfare. S. J. M. Auld. J Ind & Eng Chem 10:297-301 Ap '18; Same. Sci Am S 85:142-4 Mr 2 '18; Excerpt. Chem & Met Eng 19:150 Ag 1 '18
- Organization and work of Hanlon field. J. H. Hildebrand. J Ind & Eng Chem 11:291-2 Ap '19
- Proving division, Chemical warfare service, U.S.A. W. S. Bacon. *il* J Ind & Eng Chem 11:513-16 Je '19
- Refrigeration requirements of chemical warfare. A. M. Heritage. *il* Mech Eng 41:806-10, O '19

**Gases in warfare—Continued**

Transfer of the experiment station at American university to the War department. *J Ind & Eng Chem* 10:654 Ag '18; Same. *Am Inst Min E Bul* 141:sup10 S '18

War gases are of vital military importance. *W. L. Sibert. Gas Age* 44:245-8 S 15 '19

See also Arsenic trichloride; Carbonyl chloride; Gases, Asphyxiating and poisonous—Manufacture; Methylchlorarsine; Mustard gas

**Bibliography**

Gases used in warfare; references to the standard reference books. D. D. Berolzheimer. *J Ind & Eng Chem* 11:256 Mr '19

Poisonous gas in warfare; application, prevention, defense, and medical treatment. H. E. Haferkorn and F. Neumann. 42p 25c '18 H. W. Wilson co., 958-64 University av. N.Y.

**Gas holders.** See Gas holders

**Gaskets**

Cutting and fitting gaskets. *diags Motor Age* 34:43+ J1 11 '18

Gaskets for steam-pipe lines. Z. Schultes. *il diags Power* 48:8-10 J1 2 '18

Homemade lead gasket outfit. J. L. Ball. *diags Coal Age* 15:939 My 22 '19

Sarco metallic gaskets. *diags Power* 47:473 Ap 2 '18

Use of metallic gaskets. W. B. Haynes. *Power* 47:906 Je 25 '18

**Gasoline**

Allied countries restrict use of gasoline. *Automotive Ind* 37:983 N 29 '17

Convenient electric heater for use in the analytical distillation of gasoline. E. W. Dean. *diags plan J Ind & Eng Chem* 10:823-6 O '18

Curtailed sales of gasoline and oil not U. S. order, but patriotic duty. D. S. Hatch. *Motor Age* 34:8 Ag 8 '18

Declining supply of motor fuel. *Sci Am* 120:220 Mr 8 '19

Designing natural-gas-gathering line system for gasoline plant. E. O. Hickstein. *plan Am Gas Eng J* 108:415-17 My 4 '18

Determination of unsaturated hydrocarbons in gasoline. E. W. Dean and H. H. Hill. *U S Bur Mines Tech Pa* 181:1-22 '17

Determining gasoline in natural gas. W. P. Dykema and R. O. Neal. *diags Automotive Ind* 40:57-9 Ja 9 '19

Don't waste gasoline campaign is started. *Automobile* 37:712 O 25 '17

England revises gas restrictions. *Automotive Ind* 38:563 Mr 14 '18

Entropy diagram for gasoline; abstract. J. Rey. *diag Am Soc M E J* 40:501-2 Je '18

Extraction of gasoline from natural gas by absorption methods. G. A. Burrell, P. M. Biddison and G. G. Oberfell. *il diags U S Bur Mines Bul* 120:1-66 '17; Excerpts. *Gen Elec R* 21:247-8 Ap '18

Flash and burning points of gasoline-kerosene mixtures. J. T. Robson and J. R. Withrow. *bibliog diag Chem & Met Eng* 21:244-52 S 1 '19

Fuel economy ace has arrived; rivalry of 250 New York bus drivers for title. *il Motor Age* 34:20-1 Ag 29 '18

Fuel for automotive apparatus. E. W. Dean. *Automotive Ind* 38:224-8+ Ja 24 '18

Future sources of oil and gasoline. M. A. Allen. *il Gen Elec R* 21:73-7 Ja '18

Gasoline and its dangers. A. H. Gill. *Power* 48:78-9 J1 16 '18

Gasoline conservation urged. *Eng & Min J* 106:459 S 7 '18

Gasoline from gas gains 111 per cent; with tables. *Automotive Ind* 39:600-1 O 3 '18

Gasoline production increased 32 per cent during 1917. *Automotive Ind* 38:885 My 2 '18

Gasoline rate chart. Horseless *Age* 42:50 D 15 '17; 43:78 Ja 1; 50 Ja 15; 54 F 15 '18

Gasoline rate chart. *Motor Age* 34:41 N 21 '18

Gasoline saving was 100,000 barrels; Fuel administration takes census of cars running. *Automotive Ind* 39:433 S 5 '18

Gasoline shortage in South Africa. *Automobile* 37:713 O 25 '17

Gasoline stocks decreasing. *Eng & Min J* 106:544 S 21 '18

Gasoline's part in the great war. A. Lidgett. *Sci Am S* 85:102-3 F 16 '18

Greenstreet cracking process. *Automotive Ind* 38:1088-9 Je 6 '18

How the Red cross saves gasoline. R. Michals. *Sci Am* 119:384 N 9 '18

How to save gasoline. *Factory* 21:102+ J1 '18

Increased production of gasoline from natural gas. *Am Gas Eng J* 109:458 N 16 '18

Indications are that consumption of motor fuel within next decade will be double present total of gasoline production. J. E. Bullard. *Am Gas Eng J* 108:49-51 Ja 19 '18

Legal standards for gasoline proposed in California. *Automotive Ind* 40:923-4 Ap 24 '19

Manufacture of gasoline from natural gas. J. C. McDowell. *Gen Elec R* 21:249-51 Ap '18

Motor gasoline properties, laboratory methods of testing, and practical specifications. E. W. Dean. *chart diag U S Bur Mines Tech Pa* 214:1-30 '19

Motorless Sundays. *Sci Am* 119:224 S 21 '18

Motorless Sundays asked east of Mississippi. *Motor Age* 34:13 Ag 29 '18

New gasoline from oil process. E. C. D'Yarmett. *Gas Age* 41:475 My 15 '18

90-95 per cent lubricating oil reclaimed by army emergency process. W. F. Bradley. *Automotive Ind* 40:422-3+ F 20 '19

Oil problem during war period. M. L. Requa. *Am Inst Min E Bul* 143:sup5-12 N '18

Per cent of cracked gasoline produced on basis of crude petroleum and total gasoline marketed in 1916 and 1917. G. Egloff. *Met & Chem Eng* 17:680-1 D 15 '17

Process refining systems would increase gasoline production. *Automotive Ind* 39:447+ S 12 '18

Producing synthetic gasoline by electrochemical means. L. B. Cherry. *diag Power* 46:847-8 D 18 '17; Abstract. *Sci Am S* 86:320 N 16 '18

Recent developments in the absorption process for recovering gasoline from natural gas. W. P. Dykema. *il diags plans U S Bur Mines Bul* 176:1-90 '19

Recovery of gasoline from casing-head and natural gas. P. Diserens. *chart diags plan Am Soc M E J* 40:834-8 O '18

Recovery of gasoline from natural gas by compression and refrigeration. W. P. Dykema. *flow sheets il diags plan U S Bur Mines Bul* 151:1-117 '18; Summary. *Automotive Ind* 39:103-4 J1 18 '18

Save gasoline for war. *Metal Work* 88:753 D 21 '17

Sidelights on oil refinery practice. E. W. Dean. *Automotive Ind* 40:315-16 F 6 '19

Standard gasoline for aircraft. *Automotive Ind* 37:949 N 29 '17

Static electricity from gasoline. R. M. Orr. *Power* 48:244-5 Ag 13 '18

Suggestions for avoiding waste of gasoline. *Eng & Contr* 49:36 Ja 2 '18

Suggestions for the safe operation of gasoline engines in mines. R. H. Kudlich and E. Higgins. *U S Bur Mines Tech Pa* 174:16 '17; Same. *Coal Age* 13:997 Je 1 '18

Testing for gasoline economy. *Motor Age* 33:18 Je 20 '18

Testing natural gas for gasoline. G. G. Oberfell. *diags J Ind & Eng Chem* 10:211-14 Mr '18

Viscosity of gasoline. W. H. Herschel. *U S Bur Stand Tech Pa* 125:1-18 '19; Abstract. *J Fr Inst* 187:627-8 My '19; Abstract. *Mech Eng* 41:469-70 My '19; Abstract. *Sci Am S* 88:71 Ag 2 '19

Whole natural gas industry today responsive to problem of chemical possibilities of natural gas. J. B. Garner. *il Am Gas Eng J* 108:489-95, 505-8 My 25 '18; Same cond. *Gas Age* 41:555-60 Je 15 '18

See also Automobile engines—Fuel

**Gasoline—Continued****Specifications**

- Gasoline specifications revised to meet commercial needs. *Automotive Ind* 41:717-19 O 9 '19  
 Specifications for gasoline. *Automotive Ind* 39:728 O 24 '18

**Storage**

See Oil storage

**Gasoline, Substitutes for**

- Cent-a-gallon gasoline dream ended; story of Louis Enricht. *Power* 47:854 Je 11 '18  
 Substitute for gasoline tested by Bureau of standards. *Automotive Ind* 39:933+ N 28 '18

See also Liberty fuel; Natalite

**Gasoline engines. See Gas and oil engines****Gasoline handling**

- Apsco pressure system. *diags Automobile* 37:481-2 S 13 '17  
 Eliminating oil barrel plague. *diags Motor Age* 36:22-3 J1 31 '19  
 Leak and explosion proof gasoline tank. G. D. Angle. *diag Aviation* 6:160-1 Mr 1 '19  
 Portable tank for gasoline engine working underground. *diag Eng & Contr* 49:57 Ja 16 '18  
 Underground gasoline storage. *diag Ry Age* 66:1017 Ap 18 '19

**Gasoline in sewers**

- Garage drainage. J. H. Perry. *diags plan Dom Eng* 83:202-4 My 11 '18  
 New York ordinance requiring oil separator for excluding gasoline from sewers. *diags plan Munic Eng* 54:194-6 My '18

**Gasoline locomotives. See Locomotives, Gas and oil****Gasoline storage. See Oil storage****Gasoline tractor. See Tractors****Gaster, Leon**

- Founder and editor of the *Illuminating engineer*. *por Illum Engr* 11:4a-4b Ja '18

**Gastric juice**

- Apparatus for rapid gastric analysis together with a method for the preservation of starch solution. R. J. Miller. *diags J Ind & Eng Chem* 11:963-4 O '19

**Gates, Hydraulic**

- Automatic gates for protecting spillways. *Elec R* 74:473 Mr 22 '19  
 Balanced automatic sluice gate for park dam. *il diags Eng N* 82:1166-7 Je 12 '19  
 Experiences with large-capacity reservoir outlets. J. M. Gaylord. *diags Eng N* 81:945-50 N 21 '18  
 Flood gates that take care of themselves. *il Sci Am* 120:71 Ja 25 '19  
 Headgates combined with bridge over aqueduct canal. *il diags plan Eng N* 83:610-11 S 25 '19  
 High-pressure gates in dams for water-works and irrigation reviewed. D. W. Cole. *il Eng N* 81:880-4 N 14 '18  
 Recent installations of Lang gates. D. C. May. *diags Eng & Contr* 51:268-70 Mr 12 '19  
 Reinforced concrete dock gates. *il Engineer* 127:289-90 Mr 21 '19; *Same. Eng & Contr* 51:462 Ap 30 '19  
 Supporting the disks of large gate valves operating under pressure. K. Toensfeldt. *diags Eng N* 80:901 My 9 '18

See also Valves, Hydraulic

**Gateways**

- Cost of erecting pillars. H. R. Ferriss. *il diags plan Eng & Contr* 51:88 Ja 22 '19  
 Personality of the entrance gate. O. Crooker. *il Arch Rec* 45:93-6 Ja '19

**Gauges. See Gages****Gauntlets**

- Gauntlets and gaiters that defy barbed wire. *il Sci Am* 118:571 Je 22 '18

**Gazebos**

- Curious feature of ancient architecture. J. T. Perry. *il Sci Am S* 86:260-1 O 26 '18

**Gear cutting**

- Charts giving time required to hob spur gears. V. P. Rumely. *charts Mach* 24:1085-6 Ag '18  
 Cutting a four-spline gear without special tools. V. C. Bowser. *diags Am Mach* 49:1095-6 D 12 '18; *Discussion. R. C. Thompson. 50:127 Ja 16 '19*  
 Cutting large spiral bevel gears for experimental purposes. A. L. Stewart. *il Mach* 25:374 D '18  
 Cutting stub-tooth gears with a standard involute cutter. J. Sundell. *Am Mach* 50:649 Ap 3 '19  
 Hobbing a large worm wheel on a boring mill. E. J. Edwards. *il Am Mach* 48:674-5 Ap 18 '18  
 Hobbing wormwheels without gashing the blanks. B. Soule. *diag Am Mach* 50:903-4 My 8 '19  
 Peculiar shaped worm. R. Mawson. *il diags Am Mach* 49:912-13 N 14 '18  
 Problem of the theoretically correct involute hob. N. Trbojevich. *diags Mach* 25:429-33 Ja '19  
 Sizing and hobbing a gear in one operation. N. Trbojevich. *diag Am Mach* 50:260 F 6 '19  
 Spur gearing produced by the rotary cutter process. H. E. Eberhardt. *Mach* 24:404-5 Ja '18  
 Strengthening intermittent gears. S. H. Yorks. *diags Am Mach* 50:848 My 1 '19  
 Time slide-rules for standard types of gear-cutting machines. *Mach* 26:134-5 O '19

**Gear cutting machines**

- Automatic double-spindle gear-cutting machine. L. Eisenkramer. *diags Mach* 25:164-5 O '18  
 Barber-Colman no. 2 gear-hobbing machine. *il Mach* 26:180-1 O '19  
 Donaldson & Fisher gear-generating machine. J. V. Hunter. *il Am Mach* 51:831-2 N 6 '19  
 Generating a square hole with a gear-shaper cutter. D. T. Hamilton. *il diag Am Mach* 49:949-50 N 21 '18  
 Generating cams and irregular-shaped work. D. P. Hamilton. *il diags Am Mach* 49:737-40 O 24 '18  
 Gould & Eberhardt 18-in. wormwheel generating machine. *il Am Mach* 50:664-5 Ap 3 '19; *Automotive Ind* 40:746-7 Ap 3 '19; *Iron Age* 103:746 Mr 20 '19  
 Hobbing spiral gears without traversing hob. *il Mach* 24:499 F '18  
 Jones Superior gear-hobbing machine. S. M. Banfield. *il Am Mach* 50:276-6 F 6 '19  
 Sunderland spur and spiral gear planers. *il Mach* 24:662-3 Mr '18  
 Universal cutters for Diamond sprocket teeth. *il Mach* 25:395 Ja '19  
 Walker automatic gear-tooth rounding machine. *il Am Mach* 48:809 My 9 '18  
 Walker automatic gear tooth rounding machine. *il diags Automotive Ind* 40:648-50 Mr 20 '19  
 Waltham 4-in. spur-gear-cutting machine. *il Am Mach* 49:870 N 7 '18

**Gear manufacturers' association, American. See American gear manufacturers' association****Gearing**

- Additional power by using low-pressure turbine. *il Power* 48:533-4 O 8 '18  
 Additional power for line shaft through turbine drive, with speed-reduction gear. *il Elec R* 73:248-9 Ag 17 '18; *Same cond. Power* 48:533-4 O 8 '18  
 Adjustable gear for eliminating backlash. P. J. Raab. *diags Am Mach* 49:32 J1 4 '18  
 American gear manufacturers' association meeting in Cleveland. *Iron Age* 103:1083-5 Ap 24 '19; *Am Mach* 50:872 My 1 '19; *Mach* 25:810-11 My '19  
 Costs of maintaining differential gear drive at Huddersfield. *diags Elec Ry J* 53:133 Ja 18 '19  
 Design and progress of the floating-frame reduction gear. J. H. Macalpine. *il diags Eng Soc W Pa* 34:1-38 F '18; *Discussion. 34:39-71, 519-35 F, O '18*  
 Designing change-gears. W. C. Stuart. *diags Mach* 26:262-5 N '19

**Gearing—Continued**

- Differential gear problem. W. Wheatley. *diag Mach* 25:318 Je '19
- Differential motions and planetary gear combinations. F. D. Jones. *il diags Mach* 24: 600-4, 709-14 Mr-Apr '18
- Emergency patterns for a seven-foot gear. J. L. Gard. *il Foundry* 46:361+ Ag '18
- Floating frame reduction gears for ship propulsion. *il Int Marine Eng* 23:660-1 N '18
- Gear makers hold successful meeting. P. M. Heldt. *Automotive Ind* 40:834-5 Ap '17 '19
- Gear patterns. J. A. Shelly. *il diags Mach* 25:1133-7 Ag '19
- Gear plant makes war record; Falk co., Milwaukee. *il Iron Tr R* 64:947-52 Ap 10 '19
- Gear steels. J. H. Parker. *Mach* 25:861-3 My '19; Same. *Iron Age* 103:1092-3 Ap 24 '19; Same. *Am Mach* 50:1007-9 My 22 '19; Excerpt. *Automotive Ind* 40:1220-1 Je 5 '19
- Geared drive. N. W. Akimoff. *Int Marine Eng* 24:16-17 Ja '19
- Graphic method of generating an involute gear tooth. D. T. Hamilton. *il diag Mach* 24: 606-8 Mr '18
- Heat treatment of gear blanks. C. R. Poole. *Automotive Ind* 38:825-6 Ap 25 '18; Same. *Iron Tr R* 62:1110-11 My 2 '18; Same. *Am Mach* 48:829-31 My 16 '18; Excerpts. *Mach* 24:845 My '18
- How the apprentice made the pinion pattern. W. Ballantine. *diags Foundry* 47:165-6 Ap 1 '19
- Intermittent gears with locking circles. N. Leerberg. *diags Mach* 25:1176 Ag '19
- Lathe gears for cutting metric screws. E. J. Rantsch. *Am Mach* 48:442 Mr 14 '18
- Laying out intermittent gears. S. H. Yorks. *diags Am Mach* 50:1048-9 My 29 '19
- Locking plates for intermittent gears. S. H. Yorks. *diags Mach* 25:856 My '19
- Making emergency gears to keep cars in service. W. C. Butler. *il Elec Ry J* 53:331 F 15 '19
- Maximum power and speed of belt pulleys and gear wheels; abstract. W. Kummer. *Am Soc M E J* 40:718 Ag '18
- Measuring gears by the use of wires. W. S. Hudson. *diags Am Mach* 49:291-2 Ag 15 '18
- Measuring gears by the use of wires. J. W. Lee. *diags Am Mach* 50:123-4 Ja 16 '19
- Patternmaking and molding cast tooth gears. J. Nall. *il diags Foundry* 46:377-80 Ag '18
- Pin measurement of spur gears. R. Trautschold. *diags Mach* 24:406-9 Ja '18; Abstract. *Am Soc M E J* 40:198 F '18
- Reducing speeds magnetically. *il diags Sci Am* 117:499+ D 29 '17
- Reliable gears. C. J. Brown. *Coal Age* 14: 99-100 Jl 20 '18
- Special gear ratio for Fords; Krom-Nik offers lowest reduction. *Motor Age* 34:40 Jl 18 '18
- Speed-reduction gear. *il diags Power* 47:400-1 Mr 19 '18; *Elec W* 71:1011 My 11 '18
- Steam turbines and gears for marine service. *il diags plans Power* 50:424-6 S 9 '19
- Steels for gears and their treatment. G. A. Richardson. *il Iron Age* 101:1668-70 Je 27 '18; Abstract. *Am Soc M E J* 40:721-2 Ag '18
- Thickness of involute gear teeth on addendum circle. R. Trautschold. *diag Mach* 24:800-2 My '18
- Tool steel gears for mill service. E. S. Sawtelle. *Iron Tr R* 62:600-2 Mr 7 '18
- Turbo-gear manufacture. E. A. Suverkrop. *il diags Am Mach* 51:357-63 Ag 21 '19
- Two-gear reducing mechanism. *diags Mach* 25: 400 Ja '19
- War time lesson on reduction gears. *diags Automotive Ind* 41:516-22 S 11 '19
- Will a cushioned gear save power in car operation? G. W. Remington. *Elec Ry J* 52: 288-9 Ag 7 '18
- Williams internal gear. R. Trautschold. *diags plan Am Mach* 51:255-8 Ag 7 '19; Abstract. *Ind Management* 58:257 S '19; Discussion. L. D. Hayes. *Am Mach* 51:527-8 S 11 '19
- See also Automobiles—Gearing; Chain gear; Gear cutting; Locomotives—Gearing; Motor trucks—Gearing; Power transmission; Tractors—Gearing*

**Standards**

- Comprehensive standardization plan involving all types of gears started. P. M. Heldt. *Automotive Ind* 39:527-9 S 26 '18
- Gear makers adopt standard contract and set design standards for composition and bevel gears. *Automotive Ind* 41:830-1+ O 23 '19
- Gear makers discuss standardization. *Iron Age* 102:750-2 S 26 '18
- Gear makers plan to establish standards. *Iron Age* 101:1080-3 Ap 25 '18
- Gear standardization a reality. *Iron Tr R* 65:1121 O 23 '19
- Gear standardization decided on. P. M. Heldt. *Automotive Ind* 38:821-4+ Ap 25 '18
- Industrial, mill or job gearing—to what extent can it be standardized? F. Burgess. *Am Mach* 48:617-20 Ap 11 '18
- Problems of gear standardization. C. F. Feltz. *Automotive Ind* 38:1053 My 30 '18; Discussion. B. F. Waterman. 39:330 Ag 22 '18
- Standardization of gearing. B. F. Waterman. *Automotive Ind* 38:827-9 Ap 25 '18; Excerpts. *Am Mach* 48:831-2 My 16 '18; Abstract. *Mach* 24:846 My '18

**Tables, calculations, etc.**

- Calculating the mangle gear. C. J. Brickett. *diag Textile World* 54:1205 S 14 '18
- Decimal-equivalent table useful in gear work. T. S. Armandroff. *Am Mach* 48:339 F 21 '18
- Design and calculation of Williams internal gearing. R. Trautschold. *diags Mach* 26: 110-15 O '19
- Draft calculations in drawing. C. J. Brickett. *diags Textile World* 53:611+ Je 15 '18
- Epicycloidal gear teeth. W. M. Hippler. *diag Foundry* 47:166a Ap 1 '19
- Equation of the involute simplified. N. Finkelstein. *diags Am Mach* 51:693-4 O 9 '19
- Gear-tooth chart. J. H. Moore. *chart Am Mach* 50:903 My 8 '19
- Horsepower chart for gear teeth. J. Will. *Mach* 25:820-1 My '19
- Horsepower chart for spur and bevel gears. M. T. Schumb. *chart Mach* 25:646 Mr '19
- Mathematics of gear ratio. B. M. Ikert. *Motor Age* 34:26-7 Jl 4 '18
- Table for facilitating application of Lewis formula. J. O'Hara. *Mach* 25:124 O '18

**Testing**

- Approximate method for determining the strength of gear teeth. W. A. Thomas. *Am Mach* 51:273-4 Ag 7 '19
- Efficiency of gear drives; abstracts. C. M. Allen and F. W. Roys. *il diag plan Am Soc M E J* 40:367-70 My '18; *Iron Tr R* 62:1305-7 My 23 '18; *Automotive Ind* 38:1121-3 Je 13 '18

**Gearing, Bevel**

- Gleason bevel gear planing machine, automatic, 25-inch. S. M. Banfield. *il diags Am Mach* 49:829-34 N 7 '18
- Strength of spiral-type bevel gears. *diags Mach* 24:1111-15 Ag '18; Discussion. A. L. Stewart. 25:67-8 S '18

**Gearing, Elliptic**

- Elliptic gears built up from segments. R. Mawson. *il Am Mach* 50:61-2 Ja 9 '19

**Gearing, Spiral**

- Decreased operating costs with helical gears. G. M. Eaton. *il Elec J* 16:430-3 O '19
- Error in lead of spiral gears. N. Trbojevich. *Mach* 26:211 N '19
- Problem of the theoretically correct involute hob. N. Trbojevich. *diags Mach* 25:429-33 Ja '19

**Gearing, Spur**

- Graphic method of determining tooth pressures of gears. G. W. Cronk. *chart Am Mach* 51:712 O 9 '19
- Jones spur-gear speed reducers. *il Am Mach* 51:92 Jl 10 '19
- Spur-gear diagrams. G. C. Sundberg. *Am Mach* 51:568 S 18 '19; Discussion. G. W. Childs. 51:832 N 6 '19

**Gearing, Worm**

- Accuracy of worm-gears. O. Abdt. *diags Mach* 25:221 N '18

**Gearing, Worm—Continued**

- Error in wire method of measuring worm threads. H. H. Wright. *diags Mach* 24:439 Ja '18
- Henry Hindley, the inventor of the Hindley worm-gear. *Mach* 25:1055 JI '19; Same. *Sci Am S* 88:144 Ag 30 '19
- Intermittent worm gear. F. C. Mason. *diags Am Mach* 47:1126 D 27 '17
- Manufacture of worm gear and assembly methods factors in Fordson tractor success. II *Automotive Ind* 38:810-14 Ap 25 '18
- Peculiar shaped worm. R. Mawson. II *diags Am Mach* 49:912-13 N 14 '18
- Problem in worm gearing. R. A. Monte. *diags Am Mach* 49:586-7 S 26 '18
- Thread forms for worms and hobs. B. F. Waterman. *diags Mech Eng* 41:872-3 N '19
- Worm gear efficiency. C. H. Calkins. *diag plan Automotive Ind* 40:786-7 Ap 10 '19
- Worms and worm gears. G. W. Carlson. *Am Mach* 50:809-11 Ap 24 '19

**Gears. See Gearing****Geese**

- Geese as flesh-producers. *Sci Am S* 86:123 Ag 24 '18

**Gelatin**

- Determination of zinc and copper in gelatin. G. S. Jamieson. *J Ind & Eng Chem* 11:323-5 Ap '19
- Investigations on the absorption of water by gelatine. E. B. Shreve. *J Fr Inst* 187:319-37 Mr '19
- Jelly value of gelatin and glue. A. W. Clark and L. DuBois. *diags J Ind & Eng Chem* 10:707-9 S '18
- Liquefaction or solution of gelatin in polybasic acids and their salts. M. H. Fischer and W. D. Coffman. II *Am Chem Soc J* 40:303-12 Ja '18
- Mutarotation of gelatin and its significance in gelation. C. R. Smith. *Am Chem Soc J* 41:135-50 F '19; Abstract. *J Fr Inst* 187:503-4 Ap '19
- Retardation by sugars of diffusion of acids in gels. J. A. Wilson. *Am Chem Soc J* 41:358-9 Mr '19
- Reticulation of gelatine. S. E. Sheppard and F. A. Elliott. II *diags J Ind & Eng Chem* 10:727-32 S '18
- Swelling of gelatin in polybasic acids and their salts. M. H. Fischer and M. O. Hooker. *Am Chem Soc J* 40:272-92 Ja '18
- Use of gas in manufacture and utilization of glue, inks and similar substances. G. C. Shadwell. II *Am Gas Eng J* 109:25-30 JI 18 '18

*See also* Isinglass

**Gels. See Colloids****General electric company**

- Aims, organization and work of Nela research laboratory. E. P. Hyde. II *Sibley J* 32:123-6 My '18
- Annual report for 1917. *Elec W* 71:890-1 Ap 27 '18
- Electrical testing course. II *Gen Elec R* 21:238-9 Ap '18
- General electric co. creates skilled labor. II *Automobile* 37:499-501 S 20 '17
- General electric company in the great world war. J. R. Hewett. II *Gen Elec R* 22:493-504, 601-19, 726-40, 746-55, 996-1000 JI-N '19
- G-E—its service to architects and engineers and its relation to the electrical features of building construction. *Am Inst Arch J* 6:sup12-22 Je '18
- Life in a large manufacturing plant. C. M. Ripley. II *Gen Elec R* 20:661-70, 754-64, 829-36, 906-14, 968-78; 21:82-91, 202-15, 300-12, 517-24, 579-84 Ag '17-Ja, Mr-Apr, JI-Ag '18
- Mechanical restaurant. II *Sci Am* 118:385+ Ap 27 '18
- Research laboratory of the General electric company at Schenectady. H. R. Hosmer. II *Sibley J* 32:98-103 Ap '18
- 27th annual report to stockholders. *Elec W* 73:904-5 My 3 '19

**Generators, Electric. See Electric generators****Geneva, New York****Architecture**

- Group of buildings at Geneva, N.Y., for Edward McMaster Mills. II *Am Arch* 114:429-30, pl 109-11 O 9 '18

**Gentian violet**

- Further studies on gentian violet as a means of eliminating spurious presumptive tests for B. coli in water. I. C. Hall and L. J. Ellefson. *Am Water Works Assn J* 6:87-77 Mr '19

**Geochemistry**

- Future of geo-chemistry. H. W. Greenwood. *Eng & Min J* 107:644 Ap 12 '19

*See also* Mineralogy; Rocks—Analysis

**Geographical distribution of plants. See Plants, Geographical distribution of****Geography****Bibliography**

- List of books on foreign countries. U. S. Shipping Board, Free Pub Lib, Newark, N. J. 25p '18

**Geological time**

- Variable atomic weights with some reference to geologic time. H. S. Shelton. *Sci Am S* 86:66-7 Ag 3 '18

*See also* Earth, Age of

**Geologists**

- Geologist in war time—geology on the western front. H. F. Cleland. *Econ Geol* 13:145-6 Mr '18
- Geologist in war times—relation to military water supplies. O. E. Meinzer. *Econ Geol* 13:314-15 Je '18
- Geologist in war times—the training of artillery officers. A. M. Bateman. *Econ Geol* 12:628-31 O '17
- Geologist in war times: the United States Geological survey's war work. P. S. Smith. *Econ Geol* 13:392-9 JI '18
- Geology in the war. *Sci Am* 118:353+ Ap 20 '18

**Geoplogists, State. See State geologists****Geology**

- Applied geology in municipal engineering. H. Lapworth. *Eng & Contr* 50:132 JI 31 '18
- Chalk flints and the age of the earth. *Sci Am S* 85:41 Ja 19 '18
- Economic geology. A. Knopf. *Eng & Min J* 105:105-7 Ja 12 '18
- Economic geology as a profession. W. Lindgren. *Econ Geol* 14:79-86 Ja '19
- Genetic classification of underground volatile agents. R. A. Daly. *bibliog Econ Geol* 12:487-504 S '17; Discussion. W. H. Emmons. 13:144-5 Mr '18
- Geologic role of phosphorus. E. Blackwelder. *diags Sci Am S* 85:92-4 F 9 '18
- Geological structure in relation to magnetic disturbance. A. H. Cox. *Sci Am S* 86:77 Ag 3 '18
- Geology of concrete aggregates. *Eng & Contr* 52:484-5 O 29 '19
- Geology of concrete aggregates with special reference to texture. F. G. H. Boswell. *Eng & Contr* 52:494-6 O 29 '19
- Geosynclines and petroliferous deposits. M. R. Daly. *diag maps Am Inst Min E Bul* 128:1136-46 Ag '17; Discussion. 133:97-9; 135:695-7 Ja, Mr '18
- Graphic determination of dip components where dips are measured in feet per mile. F. H. Lahee. *Econ Geol* 14:262-3 My '19; Discussion. H. S. Palmer. 14:346-8 Je '19
- Present tendencies in geology: metalliferous deposits. A. Knopf. *bibliog Econ Geol* 14:543-54 N '19
- Principles of economic geology, by W. H. Emmons. Review by J. T. Singewald, Jr. *Econ Geol* 13:325-32 Je '18
- Study of the sediments as an aid to the earth historian. E. Blackwelder. *Sci Am S* 87:183+ Mr 22 '19
- War minerals. J. E. Spurr. *Econ Geol* 13:500-11 N '18

*See also* Abrasives; Asphalt; Coal; Copper ores; Coral reefs and islands; Earth; Earth, Age of; Earthquakes; Erosion; Faults (geology); Gas, Natural; Glaciers;



**Geology—Continued**

Graphite; Gypsum; Metals; Mineral waters; Mineralogy; Mines and mineral resources; Ore deposits; Paleontology; Peat; Petroleum; Phosphates; Quarries and quarrying; Rocks; Salt; Sand; Soils; Stone; Sulfur; Volcanoes

**Bibliography**

Recent literature of economic geology. R. E. Somers. *Econ Geol* 13:71-9, 233-43 Ja, My '18

**Africa, West**

Geology of West Africa with notes on its resources and future development. R. Chudeau. *Sci Am S* 85:350-2 Je 1 '18

**Alabama**

Possible oil and gas fields in the cretaceous beds of Alabama. D. Hager. map *Am Inst Min E Bul* 134:469-76 F '18; Discussion. 136: 819-22 Ap '18

**Arizona**

Jerome district of Arizona. J. R. Finlay. *Eng & Min J* 106:557-62, 605-10 S 23-O 5 '18  
Southwest copper field. J. R. Finlay. *il Eng & Min J* 106:199-205 Ag 3 '18

**Australia**

Replacement in the Bendigo quartz veins and its relation to gold deposition. F. L. Stillwell. *il diags Econ Geol* 13:100-11 Mr '18

**Brazil**

Notes on the geology of the diamond region of Bahia, Brazil. R. Crandall. *diags map Econ Geol* 14:220-44 My '19

**British Columbia**

Copper silver veins of the Telkwa district. V. Dolmage. *il diags Econ Geol* 13:349-80 Jl '18  
Gneissic galena ore from the Slocan district, British Columbia. W. L. Uglow. *il diags Econ Geol* 12:643-62 D '17  
Source of placer platinum in the Tulameen district. R. M. Macaulay. map *Eng & Min J* 107:303-6 F 15 '19

**California**

Further remarks on the ores of Engels. L. C. Graton and D. H. McLaughlin. *Econ Geol* 13:81-99 Mr '18  
Sink of the Amargosa. G. J. Young. *il Eng & Min J* 105:985-6 Je 1 '18

**Chile**

Veins of Chafarcillo. W. L. Whitehead. *bibliog il diags Econ Geol* 14:1-45 Ja '19

**China**

Coal and iron deposits of the Pen-hsi-hu district, Manchuria. C. F. Wang. *il diags maps plan Am Inst Min E Bul* 134:223-50 F '18

**Colorado**

Whitepine section of the Tomichi district. J. E. Dick. *il map Eng & Min J* 106:331-3 Ag 24 '18

**Egypt**

Phosphate in Egypt. E. Cortese. map *Am Inst Min E Bul* 134:523-7 F '18

**Gulf coastal plain**

Gulf Coast domes in relation to the sulphur supply. K. Thomas. *Eng & Min J* 106:7 Jl 6 '18

Intrusive origin of the Gulf Coast salt domes. G. S. Rogers. *il diags Econ Geol* 13:447-85 S '18; Discussion. E. DeGolyer; W. F. Jones. 13:616-22 D '18

Principles and problems of oil prospecting in the Gulf Coast country. W. G. Matteson. *il map Am Inst Min E Bul* 134:429-63 F '18; Discussion. 134:463-8; 136:823-35; 139:1145-6; 140:1163-4 F, Ap, Jl-Ag '18

Theory of volcanic origin of salt domes. E. DeGolyer. *Am Inst Min E Bul* 137:987-1000 My '18; Discussion. 139:1147 Jl '18

**Idaho**

Old erosion surface; is it eocene? J. L. Rich. *bibliog map Econ Geol* 13:120-36 Mr '18; Discussion. D. C. Livingston. 13:486-92 S '18

**Illinois**

Illinois and Missouri coal fields. G. H. Cady. *Coal Age* 13:72 Ja 12 '18

**Korea**

Geology and ore deposits of the Collbran contact of the Suan mining concession. D. F. Higgins. *il diags map Econ Geol* 13:1-34 Ja '18

**Louisiana**

Concrete example of the use of well logs. M. Bates. maps *diag Am Inst Min E Bul* 137:979-86 My '18

Review of the exploration at Belle Isle. A. F. Lucas. *diags map Am Inst Min E Bul* 129: 1435-47 S '17; Discussion. 133:88-92 Ja '18

**Mexico**

Funnel and anticlinal-ring structure associated with igneous intrusions in the Mexican oil fields. V. R. Garfias and H. J. Hawley. *bibliog diags Am Inst Min E Bul* 128:1147-59 Ag '17; Discussion. 133:92-7 Ja '18

Geology and mining methods at Pilares mine. W. R. Wade, A. Wandtke and P. De Nacozari. *il diags plan maps Am Inst Min Bul* 152:1143-69 Ag '19

Oil in southern Tamaulipas. E. Ordoñez. *diag map Am Inst Min E Bul* 137:1001-8 My '18

Petroleum geology of the Isthmus of Tehuantepec. B. Hartley. map *Econ Geol* 12:581-8 O '17

**Michigan**

Correlation of formations of Huronian group in Michigan. R. C. Allen. *diags Am Inst Min Bul* 153:sup2579-94 S '19; Discussion. 156:3113-15 D '19

Geology of the Gogebic range and its relation to recent mining developments. W. O. Hotchkiss. *il diags map Eng & Min J* 108:443-52, 501-7, 537-41, 577-82 S 13-O 4 '19

Porphyry intrusions of the Michigan copper district. T. S. Woods. *il map Eng & Min J* 107:299-302 F 15 '19

**Minnesota**

Basal phases of the Duluth gabbro near Gabamichigami lake, Minnesota, and its contact effects. M. L. Nebel. *il diags map Econ Geol* 14:367-402 Ag '19

Detail stratigraphy of the Biwabik iron-bearing formation, east Mesabi district, Minnesota. T. M. Broderick. *il Econ Geol* 14:441-51 S '19

Features of magnetic surveys of the magnetite deposits of the Duluth gabbro. T. M. Broderick. *il diags maps Econ Geol* 13:35-49 Ja '18

Nature and origin of the Biwabik iron-bearing formation of the Mesabi range. F. F. Grout. *il Econ Geol* 14:452-64 S '19

Pegmatites of the Duluth gabbro. F. F. Grout. *il map Econ Geol* 13:185-97 My '18

Recent geologic developments on the Mesabi iron range. J. F. Wolff. *il maps Am Inst Min E Bul* 118:1763-87 O '16; Discussion. 122:291; 123:376-9; 141:1523-5 F-Mr '17, S '18

Relation of the titaniferous magnetites of northeastern Minnesota to the Duluth gabbro. T. M. Broderick. *il diag map Econ Geol* 12:663-96 D '17

**Missouri**

Barite deposits of Missouri. W. A. Tarr. maps *Econ Geol* 14:46-67 Ja '19

Illinois and Missouri coal fields. G. H. Cady. *Coal Age* 13:72 Ja 12 '18

Mining districts of Joplin and southeast Missouri. H. W. Kitson. *il maps Eng & Min J* 104:1067-73; 105:363-4 D 22 '17. F 23 '18

**Montana**

Ore deposits of the Boulder batholith of Montana. P. Billingsley and J. A. Grimes. *bibliog diags maps Am Inst Min E Bul* 124:641-717 Ap '17; Discussion. 130:1869-70; 133:72-5 O '17, Ja '18

**Nebraska**

Origin of the Nebraska potash lakes. W. A. Norris. *Met & Chem Eng* 18:281 Mr 15 '18

**Geology—Continued****Nevada**

Geology and ore deposits of Ely, Nevada, by A. C. Spencer. Review, by C. H. Clapp. *Econ Geol* 13:400-9 J1 '18

Geology and ore deposits of the Yerington district, by A. Knopf. Review by W. H. Emmons. *diag Eng & Min J* 107:1079-80 Je 21 '19

Ore deposits of the Yellow Pine mining district, Clark county, F. A. Hale, jr. *il map Am Inst Min E Bul* 134:535-53 F '18; Same cond. *Eng & Min J* 105:455-60 Mr 9 '18

**New Mexico**

Geologic structure of Sierra del Oro, in New Mexico, C. R. Keyes. *diag Eng & Min J* 106:494-5 S 14 '18

**New York**

Magnetic iron ores of Clinton county, New York. W. J. Miller. *map Econ Geol* 14: 509-35, pl 23-4 N '19

**Oklahoma**

Age of the oil in southern Oklahoma fields. S. Powers. *maps Am Inst Min E Bul* 131:1971-82 N '17; Discussion. 135:708-9; 136:842 Mr-Apr '18

Healdton oil field. S. Powers. *diag map Econ Geol* 12:594-606 O '17

Water surfaces in the oil fields, M. R. Daly. *diags Am Inst Min E Bul* 133:151-7 Ja '18

**Ontario**

Genesis of the Sudbury nickel-copper ores as indicated by recent explorations. H. M. Roberts and R. D. Longyear. *il diags maps Am Inst Min E Bul* 134:555-84 F '18; Discussion. 136:848-58 Ap '18

Geology of Montreal river district of northern Ontario. *Eng & Min J* 107:575-6 Mr 29 '19

Origin of the gold deposits of Matachewan district, northern Ontario. H. C. Cooke. *maps Econ Geol* 14:281-301 Je '19

**Quebec**

Pegmatitic origin for molybdenite ores. E. Thomson. *il Econ Geol* 13:302-13 Je '18

**South America**

Economic and geologic conditions pertaining to the occurrence of oil in the North Argentine-Bolivian field of South America. S. C. Herold. *il maps Am Inst Min E Bul* 141:1503-22 S '18; Discussion. 149:854 My '19

**Texas**

Geological conditions near Bridgeport and Chico, Wise county, Texas, with special reference to the occurrence of oil. E. Böse. *diags Texas U Bul* 1758:1-31 O 15 '17

Geology of the oil fields of north central Texas. D. Hager. *diags map Am Inst Min E Bul* 138:1109-18 Je '18; Discussion. 140:1155-6 Ag '18

Report on the Colorado coal field. N. F. Drake. *diags map Texas U Bul* 1755:1-75 O 1 '17

**Transvaal**

Conglomerates of the Witwatersrand; discussion, J. B. Tyrrell. *Econ Geol* 12:717-21 D '17

Gold deposits of the Rand, by C. B. Horwood. Review by J. F. Kemp. *Econ Geol* 13:150-7 Mr '18

**Utah**

Notes on Gold Hill and vicinity, Tooele county, western Utah. J. F. Kemp and P. Billingsley. *il diags maps Econ Geol* 13:247-74 Je '18

Relation of ore deposits to thrust faults in the Central Wasatch region. B. S. Butler. *il diags Econ Geol* 14:172-5 Mr '19

**Wisconsin**

Geology of the Gogebic range and its relation to recent mining developments. W. O. Hotchkiss. *il diags map Eng & Min J* 108: 443-52, 501-7, 537-41, 577-82 S 13-O 4 '19

**Geometrical drawing**

How to make isometric working drawings to scale. G. Raaswell. *diags Eng N* 82:661-2 Ap 3 '19

See also Graphic methods; Mechanical drawing

**Geophone**

Geophone. *il diag Eng & Min J* 107:872-3 My 17 '19

Instrument for locating entombed miners. *Coal Age* 15:713 Ap 17 '19

Stethoscope for the earth. *il diag Sci Am* 120:581+ My 31 '19

**Georgia. See Mines and mineral resources—Georgia**

Georgia (republic). See Mines and mineral resources—Georgia (republic)

**Georgia-Florida saw mill association**

21st birthday anniversary meeting, Jacksonville, Fla. *Am Lumberman* 2297:54-6 My 24 '19

**Georgian Bay canal**

Georgian Bay canal. J. J. Bell. *map Engineer* 126:527-8 D 20 '18

**German language**

Let us learn even from the Germans. *Eng & Contr* 50:185 Ag 21 '18

German propaganda. See European war—Germany

**German silver**

Abolishing the name German silver. *Iron Age* 101:779 Mr 21 '18

Casting nickel-silver, a copper nickel-zinc alloy. R. V. Hutchinson. *diag Metal Ind* 17: 13-14 Ja '19

Evolution of a metal sundae holder. A. F. Saunders. *il Metal Ind* 16:23-4 Ja '18

Some uses and properties of nickel silver as applied to the optical trade. G. C. Holder. *il Metal Ind* 16:69-72 F '18

**Germanium**

Extraction of gallium and germanium from zinc oxide. H. C. Fogg and C. James. *Am Chem Soc J* 41:947-9 Je '19

Occurrence of germanium in Missouri and Wisconsin blends. G. H. Buchanan. *J Ind & Eng Chem* 9:661-3 J1 '17; Excerpt. *Eng & Min J* 105:249 F 2 '18

**Germany**

German union of technical and scientific societies. R. Hadfield. *J Ind & Eng Chem* 10:575-80 J1 '18; Excerpts. *Am Inst Min E Bul* 140:sup51-4 Ag '18

**Aeronautics**

Allied control of German aeronautics. *Automotive Ind* 40:1417 Je 19 '19

Some interesting German airplanes. *il Aviation* 7:217-20 O 1 '19

**Aeronautics, Military**

Can Germany keep up her airplane production? *il Sci Am* 119:13 J1 6 '18

German air forces reorganized. *Automobile* 37:469 S 13 '17

**Army**

Why Germany is losing the war; the remorseless draining of her reservoir of man-power. *il Sci Am* 117:449+ D 15 '17

**Equipment**

Extremely heavy frames for German military trucks. A. J. Slade. *diags Automotive Ind* 41:360-3 Ag 21 '19

How the German trucks were surrendered to U.S. army. A. J. Slade. *il Automotive Ind* 41:247-52 Ag 7 '19

No standardization of parts of the German army trucks. A. J. Slade. *il Automotive Ind* 41:307-11 Ag 14 '19

Supplemental springs for metal tired German trucks. A. J. Slade. *il diags Automotive Ind* 41:409-12 Ag 28 '19

Unusual types of axles on the German war trucks. A. J. Slade. *il diags Automotive Ind* 41:457-61 S 4 '19

## Germany—Continued

## Commerce

- Can Germany regain her Russian trade? map Mach 26:117-19 O '19  
 Enemy concerns doing business in U.S. E: E. Pratt. Textile World 53:5203 My 4 '18  
 German trade and the war. C. D. Snow and J. J. Kral. U S Bur For & Dom Com misc ser 65:1-236 '18  
 Germany fears an economic boycott. Gas Age 42:103 Ag 1 '18  
 Germany planning for after-war trade. Sci Am 118:570+ Je 22 '18  
 Meaning and methods of German competition. E. T. Good. Engineer 125:333-4 Ap 19 '18  
 Statistics of German trade 1909 to 1913. U S Bur For & Dom Com misc ser 75:1-71 '18  
 Teutonic trade after the war. E. A. Langdon. Automotive Ind 38:870-2 My 2 '18  
 Trade between the allies and Germany. Engineer 127:108 Ja 31 '19  
 What is Germany preparing to do after the war?; outline of her postwar plans prepared by the Guaranty trust co. Am Mach 49:631-3 O 3 '18  
 Where Germany is obtaining indispensable supplies. Il Sci Am S 85:276 My 4 '18  
 World economics and the Kiel Institute. Engineer 125:250-1 Mr 22 '18; Same. Sci Am S 85:272 Ap 27 '18

## Economic conditions

- Eight hours' day in Germany. Engineer 126:534 D 20 '18  
 Germany never was a paradise; wages and pensions. Coal Age 13:753 Ap 20 '18  
 Germany's industrial position. R: D. Zucker. J Ind & Eng Chem 11:777-80 Ag '19

## Economic policy

- Germany's monopoly policies. C. D. Snow. Automotive Ind 38:791+ Ap 18 '18  
 Nationalisation of German industries. Engineer 128:137-8 Ag 8 '19  
 State control of German sources of energy. Engineer 127:180 F 21 '19

## Foreign relations

- Freedom of the Rhine. Engineer 126:154-5 Ag 23 '18; Same. Sci Am S 86:215 O 5 '18

## Industries and resources

- Economic effect of the loss of Alsace-Lorraine. F. Pinner. Sci Am 120:188 F 22 '19  
 German machine tool and related industries; abstracts. A. Luchars. Mach 26:223-5 N '19; Iron Tr R 65:1175-7+ O 30 '19  
 German petroleum industry. Sci Am S 85:227 Ap 13 '18  
 German trade and the war. C. D. Snow and J. J. Kral. U S Bur For & Dom Com misc ser 65:1-236 '18  
 Grand federation of German industries. Engineer 127:535-6 My 30 '19  
 Industrial Germany—her methods and their defeat. F. P. Garvan. J Ind & Eng Chem 11:574-8 Je '19  
 Kaiser blackmails German industry. H. Thyssen. Iron Tr R 62:1367-8 My 30 '18  
 Meaning and methods of German competition. E. T. Good. Engineer 125:333-4 Ap 19 '18  
 Meeting of the German gas association. Gas Age 41:225-8 Mr 1 '18  
 Statistics regarding some important German industries. J Ind & Eng Chem 11:487-8 My '19  
 Substitutes in the German electrical industry. Sci Am S 85:294-5 My 11 '18  
 See also Automobile industry and trade—Germany; Coal mines and mining—Germany; Iron industry and trade—Germany; Mines and mineral resources—Germany

## Intellectual life

- America and German science. Sci Am S 87:302 My 10 '19

## Navy

- Electrically-controlled motor boats used on the Belgian coast. Engineer 124:425 N 16 '17; Same. Elec W 70:1157 D 15 '17

- Electrically controlled torpedo boat. Elec W 70:1135 D 15 '17  
 German high sea fleet. Engineer 125:365 Ap 26 '18  
 German light cruisers. Engineer 126:83 Jl 26 '18  
 German losses at Jutland. H. M. Kennard. Sci Am 120:97 F 1 '19  
 German naval policy. Engineer 126:161 Ag 23 '18  
 German submarine designs. Engineer 126:99-100 Ag 2 '18  
 Surrender of the German fleet. Il Sci Am 119:458-9+ D 7 '18  
 Surrendered German ships. Engineer 126:444-5 N 22 '18

See also European war—Submarine operations

## Railroads

## See Railroads—Germany

## Germination

- Influence of aluminum ions on seed germination. J. Stoklasa and others. Sci Am S 87:318-20 My 17 '19

## Gibbs medal

- 1918 Gibbs medal awarded to William M. Burton. J Ind & Eng Chem 10:483-6 Je '18

## Gibraltar

- Gibraltar straits tunnel. Sci Am S 86:55 Jl 27 '18

## Giffts

- Gratuities. J. Robinson. J Account 26:355-6 N '18

## Gild socialism

- Towards a national building guild. A. J. Penty. Am Inst Arch J 7:148-52 Ap '19

## Gilding

- Gilding aluminum. C: H. Proctor. Metal Ind 17:78 F '19  
 How is the fire gilt produced on buttons used on naval officers' uniforms? Metal Ind 16:472-3 O '18

## Gilds

- What were the medieval guilds? Am Inst Arch J 7:489-93 N '19

## Gillette safety razor company

- How we increased output 1,000 per cent in an already crowded plant. Il Factory 23:40-2 Jl '19

## Gimbals

- Gimbal stabilization. V. Bush. diags J Fr Inst 188:199-215 Ag '19

## Ginseng

- Profits from freak farming. Il Sci Am 118:249 Mr 23 '18

## Giragossian, Garabed T. K.

- Alas! poor Garabed! Power 48:60 Jl 9 '18  
 Buying a scientific pig in a poke. Chem & Met Eng 19:57-8 Jl 15 '18  
 Demise of the Garabed. J Ind & Eng Chem 10:590-1 Ag '18  
 Garabed. Engineer 125:145 F 15 '18  
 Garabed. Sci Am 118:100 F 2 '18  
 Garabed a perpetual motion scheme. Sci Am 119:162 Ag 31 '18  
 Garabed: boon or buncombe? por Power 47:221-2 F 12 '18  
 Garabed claim is contested by E. C. Kilpatrick. Motor Age 34:19 Jl 4 '18  
 Garabed; Congress provides for investigating claims of an inventor as to free energy. Iron Age 101:260 Ja 24 '18  
 Giragossian free energy generator. J Ind & Eng Chem 9:1074 N '17  
 Good night, Garabed. Power 48:428 S 17 '18  
 No patent issued. Eng & Min J 105:809 Ap 27 '18  
 President Wilson signs Garabed bill. Power 47:313 F 26 '18  
 Something for nothing. Sci Am 119:26 Jl 13 '18  
 While important legislation waits; bill to provide for investigation of invention of G. T. K. Giragossian. Power 46:157, 532-3 Jl 31, O 16 '17  
 Why of the Garabed motor mystery. Ind Management 56:248-9 S '18

**Girders**

- Arched steel cantilevers used in Park avenue viaduct. H. W. Levy. *Il diags Eng N 81: 81-3 JI 11 '18*
- Bar sizes and bond stresses charted. C. W. Martin. *Concrete 14:60-1 F '19*
- Beam and slab floors. *Concrete 12:142-3 Ap '18*
- Beam deflections under distributed or concentrated loading. J. B. Kommers. *diags Eng N 82:44-6 Ja 2 '19*
- Beams reinforced for compression. A. F. Owen. *diags Am Arch 113:167-8 F 6 '18*
- Common errors in detailing steelwork for buildings. E. Godfrey. *diags Eng N 83: 730-3 O 16 '19*
- Continuous girder of constant moment of inertia. E. A. Kunze. *diags Am Arch 113:513-18 Ap 24 '18*
- Continuous reinforced concrete beams; what happens at the ends? L. C. Jordan. *diags Eng & Contr 50:588-91 D 25 '18*
- Crane girder problem. R. Fleming. *diags Eng & Contr 51:73-4 Ja 22 '19*
- Deflection of continuous beams and rigid frames. F. E. Richart. *diags Eng N 83: 564-5 S 18 '19*
- Design of a girder. W. O. Sell. *diag Concrete 12:212 Je '18*
- Designing a steel beam. L. Goodman. *Bldg Age 41:91-2 Mr '19*
- Designing flitch plate girders economically. E. I. Freese. *Bldg Age 41:152 My '19*
- Diagram for facilitating design of reinforced concrete T-beams. F. W. Powelson. *Eng & Contr 49:88-9 Ja 23 '18*
- Diagram for locating stirrups in concrete beams. M. J. Lorente. *diags Eng N 83:310-11 Ag 14 '19*
- Distribution of the energy stored in reinforced concrete beams and column-supported, flat-slab floors. H. T. Eddy. *J Fr Inst 186:439-48 O '18*
- Easily memorized method for finding safe beam loads. M. E. Hibbs. *Eng N 83:115 JI 17 '19*
- Economical proportion of concrete slabs and simple concrete beams. E. Davis. *Am Arch 113:779-80 Je 5 '18*
- Equivalent uniform loads for reinforced concrete beams. A. J. Becker. *diags Eng & Contr 49:633-5 Je 26 '18*
- Flange bracing of through girders. H. R. Thayer. *Eng N 80:184 Ja 24 '18*
- Hauling heavy girders through city streets—a protest. H. W. Alrich. *Eng N 81:1041-2 D 5 '18*
- How to design a flitch plate girder. E. Reber. *diag Bldg Age 41:43 F '19*
- How to find the proper size steel beams for various spans. G. E. Thackary, and W. A. Glesen. *diags Bldg Age 41:183-5 Je '19*
- How to find the proper size wood beams for various spans. W. A. Glesen. *Bldg Age 40: 134-5 Mr '18; Discussion. 40:262, 309 My-Je '18*
- How to use steel in timber framing. E. I. Freese. *diags Bldg Age 41:13-15 Ja '19*
- Is this beam defective? *Concrete 13:65 Ag '18*
- Long girders and high columns designed as rigid frame. A. E. Wynn. *diags Eng N 82:340-2 F 13 '18*
- Long-span concrete beams should have fixed ends. W. S. Tait. *Il diags Eng N 81:359-61 Ag 22 '18*
- Main beams in concrete garage are forty-nine feet long. *Il diags plans Eng N 80:1051-4 My 30 '18*
- Mechanical method for determining reactions in continuous girders. R. Fleming. *diag Eng N 83:428 Ag 28 '19*
- New and little-known methods of calculation of girders, beams and arches. J. S. Martin. *charts diags Eng Soc W Pa 34:579-633; Discussion. 634-9 D '18*
- New approach to the Grand Central depot; hauling 75-ton girders through the streets of New York. *Il Sci Am 119:378+ N 9 '18; Eng N 81:824-5 O 31 '18*
- New York Central sets long plate girder in bridge. *Il diags plans Eng N 79:1202-4 D 27 '17*
- Precast concrete lumber proves successful in mine. *Il Eng N 81:627-8 O 3 '18*
- Quick design of T-beams. W. O. Sell. *charts Concrete 12:135-6 Ap '18*
- Reinforced concrete supports for horizontal tubular boilers. H. E. Dart. *diags Locomotive 32:130-42 Ja '19*
- Safe load on I-beam by rule of thumb. J. S. Carpenter. *Power 48:454 S 24 '18; Same. Chem & Met Eng 19:821 D 15 '18*
- Safe loads for beams of T-rails. S. Smillie. *Coal Age 13:531 Mr 23 '18*
- Safe loads on steel and wood beams. H. F. Blood. *Eng N 83:526 S 11 '19*
- Segmental roller bearings for concrete girders. C. V. Dewart. *diags Eng N 80:1189 Je 20 '18*
- Short cuts to accurate calculations. E. A. Kunze. *diag Am Arch 115:865-7 Je 18 '19*
- Simple method for design of booms. A. Raymond. *diag Eng & Contr 51:209 F 26 '19*
- Simple method for designing concrete beams reinforced for compression. A. Raymond. *diags Eng & Contr 51:410 Ap 23 '19; Discussion. 51:560 My 28 '19*
- Steel and concrete framing combined for economy in the 12-story State-Lake building in Chicago. *diags plans Eng N 83:178-82 JI 24 '19*
- Table aids spacing of stirrups. R. G. Young. *Eng N 80:1182 Je 20 '18*
- See also Bridges; Building; Graphic statics; Joists; Roofs; Steel construction; Strains and stresses; Trusses
- Testing**
- Concentrated load tests of yellow-pine beams for shear. L. R. Manville and C. R. Hill. *Il diag Eng N 83:69-71 JI 10 '19*
- Tests show high shears in deep reinforced-concrete beams. W. A. Slater. *Il diags Eng N 82:430-3 F 27 '19; Discussion. 82:783-4 Ap 17 '19*
- Girl, Christian, 1874-Sketch. por Iron Tr R 62:939 Ap 11 '18
- Girls' camps  
Company gives its girls a good time. *Il Coal Age 14:488-9 S 12 '18*
- Gisholt machine company, Madison, Wisconsin Training instructors according to the Gisholt idea. F. H. Colvin. *Il Am Mach 48:645-7, 813-19 Ap 18, My 18 '18*
- Turret lathe practice. E. Oberg. *Il diags plans Mach 26:99-109, 227-35 O-N '19*
- Glacial period  
200,000-year-old summer playground. *Sci Am S 88:160 S 6 '19*
- Glaciers  
Influence of the wind upon the distribution of glaciers. F. E. Enquist. *Sci Am S 88: 21 JI 12 '19*
- Variations of present day glaciers. P. L. Mercanton. *Sci Am S 85:194-5 Mr 30 '18*
- Glare  
Automobile headlights and glare-reducing devices. L. C. Porter. *Il diags Gen Elec R 21: 627-32 S '18*
- Fundamentals of illumination design. W. Harrison. *Il Gen Elec R 21:419-21 Je '18*
- Philosophy of physiologic lighting. F. L. Godinez. *Il Am Arch 113:23-7 Ja 2 '18*
- Present status of industrial lighting codes. G. H. Stickney. *Am Inst E E Pro 38:621-2 Ap '19; Same. Am Arch 115:771 My 28 '19*
- Glasgow  
**Railroads**  
North British railway improvements at Glasgow. F. C. Coleman. *Il plan Ry Age 66:843-6 Mr 28 '19*
- Rapid transit**  
Zone fare in practice. W. Jackson. *Il map Elec Ry J 53:355-9, 446-53, 632-8 F 22, Mr 8, 29 '19*
- Glass  
Age of glass. *Sci Am 121:440 N 1 '19*
- Chipping and sand blasting of glass at Omaha. *Il diag Elec Ry J 53:62-3 Ja 4 '19*
- Effect of velocity and humidity of air on heat transmission through glass. J. A. Mayer, J. F. Calderwood and M. P. Herman. *Eng & Contr 49:322-3 Mr 27 '18*

**Glass—Continued**

- Glass boat houses. *Il Am Arch* 114:630 N 20 '18
- Glass-front building. M. W. Scott. *Il diag plan Arch Rec* 44:381-4 O '18
- Heat transmission through various types of sash; with discussion. A. N. Sheldon. *Am Soc Heat & V E* 23:219-24 '17
- Measurement of the thickness of film formed on glass and sand. E. Pettijohn. *diags Am Chem Soc J* 41:477-86 Ap '19
- Measurement of transmission-factor. M. Luckiesh and L. L. Mellor. *J Fr Inst* 185: 551-2; 186:529-45 Ap, N '18
- Non-shatterable glass. *Automotive Ind* 41: 731 O 9 '19
- Permanent marking of glass vessels. J. C. Bock. *Am Chem Soc J* 41:359-61 Mr '19
- Polishing glass. *Sci Am S* 87:205 Mr 29 '19
- Study of surface resistance with glass as the transmission medium. H. R. Hammond and C. W. Holmberg. *diag Am Soc M E J* 39: 849-52 O '17; Discussion. 40:144-6 F '18
- Twenty-three types of optical glass. R. J. Montgomery. *Chem & Met Eng* 21:467 O 8 '19
- Ultraviolet transmission of clear and cobalt-blue glasses. M. Luckiesh. *Il J Fr Inst* 186: 111-13 Jl '18
- See also Glass manufacture; Glassware; Plate glass; Stained glass; Windows
- Bibliography**
- Structural service department; glass and glazing. *Am Inst Arch J* 5:652-4 D '17
- Testing**
- Compression strength of glass and quartz. G. Berndt. *Sci Am S* 88:68 Ag 2 '19
- Glass, Colored**
- Colouring glass by ultra-violet light. H. Rosenthal. *Illum Engr* 11:232 O '18
- Glasses for protecting the eyes from injurious radiations. W. W. Coblenz and W. B. Emerson. *U S Bur Stand Tech Pa* 93:1-25 '18
- Influence of temperature on the transmission-factor of colored glasses. M. Luckiesh. *J Fr Inst* 187:225-6 F '19
- Spectroradiometric investigation of the transmission of various substances. W. W. Coblenz, W. B. Emerson and M. B. Long. *U S Bur Stand Bul* 14:613-76 Jl 12 '19
- Glass, Stained. See Stained glass**
- Glass, Substitutes for**
- Substitutes for glass. *Sci Am S* 86:283 N 2 '18
- Glass cutting**
- Best way to cut glass. *diags plan Bldg Age* 41:92 Mr '19
- Cutting holes in glass. H. H. Armstrong. *diags Am Mach* 49:494-5 S 12 '18
- Emergency methods of cutting and drilling glass disks. J. A. Lucas. *diags Am Mach* 48:451-2 Mr 14 '18
- How to cut glass properly. *Sci Am S* 87:151 Mr 8 '19
- Glass factories**
- Better lighting of glass works and potteries. F. H. Bernhard. *Il Elec R* 73:567-72 O 12 '18
- Glass manufacture**
- American scientific glass. *Chem & Met Eng* 20:504 My 15 '19
- America's optical emancipation. H. A. Smith. *Il Sci Am* 120:464-5+ My 3 '19
- Annealing of glass. *Chem & Met Eng* 19:474-5 S 27 '18; Same. *Sci Am S* 86:265 O 26 '18
- Annealing of glass. A. Q. Tool and J. Valasek. *Am Inst Min Bul* 153:1945-52 S '19; Discussion. 155:3026-7 N '19
- Aspects of scientific research in relation to the glass industry. E. W. Washburn. *Chem & Met Eng* 21:465-7 O 8 '19
- Comparative tests of chemical glassware. P. H. Walker and F. W. Smither. *U S Bur Stand Tech Pa* 107:1-23 '18; Abstracts. *J Ind & Eng Chem* 9:1090-2 D '17; *Eng & Min J* 105:248 F 2 '18
- Gas firing and the glass industry. *Sci Am S* 85:185 Mr 23 '18

- Glass industry as affected by the war. (Tariff information ser. 5) 147p '18 U.S. Tariff commission, Washington, D.C.
- Home made optical glass. H. E. Howe. *Chem & Met Eng* 19:479-82 S 27 '18
- Improved method of optical glass manufacture. G. W. Morey. *Chem & Met Eng* 20: 511-12 My 15 '19
- Manufacture of beakers. *Chem & Met Eng* 19: 482 S 27 '18
- Manufacture of optical glass. S. A. Hand. *Il diag Am Mach* 49:367-72 Ag 29 '18
- Optical conditions accompanying the striae which appear as imperfections in optical glass. A. A. Michelson. *diags U S Bur Stand Sci Pa* 333:41-5 '19
- Optical glass problem. *Met & Chem Eng* 17: 677-8 D 15 '17
- Porcelain pots for the melting of optical glass. *Il Chem & Met Eng* 19:47 Jl 1 '18
- Progress in manufacturing radio-protective glasses. W. W. Coblenz. *Sci Am S* 88:188 S 20 '19
- Pyrometer shortcomings in glass-house practice. W. M. Clark and C. D. Spencer. *Am Inst Min Bul* 152:1455-8 Ag '19
- Pyrometry applied to bottle-glass manufacture. R. L. Frink. *diags Am Inst Min Bul* 153:sup2233-40 S '19
- Pyrometry as applied to manufacture of optical glass. C. W. Keuffel. *diags Am Inst Min Bul* 153:2151-3 S '19
- Pyrometry in the manufacture of optical glass. A. J. Walcott. *Am Inst Min Bul* 153:1851-4 S '19
- Qualities required in optical glass. *Sci Am* 121:408 O 18 '19
- Recent developments in ceramics. A. V. Bleininger. *Chem & Met Eng* 19:467-70 S 27 '18
- Refractory materials and the glass industry. *Sci Am S* 87:329 My 24 '19
- Sheffield university's glass department. *Il Engineer* 125:516-17 Je 14 '18
- Significance of glass-making processes to the petrologist. N. L. Bowen. *Il Sci Am S* 86: 221 O 5 '18
- Thermocouple installation in annealing kilns for optical glass. E. D. Williamson and H. S. Roberts. *diags Am Inst Min Bul* 152:1445-53 Ag '19
- Use of optical pyrometers for control of optical-glass furnaces. C. N. Fenner. *diags Am Inst Min Bul* 151:1001-11 Jl '19
- Uses of manganese dioxide ore in the ceramic industries. W. C. Phalen. *Chem & Met Eng* 21:198-9 Ag 15 '19
- Window glass. J. O. LaGorce. *Il Sci Am S* 88:88-9 Ag 9 '19
- Glass models**
- Flowers and tiny animals in glass. *Il Sci Am S* 87:296-7 My 10 '19
- Glass trade**
- Glass industry as affected by the war. (Tariff information ser. 5) 147p '18 U.S. Tariff commission, Washington, D.C.
- Glasses. See Goggles; Spectacles**
- Glassware**
- Chemical glassware. E. C. Sullivan. *Chem & Met Eng* 19:470 S 27 '18
- Comparative tests of chemical glassware. P. H. Walker and F. W. Smither. *U S Bur Stand Tech Pa* 107:1-23 '18; Abstracts. *J Ind & Eng Chem* 9:1090-2 D '17; *Eng & Min J* 105:248 F 2 '18
- Effects of heat on chemical glassware. R. G. Sherwood. *diag Am Chem Soc J* 40:1645-53 N '18
- Industrial glassware. S. R. Scholes. *Chem & Met Eng* 19:482-3 S 27 '18
- Renovation of discolored arc-lamp globes. A. Herz. *Il Elec W* 72:935-6 N 16 '18; Abstract. *Illum Engr* 11:231 O '18
- Silica lighting glassware. *Illum Engr* 11:239 O '18
- Glaucinite**
- General features of the New Jersey glaucinite beds. G. R. Mansfield. *map Econ Geol* 14:555-67 N '19
- Potash cry. *Sci Am* 118:70 Ja 19 '18

**Glaucanite—Continued**

- Potash from glaucanite; patent. Met & Chem Eng 18:317 Mr 15 '18  
 Recovery of potash from greensand. H. W. Charlton. J Ind & Eng Chem 10:6-8 Ja '18;  
 Excerpts. Eng & Min J 105:919 My 18 '18

**Bibliography**

- Extraction of potash from complex mineral silicates, such as feldspar, leucite and glaucanite (greensand marl). E. C. Buck. Met & Chem Eng 18:33-7, 90-5 Ja 1-15 '18

**Glidden aeroplane efficiency trophy**

- Glidden aeroplane efficiency trophy and the transcontinental aerial derby. C. J. Glidden. II Flying 8:677-9 S '19

**Gloves**

- Banner full automatic glove machine and new model split-foot machine. II Textile World 55:557-8 Ja 11 '19  
 Dyeing of gloves. J. Loeb. Color Tr J 5: 10-11 Jl '19  
 Gloves worn by soldiers in France. W. Davis. II Textile World 53:3157+ Ja 12 '18  
 Manufacture of sueded cotton gloves. Textile World 55:1797+ Mr 22 '19

**Glucinum. See Beryllium****Glucose**

- Mutarotation of glucose and fructose. J. M. Nelson and F. M. Beegle. Am Chem Soc J 41:569-75 Ap '19  
 Preparation of several useful substances from corn cobs. F. B. LaForge and C. S. Hudson. J Ind & Eng Chem 10:925-7 N '18  
 Study of the glucosazone reaction. I. D. Garard and H. C. Sherman. Am Chem Soc J 40:955-69 Je '18

**Glue**

- Blood and casein glues. Automotive Ind 41: 510 S 11 '19  
 Calculation of pressure in a hydraulic veneer press. Automotive Ind 41:636 S 25 '19  
 Determining the comparative melting points of glues as a measure of the jelly strength. C. F. Sammet. J Ind & Eng Chem 10:595 Ag '18  
 Fish isinglass and fish glue; sources and methods of manufacture. G. F. White. Sci Am S 86:38-9 Jl 20 '18  
 Gluing of polishing wheels. B. H. Divine. Metal Ind 16:11-12 Ja '18  
 Gluing veneer at high moisture. Sci Am 121:14 Jl 5 '19  
 Jelly value of gelatin and glue. A. W. Clark and L. DuBois. diags J Ind & Eng Chem 10: 707-9 S '18  
 Making glue waterproof. Bldg Age 41:219 Jl '19  
 New airplane standards. Automotive Ind 37: 840 N 8 '17  
 Problems considered at aircraft meeting of S. A. E. Standards committee. P. M. Heldt. diags Automobile 37:577, 612 O 4 '17  
 Properties and preparation of glues. diags Mech Eng 41:382-4 Ap '19  
 Resistance of animal glues to moist air. Automotive Ind 40:1157 My 29 '19  
 Respectable use for garlic. Sci Am 119:202 S 7 '18  
 Use of gas in manufacture and utilization of glue, inks and similar substances. G. C. Shadwell. II Am Gas Eng J 109:25-30 Jl 13 '18  
 Water-resistant glues. Chem & Met Eng 20: 601 Je 1 '19; Abstract. Eng N 82:925 My 8 '19  
 Water-resistant glues. F. L. Browne. bibliog II Chem & Met Eng 21:136-8 Ag 1 '19;  
 Same. Sci Am S 88:159 S 6 '19  
*See also* Casein

**Testing**

- Determination of the adhesiveness of glue. Sci Am S 87:117 F 22 '19  
 Testing strength of glue joints. II diags Am Lumberman 2310:70 Ag 23 '19; Same cond. J Fr Inst 188:128 Jl '19  
 Tests on strength of joiner's glue. Sci Am S 87:389 Je 21 '19

**Glutrin**

- Use of glutrin in Orange county, N. Y. II Munic J 45:94 Ag 3 '18  
 Utilizing waste sulphite liquors. Chem & Met Eng 19:568 O 1 '18

**Glycerin**

- Manufacture of glycols. H. Hibbert. II Chem & Met Eng 19:571-3 O 1 '18  
 Production of glycerine from sugar by fermentation. J. R. Eoff, W. V. Linder and G. F. Beyer. diags J Ind & Eng Chem 11: 843-5 S '19

*See also* Nitroglycerin

**Glycols**

- Manufacture of glycols. H. Hibbert. II Chem & Met Eng 19:571-3 O 1 '18

**Glyciarsanilic acids**

- Aromatic arsenic compounds; *N*-substituted glyciarsanilic acids. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 41:1809-21 N '19

**Goeben (battle cruiser)**

- Goeben's first mishap. Engineer 125:213 Mr 8 '18

**Goessmann, Charles Anthony, 1827-1910**

- Charles Anthony Goessmann. Review by H. W. Wiley. Am Chem Soc J 40:578-82 Mr '18

**Gogebic range. See Geology—Wisconsin****Goggles**

- Lenses that shatter without eye injury. II Motor Age 35:27 Ja 30 '19  
 Safety engineering in automotive plants. II Automotive Ind 37:1011-13 D 6 '17

**Goiter**

- Relation between water-supply and goiter. M. Tolman. Eng N 83:516 S 11 '19

**Gold**

- Gold. Sci Am 121:159 Ag 16 '19  
 Gold and silver. Eng & Min J 107:41 Ja 11 '19  
 Gold and silver in 1917. H. D. McCaskey and J. P. Dunlop. J Ind & Eng Chem 11: 711-12 Jl '19  
 Gold and silver in 1919. Eng & Min J 107: 1054-5 Je 14 '19  
 Gold and silver statistics. Eng & Min J 105: 47 Ja 12 '18  
 Gold from clay. Engineer 128:160 Ag 15 '19  
 Gold industry and gold standard. H. Jennings. Eng & Min J 105:867-74 My 11 '18  
 Gold mining an essential industry. Chem & Met Eng 19:222-3 S 1 '18  
 Gold movement on surface of auriferous copper when latter is subjected to oxidation. E. Keller. Am Inst Min E Bul 145:33-42 Ja '19; Excerpts. Eng & Min J 107:358-9 F 22 '19  
 Gold statistics, wars, and prices. J. R. Finlay. Eng & Min J 108:345-9 Ag 30 '19  
 Gold stock threatened. Eng & Min J 105:886-7 My 11 '18  
 Precipitation of colloidal gold and platinum on metallic surfaces. E. B. Spear and K. D. Kahn. Am Chem Soc J 40:181-4 Ja '18  
 Quantitative determination of gold, especially in animal tissue. S. M. Cadwell and G. Leavell. Am Chem Soc J 41:1-12 Ja '19  
 Report of a joint committee appointed from the Bureau of mines and the United States geological survey by the Secretary of the interior to study the gold situation. U S Bur Mines Bul 144:1-84 '19  
 Study of the chemistry of gold at high temperatures and pressures. H. H. Morris. II diags Am Chem Soc J 40:917-27 Je '18  
 Volatilization of gold; abstracts. T. K. Rose. Eng & Min J 107:839-40 My 10 '19; Chem & Met Eng 21:101-2 Jl 15 '19  
*See also* Assaying; Cyanide process; Gilding; Gold dredging; Gold metallurgy; Gold milling; Gold mines and mining; Gold ores

**Gold as money**

- Gold industry and gold standard. H. Jennings. Eng & Min J 105:867-74 My 11 '18  
 Gold question. Eng & Min J 106:591-2, 961-2 S 28, N 30 '18  
 Gold question. W. R. Ingalls. Eng & Min J 106:907-8 N 23 '18

**Gold as money—Continued**

- Gold settlements in international trade. G. H. Curtis. Am Ind 20:32-3 O '19
- Gold situation; present juncture of financial affairs compared with conditions succeeding civil war period. J. Clausen. Eng & Min J 108:650-2 O '18 '19
- Help for the gold producer. E. A. Le Sueur. Chem & Met Eng 19:747 D 1 '18
- Is gold an essential or a non-essential? R. H. Tingley. Am Ind 19:19 S '18
- Should gold mining be subsidized? Eng & Contr 50:206 Ag 28 '18
- Vital need for gold. J. Clausen. Eng & Min J 108:348-9 Ag 24 '18
- World's gold banking reserve. R. H. Tingley. Am Ind 19:23 F '19
- World's supply of gold. Am Lumberman 2276: 55 D 28 '18

**See also Bimetallism****Gold dredging**

- Commonsense of gold dredging. A. C. Ludlum. II Eng & Min J 103:367-9 Mr 3 '17
- Dredging in 1918. Eng & Min J 107:143 Ja 18 '19
- Gold dredging in 1917. F. F. Sharpless. Eng & Min J 105:108-10 Ja 12 '18
- Gold dredging in the United States. C. Janin. bibliog II diag plans U S Bur Mines Bul 127:1-216 '18
- Redredging—will it pay? W. H. Gardner. II Eng & Min J 105:1-3 Ja 5 '18
- Use of electricity on gold dredges. II Elec R 73:881-3 D 7 '18
- Valuable by-products from gold dredging. A. L. Dahl. Sci Am 120:631+ Je 14 '19

**Bibliography**

- Gold dredging in the United States. C. Janin. U S Bur Mines Bul 127:212-16 '18

**Cost**

- Gold dredging in the United States. C. Janin. U S Bur Mines Bul 127:160-79, 193-7 '18; Excerpt. Eng & Contr 51:62-3 Ja 15 '19

**Safety devices**

- Safety rules for gold dredges. 40p '18 California industrial accident comm., 525 Market st, San Francisco

**Gold metallurgy**

- Amalgamation and roasting practice in Gold Coast colony. P. T. Bruhl. Eng & Min J 105:367-9 F 23 '18
- Berdan pan for amalgamation. A. W. Allen. diag Eng & Min J 106:1075-6 D 21 '18
- Charcoal precipitation of aurocyanide. A. W. Allen. diag Met & Chem Eng 18:642-4 Je 15 '18; Excerpt. Eng & Min J 106:256-7 Ag 10 '18
- Cheap leaching of gold-ore tailings. Eng & Min J 107:226 F 1 '19
- Data on crushing and cyaniding in a West African mill. P. T. Bruhl. flow sheet II Eng & Min J 106:54-7, 62-3 Jl 13 '18
- Development of the metallurgy of the Cripple Creek ores. Chem & Met Eng 19:748 D 1 '18
- Electrodeposition of gold and silver from cyanide solutions. S. B. Christy. II diag U S Bur Mines Bul 150:1-162 '19
- Elko Prince mine and mill. J. V. N. Dorr and L. D. Dougan. flow sheets II diag plan Am Inst Min E Bul 140:1235-54 Ag '18
- Gold producer and political economist. Chem & Met Eng 20:1-2 Ja 1 '19
- Grease amalgamation of gold. H. A. White. Eng & Min J 106:304 N 23 '18
- Metallurgy of gold and silver. A. W. Allen. Eng & Min J 107:32-6 Ja 11 '19
- Metallurgy of gold and silver. H. A. Megraw. Eng & Min J 105:102-4 Ja 12 '18; Discussion. M. Markus. 105:645 Ap 6 '18
- Notes on amalgamation practice. H. Ward. Eng & Min J 106:834-5 N 9 '18
- Review of gold and silver metallurgy. Met & Chem Eng 18:2-3 Ja 1 '18
- Roasting for amalgamating and cyaniding Cripple Creek sulphotelluride gold ores. A. L. Blomfield and M. J. Trott. II diag Am Inst Min E Bul 140:1265-78 Ag '18; Same. Eng &

- Min J 106:400-4 Ag 31 '18; Abstract. Chem & Met Eng 19:283-4 S 15 '18; Discussion. Am Inst Min E Bul 143:1668-9 N '18
- South African gravity stamp practice. Eng & Min J 108:110 Jl 19 '19
- Special gold-recovery processes. W. J. Sharwood. Chem & Met Eng 19:63 Jl 15 '18
- Special gold-recovery processes practised by the early Portuguese and Spaniards. E. Jordan. Chem & Met Eng 19:653 N 1 '18
- Special gold-recovery processes practiced by the early Portuguese and Spaniards. K. Thomas. Met & Chem Eng 18:586 Je 1 '18
- Theory of the precipitation of gold by charcoal. A. W. Allen. Eng & Min J 107:516-19 Mr 22 '19

**See also Cyanide process; Gold milling****Gold milling**

- Mill operations at United Eastern during 1917 and 1918. W. O. North. flow sheet diag. Am Inst Min Bul 152:1171-91 Ag '19; Same cond. Eng & Min J 108:617-20 O 11 '19; Discussion. Am Inst Min Bul 156: 3175-6 D '19
- Milling in cyanide solution. A. W. Allen. Met & Chem Eng 18:515-19 My 15 '18; Excerpt. Eng & Min J 106:531, 610; 107:22 S 21, O 5 '18; Ja 4 '19
- Position of gold. H. N. Lawrie. charts Eng & Min J 107:1002-6 Je 7 '19

**Gold mines and mining**

- Alleviation of gold-mining conditions. G. E. Collins. Eng & Min J 106:581 S 28 '18
- Firedamp in gold mines. Coal Age 12:807 N 10 '17; Same. Eng & Min J 105:184 Ja 26 '18
- See also Gold dredging; also Yukon gold company

**Alaska**

- Alaska Juneau gold mining co. Eng & Min J 108:231 Ag 9 '19
- Gold on creeks in the Copper River basin. Eng & Min J 105:543 Mr 23 '18
- Mining methods of Alaska Gastineau mining co. G. T. Jackson. diag map plan Am Inst Min Bul 153:1547-70 S '19

**British Columbia**

- Notes on the placer mines of Cariboo, British Columbia. J. B. Tyrrell. II map Econ Geol 14:335-45 Je '19
- Placer operations in Cariboo area of British Columbia. B. R. MacKay. diag Eng & Min J 107:1035-41 Je 14 '19

**Chile**

- Chilean pocket gold mine. E. D. Pope. diag Eng & Min J 103:373-5 Mr 3 '17
- Las Vacas gold mine. E. D. Pope. II diag Eng & Min J 106:958-60 N 30 '18

**China**

- Gold washing on the banks of the Yangtze. H. K. Richardson. II Eng & Min J 107: 1069-70 Je 21 '19

**Colorado**

- Portland gold mining co. F. G. Peck. Eng & Min J 107:623 Ap 5 '19

**Dutch East Indies**

- Gold production of Dutch East Indies. Eng & Min J 107:1070 Je 21 '19

**Great Britain**

- British gold committee's report. Eng & Min J 107:269-70 F 8 '19

**Gulana, Venezuela**

- Mining in Venezuelan Gulana. Eng & Min J 108:230-1 Ag 9 '19

**India**

- Air blasts in the Kolar gold field. E. S. Moore. Am Inst Min E Bul 135:687-94 Mr '18; Same cond. Eng & Min J 105:957-9 My 25 '18

**Nevada**

- Elko Prince mine and mill. J. V. N. Dorr and L. D. Dougan. flow sheets II diag plan Am Inst Min E Bul 140:1235-54 Ag '18

**Gold mines and mining—Nevada—Continued**

Round mountain mining co.; report, 1918.  
Eng & Min J 107:1172 Je 28 '19

**Ontario**

Larder lake gold area. Eng & Min J 108:611 O 11 '19  
Mining costs at Cordova, Ontario. S. H. Brockunier. Eng & Min J 105:22 Ja 5 '18  
Origin of the gold deposits of Matachewan district, northern Ontario. H. C. Cooke. maps Econ Geol 14:281-301 Je '19  
West Shining Tree gold district, Ontario. L. H. Goodwin. Il map Eng & Min J 108:261-4 Ag 16 '19

**Oregon**

Placer mining in Oregon. A. E. Kellogg. Il Eng & Min J 108:90-1 Jl 19 '19

**Siberia**

Drift-gravel mining in eastern Siberia. J. P. Hutchins. Il Eng & Min J 105:859-66 My 11 '18

**Transvaal**

Adjustment of miners' wages on the Rand. Eng & Min J 105:3-4 Ja 5 '18  
Adverse factors affecting the Transvaal mining industry. E. A. Wallers. Eng & Min J 105:463 Mr 9 '18  
Labor and gold mining in South Africa. E. A. Wallers. Eng & Min J 107:918-22 My 24 '19  
New mines of the Far East Rand. A. C. Key. Eng & Min J 106:821-4 N 9 '18  
Rand gold mining. Il Eng & Min J 107:469-71 Mr 15 '19  
Rand mining in 1918. A. C. Key. Eng & Min J 107:702-3 Ap 19 '19  
Rand's financial aspect. A. C. Key. Eng & Min J 108:144-5 Jl 26 '19  
Some aspects of Rand mining. Lord Harris. Eng & Min J 104:1120-2 D 29 '17  
Transvaal gold output. Eng & Min J 108:222 Ag 9 '19  
Transvaal mining in 1917. H. F. Marriott. Eng & Min J 105:128-31 Ja 12 '18  
Wages, working costs, and ore reserves of the Rand. A. C. Key. Eng & Min J 106:954-5 N 30 '18

**United States**

American gold committee's findings. Eng & Min J 107:277 F 8 '19  
American gold conference organized. Eng & Min J 106:417 Ag 31 '18  
Crisis in gold mining as viewed by a Montana miner. E. B. Coolidge. Eng & Min J 106:452 S 7 '18  
Crisis in gold production—Congress must act. B. L. Thane. Eng & Min J 106:164-6 Jl 27 '18  
Report of a joint committee appointed from the Bureau of mines and the United States geological survey by the Secretary of the Interior to study the gold situation. U S Bur Mines Bul 144:1-84 '19  
To the rescue of gold mining. Am Inst Min E Bul 142:sup47-50 O '18

See also North star mines company

**Yukon**

Discovery of the Klondike. H. Boursin. Eng & Min J 108:385-7 S 6 '19  
Placer mining in the Yukon. W. E. Cockfield. Eng & Min J 106:1105 D 28 '18

**Gold ores**

Conglomerates of the Witwatersrand; discussion. J. B. Tyrrell. Econ Geol 12:717-21 D '17  
Further studies on the deposition of gold in nature. V. Lenher. Il diag Econ Geol 13:161-84 My '18  
Gold deposits of the Rand, by C. B. Horwood. Review by J. F. Kemp. Econ Geol 13:150-7 Mr '18  
Occurrence of gold in sulphide ore. W. S. Palmer. Eng & Min J 107:923-4 My 24 '19  
Replacement in the Bendigo quartz veins and its relation to gold deposition. F. L. Stillwell. Il diag Econ Geol 13:100-11 Mr '18

**Golf balls**

Mystery of the golf ball; why must it be rough in order to fly true? P. A. Valle. Sci Am 118:255 Mr 23 '18

**Goniometry**

Military radio communication. A. D. Cameron. Il diag Elec W 73:521-5 Mr 15 '19

Good roads show, National. See National good roads show

**Good will in business**

Goodwill—or speculation. S. Walton. J Account 27:379-84 My '19  
Law of good-will. C. C. Sherlock. Inland Ptr 62:639-40 Mr '19  
Partnership insurance a phase of goodwill. J. Hunter. J Account 25:259-62 Ap '18  
What is good will worth? S. Walton. J Account 26:384-8 N '18

**Goodrich, B. F., rubber company**

Salvage and reclamation department. G. W. Sherman. Il chart Ind Management 58:176-8 S '19

**Goodyear tire & rubber company**

Industrial representation? H. Tipper. Automotive Ind 40:1455 Je 26 '19

**Goss, Chauncey P., 1838-1918**

Sketch. por Metal Ind 16:367-8 Ag '18

**Gossypol**

Contribution to the chemistry of gossypol, the toxic principle of cottonseed. F. E. Caruth. Am Chem Soc J 40:647-63 Ap '18

Gothic architecture. See Architecture, Gothic  
Government, Municipal. See Municipal government

**Government accounting**

Governmental sinking funds, serial bonds and depreciation reserves. H. S. Chase. J Account 26:253-68 O '18  
Pay corps of the navy. D. Potter. J Account 25:321-50 My '18

See also Camps, Military—Accounting; Municipal accounting

Government buildings. See Public buildings

**Government employees**

Housing war workers in Washington. Il Am Arch 114:661-5 D 4 '18  
Scientific and technical employees of government form union. Eng N 82:947 My 15 '19  
Should government clerks have a shorter day than other clerks? Eng & Contr 50:50 Jl 17 '18; Discussion. O. W. Childs. 50:186 Ag 21 '18

See also Civil service

**Government ownership**

Case for private ownership. E. O. Edgerton. J Elec 42:524-6 Je 1 '19  
Government and the water powers. F. E. Lane. Power 47:692-3 My 14 '18  
Government operation in politics. Elec W 72:1019 N 30 '18  
Government-owned telephones in Tokyo ten years behind demands. Ry Age 64:917 Ap 5 sec 1 '18  
Government ownership from a British point of view. Ry Age 66:253-4 Ja 24 '19; Same. Ry R 64:185-7 F 1 '19  
Government ownership of water power in relation to electrochemical industry. F. A. J. FitzGerald. Chem & Met Eng 21:95-8 Jl 15 '19  
New York merchants oppose government ownership. Elec R 74:225-6 F 8 '19; Excerpts. Elec W 73:335 F 15 '19; Excerpts. Ry Age 66:586 Mr 14 '19  
One unanswerable argument against public ownership the verdict of the battlefields of Europe. E. C. Stokes. Am Gas Eng J 110:139 F 15 '19  
Railway nationalisation again. Engineer 125:276 Mr 29 '18  
Railways and politics in Japan. Ry R 62:658-9 My 4 '18  
Secretary Lane says the government should own the standardized industries, but where are they? Eng & Contr 50:273 S 13 '18  
War's effect on central-station policy. P. Cabot. Elec W 72:696-7 O 12 '18



**Government ownership—Continued**

- What British labor wants; nationalization of coal mines. Coal Age 13:466-7 Mr 9 '18
- What government ownership would mean. S. O. Dunn. Ry Age 64:881-5 Ap 5 sec 1 '18
- See also Government regulation of industry; Industry and state; Municipal ownership; Public utilities; Railroads and state; Telegraph—Government ownership
- Government ownership of railroads.** See Railroads and state
- Government printing office.** See United States—Government printing office
- Government publications**  
Business library. L. B. Krause. J Elec 42:586-7 Je 15 '19
- Government regulation of industry**  
Address at annual dinner of Western society of engineers, Jan. 24. H: J. Burt. W Soc E J 23:55-64 Ja '18
- American industry's part in the great war. O. F. Schuette. Iron Age 103:45-6+ Ja 2 '19
- Barred industrial zone in eastern states. map Iron Age 101:1592-3 Je 20 '18
- Control of production is forecast. Motor Age 34:16-17 Ag 1 '18
- Dangers of paternalism in government. O. H. Kahn. Eng & Min J 106:693-7 O 19 '18
- Federal authorities' attitude toward West Coast lumbermen and loggers defined. L. C. Boyle. Am Lumberman 2242:56-7 My 4 '18
- Federal control of metallic minerals; bill drawn up by the War minerals committee of the American institute of mining engineers. Am Inst Min E Bul 134:sup32-9 F '18; Excerpts. Eng & Min J 105:149-50 Ja 19 '18
- Fuel consumption control by the government. J. W. Henderson. Power 47:115-18 Ja 22 '18
- Functions of the government in relation to industry. W. L. Hichens. Engineer 126:412-13 N 15 '18
- Government control of water power and electrical distribution abroad. L. W. Schmidt. Power 47:505-8 Ap 9 '18
- Instructions clarifying priority system. Iron Tr R 63:104-5 Ji 11 '18
- New interest in after-the-war conditions. Iron Age 102:982-3+ O 17 '18
- Price-bidding in war times. R. C. McCrea. Chem & Met Eng 19:71-6 Ji 15 '18
- Principles for stabilizing prosperity. G. S. Small. Ind Management 58:24-3 Ji '19
- Rules governing priority are revised. Iron Age 102:261-4 Ag 1 '18
- Sweeping control of sale and distribution of mill and furnace products now exercised by government. C. J. Stark. Iron Tr R 62:13-15 Ja 3 '18
- Trade reconstruction policies of European belligerents. Automotive Ind 39:690-2 O 17 '18
- Twenty regional organizations to help put all plants on war work. map Iron Age 101:1649+ Je 27 '18
- War industries board to inaugurate new war organizations. Iron Tr R 63:48-9 Ji 4 '18
- Would permit business to co-operate; John Franklin Fort suggests plan. Iron Age 103:364-5 F 6 '19
- See also Electric railroads and state; Electric utilities—Regulation; Gas companies—Regulation; Government ownership; Interstate commerce commission; Labor laws; Municipal ownership; Price fixing; Public utilities—Regulation; Public utilities commissions; Railroads—Rates; Railroads and state; Trusts, Industrial; Waterworks—Laws and regulations; Wireless telegraph—Government regulation
- Governors (machinery)**  
Design of governors, with special reference to small Diesel engines. A. B. Lakey. diags Eng Soc W Pa 34:461-81; Discussion. 482-8 Ji '18
- Features of low-compression oil engines. L. H. Morrison. diags Power 48:376-9 S 10 '18
- Gas engine governor that governs. ii diag Automotive Ind 41:532 S 11 '19
- G. E. automatic pressure governor. ii Iron Tr R 62:1053 Ap 25 '18; Gas Age 41:479 My 15 '18; Met & Chem Eng 18:552 My 15 '18; Metal Ind 16:231 My '18

- Governor for the automobile and tractor engine. ii Sci Am 121:142 Ag 9 '18
- Governors at Holtwood. F. H. Rogers. ii Power 49:600-2 Ap 22 '19
- Influence of air density on the pneumatic type steam-turbine governor. T: Hall. chart Power 50:514 S 23 '19
- Inspection of governors. diags Power 47:710 My 14 '18
- Investigation of the governing of a gas engine. A. Gramberg. diag Am Soc M E J 40:1047-9 D '18
- Marine turbine governors. P. M. Robinson. ii diags Int Marine Eng 24:689-90 O '19
- Methods of obtaining close speed regulation. W. Trinks. diags Power 50:494-5 S 23 '19
- Motor-car-engine governors of German design. diags Mech Eng 41:700-1 Ag '19
- Operation at Holtwood. C. H. Bromley. ii Power 49:646-50, 683-4 Ap 29-May 6 '19
- Pneumatic steam-turbine governor. diags Power 50:300-1 Ag 19 '19; Abstract. Mech Eng 41:842 O '19
- Roots governor offered for close pressure regulation of gas exhausters and boosters. diags Gas Age 48:496-7 My 1 '19; Same. Chem & Met Eng 21:99-100 Ji 15 '19; Same cond. Iron Tr R 64:1086 Ap 24 '19; Abstract. Mech Eng 41:539 Je '19
- Shaft-governor pointers. ii Power 47:150-1 Ja 23 '18
- 60,000-kw turbine-generator installation. W. S. Finlay, Jr. ii diags plan Elec J 16:172-82 My '19; Excerpts. Elec Ry J 53:906-8 My 10 '19; Excerpts. Elec W 73:932-5 My 10 '19
- Steam turbine regulation problem. L. M. Klauber. diag Elec R 74:720 My 3 '19
- Talks on Diesel engines. L. H. Morrison. diags Power 49:566-9 Ap 15 '19
- Tests on steam-engine governing; abstract. A. Gramberg. diag Am Soc M E J 40:967-8 N '18
- Truck and tractor engine governors. R. B. Shoop. diags Automotive Ind 40:374-5+ F 13 '19
- Water turbine at the hydroelectric plant at Kubel, Switzerland; abstract. diags Mech Eng 41:278-9 Mr '19
- Governors, Gas.** See Gas governors
- Grade crossing elimination**  
Abolition of grade crossing with highways. Ry R 64:945 Je 21 '19
- Baltimore & Ohio grade separation at Pittsburgh. ii diag map Ry Age 64:1023-31 Ap 19 '18
- Civic and engineering features of grade crossing elimination. A. L. Golinkin. diag Munic Eng 57:61-3 Ag '19
- Detroit plans comprehensive scheme for grade crossing removal. ii plan Eng N 82:511-13 Mr 13 '19
- Divide cost five ways on Alton (Ill.) grade separation. diags plan Eng N 80:651-2 Ap 4 '18
- Eliminating railway grade crossings. M. W. Watson. Ry R 63:880-1 D 21 '18
- General problems and aspects of grade separation. Eng & Contr 51:331-4 Ap 16 '19
- Grade-crossing elimination at Indianapolis. Eng N 83:266-7 Ag 7 '19
- Grade crossing elimination at Passaic, N.J. R. F. Odell. ii diag plan Munic J 44:341-4 Ap 27 '18
- Summary of state laws for elimination of railroad grade crossings. M. W. Watson. Eng & Contr 51:17-19 Ja 1 '19; Same. Good Roads n s 17:22-4 Ja 18 '19
- See also Railroads—Track depression; Railroads—Track elevation
- Grade crossings**  
Accident-prevention highway spurs at railroad grade crossings. Eng N 83:94, 286-7 Ji 10, Ag 7 '19
- Accidents at railway grade crossings. Good Roads n s 18:164+ O 1 '19
- Bituminous paving of railway crossings. Eng N 83:696 O 9 '19
- Concrete highway crossings. ii diags Ry Age 64:215-16 Ja 25 '18

**Grade crossings—Continued**

- Concrete railroad crossings proving successful. *Il diags plans Eng N 80:1048-9 My 30 '18*
- Concrete slabs for highway crossing planks. *Il diags plan Ry R 62:592-3 Ap 20 '18*
- Concrete slabs for highway grade crossings. *diags plans Ry R 63:127 JI 27 '18*
- Enforcing the caution signal for automobiles. *W: B. Thomas. Ry Age 65:541 S 20 '18*
- Grade crossing construction. *Sci Am 121:364 O 11 '19*
- Grade crossings in Pennsylvania to be guarded by signs. *Ry R 65:580 O 18 '19*
- Highway crossing construction. *Ry Age 67:573 S 19 '19*
- New highway crossing signs in Illinois. *Il Ry Age 65:293-4 Ag 16 '18; Eng N 81:725 O 17 '18*
- Precast slabs for railway crossings. *Il diags Concrete 14:114 Mr '19*
- Prevention of accidents at grade crossings. *C. L. Addison. Il Good Roads n s 16:29-32 JI 27 '18*
- Proper engineering treatment of necessary railroad grade crossings. *R. Wiley. Good Roads n s 16:241-3 D 21 '18; Same. Munic Eng 56:191-3 My '19; Excerpt. Eng & Contr 51:23 Ja 1 '19*
- Railway crossings paved with precast concrete slabs. *Il Eng & Contr 49:431 My 1 '18*
- Yielding barrier that is fool-proof. *Il Sci Am 118:22 Ja 5 '18*
- See also* Grade crossing elimination; Railroads—Crossings; Railroads—Signals; Railroads—Track; Railroads—Track elevation
- Grading (earthwork)**
- Earth moving methods and equipment for road construction. *A. R. McVicar. Eng & Contr 51:343 Ap 2 '19*
- Experience with tractor grading outfits in Miller county, Mo. *S. C. Knight. Munic Eng 54:74-5 F '18*
- How to get clean-cut grading jobs. *F. F. Mengel. Good Roads n s 18:68-9 JI 30 '19; Abstract. Eng & Contr 51:242 Mr 5 '19*
- Koehring turbine traction grader makes good record on Chicago streets. *Il Munic Eng 53:164 O '17; Munic J 43:618 D 22 '17; Eng & Contr 49:99 Ja 30 '18*
- Methods of grading for roads across sloughs. *L. U. Martin. Il Eng & Contr 51:476-7 My 7 '19*
- Paving and grading assessments on simple basis in Flint, Mich. *G: H. Ruhling. diags Eng N 80:1049-51 My 30 '18; Discussion. R. D. Gladding. Eng N 83:672-3 O 2 '19*
- Special level rods facilitate light highway grading. *Il diags Eng N 80:1085 Je 6 '18*
- See also* Railroads—Grades; Roads—Grades
- Graduating**
- Graduate a planer head without special appliances. *diags Mach 24:652-4 Mr '18*
- Graduating tool. *R. J. Chapman. diags Am Mach 51:132-3 JI 17 '19*
- Setting calipers and dividers on the steel rule. *C. C. Hermann. Mach 25:574 F '19*
- See also* Indexing (machine work)
- Grading machines**
- Machine for graduating micrometer collars and dials used on precision machine tools. *Il Iron Tr R 64:215 Ja 16 '19*
- Noble & Westbrook marking machine. *Il Mach 24:460 Ja '18*
- Simple device for marking graduations on swiveling heads. *J. V. Hunter. Il Am Mach 50:118 Ja 16 '19*
- Special graduating machines. *J. V. Hunter. Il diags Am Mach 50:65-6 Ja 9 '19*
- Graffiti decoration**
- Sgraffito. *M. F. Friederang. Il Am Arch 114:1-8 JI 3 '18*
- Grafting**
- Fruit-grower's sleight of hand. *Il Sci Am S 88:28-9 JI 12 '19*
- Table d'hôte tree created by science; work of the plant wizard. *H. G. Walters. Il Sci Am S 85:236 Ap 13 '18*

**Grain**

- Grain situation. *Am Ind 18:11 My '18*
- Palate of civilized man and its influence on agriculture. *D: Fairchild. Il J Fr Inst 185:299-316 Mr '18*
- See also* Barley; Corn; Wheat
- Transportation**
- New rules for grain traffic. *Ry Age 65:1058-9 D 13 '18*
- Grain binders**
- Grain binder troubles. *Sci Am 120:607+ Je 7 '19*
- Grain bins**
- Portable grain bins that will help save wheat. *Il Am Lumberman 2252:34-5 JI 13 '18*
- Unique grain bin. *diags Am Lumberman 2254:42 JI 27 '18*
- Grain bins, Concrete**
- Construction of concrete grain bins with steel forms supported on central mast. *Il Eng & Contr 50:507 N 27 '18*
- Grain cars**
- Inspection, selection and cooping of grain cars. *Ry R 63:892-4 D 21 '18*
- Joint conference on grain handling and weighing. *Ry Age 65:747-8 O 25 '18*
- Making box cars efficient grain carriers. *E. K. Hogan. diags Ry Mech Eng 93:84-5 F '19*
- Resolutions affecting grain car construction. *Ry R 63:650-1 N 2 '18*
- Rules for disposition of grain claims. *Ry Age 66:549-50 Mr 7 '19*
- Grain corporation**
- Operations of the grain corporation. *A. S. Banks. J Account 27:420-6 Je '19*
- Grain dust**
- Grain-dust explosions; investigation in the experimental attrition mill at the Pennsylvania state college. *B. W. Dedrick, R. B. Fehr and D. J. Price. bibliog Il diags Agric Bul 681:1-54 '18*
- Grain elevators**
- Chicago & North Western elevator. *F. C. Huffman. Il Ry Age 65:20-1 JI 5 '18*
- Chicago & Northwestern railway co. terminal grain elevator. *W. H. Finley. Il diags map plan W Soc E J 24:307-19; Discussion. 319-22 My '19*
- Construction of a grain elevator. *diags plan Bldg Age 40:389 Ag '18*
- Cooperative elevator of concrete at low cost. *Il plan Concrete 12:195 Je '18*
- Device to save grain in case of fire. *diag Am Lumberman 2237:55 Mr 30 '18*
- Electrically equipped municipal grain elevator will have connected load of 1500 hp. *W. A. Scott. Elec R 73:417 S 14 '18*
- Floating pneumatic grain elevators. *Il diags Engineer 127:206-8 F 28 '19*
- Grain elevator of the Pennsylvania railroad at Erie, Pa. *Il Ry R 61:754-5 D 22 '17*
- Grain silo at Hull. *Il diags plan (supp) Engineer 128:360, 364-6 O 10 '19*
- Handling grain by the boat-load. *R. Gott-hold. Il Sci Am 121:226+ S 6 '19*
- Railway grain warehouse. *Il Am Lumberman 2276:42c D 28 '18*
- 20,000 bu. concrete elevator for \$7,500. *Il diags plans Concrete 12:194 Je '18*
- Walls of concrete elevator made without forms. *Il diags Eng N 80:819-20 Ap 25 '18*
- Grain handling**
- Grain handling plant. *diags plan Engineer 126:240-1 S 20 '18*
- Portable pneumatic grain unloading plant. *Il diags Engineer 126:94-5 Ag 2 '18*
- Grain separators. See** Threshing machines
- Granada**
- Granada of the Moors. *G. G. King. Il Am Inst Arch J 7:71-7 F '19*
- Granaries**
- Separate granary. *diags Am Lumberman 2247:38 Je 8 '18*
- Small granary. *diags Am Lumberman 2248:39 Je 15 '18*

- Granby consolidated mining, smelting and power company**  
Annual report, year ended June 30, 1917. Eng & Min J 105:250 F 2 '18  
Annual report for the year ended June 30, 1918. Eng & Min J 106:908 N 23 '18
- Grand Rapids, Michigan**  
Water supply  
More data on filter sand growth at Grand Rapids. Il Eng N 81:358 Ag 22 '18
- Grand Trunk Pacific railway**  
Canadian government and the Grand Trunk Pacific. map Ry Age 66:1065-6 Ap 25 '19
- Grandstands**  
Methods in concreting a grand stand. Il diags Concrete 13:194 D '18
- Granite**  
Monument mines. L. Kenneth. Il Sci Am S 85:404 Je 29 '18
- Granite blocks**  
Granite paving block industry in 1917. Good Roads n 15:322 Je 29 '18  
How to secure best results in construction of improved granite block pavements. A. T. Rhodes. Eng & Contr 52:382-5 O 1 '19
- Granite pavements.** See Pavements, Granite
- Grape juice**  
Concord grape juice: manufacture and chemical composition. B. G. Hartmann and L. M. Tolman. U S Agric Bul 656:1-26 '18
- Grape seed oil**  
Possibility of commercial utilization of tomato seed and grape seed. J. H. Shrader. J Ind & Eng Chem 11:1134-5 D '19
- Grapefruit**  
Some constituents of the American grapefruit (citrus decumana). H. F. Zoller. bibliog diags J Ind & Eng Chem 10:364-74 My '18
- Grapes**  
Syrup from grapes. Sci Am 120:185+ F 22 '19
- Diseases and pests  
Grapevine parasites and their treatment. Sci Am S 86:15 J 6 '18
- Graphalloy**  
Manufacture of a self-lubricating bearing material. Il Mach 24:631-2 Mr '18
- Graphic meters**  
Electric graphic meter for testing machine characteristics. Automotive Ind 40:892+ Ap 24 '19  
Graphic meters to record power factor. Il chart Power 49:252 F 18 '19  
Making accurate power charts in the shop. C. E. Clewell. Il diags Am Mach 49:1177-81 D 26 '18  
Selection of motors aided by graphic meters. C. E. Clewell. Il diag Elec W 71:454-6 Mr 2 '18
- Graphic methods**  
Accumulative graphic record. J. B. Conway. chart Am Mach 50:242 F 6 '19  
Air weight and volume measurement. D. T. Hastings. diags Automotive Ind 40:1278-87 Je 12 '19  
Analysis of consumption by small lighting customers. Elec W 71:1326 Je 22 '18  
Application of graphics to gas mixtures. E. J. Brady. J Fr Inst 185:280-1 F '18; Same. Am Gas Eng J 108:200 Mr 2 '18  
Blank diameter by graphical method. W. Hinman. diags Am Mach 50:1139 Je 12 '19  
Capacity bar diagram. R. von Huhn. diags Ind Management 58:197 S '19  
Compact central station chart to record progress. Elec W 71:101 Ja 12 '18  
Current and power curves show results to be expected of motors. C. W. Squier. Elec Ry J 51:1134-6 Ja 15 '18  
Curves reveal significant facts. Iron Tr R 65:1116-17 O 23 '19  
Dissecting passenger interchange time graphs. D. D. Ewing. Elec Ry J 52:610-12 O 5 '18  
Effect of grades and curves in plotting speed-time graphs. C. W. Squier. Elec Ry J 52:96-8 J 20 '18
- Efficient operation of central power stations. J. D. Morgan. Power 50:550-7 O 7 '19  
Elimination of idleness by systematic study. C. W. Baker. Eng N 81:450-1 S 5 '18  
Energy consumption of cars is affected by temperature changes. M. B. Rosevear. Elec Ry J 52:958-60 N 30 '18  
Expenditure chart for executives. F. J. Schlink. Ind Management 55:192 Mr '18  
Extraction of potash and other constituents from sea water bittern. J. H. Hildebrand. diags J Ind & Eng Chem 10:96-105 F '18  
Graphic analysis of an overtime problem. R. von Huhn. diag Ind Management 57:86-8 F '19  
Graphic control of production and cost. C. W. Starker. Ind Management 55:306-10 Ap '18  
Graphic determination of coal prices. J. D. Skinner. Coal Age 13:960-2 My 25 '18  
Graphic metallurgical control. H. M. Merry. Am Inst Min Bul 153:sup2313-21 S '19; Excerpt. Eng & Min J 108:512 S 20 '19  
Graphic method for fortification of the spent acids used in making nitrating mixed acids. D. Lopez and A. A. Swanson. charts Chem & Met Eng 19:316-21 D 15 '18  
Graphic method of chimney design. H. M. Brayton. chart diag Power 48:349-50 S 3 '18  
Graphic production control. C. E. Knoepfel. Ind Management 56:177-80, 284-8, 383-90, 496-502; 57:56-62, 113-18 S '18-F '19  
Graphical method for the construction of electrostatic fields. S. J. Crooker. J Fr Inst 185:131-5 Ja '18  
Graphical representation of locomotive performance. H. Holcroft. Engineer 125:353-5, 376-9 Ap 26-My 3 '18  
Graphical representation of resistances and reactances in multiple. H. C. Stanley. diags Gen Elec R 21:133-4 F '18  
Graphical solution of illumination problems. N. S. Dickinson. charts Elec W 72:307 Ag 17 '18  
Keep graphic records of railway statistics. J. F. Layng. Elec Ry J 51:9-11 Ja 5 '18  
Moving targets and torpedo attack. diags Engineer 125:561-3; 126:2-3, 23-4 Je 28-J 12 '18  
Nomography; with special reference to its use in engine design. F. L. Martineau and A. M. Arter. diags Automotive Ind 38:955-7, 992-3, 1045-7 My 16-30 '18  
Power of an automobile in unique instance; mounting a 40° incline. J. S. A. Johnson. diags Power 48:245 Ag 13 '18  
Truck efficiency graphically shown. F. W. Davis. Automotive Ind 38:33-6 Ja 3 '18  
Useful industrial diagram. H. Hess. Am Soc M E J 41:165-6 F '19  
Utilization of mine-accident reports. D. E. Charlton. Eng & Min J 106:945-8 N 30 '18  
Value of graphic instruments in improving motor drive. T. S. Montgomery and W. B. Bray. Il Elec R 72:831-4 My 18 '18  
Value of statistics in central-station operation. E. J. Fowler. Elec R 75:867-9 N 22 '19  
Visualizing the recent pandemic in army camps. G. A. Soper. Eng N 83:72-4 J 10 '19  
War industries brought under modern engineering control; use of progress chart by Ordnance department. M. Schuyler. chart Eng N 80:323-5 F 14 '18; Same. Am Mach 48:341-3 F 21 '18  
See also Graphic statics
- Graphic statics**  
Beams reinforced for compression. A. F. Owen. diags Am Arch 113:167-8 F 6 '18  
Continuous girder of constant moment of inertia. E. A. Kunze. diags Am Arch 113:613-18 Ap 24 '18  
Critical speeds of rotors resting on two bearings. W. Rautenstrauch. diags Am Mach 46:97-102 Ja 18 '17; Discussion. 46:1133-4; 47:1053-4 Je 28, D 13 '17  
Graphical differentiation and integration. Eng & Contr 51:677-8 Je 25 '19  
Graphical method of finding moments in continuous frames of a girder and two fixed columns. W. S. Wolfe. diags Eng & Contr 49:76-8 Ja 23 '18

**Graphic statics—Continued**

New and little-known methods of calculation of girders, beams and arches. J. S. Martin. charts diags Eng Soc W Pa 34:579-633; Discussion. 634-9 D '18

Resistance of a group of piles. H. M. Westergaard. W Soc E J 23:704-13 D '17; Same. Eng & Contr 49:501-3 My 23 '18

Steel roof trusses are designed as elastic arches. W. S. Tait. II diags plan Eng N 80: 761-4 Ap 18 '18

See also Bridge design; Girders; Mechanical drawing; Roofs; Steel construction; Strains and stresses; Strength of materials

**Graphite**

Alabama graphite in 1918. W. F. Prouty. Eng & Min J 107:194-5 Ja 25 '19

American import restrictions affect Ceylon plumbago output. Automotive Ind 39:380 Ag 29 '18

Briquetting Alabama graphite. Sci Am S 88:253 O 25 '19

Canadian graphite industry. H. S. Spence. Chem & Met Eng 20:81 Ja 15 '19

Ceylon vs. Alabama graphite. G: E. Long. Eng & Min J 106:844 My 4 '18

Crystalline graphite for making crucibles. Eng & Min J 106:485 S 14 '18

Crystalline graphite, July to September, 1918. Am Gas Eng J 109:596 D 28 '18

Crystalline graphite production. Eng & Min J 106:614 O 5 '18

Cyaniding graphitic ores. P. T. Bruhl. Eng & Min J 105:197 Ja 26 '18

Domestic crucible graphite insufficient. Eng & Min J 106:360 Ag 24 '18

Grading of graphite in Alabama. F. G. Downs. Eng & Min J 105:282-3 F 9 '18

Graphite companies in Alabama. W. F. Prouty. Eng & Min J 107:306 F 15 '19

Graphite deposits. Iron Age 103:763 Mr 20 '19

Graphite for boiler treatment. Elec R 73:901 D 7 '18

Graphite in 1917. Eng & Min J 105:133-4, 1079 Ja 12, Je 15 '18

Graphite in 1918. Eng & Min J 107:147-8 Ja 18 '19

Graphite in Ontario in 1917. T: W. Gibson. Eng & Min J 105:151-2 Ja 19 '18

Graphite in Ontario in 1918. T: W. Gibson. Eng & Min J 107:196 Ja 25 '19

Graphite industry in Alabama. maps Eng & Min J 105:281-2 F 9 '18

Graphite mining and milling in Alabama. H. P. H. Brumell. Eng & Min J 108:17-18 Jl 5 '19

Graphite mining in New York. D. H. Newland. Eng & Min J 105:151 Ja 19 '18

Graphite mining in New York state. D. H. Newland. Eng & Min J 107:148 Ja 18 '19

Graphite produced first half of 1918. Foundry 46:574 D '18

Graphite supplies for 1918. Chem & Met Eng 19:488 S 27 '18

Graphitization in iron-carbon alloys; abstract. K. Tawara and G. Aschara. Chem & Met Eng 21:41 Jl 1 '19

Graphitization of white cast iron upon annealing. P. D. Merica and L. J. Gurevich. II Am Inst Min Bul 151:1063-72 Jl '19; Abstract. Mech Eng 41:766-7 S '19; Summary. Foundry 47:466 Jl 15 '19; Discussion. Am Inst Min Bul 154:2938-42 O '19

How graphite forms in iron-carbon alloys. Sci Am S 88:151 S 6 '19

Increased duty on graphite threatened. Foundry 47:694 O 1 '19

Johnson graphite lubricator. diags Power 48: 91 Jl 16 '18

Madagascar graphite exports. Eng & Min J 106:635 S 21 '18

Notes on the crucible situation. A. V. Bleininger. Metal Ind 16:15-16, 79-81 Ja-F '18; Excerpts. Foundry 46:274-5 Je '18

Peacemakers between shaft and bearing. E: G. Acheson. II Factory 23:507-9 S '19

Pittsburgh meeting of the American ceramic society; new and important data presented on graphite. Chem & Met Eng 20:180-1 F 15 '19

Preparation of crucible graphite. G: D. Dub. flow sheets diags U S Bur Mines War Minerals Investigations Ser 3:1-24 '18 (Typew); Excerpt. Metal Ind 17:73-4 F '19; Excerpt. Eng & Min J 107:1052 Je 14 '19

Recent developments in ceramics. A. V. Bleininger. Chem & Met Eng 19:467-70 S 27 '18

Refining flake graphite for crucible use. F: G. Moses. diags Eng & Min J 108:50-4 Jl 12 '19

Status of domestic graphite supply. Foundry 47:513 Ag 1 '19

Theory of graphite lubrication. Metal Work 90:187-8 Ag 16 '18

**Grasses**

Story of a grass. A. B. Rendle. Sci Am S 87: 23 Ja 11 '19

See also Hay; Sudan grass

**Grates**

Brady travelling grate. II Ind Management 56:252-3 S '18

Carrick furnace system. II Power 48:907 D 24 '18

Efficient herringbone grate patterns. M. E. Duggan. diags Am Mach 47:636 O 11 '17; Discussion. R. W. Derby. 48:382 F 28 '18

Figuring furnace-grate area. diags Power 47: 756-8 My 28 '18

General characteristics of chain grate stokers. T. A. Marsh. Power 49:172-3 F 4 '19; Same. Elec W 73:217 F 1 '19

Grate area and the underfeed stoker. F. H. Daniels. Power 47:373-4 Mr 12 '18

Harrington forced-blast traveling grate. II Power 49:360-1 Mr 11 '19; Elec R 74:437-8 Mr 15 '19; Iron Tr R 64:696-7 Mr 13 '19

Raising steam with the waste products of yesterday. II diag Coal Age 14:676-81 O 10 '18

Recent improvements in sintering equipment and practice. diags Eng & Min J 107:744-5 Ap 26 '19

Riddell-Davison grate. G. C. Riddell. Eng & Min J 106:832-3 N 9 '18

Riddell-Davison self-cleaning grate for Dwight-Lloyd machines. Eng & Min J 105: 293 F 9 '18

States basket-type sectional grate. diag Power 46:834 D 18 '17

Thomas elliptic shaking and dumping grate bar. II Power 48:485 O 1 '18

See also Furnaces; Locomotive grates

Grates (fireplaces). See Fireplaces

Gratuities. See Gifts

**Gravel**

Business of Greenville gravel co. based on thorough business preparations. II Concrete 13:sup1-2 Jl '18

City of Indianapolis installs own gravel plant. II Munic Eng 57:120 S '19

Cost of obtaining road gravel with sluicing and washing outfit. F. F. Rogers. Eng & Contr 61:24 Ja 1 '19

Donnelly gravel plants, Cincinnati. II Concrete 13:sup26-7 S '18

Dynamite helps creek gravel excavation. Concrete 11:sup51 D '17

Electric operation permits economical gravel plant layout. E. E. Glass. diag Eng N 80: 722-3 Ap 11 '18

Experience of various counties in utilizing local deposits of gravel on county construction projects. II Munic Eng 55:222-4 D '18

Genesee company opens big gravel deposit. II diags Concrete 13:sup33-5 O '18

Gravel plant of Tarco construction co., Cincinnati. II Concrete 13:sup11-12 Ag '18

Gravel recovery with sand sucker. II Concrete 14:sup35 Mr '19

Mechanical efficiency of gravel pumps. T. R. A. Windeatt. diag Eng & Min J 105:515 Mr 16 '18; Same. Eng & Contr 49:392 Ap 17 '18

Preparation of rock products. R. W. Dull. II W Soc E J 22:479-85; Discussion. 485-90 S '17

Producers of gravel urge freight rate reduction. E. G. Sutton. Concrete 14:sup36 Mr '19

**Gravel—Continued**

- Providing clean aggregates for road job. *Il* diag Concrete 13:192-3 D '18  
 Sand and gravel washing plant built for six-mile concrete road. W. L. Hill, jr. *Il* diags Eng N 81:508-10 S 12 '18  
 Screens and loads gravel to wheelbarrows in one operation. H. J. Spelman. diag Eng N 80:476 Mr 1 '18  
 Shippers protest freight rate increase on sand gravel, crushed stone and slag. Concrete 14:sup36 F '19  
 Steam shovel dumps a tilting gravel screen. *Il* Eng N 80:678 Ap 4 '18

*See also* Concrete—Aggregate

**Testing**

- Soft stone satisfactory road surfacing. T. W. Dix. *Il* Good Roads n s 16:137-9 O 12 '18  
 Gravel roads. *See* Roads, Gravel

**Gravel washers**

- Recovery of Comstock tailings from Carson river. L. H. Eddy. *Il* diag Eng & Min J 104:1124-5 D 29 '17  
 Sellar gravel washer. diag Munic J 44:67 Ja 19 '18  
 Washing sewage-filter gravel at Clinton, Massachusetts. Eng N 83:763 O 23 '19

Gravimetric analysis. *See* Chemistry, Analytic—Quantitative

**Gravitation**

- Einstein's gravitation theory; abstract. H. A. Lorentz. Am Soc M E J 40:873 O '18  
 Gravitation and the principle of relativity. A. S. Eddington. Sci Am S 86:2-3, 22-3 J1 6-13 '18  
 Gravitational instability and figure of the earth. Sci Am S 85:345 Je 1 '18  
 Gravitational repulsion; abstract. F. E. Nipher. Elec W 71:471 Mr 2 '18  
 Possible limit to gravitation. F. W. Very. Sci Am S 85:121 F 23 '18  
 Role of forces dominating attraction in the architecture of the earth and of the universe. Sci Am S 87:142 Mr 1 '19  
 Value of "g" in engineering and physical work. S. A. Moss. map Gen Elec R 21:344-52 My '18

*See also* Specific gravity

**Grazing**

- Range preservation and its relation to erosion control on western grazing lands. A. W. Sampson and L. H. Weyl. *Il* diag U S Agric Bul 675:1-35 '18

Grease. *See* Lubrication and lubricants; Oils and fats

Grease traps. *See* Plumbing—Traps

**Great Britain**

- British and American friendship. R. Hadfield. Am Inst Min E Bul 140:sup49-51 Ag '18  
 Eight weeks in Great Britain and France. H. G. Lord. *Il* Textile World 55:214-15+ Ja 11 '19

**Aeronautics, Military**

- Bombing work of the British independent air force. Automotive Ind 40:425-7 F 20 '19  
 Britain's air effort during the war. Engineer 127:461-3 My 9 '19  
 Many delays in British aircraft program. Automotive Ind 38:939-40 My 16 '18  
 Points in British air policy. Automotive Ind 38:876-9 Ap 4 '18

**Air ministry**

- British reduce their airship program. Sci Am 121:336 O 4 '19  
 How Britain has organized its aircraft ministry. A. Sinsheimer. Automotive Ind 41:399-401 Ag 28 '19

**Civil aerial transport committee**

- Future of British flying. C. H. Claudy. *Il* Sci Am 120:259+ Mr 15 '19

**Commerce**

- After-war trade plans. G. E. Smith. Iron Age 102:69 J1 11 '18  
 British and American exports after the war. Iron Age 101:380-2 F 7 '18

British control of imports and exports, with lists of prohibited goods. L. Domeratzky. U S Bur For & Dom Com tariff ser 39:1-32 '18

British reconstruction after the war. Iron Age 102:84-5 J1 11 '18

Friendly war after the war. D: McFall. Sci Am 120:652+ Je 21 '19

Overseas distribution of engineering appliances. L. Andrews. diag Inst E E J 56:367-77 Je '18; Same cond. Engineer 125:367-8 Ap 26 '18; Discussion. Inst E E J 56:377-89 Je '18; Abstract. Engineer 125:355-6 Ap 26 '18

**Economic conditions**

- After-the-war prospects in England. J. A. Hunter. Textile World 53:2953 Ja 12 '18  
 Economic position of the United Kingdom: 1912-1918. W: A. Paton. U S Bur For & Dom Com misc ser 96:1-160 '19  
 Labor in Great Britain after the war. H. W. Garrod. Am Mach 48:199-200 Ja 31 '18

**Industries and resources**

- After war—big industries supreme in England. D. Docker. Iron Tr R 63:215-16 J1 26 '18  
 Birmingham and the production of munitions. Engineer 125:270-2, 288-9, 398-9, 406 Mr 29-Ap 5, My 10 '18  
 Birmingham local section: chairman's address. S. T. Allen. Inst E E J 56:48-52 D '17  
 British engineering trades after war. Iron Age 102:157-8 J1 18 '18  
 British machine tool and metal industries. A. Luchars. Mach 26:19-24 S '19; Same. Iron Age 104:573-7 Ag 28 '19; Same cond. Am Mach 51:478-80 S 4 '19  
 British post-war industrial plans. Automotive Ind 39:239-40 Ag 8 '18  
 British textile industries as affected by the war. H. Bannerman-Phillips. Sci Am 120:684+ Je 23 '19  
 Engineering and allied trades in 1918. Engineer 127:3-5 Ja 3 '19  
 Engineering trade; excerpts from the report of the departmental committee. Engineer 125:541-2 Je 21 '18  
 Inaugural address of president of the Institution of electrical engineers. C. H. Wordingham. Inst E E J 56:1-16 D '17  
 Industrial conditions prevailing in England. D. J. O'Byrne. Am Mach 48:667 Ap 18 '18  
 Iron, steel, and engineering industries in 1917. Engineer 125:2-4, 23-4 Ja 4-11 '18  
 Manchester local section: chairman's address. C. J. Beaver. Inst E E J 56:38-41 D '17  
 Night farming by women in England. *Il* Sci Am 118:341 Ap 13 '18  
 Notes on engineering progress in Britain. H. M. Hobart. Am Inst E E Pro 37:sup152-7 My '18; Abstract. Elec W 71:840 Ap 20 '18  
 Preparation for post-war conditions in Great Britain. J Ind & Eng Chem 10:399-400 My '18  
 Problems of industrial reconstruction. Engineer 125:91-2 F 1 '18  
 Readjusted British industries. *Il* Sci Am 120:402 Ap 19 '19  
 Readjustment and operation of industry in England since 1914. Mach 24:568-9 F '18  
 Reviews British industrial conditions. A. C. Cook. Iron Age 104:505-7 Ag 21 '19  
 Ruin which follows restriction of output. W. J. Wardale. Engineer 125:226-7 Mr 15 '18  
 War and building in Britain. F. S. Culver. Concrete 11:187-8 D '17  
 Western local section: chairman's address. R. H. Fletcher. Inst E E J 56:30-2 D '17  
 What one munition firm is planning to do after the war. Sci Am 118:597 Je 29 '18

*See also* Automobile industry and trade—Great Britain; Iron industry and trade—Great Britain

**Ministry of munitions**

- Ministry of munitions orders. Engineer 124:547 D 21 '17

**Ministry of reconstruction**

- Final report of the Women's housing subcommittee of the Ministry of reconstruction. Advisory council. Am Inst Arch J 7:sup1-8 My '19

**Great Britain—Ministry of reconstruction—Cont.**  
Reconstruction in Europe. C. H. Claudy. *Il Sci Am* 120:186-7 F 22 '19

**Ministry of ways and communications**

Future of the railroads of the United Kingdom. *Ry R* 64:579-81 Ap 19 '19  
Powers of the Minister of transport. Engineer 128:215, 237, 286-7 Ag 29-S 5, 19 '19  
Railway developments in foreign countries. map *Ry Age* 66:957-62 Ap 11 '19  
Ways and communications bill. Engineer 127:229-31 Mr 7 '19

**Munitions inventions department**

Munitions inventions department. Engineer 124:535 D 21 '17

**Navy**

British navy on the job. C. H. Claudy. *Il Sci Am* 120:94-5 F 1 '19  
British warships commissioned since 1914. Engineer 126:467 N 29 '18  
Construction, supply and transportation. Engineer 126:323 Ap 12 '18  
Drastic disarmament. *Sci Am* 121:304 S 27 '19  
Four years of naval progress. Engineer 127:14 Ja 3 '19  
Naval construction during the war. E. T. D'Eyncourt. *Il diag* (supp) Engineer 127:358-62 Ap 11 '19; Same. *Int Marine Eng* 24:384-93, 495-6, 559-61 Je-Ag '19  
New light cruisers and flotilla leaders. *Il (supp) Engineer* 127:308-9 Mr 28 '19  
New ships of the British navy. *diag* plans *Sci Am* 120:654-5 Je 21 '19  
Renovation of the navy. Engineer 127:483 My 16 '19  
Ships of the British navy on August 4th, 1914. P. Watts. *diag* (supp) plan Engineer 127:447-50 My 9 '19

**Railroads**

See Railroads—Great Britain

**Reconstruction**

See Reconstruction (European war)—Great Britain

**Roads**

See Roads—Great Britain

**Great Falls, Montana**

**Water supply**

Combined water purification and softening plant of Great Falls. *Il Eng & Contr* 49:28-31 Ja 9 '18  
Electrically operated purification plant. *Il Elec R* 71:1012-13 D 15 '17  
Great Falls water purification and softening plant. R. E. McDonnell. *Il Munic J* 43:553-5 D 6 '17; Same. *Munic Eng* 54:3-5 Ja '18

**Great Lakes**

All sewage going into boundary waters should be treated. F. A. Dallyn. *Eng N* 81:660-3 O 10 '18  
Fresh water harbours and shipping of the United States. Engineer 127:575 Je 13 '19  
How Lake fleet will meet ore needs. R. V. Sawhill. *Iron Tr R* 62:1138-42 My 2 '18  
How Lake trade will be handled. *Iron Tr R* 62:934-5 Ap 11 '18  
Personnel and functions of organization directing 1918 Lake trade. *Iron Tr R* 62:1140 My 2 '18  
Traffic on Great Lakes in 1918. *Marine R* 49:93-5 F '19

**Great Lakes protective association**

Annual meeting, Detroit, Jan. 17. *Marine R* 49:138-40 Mr '19

**Great Northern railway**

Financial statistics. map *Ry Age* 67:141-2 Jl 25 '19  
Great Northern elects a new president. *Ry Age* 64:365 F 15 '18

**Greece**

Macedonian marshes. Engineer 126:55-6 Jl 19 '18

**Commerce**

Engineering markets of the Near East. Engineer 126:213-14 S 13 '18

Textiles in Greece. *Textile World* 53:4364b Mr 28 '18

**Greek fire**

Fighting with fire in ancient times. H. H. Manchester. *Il diag* Am Mach 49:763-6 O 24 '18

**Greene, William Houston, 1853-1918**

Sketch. H. F. Keller. *bibliog por J Fr Inst* 186:387-92 S '18

**Greenhouses**

Greenhouses that move about on rails. S. L. Bastin. *Il Sci Am* 121:260 S 13 '19

**Heating and ventilation**

Adding radiation to heating plant in a greenhouse. *diag Dom Eng* 84:470-1 S 28 '18  
Greenhouse heating. A. G. King. *diag* Dom Eng 88:340-2 Ag 23 '19  
Heating greenhouses. C. L. Hubbard. *diag* Dom Eng 82:369-71+, 404-6+ Mr 9-16 '18  
Unsatisfactory greenhouse heating plant. *diag Dom Eng* 82:136-7 Ja 26 '18

**Greensand. See Glauconite**

**Greensboro, North Carolina**

**Rapid transit**

Greensboro keeps its railway. *Il Elec Ry J* 52:558-60 S 28 '18

**Greenwich house**

Greenwich house, New York city. *Arch Forum* 31:92, pl 43-6 S '19

**Grenades**

Apparatus for the discovery of metallic objects buried in the soil; abstract. *diag Elec W* 70:1156-7 D 15 '17  
Gray iron to replace malleable for grenades. Foundry 46:240-1 Je '18  
Grenades. Am Soc M E J 40:770 S '18; *Ind Management* 56:371 N '18  
Grenades for American grenadiers. *Sci Am* 119:340+ O 26 '18  
Grenades for our army in France. *Il Mach* 25:151-2 O '18  
Making hand grenade castings for Uncle Sam. A. M. Jones. *Il Foundry* 46:177-82 Ap '18  
Making malleable cast iron rifle grenades. *Il diag* plans Foundry 46:47-56 F '18; Same. *Iron Tr R* 62:477-86 F 21 '18  
Making the American hand grenade. E. K. Hammond. *Il diag* Mach 25:448-53, 519-24 Ja-F '19  
New grenades and their uses. *Iron Tr R* 63:494-5 Ag 29 '18  
New warfare of the trenches; how grenades and automatic rifles have altered French infantry tactics. A. C. Lescarboua. *Il Sci Am* 112:274+ Mr 30 '18  
School foundry makes dummy hand grenades. E. Grant. *Il Foundry* 46:65 F '18  
Types of modern hand grenades. R. C. Lang. *Il diag* Am Mach 49:139-43 Jl 25 '18

**Gretna, England**

New munitions town of Gretna built by the British government; views. *Am Inst Arch J* 6:54, 71-6 F '18

**Grignard reagent**

Action of halogens on the Grignard reagent and the replacement of halogen atoms by one another. R. L. Datta and H. K. Mitter. *Am Chem Soc J* 41:287-92 F '19

**Grinders, Clinker. See Clinker grinders**

**Grinding (ores, etc.). See Crushing; Crushing machinery**

**Grinding and polishing**

Abrasives for grinding malleable castings. W. T. Montague. Foundry 47:74-5 F '19  
Blevney motor-driven wheel-type cushion polishing machine. *Il Mach* 25:77 S '18  
Blevney type A tube and rod polishing machine. *Il Am Mach* 49:778-9 O 24 '18; *Mach* 25:174-5 O '18  
Blevney vertical abrasive finishing machine. *Il Mach* 25:272-3 N '18  
Burnishing tool for ball races. O. F. Warhus. *Il diag* Am Mach 51:38 Jl 3 '19  
Casket hardware electro-plating and finishing. H. Mills. *Metal Ind* 16:19 Ja '18  
Cleans billets by grinding. R. M. Johnson. *Il Iron Tr R* 64:1690 Je 26 '19

**Grinding and polishing—Continued**

- Cutter grinding gage. M. Delmer. diags Am Mach 47:632 O 11 '17; Discussion. W. G. Grocock. 48:759-60 My 2 '18
- Device for gaging cutters while grinding. J. Miles. diag Am Mach 50:81-2 Ja 2 '19
- Drill grinding. E. K. Hammond. il chart diags Mach 24:825-30 My '18
- Effect of imperfect centers on cylindrical ground work. R. J. Spence. diags Am Mach 49:357-8 Ag 22 '18
- Efficiency in metal polishing and buffing departments. P. W. Blair. il Metal Ind 16:16:93-4 F '18
- Equipping a polishing department. P. A. Wheeler. Metal Ind 15:209 My '17
- Finish that counts. A. J. Roth. il Metal Ind 16:93-4 F '18
- From the frozen Arctic to the polisher's bench. il Sci Am 121:227 S 6 '19
- Gaging kink for surface grinding. F. H. Bogart. Am Mach 48:738 My 2 '18
- Gilging of polishing wheels. B. H. Divine. Metal Ind 16:11-12 Ja '18
- Grinders for superheater unit joints. H. P. Maurer. diags Ry Mech Eng 93:214-15 Ap '19
- Grinding a countersink in chilled castings. D. A. Hampson. diags Am Mach 49:400 Ag 29 '18
- Grinding accurate profile gages by means of master plates. H. M. Darling. diags Am Mach 50:105-6 Ja 16 '19
- Grinding and lapping threads. J. E. Lindgren. diags Mach 24:1023-4 JI '18
- Grinding cards in the mill. Textile World 56:1517- S 13 '19
- Grinding cutters. A. K. Schwarz. Am Mach 47:1055 D 13 '17
- Grinding facts and suggestions. Mach 24:403 Ja '18
- Grinding hobs to remove distortion. E. K. Hammond. il diags Mach 24:583-9 Mr '18
- Grinding large ring in a boring mill. J. Mitton. diag Am Mach 50:903 My 8 '19
- Grinding machine tool plane surfaces. Mach 24:394 Ja '18
- Grinding operations on caterpillar tractor parts. F. A. Stanley. il diags Am Mach 50:1-4 Ja 2 '19
- Grinding precision tools. R. C. Morse. diags Am Mach 48:494 Mr 21 '18
- Grinding relief of milling cutters. il diags Mach 25:9-10 S '18
- Grinding 6-in. shell-boring cutters. G. M. Dick. il diags Am Mach 49:207-8 Ag 1 '18
- Grinding taper reamers in a small shop. J. A. Lucas. il Am Mach 50:259-60 F 6 '19
- Harris thread gage lapping machine. il Am Mach 50:227-8 Ja 30 '19; Mach 25:565 F '19
- Hollow-grinding the tooth face of gear cutters. O. Craft. Am Mach 49:152 JI 25 '18
- How work speed affects grinding. H. W. Dunbar. Iron Tr R 62:724-5 Mr 21 '18
- Independent polishing lathe. il Metal Ind 16:139 Mr '18
- Interesting examples of gage grinding. S. A. Hand. il Am Mach 48:487-8 Mr 21 '18
- Internal lapping and laps. H. F. Pusep. diags Am Mach 51:712-13 O 9 '19
- Investigation of twist drills. B. W. Benedict and W. P. Lukens. il diags plan III U Eng Exp Sta Bul 103:109-18 '17
- Journal polisher. diags Ry Mech Eng 91:708 D '17
- Lapping scored cylinders. diags Am Mach 48:506, 782 Mr 21, My 9 '18
- Latest practice in cutter grinding. il diags Am Mach 51:135-8, 185-8, 251-4, 323-5, 369-71 JI 17-24, Ag 7-21 '19
- Layout of polishing department. A. R. de Kuzewski. il diag Ind Management 57:464 Je '19
- Lens grinding in a training factory. E. Oberg. il diag Mach 25:330-2 D '18
- Losses in metal finishing. F. E. Halbert. il Metal Ind 15:208 My '17
- Machine for lapping precision gage blocks. il Am Mach 50:613 Mr 27 '19
- Methods for grinding patternmaker's tools. M. E. Duggan. il diag Foundry 47:403-4 Je 15 '19
- Modern development in polishing and plating steel automobile lamp reflectors. C. H. Proctor. il Metal Ind 15:149-52 Ap '17
- Multiple-roll chuck and formulas for grinding hole in gears. diags Am Mach 47:821-2; 48:947-8 N 8 '17, Je 6 '18
- New fields for lime developed by war. F. A. Jones. Concrete 13:sup4 JI '18
- Pointers for the patternmaker and molder. M. E. Duggan. diag Foundry 47:227 Ap 15 '19
- Polishing etched steel plates. Metal Ind 16:162 Ap '18
- Polishing methods. E. K. Hammond. il diags Mach 26:203-10 N '19
- Polishing of cast iron by rumbling. R. P. MacPherson. il Metal Ind 17:7-9 Ja '19
- Polishing twister and spinning rings. F. R. Daniels. diags Mach 25:155 O '18
- Proper care of grinding lubricants. H. W. Dunbar. Iron Tr R 64:375 F 6 '19; Same. Textile World 55:2093 Ap 5 '19
- Radius grinding fixture. A. A. O'Neel. diags Am Mach 47:1139 D 27 '17
- St. Louis polishing machine. il Metal Ind 16:95 F '18
- Shaping edges of circular plates. N. V. Christensen. diags Am Mach 48:466 Mr 14 '18
- Special V-block for grinding work. E. D. Becker. il Am Mach 47:1024 D 18 '17
- Spinning gap grinder. il Textile World 54:855 Ag 24 '18
- Steel ball polishing and burnishing. T. C. Eichstaedt. il Metal Ind 16:24-6 Ja '18
- Surface grinding gage. R. C. Morse. diag Am Mach 48:8 Ja 3 '18
- Thread-grinding fixture. J. W. Collins. diags Am Mach 48:1113-14 Je 27 '18
- Tool-bit grinding economy. H. Pusep. diags Am Mach 48:281 F 14 '18
- Tool grinding. B. L. Van Schaick. Am Mach 50:448 Mr 6 '19
- Tools of the automobile repair shop. D. A. Hampson. diags Horseless Age 43:38-9+ Mr 1; 36-7+ Mr 15; 45-6+ Ap 1 '18
- Tools that reduce the cost of grinding valves. Horseless Age 43:27-9+ F 15 '18
- Turning versus grinding. E. H. Fish. Am Mach 50:648-9 Ap 3 '19
- Turning versus grinding. J. H. Hollinger. Am Mach 50:1154 Je 12 '19
- Westinghouse polishing and grinding motors. il Elec R 74:281 F 15 '19; Elec W 73:298 F 8 '19
- When belt sanders pay. Factory 21:62+ JI '18
- See also Abrasives; Emery wheels; Grinding machines; Grinding wheels; Machine shop practice; Sand blast
- Grinding machines**
- American thread-grinding machine. il Am Mach 50:463-4 Mr 6 '19
- Angle cock grinding machine. diags Ry Mech Eng 91:696 D '17
- Automatic wide wheel grinder. il Iron Age 104:858 S 25 '19
- Barnes precision grinding machine for milling cutters. il Am Mach 49:592-3 S 28 '18
- Blair thread gage machines. il diags Mach 25:165-7 O '18
- Blanchard no. 10 surface grinding machine. il diag Mach 25:659-60 Mr '19; Iron Tr R 64:705-6 Mr 18 '19; Am Mach 50:565-7 Mr 20 '19
- Bridgeport surface-grinding machine. il Am Mach 48:564 Mr 28 '18; Mach 24:756 Ap '18
- Coates universal tool- and cutter-grinding machine. il Am Mach 49:175 JI 25 '18
- Community thread-gage grinding machine. il Mach 24:1047-8 JI '18; Am Mach 49:177-8 JI 25 '18
- Connecticut universal grinding machine. il Am Mach 50:229 Ja 30 '19
- Currier-Koeth grinding machine for valves and reseating tools. il Am Mach 48:255 F 7 '18
- Cylinder grinding. F. D. Jones. il diags Mach 25:615-21, 711-15 Mr-Apr '19
- Cylinder grinding applied to special work. il Mach 25:914-15 Je '19
- Defiance no. 50 valve-grinding machine. il Am Mach 48:555 Mr 28 '18; Ind Management 55:420 My '18
- Detroit roll grinding machine. il Am Mach 49:222 Ag 1 '18
- Draper & Hall universal grinding machine. il Am Mach 47:1060 D 13 '17

**Grinding machines—Continued**

- Dumore portable electric grinder. *Il Elec Ry J* 51:532 Mr 16 '18; *Ind Management* 56:158 Ag '18
- Fischer profile grinding machine. *Il diags Mach* 25:366-7 D '18
- Fraser self-contained universal grinder. *Il Mach* 24:1154 Ag '18; *Am Mach* 49:270 Ag 8 '18
- Fraser universal grinding machines. *Il Am Mach* 50:1012 My 22 '19
- Grand Rapids drill-grinding machines. *Il Am Mach* 49:44 JI 4 '18; *Mach* 24:1050 JI '18; *Iron Age* 102:281 Ag 1 '18
- Grinding in locomotive shops. M. H. Williams. *Il Ry Mech Eng* 92:629-32 N '18
- Grinding machine for cylinder liners. M. E. Hoag. *Il Am Mach* 47:1103 D 20 '17
- Grinding round work without centers. *Il diags Am Mach* 50:4-5 Ja 2 '19
- Harris automatic universal hob and form cutter grinding machine. *Il Am Mach* 50:180-1 Ja 23 '19; *Mach* 25:561-2 F '19
- Heald no. 20, 8- and no. 22, 12-inch rotary surface-grinding machines. *Il Am Mach* 50:1202-4 Je 19 '19
- Heald no. 60 internal grinder in the locomotive shop. *Il Ry Mech Eng* 93:363 Je '19
- Heald no. 65 cylinder grinder. *Il diag Mach* 25:360-2 D '18; *Am Mach* 49:1053-4 D 5 '18; *Automotive Ind* 40:222-3 Ja 23 '19
- Heald no. 85 internal grinding machine. *Il Am Mach* 51:339-40 Ag 14 '19; *Iron Age* 104:442 Ag 14 '19; *Ry Mech Eng* 93:557-8 S '19
- International thread-gage grinding machine. *Il Am Mach* 50:418-19 F 27 '19
- Lafayette thread-tool grinding fixture. *Il Mach* 24:1057-8 JI '18
- Lafayette universal grinder. *Il Mach* 26:279-80 N '19
- Landis self-contained crankshaft grinding machine. *Il Am Mach* 50:813-14 Ap 24 '19; *Iron Tr R* 64:1285-6 My 15 '19; *Mach* 25:880-1 My '19
- Lumsden tool-grinding machine. *Il Am Mach* 51:238-9 JI 31 '19; *Ry Mech Eng* 93:500-1 Ag '19
- Machine for accurate and continuous grinding—novel wheel arrangement. *Il Iron Age* 103:1448 My 29 '19
- Machine for grinding button dies. *Il diags Am Mach* 51:609-10 S 25 '19
- Machine for grinding-in large cocks. H. J. Ventner. *Il Am Mach* 50:553-4 Mr 26 '19
- Machine for surface-grinding anvils. F. D. Hood. *Il Am Mach* 49:334 Ag 22 '18
- Manhattan universal grinding machine. *Il Am Mach* 48:565 Mr 28 '18; *Mach* 24:746-7 Ap '18
- Multiple cam-grinding attachment. J. Lennartz. *diags Mach* 25:214 N '18
- Mummert-Dixon portable radial grinding machine. *Il Am Mach* 48:171 Ja 24 '18; *Iron Age* 101:257 Ja 24 '18; *Mach* 24:561-2 F '18
- Newton radius-link grinding machine. *Il Am Mach* 50:1155-6 Je 12 '19
- Noble & Westbrook no. 2 surface grinder. *Il Ind Management* 55:246 Mr '18
- Notable advance in grinding. *Il Ry Mech Eng* 93:363-4 Je '19
- Ott plain-grinding machine. *Il Am Mach* 48:553 Mr 28 '18; *Mach* 24:747-8 Ap '18
- Ott 6 x 6-in. internal grinding machine. *Il Am Mach* 51:771-2 O 23 '19
- Patriarch among grinding machines. J. Drew. *Il Am Mach* 50:1096-7 Je 5 '19
- Persons-Arter 16-in. rotary surface-grinding machine. *Il Am Mach* 49:223-4 Ag 1 '18; *Mach* 24:1152 Ag '18
- Portable electric radial grinder. *Il Sci Am* 119:340 O 26 '18
- Pringle portable grinding machines. *Il Mach* 24:1052-3 JI '18
- Reclaiming bull's-eye lubricator glasses. *Il Ry Mech Eng* 93:92 F '19
- Reclamation of electric railway track by welding and grinding by the Connecticut company. H. J. Tippet. *Il Elec Ry J* 53:773-6 Ap 19 '19
- Reeves roll grinder. *Il Mach* 25:983-5 Je '19
- Refinement in Grand Rapids grinding machine co. twist drill grinders. *Il Ry Mech Eng* 93:391 Je '19
- Rivett no. 106 internal grinder. *Il Mach* 24:659-60 Mr '18
- Robbins, Gamwell circular cutter-grinding machine. *Il Am Mach* 49:318 Ag 15 '18
- Saphil electric grinding machine. *Il Am Mach* 50:227 Ja 30 '19
- Schmidt internal grinder. *Il Ind Management* 55:334 Ap '18
- Schmidt lapping machine. *Il Am Mach* 49:641-2 O 3 '18
- Security internal chucking grinder. *Il Mach* 25:882-3 My '19; *Am Mach* 50:907-8 My 8 '19
- Self-contained centerless grinder for precision work. *Il Iron Tr R* 64:1090 Ap 24 '19
- Setting a universal machine to grind parallel holes. C. Eldridge. *Am Mach* 49:1046 D 5 '18
- Surface grinder insures rapid output. *Il Iron Tr R* 64:1019 Ap 17 '19
- Taylor & Fenn bore grinder. *Il Mach* 25:865-7 My '19; *Am Mach* 50:864-5 My 1 '19; *Iron Age* 103:1160 My 1 '19
- Thompson universal tool- and cutter-grinding machine. *Il Am Mach* 49:180-1 JI 25 '18; *Mach* 24:1153 Ag '18
- Traverse motion for grinder carriage. F. R. Daniels. *diags Mach* 24:1136-7 Ag '18
- Vertical disk grinding machine. *Il Ind Management* 55:246 Mr '18
- Webster & Perks no. 1 universal cylindrical grinder. *Il diags Mach* 24:459-60 Ja '18; *Am Mach* 48:215-16 Ja 31 '18; *Iron Age* 101:327 Ja 31 '18
- Whitney no. 23 cylinder-grinding machine. *Il Am Mach* 48:471 Mr 14 '18
- Wilmarth & Morman New Yankee motor driven drill grinder. *Ry Mech Eng* 92:65 Ja '18
- Wilmarth & Morman no. O cutter, reamer and drill-grinding machine. *Il Am Mach* 49:640-1 O 3 '18; *Iron Age* 102:841 O 3 '18
- Wisconsin universal grinder. *Il Ind Management* 55:155 F '18
- Woods plain grinding machine is semiautomatic. *Il Mach* 26:182-3 O '19; *Am Mach* 51:676-7 O 2 '19; *Iron Tr R* 65:903 O 2 '19
- Woods tool and cutter grinder, no. 2½. *Il Mach* 24:556-7 F '18; *Am Mach* 48:258 F 7 '18
- Woods universal tool and cutter-grinding machine, no. 2. *Il Am Mach* 47:1058 D 13 '17
- Worcester type A internal grinding machine. *Il Am Mach* 51:43-4 JI 3 '19; *Mach* 25:1096 JI '19

**See also Grinding wheels****Feeding**

- Automatic feed mechanism for Wilmarth & Morman universal cutter and tool grinder. *Il diags Mach* 24:463 Ja '18; *Iron Age* 100:1527 D 27 '17; *Am Mach* 48:41 Ja 3 '18
- Hand versus power feed in surface grinding. D. Baker. *Am Mach* 49:901 N 14 '18
- Hand versus power feeds. H. Senior. *Am Mach* 50:737-8 Ap 17 '19
- Hand versus power feeds in surface grinding. A. W. Sulter. *Am Mach* 50:356 F 20 '19

**Safety devices**

- Glass shields for grinding wheels. *diags Ry Mech Eng* 92:115 F '18

**Grinding wheels**

- Abrasion-meter. R. F. Yates. *Il Sci Am S* 87:372-3 Je 14 '19
- Air-turbine-driven grinding wheel. W. J. Nene. *diag Am Mach* 48:658 Ap 18 '18
- Balancing grinding wheels. *Il Mach* 25:395 Ja '19
- Economical foundry use of grinding wheels. W. T. Montague. *Il Foundry* 46:362-7 Ag '18; *Same cond. Iron Age* 101:318-21 Ja 31 '18
- Grinding wheel truing device. F. C. Bolton. *diags Mach* 24:744 Ap '18
- H. P. wheel-truing tools. *Il Mach* 24:852-3 My '18
- Loading and glazing of a grinding wheel. *Mach* 24:687 Ap '18
- Loading and glazing of grinding wheels. C. H. Norton. *Ry Mech Eng* 93:92 F '19
- Modern abrasive wheels. R. F. Yates. *Il Sci Am S* 85:120-1 F 23 '18
- Modern grinding wheel. R. G. Williams. *Power* 46:850 D 18 '17



**Grinding wheels—Continued**

- Necessity for keeping grinding wheels in perfect balance. J. H. Peckham. *Il Am Mach* 50:1228 Je 28 '19
- Precision truing device for grinding wheels. *Il Am Mach* 48:79 Ja 10 '18
- Radius truing fixture for use on grinding wheels. R. C. Morse. *diag Am Mach* 48:896 My 23 '18
- Ross grinding wheel truing tool. *Il Mach* 24:565 F '18
- Ross tools for truing grinding wheels. *Il Am Mach* 51:181-2 Jl 24 '19
- Snagging malleable iron castings. W. T. Montague. *Mach* 24:589 Mr '18
- Soft grinding wheels. H. W. Dunbar. *Ry Mech Eng* 92:678 D '18
- Testing machines for grading abrasive wheels. J. H. Vincent. *Il Am Mach* 51:177-9 Jl 24 '19
- Truing an emery wheel quickly. E. J. Higgins. *diag Mach* 24:832 My '18
- Wheel-dressing fixture. J. W. Collins. *diag Am Mach* 48:464 Mr 14 '18
- Wheels for grinding stellite. *Am Mach* 47:1120 D 27 '17
- Wheels for tool and cutter grinding. R. Duff. *Am Mach* 48:193 Ja 31 '18
- See also Grinding machines

**Accidents**

- Bursting grinding wheels. C. C. Sherlock. *Am Mach* 49:767-9 O 24 '18
- Moral responsibility for the bursting of grinding wheels. *Am Mach* 49:1065-6 D 12 '18

**Safety devices**

See Grinding machines—Safety devices

**Grizzlies**

- Convenient mine grizzly. *diag Eng & Min J* 106:881 N 16 '18
- Rock grizzly at the Franklin mine. A. O. Christensen. *diag plan Eng & Min J* 108:621 O 11 '19
- Ross automatic drop-bar grizzly feeders. *diag Eng & Min J* 106:712 O 19 '18

**Grocery stores**

- Cousin of the cafeteria; a new type of self-service grocery. A. G. Vestal. *Il Sci Am* 119:193 S 7 '18

**Groton, Connecticut**

- First war emergency government towns. *Il plans Am Inst Arch J* 6:510-17 N '18

**Ground squirrels**

- Course of reaction in explosions of dilute CS<sub>2</sub>-air mixtures. G. R. Stewart and J. S. Burd. *J Ind & Eng Chem* 11:130-3 F '19
- Exterminating ground squirrels on the Pacific Electric railway. C. A. Elliott. *Il Elec Ry J* 53:105 Ja 11 '19

**Ground waters. See Water, Underground****Grounding. See Electric apparatus and appliances—Grounding; Electric distribution—Grounding; Electric machinery—Grounding****Group houses**

- Group house—its advantages and possibilities. R. H. Dana, Jr. *Am Arch* 115:163-5 Ja 29 '19

**Group insurance. See Insurance, Industrial**

- Group morality. V. Karapetoff. *Sibley J* 82:145-6 Je '18

**Grouting**

- Cementation process in mining. A. H. Krynauw. *diag Eng & Min J* 106:996-7 D 7 '18
- Coarse sand proves superior for vitrified brick grout. J. R. Rogers. *Eng N* 80:952 My 16 '18
- Combination air and water pressure grouting machine effective in fine sand. *diag Eng N* 81:147-8 Jl 18 '18
- Concentration of expansion stresses due to imperfect grouting the cause of brick pavement failures. C. C. Wiley. *Il Munic Eng* 53:180-1 N '17
- Emergency grouting with sulphur. C. B. Holley. *Eng & Min J* 107:279 F 8 '19
- Francois and Portier grouting processes. A. H. Krynauw. *Eng & Contr* 51:461 Ap 30 '19
- Grouting in mine shafts. A. K. Friedrich. *Eng & Min J* 107:199 Ja 25 '19

Grouting wells in rock formation effective and simple. W. G. Kirchoffer. *diag Eng N* 81:367-8 Ag 23 '18

Low alumina cement used in grouting East Boston tunnel. *Eng & Contr* 51:390 Ap 16 '19

Method for pressure grouting of contraction joints of arch dams. L. R. Jorgensen. *diag Eng & Contr* 50:38-8 Jl 10 '18

Method of grouting rock foundations of dams at Hartford, Conn. J. E. Garratt. *Eng & Contr* 49:203-4 F 20 '18

Rigid paving inspection needed to cure the poor grouting evil. H. H. Edwards. *Il Munic Eng* 56:101 Mr '19

**Growth (plants)**

Plant growth and reproduction. V. H. Blackman. *Sci Am S* 87:38 Ja 18 '19

**Guaranties and sureties**

Be careful when somebody asks you to go on his fidelity bond. E. J. Buckley. *Metal Work* 89:207-8 F 8 '18

Criticism of contract-bond business answered. H. V. Swart. *Eng N* 83:669-71 O 3 '19

Function of corporate contract bonds—how obtained. H. V. Swart. *Eng N* 82:1212-14 Je 19 '19

Having signed a probate court surety bond for a friend, can I be held liable in a case where judgment has been secured against him as administrator in his father's estate? *Dom Eng* 85:205-6 N 9 '18

State-insured highway construction contracts suggested. H. V. Swart; I. J. Morris. *Eng N* 82:484-5 Mr 6 '19

**Guard rails**

Efficient guard rails. G. M. Douglass. *diag Eng & Min J* 106:495 S 14 '18

**Guards. See Machinery—Safety devices****Guatemala**

Guatemala earthquake shifts steel viaduct on its piers. W. T. Penney. *Eng N* 80:999 My 23 '18

Guatemala earthquakes destroyed all masonry buildings. E. Stuart. *Il Eng N* 81:623-6 O 3 '18

**Commerce**

Preponderance of United States trade with Guatemala. *Sci Am* 118:58 Ja 12 '18

**Industries and resources**

Saltpeter in Guatemala. H. S. Gale. *Il Eng & Min J* 107:1025-31 Je 14 '19

See also Mines and mineral resources—Guatemala

**Guerini process**

Guerini process for the oxidation of finished metal surfaces. *diag Mach* 25:177 O '18

**Gulls. See Glids****Gulls**

Sea gulls as scavengers. *Sci Am S* 85:325 My 25 '18

Gum lumber manufacturers' association. See American hardwood manufacturers' association

**Gumming**

Gumming printed work. B. Daniels. *Inland Ptr* 63:481-2 Jl '19

**Gums and resins**

Detection of vegetable gums in food products. A. A. Cook and H. G. Woodman. *J Ind & Eng Chem* 10:530-3 Jl '18

Gathering chicla gum for American gum chewers. *Il Sci Am S* 88:172 S 13 '19

Grass tree resins of Australia. H. G. Smith. *Sci Am S* 87:137 Mr 1 '19

Increased yield of turpentine and rosin from double chipping. A. W. Schorger and R. L. Pettigrew. *Il U S Agric Bul* 567:1-9 '17

Melting point of rosin. T. L. Crossley. *J Ind & Eng Chem* 11:52-3 Ja '19

Scammony and its substitutes. A. L. Scoville. *J Ind & Eng Chem* 11:335-6 Ap '19

Tabanuco gum or Porto Rican elemi. *Sci Am S* 87:301 Mr 29 '19

See also Bakelite; Balata; Jelutong; Kaurigum

**Gun cameras**

Making the machine gun shoot pictures in place of bullets. *Il Sci Am* 120:545 My 24 '19

**Gun carriages**

Building carriages, caissons and limbers for 75-mm. guns. M. E. Hoag; W. J. Larson. *Il diags Am Mach* 47:793-6, 861-5, 901-4; 48: 229-31, 277-9 N 8-22 '17, F 7-14 '18  
Field mount for the 7-in. navy gun. C. L. McCrea. *Il Am Mach* 51:523-7 S 11 '19  
Heavy field piece with mobile mount. C. L. McCrea. *Il Mech Eng* 41:375-6 Ap '19  
Making naval gun mounts. F. D. Jones. *Il diags plan Mach* 25:485-92, 600-5, 745-9 F-Ap '19  
Mounts for naval anti-aircraft guns. F. H. Colvin. *Il diags Am Mach* 51:79-83, 457-61 JI 10, S 4 '19  
U. S. navy 7-inch caterpillar mount. H. Delano. *Il Sci Am* 120:287- Mr 22 '19

**Gun metal**

How gun metal is affected by impurities. F. Johnson. *Foundry* 47:36-7 Ja '19; Same. *Iron Tr R* 65:95-6 JI 10 '19  
Influence of heat treatment on gun metal. C. F. Smart. *Il Am Inst Min Bul* 153:1875-81 S '19; Discussion. 155:3043-4; 156:3182-4 N-D '19  
Marine finish. *Metal Ind* 16:270 Je '18  
Swiss gun metal finish. *Metal Ind* 16:170 Ap '18; Same. *Dom Eng* 83:206 My 11 '18

**Gun mounts.** See Gun carriages

**Gunite**

Cement gun in mining work. G. S. Rice. *Il diags plan Coal Age* 13:495-8, 540-3 Mr 16-23 '18; Same. *Eng & Min J* 105:584-7, 623-6 Mr 30-Ap 6 '18; Excerpts. *Eng & Contr* 49:488-9 My 15 '18  
Cement gun, its application and uses. B. C. Collier. *Eng & Contr* 50:591-2 D 25 '18  
Reinforcing steel stacks with gunite concrete. M. C. Sherman. *Il Power* 49:808-9 My 27 '19  
Test of water-tightness of gunite. L. R. Jorgensen. *Eng & Contr* 49:28 Ja 9 '18

**Gunnery**

British and German gunnery. *Sci Am* 120:364 Ap 12 '19  
British and German naval ordnance. *Engineer* 125:90-1 F 1 '18

See also Artillery; Ballistics; Explosives, Military; Firearms; Gunpowder; Guns; Naval guns; Position finders; Projectiles; Range finders; Shooting; Shooting, Military

**Gunpowder**

Hygroscopic properties of black powder. G. B. Taylor. *J Ind & Eng Chem* 11:1082-4 N '19  
Powders; some characteristics of the leading military explosives. J. S. Hatcher. *Il Sci Am* 121:33- JI 12 '19

**Guns**

Hardness tests of gun-barrel steel. W. K. Shepard. *Am Mach* 50:739-42 Ap 17 '19  
Madsen automatic gun. *Il diags plan Engineer* 125:495-8 Je 7 '18; Same abr. *Sci Am S* 86: 108-10 Ag 17 '18  
Shotgun's debut as a military weapon. *Il Sci Am* 118:435 My 11 '18  
Shotguns for our aviators. E. C. Crossman. *Il Sci Am* 118:107- F 2 '18; Discussion. 118: 359 Ap 20 '18  
Worn out German guns. *Sci Am* 119:206 S 14 '18  
See also Airplane guns; Artillery; Firearms; Guns (ordnance); Naval guns; Rifles

**Manufacture**

Broaching operations on one-pounder guns. F. J. Lapointe. *Il diags Mach* 24:964-5 Je '18  
How the power house aids the forge. L. F. Johnson. *Il Iron Tr R* 64:1221-6 My 8 '19  
Sidelights on Winchester gun production. W. E. Freeland. *Il Iron Age* 101:1521-6 Je 13 '18

**Guns (ordnance)**

Beardmore-Farquhar light machine gun. *Il diags plan Engineer* 128:494-7 N 14 '19

Big American guns in France. *Sci Am S* 86: 330 N 28 '18

Biggest gun ever built; French gun has 52 cm. shells. *Il Sci Am* 119:169 Ag 31 '18  
Creusot 520-millimeter weapon—this war's most powerful gun. *Il Sci Am* 118:411 My 4 '18

Crozier tells of great progress made. *Iron Age* 100:1472-4, 1510-14 D 20 '17

Development of the French 75-mm. field gun. J. A. Lucas. *Il diags Am Mach* 49:149-52 JI 25 '18

Drum-fire and the difference between the sound of a gun and of an exploding shell. G. F. Sleggs. *Sci Am S* 84:393 D 22 '17

Early attempts at rapid-firing guns. H. H. Manchester. *Il Am Mach* 49:835-9 N 7 '18

Erosion of guns. H. M. Howe. *Il diags Am Inst Min E Bul* 134:335-90 F '18; Excerpts. *Iron Tr R* 62:374-7 F 7 '18; Summary. *Iron Age* 101:389 F 7 '18; Discussion. *Am Inst Min E Bul* 136:734-61 Ap '18; *Iron Age* 101:554-6 F 28 '18; *Iron Tr R* 63:1463-4 D 26 '18

Field mount for the 7-in. navy gun. C. L. McCrea. *Il Am Mach* 51:523-7 S 11 '19

Genesis of American gunmaking. R. A. Trenchard. *Am Mach* 49:298 Ag 15 '18

German long-range gun. *Il map Sci Am* 118:309- Ap 6 '18

Have the Germans developed a practical super machine gun? *Il Sci Am* 119:297 O 12 '18

Heat treatment in gun erosion. *Sci Am* 121: 440 N 1 '19

Heavy artillery in France. H. O'Higgins. *Iron Age* 102:623 S 12 '18

Investigation by the Senate military committee. *Iron Age* 100:1548-9 D 27 '17

Long-range gun bombarding Paris; note translated from *Le génie civil*. *Engineer* 125:324, 360 Ap 12, 26 '18

Machine guns used by leading nations—modern weapons developed during war; illustrations. *Iron Tr R* 64:766-7 Mr 20 '19

New and old types of field guns; photographs. *Iron Tr R* 65:294-5 JI 31 '19

New German schreckliche gun. *diags Sci Am S* 85:244 Ap 20 '18

New long range gun. *Engineer* 125:275-6 Mr 29 '18

121-mile gun. J. B. Walker. *Il diag map Sci Am* 120:312-13 Mr 29 '19

Ordnance; its rise and development. *Sci Am S* 86:218 O 5 '18

Our technical achievements in the great war. *Sci Am* 121:256- S 13 '19

Preliminary facts concerning the Browning guns. *Il Sci Am* 118:205- Mr 9 '18; Same cond. *Am Mach* 48:477-9 Mr 21 '18

Relying on heavy artillery and the bayonet. *Iron Age* 101:382-3 Ap 4 '18

Rifles and artillery; rapid progress being made at government and private plants. *Iron Age* 101:562 F 28 '18

Senate digs into the gun problem. *Iron Tr R* 61:1335-6 D 20 '17

75-mm. field gun, model 1916 M111. *Il diags Am Mach* 49:323-8 Ag 22 '18

Show progress of big gun program. *Il Iron Tr R* 63:1473-5 D 26 '18

Specifications for ordnance gages. *Am Mach* 48:103 Ja 17 '18

Stokes gun and shell, and their development. W. Stokes. *Engineer* 126:6-7, 27-9 JI 5-12 '18; Same. *Sci Am S* 86:212-13, 228-30 O 5-12 '18

Tests of Browning machine guns. *Il Iron Age* 101:629 Mr 7 '18; Same. *Metal Work* 89:422-3 Mr 29 '18

Three-inch anti-aircraft gun, model 1918. *Il diags Am Mach* 49:185-90 Ag 1 '18

Use Browning guns for aircraft. *Automotive Ind* 38:1159-60 Je 13 '18; Same. *Am Mach* 48:1050 Je 20 '18; Same. *Sci Am S* 86:39 JI 20 '18; Same. *Sci Am* 119:100 Ag 3 '18

Velocity and range of guns. J. B. Walker. *Il diags Sci Am* 118:360-1, 381 Ap 20-27 '18; Discussion. C. A. Mellicke. 118:587 Je 29 '18

Wear in big guns. T. G. Tulloch. *Sci Am S* 84:415 D 29 '17

See also Ammunition; Artillery; Naval guns; Proving grounds

**Guns (ordnance)—Continued****Bibliography**

French 75-mm. cannon. Am Soc M E J 40:200-1 F '18

**Inspection**

Building up the ordnance inspection department. G. B. Harris. Am Mach 48:243-4 F '18

**Manufacture**

Big things in steel; some things seen in a plant where big guns are made. Il Sci Am S 86:56 JI 27 '18  
 British eight-inch howitzer. I. W. Chubb. Il diags Am Mach 50:1189-94; 51:13-17, 171-6, 227-30 Je 19, JI 3, 24-31 '19  
 British 18-pounder quick-firing gun. I. W. Chubb. Il diags Am Mach 51:617-21, 733-5 S 26, O 16 '19  
 British 6-in. howitzer. I. W. Chubb. Il charts diags Am Mach 49:231-42, 411-23, 605-12, 697-704 Ag 8, S 5, O 3, 17 '18; Photographs. 49:480 S 12 '18  
 Calibrating and straightening machine for gun barrels. Il Sci Am 118:457 My 18 '18  
 Cannon making in past centuries. H. H. Manchester. Il Am Mach 48:89-92 Ja 17 '18  
 Casting large guns in the early eighties. J. Goostray. Il diags Foundry 46:6-8 Ja '18  
 Cutting a dovetail slot in a gun sight. R. H. Dauterich. diags Mach 24:935 Je '18  
 Development of gun manufacture. W. H. W. Skerrett. diags Am Mach 49:655-61 O 10 '18  
 Electric heat treatment of gun forgings. C. E. Wright. Il Iron Age 103:673-8 Mr 18 '19  
 High production tooling methods. A. A. Dowd and D. A. Baker. diags Am Mach 50:1029-36; 51:401-7 My 29, Ag 28 '19  
 How machine-tool builders can help make big guns. H. W. Reed. Am Mach 48:891-3 My 23 '18; Same. Iron Age 101:1330-3 My 23 '18; Same cond. Iron Tr R 62:1425-6 Je 6 '18; Same cond. Mach 24:943-4 Je '18  
 How the 155-mm. howitzer is made. J. V. Hunter. Il diags plan Am Mach 49:941-5, 983-6, 1123-9; 50:199-204, 249-52, 303-6, 587-93 N 21-28, D 19 '18, Ja 30-F 13, Mr 27 '19  
 Lathes for the present gun program. A. L. De Leeuw. Il Am Mach 49:491-3 S 12 '18; Discussion. G. Gates. 49:647 O 10 '18  
 Making a spiral rack for the sights on the six-pound gun mounts. S. Seaberg. Il diags Am Mach 49:470 S 12 '18  
 Making and heat-treating heavy forgings. F. D. Jones. Il Mach 25:583-90 Mr '19  
 Making gun forgings under war demands. E. C. Kreutzberg. Il Iron Tr R 63:1240-2 N 28 '18  
 Making of monster guns. Sci Am S 86:23 JI 13 '18  
 Making the U. S. 75-millimeter field gun. E. Oberg. Il diags Mach 25:624-30, 716-21 Mr-Apr '19  
 Manufacture of the 4.7-inch gun, model 1906-1. E. A. Suverkrop. Il diags Am Mach 48:519-24, 649-58 Mr 28, Ap 18 '18  
 Manufacture of the Lewis machine gun. F. A. Stanley. Il diags Am Mach 47:969-71; 48:265-73, 397-403, 579-84, 663-7, 747-52, 825-8, 873-8, 949-52; 49:25-9, 203-7, 481-4, 529-31 D 6 '17, F 14, Mr 7, Ap 4, 18, My 2, 16-23, Je 6, JI 4, Ag 1, S 12-19 '18  
 Manufacture of the Lewis machine gun. F. A. Stanley. Il diags Am Mach 50:55-60 Ja 9 '19  
 Operations on the British 9.2-in. gun. I. W. Chubb. Il diags Am Mach 51:275-80, 373-7, 423-7 Ag 7-21 '19  
 Steel castings for our first line of defense. W. S. Doney. Il diags Foundry 47:367-72 Je 15 '19  
 War-time American ordnance plant; Tacony steel co., Tacony, Pa. Il Iron Age 102:1326-8 N 28 '18

**Repair**

Keeping the big guns at the front effective. H. T. Wade. Il Sci Am 121:38-9+ JI 26 '19  
 Machine shop trucks reclaim guns. Il Iron Tr R 64:376-80 F 6 '19

Ordnance repair shops at Mehun-sur-Yèvre. G. S. Brady. Il plan Am Mach 51:575-8 S 18 '19

Relining of guns at the Watervliet arsenal. E. A. Suverkrop. Il diags Am Mach 48:687-91, 783-5, 869-62 Ap 25, My 9, 23 '18  
 \$25,000,000 shop relining heavy railroad guns in use by the American forces in France. Am Mach 49:322a Ag 15 '18

**Guns, Airplane.** See Airplane guns

**Guns, Anti-aircraft**

Making gun sights for anti-aircraft guns. F. H. Colvin. Il diag Am Mach 50:681-4 Ap 10 '19

Mounts for naval anti-aircraft guns. F. H. Colvin. Il diags Am Mach 51:79-83, 457-61 JI 10, S 4 '19

**Guns, Naval.** See Naval guns

**Gunstocks**

Gunstocks. Il Sci Am 119:270 O 5 '18

**Gutters**

Center gutter construction used on bituminous street. W. D. Johnston. Il diag Eng N 82:966 My 15 '19

Concrete curb and gutter; how it is built in various cities. diags Concrete 15:143-6 O '19

Design of concrete sidewalks and concrete curb and gutter at street intersections. W. R. Paige. diags plan Munic Eng 56:188-9 My '19

Grouted gutter is easily finished with small gang. E. E. Glass. Il Eng N 80:630 Mr 28 '18  
 Labor cost of laying brick gutter. Eng & Contr 49:442 My 1 '18

See also Pavements

**Gutters (roof)**

Country house details. A. B. Greenberg. diags Bldg Age 41:101-2 Mr '19

How to proportion different types of roof gutters. M. W. Ehrlich. Il diags Metal

Work 88:715-18 D 14 '17

Shingle course gutters. W. B. Gray. diags Bldg Age 40:106 F '18

Wooden gutters. R. S. Whiting. diags Am Lumberman 2287:71 Mr 15 '19

See also Roof leaders

**Conductor heads**

Conductor heads of the Tudor period. Il Metal Work 89:450-1 Ap 5 '18

Hand made leaded copper heads. Il Metal Work 89:676 My 24 '18

Guy anchors. See Anchors, Guy

**Guynemer, Georges**

France's greatest ace. W. F. Bradley. por Il Automotive Ind 38:1030-3, 1079-80 My 30-Je 6 '18

**Gymnasiums**

Getting service out of the gym; Creighton university, Omaha, Neb. Il diags plans Metal Work 89:664-9 My 24 '18

How physical training helps factory executives. D. G. Stanbrough. Il Ind Management 56:20-1 JI '18

Long girders and high columns designed as rigid frame. A. E. Wynn. diags Eng N 82:340-2 F 13 '19

Physical exercises made part of day's routine; White company establishes gymnasium. Il Automotive Ind 38:688-9 Ap 4 '18; Same. Gas Age 41:353-4 Ap 15 '18

**Gypsum**

Gypsum a structural material. Il Am Arch 113:483-9 Ap 17 '18

Gypsum products, their preparation and uses. R. W. Stone. Il diags plans map U S Bur Mines Tech Pa 155:1-67 '17

Influence of gypsum on the blast furnace slags in the manufacture of cement. E. Bereslavsky. Chem & Met Eng 20:25-8 Ja 1 '19; Abstract. Concrete 15:sup29 Ag '19

Proper methods of applying roofing on a gypsum roof deck. C. F. Columbia. Il Eng & Contr 52:457-9 O 22 '19

**Testing**

Tests of plain and reinforced gypsum specimens. W. A. Slater and G. P. Anthes. Il diags W Soc E J 24:399-462 S '19

**Gypsum, Reinforced**

Pyrobar gypsum floor tile. *diag Eng & Contr* 49:127 Ja 30 '18

Pyrobar gypsum long-span roof tile and roof nailing tile. *il diag Eng & Contr* 49:111 Ja 30 '18

Pyrobar gypsum roof tile. *Am Arch* 113:848-4 Je 19 '18

Tests of plain and reinforced gypsum specimens. W. A. Slater and G. P. Anthes. *il diags W Soc E J* 24:399-462 S '19

**Gyro-compass.** See **Compass, Gyrostatic**

**Gyroscope**

Gimbal stabilization. V. Bush. *diags J Fr Inst* 188:199-216 Ag '19

Periodic stresses in gyroscopic bodies, with applications to air screws. A. F. Zahm. *il diags U S Nat Advisory Com for Aeronautics* 1917:381-9 '18

**Gyroscopic compass.** See **Compass, Gyrostatic**

**H****Habutai**

Japanese habutai. *Color Tr J* 4:15 Ja '19

**Hadfield prize**

Sir Robert Hadfield prize for a new method of determining the hardness of metals. *Am Inst Min E Bul* 135:sup45-7 Mr '18; *Excerpt. Sci Am S* 85:359 Je 8 '18

**Haackel, Ernst Heinrich,** 1834-1919

*Sketch. Sci Am* 121:184 Ag 23 '19

**Hail**

Kashmir barrage of hail. W: Beebe. *Sci Am S* 86:55 Jl 27 '18

**Hair**

Trimming one's own hair by combing it. *il Sci Am* 120:103 F 1 '19

**Halides**

Hydrolysis of organic halides and the corrosion of metals. H. W. Doughty. *Am Chem Soc J* 39:2685-92 D '17

Intermediates used in the preparation of photosensitizing dyes; quaternary halides. C. H. Lund and L. E. Wise. *J Ind & Eng Chem* 11:458-60 My '19

Reaction between acid halides and aldehydes. R. Adams and E. H. Vollweiler. *Am Chem Soc J* 40:1732-46 N '18

**Halifax, Nova Scotia**

Re-housing in Halifax with concrete block. *il diags plans map Concrete* 14:44-52 F '19

Service quickly restored. *il Elec W* 70:1162-3 D 15 '17

**Railroads**

Drilling and blasting in construction of Halifax ocean terminals railway. B. H. Smith. *Eng & Contr* 50:480-1 N 20 '18

Salvaging the railway facilities at Halifax. F. B. Tapley. *il map Ry Age* 64:1231-4 My 17 '18

Tramways render invaluable service in Halifax disaster. *il Elec Ry J* 50:1066-7 D 15 '17

**Hall, Charles Sumner,** 1857-1917

*Sketch. por W Soc E J* 22:504-6 S '17

**Halogen salts**

Halogen salts of silver at Wonder, Nevada. J. A. Burgess. *Econ Geol* 12:589-93 O '17;

*Discussion. J: W. Young.* 13:224-5 My '18

Occurrence of the halogen salts of silver. W. Lindgren. *Econ Geol* 13:225-6 My '18

See also **Halides**

**Halogens**

Action of halogens on the Grignard reagent and the replacement of halogen atoms by one another. R. L. Datta and H. K. Mitter. *Am Chem Soc J* 41:287-92 F '19

Direct ionization by means of iodine and nitric acid. R. L. Datta and N. R. Chatterjee. *Am Chem Soc J* 41:292-5 F '19

Halogen derivatives of aromatic amines and their analysis. F. B. Dains, T. H. Vaughan and W. M. Janney. *Am Chem Soc J* 40:980-6 Je '18

Liquid ammonia-sodium method for halogens in organic compounds, the formation of cyanide, and method of removing from the solution. C. W. Clifford. *Am Chem Soc J* 41:1051-60 Ji '19

Relative stability of halogen substituted aliphatic acids in water solution; the propionic acid and butyric acid series. G. S. Simpson. *Am Chem Soc J* 40:674-83 Ap '18

See also **Bromine; Chlorine; Iodine**

**Hammer drills.** See **Rock drills**

**Hammers**

Fairbanks power hammers with new gib and faceplate. *il Am Mach* 48:598 Ap 4 '18; *Mach* 24:746 Ap '18

Force of a hammer blow. *Coal Age* 13:984 My 25 '18

Handler hammering. *il Sci Am* 120:208 Mr 1 '19

High-speed hammers. *il Am Mach* 48:639 Ap 11 '18

Mold for babbit hammers. *il Am Mach* 49:748 O 24 '18

Mold for lead hammer. *diags Power* 50:179 Ji 29 '19

Power hammer attachment. *il Ry Mech Eng* 92:288 My '18

Screwdriver and hammer for use in out-of-the-way places. F. L. Hinman. *diag Elec Ry J* 50:1042 D 8 '17

Shell-nosing hammer. E. A. Thanton. *diag Am Mach* 49:958 N 21 '18

Squaring crusher hammer ends. J. W. Bailey. *diags Coal Age* 14:1104 D 19 '18

See also **Pneumatic hammers; Steam hammers**

**Hammers, Pneumatic.** See **Pneumatic hammers**

**Hammers, Steam.** See **Steam hammers**

**Hampstead garden suburb, England**

Industrial housing developments. L. Veiller. *il Arch Rec* 44:140-51 Ag '18

**Hampton normal and agricultural institute,** Hampton, Virginia

Hampton normal and agricultural institute. J. T. Boyd, jr. *il map plans Arch Rec* 46:123-32 Ag '19

**Hanch, Charles C.,** 1867-

Chief of automotive products section of War industries board. *Automotive Ind* 38:1230+ Je 20 '18

**Hand railing.** See **Railings**

**Handicapped, Occupations for.** See **Disabled, Occupations for; Soldiers, Disabled**

**Handicraft**

Experiment in internationalism;—exhibition of foreign handicraft at the galleries of the Art alliance. E. C. Gray. *il Color Tr J* 5:6-9 Ji '19

See also **Arts and crafts; Occupations**

**Handling, Mechanical.** See **Mechanical handling**

**Hands, Mechanical**

Mechanical hands and arms; illustrations. J. A. Lucas. *Am Mach* 50:546-7, 605, 650, 748, 792 Mr 20-27, Ap 3, 17-24 '19

**Hangars**

Airplane hangars, a new market for lumber. *il diags plan Am Lumberman* 2306:48-9 Ji 26 '19

Evolution of airship sheds. A. R. Fairbairn. *diags Am Arch* 116:345-6 S 10 '19

French airship sheds built of framed concrete. *diags Eng N* 83:702-3 O 9 '19

Hangar of canvas that is stronger than one of steel. *il Sci Am* 121:212 Ag 30 '19

Hangars that are inflated like a pneumatic tire. *Sci Am* 121:483 N 15 '19

Reinforced concrete hangars for the naval aviation center of Algiers. E. Carret. *diags Eng & Contr* 52:132-3 Ji 30 '19

Underground hangars of the German airmen. *il Sci Am* 118:403 My 4 '18

**Hanging devices**

From a small-shop notebook; drawings. J. A. Lucas. *Am Mach* 48:282-3, 480-1 F 14, Mr 21 '18

Hanger-clamp for I-beam. W. H. H. Plowman. *diag Power* 47:376 Mr 12 '18

**Hanlon field**

Organization and work of Hanlon field. J. H. Hildebrand. *J Ind & Eng Chem* 11:391-3 Ap '19

**Harbors**

Harbor improvements at San Francisco. C. W. Geiger. *Il plan Int Marine Eng* 24:31-6 Ja '19

Port and harbor facilities. *Sci Am* 120:68 Ja '19

Size of ships and Pacific harbors. C. E. Grunsky. *J Elec* 43:413-14 N 1 '19

World port for Shanghai planned by conservancy board. *Eng N* 81:935-6 N 21 '18

See also Breakwaters; Buoyos; Docks; Dredging; Dredging machinery; Free harbors; Freight handling; Piers; Ports; Terminals; Wharves

Harbors, Free. See Free harbors

**Hard woods**

Additions to hardwood rules recommended. *Am Lumberman* 2245:56 My 25 '18

Effect of catalyzers on the yield of products in the destructive distillation of hardwoods. R. C. Palmer. *J Ind & Eng Chem* 10:264-8 Ap '18

Establish one set of hardwood rules for all. *Am Lumberman* 2308:1 Ag 9 '19

Hard wood a substitute for brass. M. Meredith. *Mach* 24:618 Mr '18

Influence of moisture on the yield of products in the destructive distillation of hardwood. R. C. Palmer and H. Cloukey. *J Ind & Eng Chem* 10:262-4 Ap '18

Present status of hemlock and hardwoods. E. C. Strong. *Am Lumberman* 2283:46 F 15 '19

Proper seasoning of hardwoods. *Am Lumberman* 2236:31 Mr 23 '18

Relative resistance of various hardwoods to injection with creosote. C. H. Teesdale and J. D. MacLean. *biblog Il diag U S Agric Bul* 606:1-36 '18; Same, without appendix. *Ry R* 63:79-86 JI 20 '18

See also Oak; Walnut

Hardenbergh, Henry Janeway, 1847-1918

Sketch. R. F. Bach. *Arch Rec* 44:91-3 JI '18

**Hardening**

Hardening-machine; patent. *diag Chem & Met Eng* 20:647 Je 15 '19

Hardening the interior surface of small holes. S. B. Royal. *diag plan Mach* 25:1043 JI '19

Hardness and hardening. T. Turner. *Engineer* 124:254-6 S 21 '17; Same. *Automobile* 37: 677-80 O 18 '17; Same. *Sci Am* S 84:318-19 N 17 '17; Same. *Metal Ind* 16:460-4 O '18; Discussion. *Engineer* 124:252-3 S 21 '17

Quenching machine for hardening small drawing dies. *Il diag Am Mach* 49:1045-6 D 5 '18

See also Case hardening; Hardness; Steel, Hardening of

Hardening of steel. See Case hardening; Steel, Hardening of; Steel, Heat treatment of

**Hardinge mill**

Tests on the Hardinge conical mill. A. F. Taggart. *Il diag Am Inst Min E Bul* 124: 719-48 Ap '17; Discussion. 128:1195-1203; 130:1850-6; 133:119-24 Ag, O '17, Ja '18

**Hardness**

Abstract of papers presented before the Institution of mechanical engineers at its first monthly meeting in London. *Engineer* 126:354-5 O 25 '18

Comparison of grain-size measurements and Brinell hardness of cartridge brass. W. H. Bassett and C. H. Davis. *Il Am Inst Min E Bul* 145:57-78 Ja '19; Discussion. 148:692-9 Ap '19

Definition of hardness; abstract. W. C. Unwin. *Am Soc M E J* 40:pt 1, 585-6 JI '18

Device for testing hardness of materials commercially. J. G. Ayers, jr. *diag Mach* 25: 292 D '18

Formulas for the brass foundryman; comparative hardness of alloys. *Foundry* 47:744a O 15 '19

Hardness and hardening. T. Turner. *Engineer* 124:254-6 S 21 '17; Same. *Automobile* 37: 677-80 O 18 '17; Same. *Sci Am* S 84:318-19 N 17 '17; Same. *Metal Ind* 16:460-4 O '18; Discussion. *Engineer* 124:252-3 S 21 '17

Hardness; its nature and measurement; abstract. J. J. Guest. *diag Am Soc M E J* 41: 173-4 F '19

Hardness of bearing metals. *Foundry* 46:408a S '18

Hardness of soft iron and copper compared. F. C. Kelley. *diag Gen Elec R* 21:672-3 O '18; Same cond. *Mach* 25:921 Je '19

Hardness testing; and the relation between ball hardness and scleroscope hardness. A. F. Shore. *Engineer* 126:239 S 20 '18

Hardness tests for metals. *Sci Am* S 88:58-9 JI 26 '19

Hardness tests of gun-barrel steel. W. K. Shepard. *Am Mach* 50:739-42 Ap 17 '19

Improved Brinell machine. *Il Iron Tr R* 61: 500 S 6 '17; *Ind Management* 55:77-8 Ja '18

Improving the technique of hardness measurements. *diag Automotive Ind* 38:912 My 9 '18

Instruments for hardness tests. C. E. Clewell. *Il diag Am Mach* 50:93-6 Ja 16 '19

Instruments for hardness tests. P. P. Fenau. *diag Am Mach* 50:703-4 Ap 10 '19

Methods of testing for hardness. D. Harvey. *Il Elec J* 16:264-6 Je '19

New method of obtaining Brinell hardness; an impact substituted for a steady pressure to reduce the time required for applying the test. J. G. Ayers, jr. *diag Automotive Ind* 39:457-8 S 12 '18; Same. *Iron Age* 102:581-2 S 5 '18

New method of testing hardness. C. A. Edwards and F. W. Willis. *Engineer* 126:142 Ag 16 '18

Notes on testing hardness of metals. J. W. Craggs. *Sci Am* S 86:94-5 Ag 10 '18

Pittsburg attachment for measuring depth of Brinell impressions. *Il Am Mach* 48:598 Ap 4 '18

Resistance of metals to penetration under impact. C. A. Edwards. *Engineer* 126:314 O 11 '18; Discussion. *Engineer* 126:217 S 13 '18

Rockwell hardness tester. *Il Mach* 26:283-4 N '19

Sir Robert Hadfield prize for a new method of determining the hardness of metals. *Am Inst Min E Bul* 135:sup45-7 Mr '18; Excerpt. *Sci Am* S 85:359 Je 8 '18

Speeding up Brinell tests. *diag Iron Age* 101: 949 Ap 11 '18

Tensile strength and hardness of steel. H. M. Brayton. *charts Iron Age* 102:627-9 S 13 '18

Testing materials for hardness. H. Ensaw. *Am Mach* 50:257-8 F 6 '19

**Hardware**

East African markets for hardware and agricultural implements. H. P. Starrett. *U S Sp Cons Rep* 78:1-27 '17

Simplicity in architectural accessories; hardware. W. R. Hill. *Am Arch* 114:547-8 N 6 '18

Turkish markets for American hardware. G. B. Ravndal. *U S Sp Cons Rep* 77:1-48 '17

See also Bolts and nuts; Files and rasps; Knives; Locks; Nails; Saws; Screws; Tools

Hardware manufacturers' organization for war service

Hardware makers organize on war basis. *Iron Tr R* 62:173 Ja 10 '18

Manufacturers' organization formed. *Iron Age* 101:262-3 Ja 24 '18

Hardwood. See Hard woods

Hardwood lumber association, National. See National hardwood lumber association

Hardwood manufacturers' association, American. See American hardwood manufacturers' association

Hardwood manufacturers' association of the United States

16th annual convention, Cincinnati, Feb. 4-5. *Am Lumberman* 2230:44-7 F 9 '18

Harlem river, New York

Industrial influence of waterways. H. C. Plummer. *Il Ind Management* 57:353-8 My '19

**Harmonic motion machine**

Compound harmonic motion machine. W: F. Rigge. *Il diags Sci Am S 85:88-91, 108-10 F 9-16 '18*

**Harness**

Harness and saddlery sales to our territories. *Sci Am 119:154 Ag 24 '18*

**Harriman, Henry I.**

Residence of Henry I. Harriman, esq., Newton, Mass. P. M. Riley. *Il plans Arch Rec 45:483-9 Je '19*

**Harriman, J. W.**

Country house of J. W. Harriman, esq., Brookville, L.I. J: T. Boyd, jr. *Il plans Arch Rec 43:2-21 Ja '18*

**Harris, George B., 1848-1918**

Sketch. *por Ry Age 64:1437 Je 14 '18*

**Harrisburg, Pennsylvania****Water supply**

Crisis in the Harrisburg water department and its cause. *Eng N 80:316 F 14 '18*

**Harrison, John Burchmore**

Industrial and agricultural chemistry in British Guiana; with a review of his work. C. A. Browne, *por Il J Ind & Eng Chem 11:874-81 S '19*

**Harrison, Peter, 1716-1775**

Pioneer American architect. R: F. Bach. *Arch Rec 43:580-1 Je '18*

**Harrows**

Alfalfa harrow. *diag Am Lumberman 2234:43 Mr 9 '18*

**Hartford, Connecticut****Rapid transit**

Connecticut fare brief filed. *Elec Ry J 51:588 Mr 23 '18*

Connecticut six-cent fare is reasonable. *Elec Ry J 51:620-1 Mr 30 '18*

**Sewerage**

Sewer construction in tunnel. W: S. Brewer. *Il Eng & Contr 49:266-7 Mr 13 '18*

**Harvesting machinery**

Bean harvesting attachment for farm tractors. C: A. Byers. *Il Sci Am 120:607 Je 7 '19*

Use of machinery in cutting corn. H. R. Tolley. *Il U S Agric Farmers' Bul 992:1-16 '18*

**Hatch covers**

Improved hatch cover. *diags Marine R 49:394 Ag '19*

**Hats**

Making hats for our doughboys. *Il Sci Am S 86:360-1 D 7 '18*

**Haulage**

Average loads in team hauling on country highways. *Eng & Contr 50:479 N 20 '18*

Desert haulage problem solved by caterpillar tractors. *Eng & Min J 104:999 D 8 '17*

Hauling heavy girders through city streets—a protest. H. W. Alrich. *Eng N 81:1041-2 D 5 '18*

Heavy construction hauling practice modified by war conditions. G: H. Pride. *Eng N 81:405-6 Ag 29 '18*

How a forty-ton drum was moved up a mountain. R. W. Mayer. *Coal Age 13:230-1 F 2 '18*

Manless car operation in a stone quarry. *Il Elec Ry J 52:337-8 Ag 24 '18; Excerpt. Eng & Contr 50:276 S 18 '18*

Move equipment and material for dam through small tunnel. *Il Eng N 82:681-2 Ap 3 '19*

New approach to the Grand Central depot; hauling 75-ton girders through the streets of New York. *Il Sci Am 119:378+ N 9 '18; Eng N 81:824-5 O 31 '18*

Number of wagons required for hauling from steam shovels. *Eng & Contr 52:225 Ag 20 '19*

Shop haulage system of new design; developed by Mercury mfg. co., Chicago. *Il Iron Tr R 64:760-3 Mr 20 '19; Same. Foundry 47:176-9 Ap 1 '19*

Snatch cable aids teams on steep grade. *diag Eng N 82:1228 Je 19 '19*

Variety of equipment used to move supplies for drainage ditch construction. *Il Eng N 81:905-7 N 14 '18*

*See also* Conveying machinery; Electric trucks; Loading and unloading; Mine haulage; Motor trucks; Motor trucks in construction work; Motor trucks in freight service; Motor trucks in lumber handling; Tractors

**Cost**

Calculating performance of industrial tractors. A. Pace. *Elec W 74:795-7 O 11 '19*

Comparison of excavation haulage by motor trucks, industrial railways and teams. *diags plan Eng N 81:993-6 N 28 '18*

Cost of hauling with motor trucks. J. A. Broad. *Eng & Contr 51:345 Ap 2 '19*

Cutting haulage costs. *Il Factory 20:450+ Mr '18*

Effect of grades on cost of haulage. H. E. Breed. *Eng & Contr 49:577 Je 5 '18*

Haul gravel with caterpillar tractor in Minnesota. *Il Eng N 83:227 J1 31 '19*

Relative economy of freight transport by railway and by motor truck. C: W. Baker. *Eng N 83:52-67 J1 10 '19*

Table gives price of team haulage. E. B. Hiatt. *Eng N 81:1093 D 12 '18; Same. Eng & Contr 50:524 D 4 '18*

*See also* Motor trucks—Cost of operation; Refuse collection—Cost

Havana electric railway, light & power company Report for the year ended Dec. 31, 1917. *Elec Ry J 52:347 Ag 24 '18*

**Havasupai Indians**

Miniature from the past; dwellers in Arizona today who appear to be left-overs from the stone age. *Il Sci Am S 87:324-5 My 24 '19*

**Havre, France****Harbor**

Projects for the development of the port of Havre. *Il Eng & Contr 49:525-8 My 29 '18*

**Hawaiian Islands**

Results of volcano study in Hawaii. T. A. Jaggar. *Sci Am S 86:87 Ag 3 '18*

Thirteen-foot model of the world's most active volcano; reproduction of the Kilauea district in Hawaii on a scale of 1-1500. R. A. Daly. *Il Sci Am 118:132+ F 9 '18*

*See also* Honolulu, Hawaii

**Hawks**

Birds and the farmer. P. A. Taverner. *Il Sci Am S 87:212-18 Ap 5 '19*

**Hay**

Spontaneous combustion in hay. *Sci Am S 87:94 F 8 '19*

**Hayes, Frank J.**

President of the United mine workers of America. K. C. Adams. *por Coal Age 13:876-7 My 11 '18*

**Headache tablets**

Studies in synthetic drug analysis; estimation of monobromated camphor in migraine tablets. W. O. Emery. *J Ind & Eng Chem 11:756-7 Ag '19*

**Headframes**

Steel cantilevers hold headframe over mine shaft. *diag plan Eng N 80:1002-3 My 23 '18; Same. Eng & Min J 106:266-7 Ag 10 '18; Same. Coal Age 14:553 S 19 '18*

**Headgates. See Gates, Hydraulic**

Headlights, Automobile. *See Automobiles—Lighting*

Headlights, Locomotive. *See Locomotive headlights*

**Heads (tanks, etc.)**

Alignment charts for finding the dimensions and volumes of bumped heads. C. H. Berry. *diags Power 49:326-7 Je 17 '19*

**Health boards**

Administration in typhoid epidemics as carried out by Pennsylvania state health department. *Eng & Contr 49:44-5 Ja 9 '18*

*See also* Public health

Health insurance. *See Insurance, Health*

- Hearing**  
 Perception of sound. D. F. Harris. Sci Am S 87:173 Mr 15 '19  
 Physiological sensations produced by detonations. M. E. Esclangon. Sci Am S 88:11 JI 5 '19  
*See also* Deafness
- Heat**  
 Heat value and heat density. Metal Work 90: 714 D 27 '18  
 Table of B. t. u.'s per boiler horsepower at various efficiencies. C. H. Bromley. Power 48:46 JI 9 '18; Discussion. C. H. Berry. 48: 538-9 O 8 '18  
 Why and wherefore of sanitary engineering. A. Bateman. diags Dom Eng 84:353-5+; 85: 5-7+ S 7, O 5 '18  
*See also* Atomic heat; Boiling points; Calorimeters and calorimetry; Combustion; Dilution, Heat of; Evaporation; Expansion (heat); Flame propagation; Flames; Heating; Insulation (heat); Latent heat; Liquefaction of gases; Melting points; Pyrometers and pyrometry; Specific heat; Steam; Temperature; Thawing; Thermochemistry; Thermodynamics; Thermometers and thermometry; Waste heat
- Heat, Physiological effect of**  
 Heat in relation to the health of workmen. J. A. Watkins. Gas Age 42:104-7 Ag 1 '18; Excerpts. Iron Tr R 61:1387-8 D 27 '17; Excerpts. Eng & Min J 105:998-9 Je 1 '18
- Heat, Specific.** *See* Specific heat
- Heat balance**  
 Steam distribution in typical combing plant. G. H. Perkins. diag Textile World 56:107+ JI 5 '19  
 United States nitrates plant no. 2, Muscle Shoals, Ala.—station heat balance. E: R. Welles and H. C. Lockwood. Power 49: 802-5 My 27 '19
- Heat conductivity**  
 Apparatus for determining the thermal conductivity of metals. G. B. Wilkes. diag Chem & Met Eng 21:241-3 S 1 '19  
 Gas film theory in relation to heat conduction, and a large table of heat conductivities. H. P. Gillette. diag Eng & Contr 47:573-6 Je 27 '17; Abstract. Am Soc M E J 40:356-7 Ap '18  
 Method of increasing the evaporation in boilers. C. Hering. diags Power 47:10-13 Ja 1 '18; Same. Sci Am S 85:316-17 My 18 '18; Abstract. Am Soc M E J 40:203-4 F '18  
 New principle in the flow of heat. C. Hering. J Fr Inst 185:75-81 Ja '18; Same. Am Gas Eng J 108:82-3+ Ja 26 '18  
 Relation between electrical and thermal conductivities of metals; abstract. S. Weber. Elec W 72:169-70 JI 27 '18  
 Study of surface resistance with glass as the transmission medium. H. R. Hammond and C. W. Holmberg. diag Am Soc M E J 39: 849-52 O '17; Discussion. 40:144-6 F '18  
 Thermal and electric conductivity of carbon steels. Iron Age 101:614 Mr 7 '18  
*See also* Heat transmission
- Heat engines**  
 Future development of heat engines. Sci Am S 85:128 F 23 '18  
 High pressure steam. E. C. Bowden-Smith. Engineer 125:96 F 1 '18; Discussion. 125: 171, 193; 126:135, 166, 178, 217 F 22-Mr 1, Ag 16-30, S 13 '18  
*See also* Gas and oil engines; Steam engines
- Heat flow.** *See* Heat conductivity
- Heat measurement.** *See* Calorimeters and calorimetry; Pyrometers and pyrometry; Temperature—Measurement; Thermocouples; Thermometers and thermometry
- Heat of dilution.** *See* Dilution, Heat of
- Heat radiation**  
 Directions and data for reducing radiation losses. J. Harrington. Elec R 73:866 N 30 '18; Same. Power 48:814 D 3 '18  
 Easy method of figuring radiation. Dom Eng 86:391 Mr 1 '19  
 Figuring direct radiator heating surface. W. B. Gray. Metal Work 90:653-5+ D 13 '18  
 Figuring radiation and furnace pipe sizes. charts Metal Work 89:488-90 Ap 12 '18  
 Figuring radiation and how to install it in a railroad building. diags Dom Eng 89:69-70 O 11 '19  
 Flame radiation. Am Gas Eng J 109:296 S 23 '18  
 Heat radiation from colored surfaces. J. A. Harker. Elec R 74:193 F 1 '19  
 How to figure heating and radiation. Dom Eng 88:149+ JI 26 '19  
 Loss of heat by radiation; common brick versus Nonpareil insulating brick. S. L. Barnes. Metal Ind 16:42 Ja '18  
 Problems in calculating required radiation. Heat & Ven 15:53-5 Mr '18  
 Radiant heat and fire-box design; abstract. J. T. Anthony. Elec W 71:1146-7 Je 1 '18  
 Radiant heat and its possibilities. F. Champion. Gas Age 41:24-5 Ja 1 '18  
 Radiation error in measuring temperature of gases; abstracts. H: Kreisinger and J. F. Barkley. diag Am Soc M E J 39:418-20 My '17; Power 46:30 JI 3 '17; Iron Tr R 62:1249-51 My 16 '18; Discussion. Am Soc M E J 39: 598-600 JI '17  
 Standard rules for computing required radiation. Metal Work 91:790-2 Je 20 '19; Same. Dom Eng 88:5-7 JI 5 '19; Same. Heat & Ven 16:36-9 Je '19  
 Watch your radiation losses to help save coal. A. Bolam. diag Elec W 71:554-6 Mr 16 '18  
*See also* Radiators
- Heat regulators.** *See* Temperature—Regulation
- Heat stroke**  
 Rhode Island supreme court holds that heat stroke in a boiler room is an accident and not a disease. Gas Age 42:389-90 N 1 '18
- Heat transmission**  
 British institution of heating and ventilating engineers; report dealing with The transmission of heat through heavy building materials. II diags Heat & Ven 15:64-6 D '18  
 Comparative heat losses for concrete and clay hollow-tile blocks. Heat & Ven 16:55-6 Mr '19  
 Constants for heat transmission. Power 47: 858 Je 11 '18  
 Cost of heat losses from bare pipes. W. F. Schaphorst. Elec R 72:846-7 My 18 '18; Same. Gas Age 42:68 JI 15 '18  
 Determining the heat given off by engines and power piping. E. V. Hill and W. J. Mauer. II diag plan Heat & Ven 15:18-24 JI '18  
 Effect of velocity and humidity of air on heat transmission through glass. J. A. Mayer, J. P. Calderwood and M. P. Herman. Eng & Contr 49:322-3 Mr 27 '18  
 Efficiency in the use of oil fuel. J. M. Wadsworth. U S Bur Mines p 10-14 '18  
 Factors affecting heat absorption of boilers. R. June. II diags Elec R 75:270-3 Ag 16 '19  
 Figuring heat losses. Heat & Ven 15:60-1 Je '18  
 Heat loss and leakage loss factors. Heat & Ven 15:52-3 Mr '18  
 Heat transfer from air to pipes; abstract. C: H. Herter. diag Am Soc M E J 40:115-16 Ja '18  
 Heat transfer in tubes. W. Nusselt. Am Soc M E J 40:204-5 F '18  
 Heat transmission through roofing. W. M. Thornton. Iron Age 100:1526 D 27 '17  
 Heat transmission through various types of sash. II Am Arch 113:695-9, 775-9 My 22, Je 5 '18  
 Heat transmission through various types of sash; with discussion. A. N. Sheldon. Am Soc Heat & V E 23:219-24 '17  
 Losses of heat through engineering and building materials; abstract. R. B. Fehr. Am Soc M E J 40:pt 1, 596-7 JI '18  
 New heat transmission tables. W: R. Jones. Heat & Ven 15:36-41 O; 24-9 N; 36-40 D '18; 16:22-7 Ja '19

**Heat transmission—Continued**

Report of research on transmission of heat through heavy building materials. A. H. Barker and M. Kinoshita. *Eng & Contr* 51:442-3 Ap 30 '19

Study of the heat transmission of building materials. A. C. Willard and L. C. Lichty. *II diagrs III U Eng Exp Sta Bul* 102:1-56 '17; Excerpts. *Metal Work* 90:157-60 Ag 9 '18; Excerpts. *Dom Eng* 84:18 J1 6 '18; Abstract. *Am Arch* 113:735-6 My 29 '18

Test of the conductivity of window shades. J. R. Allen. *Am Arch* 115:561-2 Ap 16 '19

Transfer of heat between a flowing gas and a containing flue. L. H. Fry. *diagrs Am Soc M E J* 39:843-9 O '17; Abstracts. *Elec W* 70:773 O 20 '17; *Engineer* 125:447 My 24 '18; Discussion. *Am Soc M E J* 40:141-4 F '18

Value of insulation and losses in B.t.u.'s. W. N. Allman. *Ry Mech Eng* 93:123-30 Mr '19

What we do and don't know about heating. J. R. Allen. *Am Soc Heat & V E* 24:99-106 '18; Same. *Power* 47:338-9 F 12 '18; Same. *Metal Work* 89:325-7 Mr 8 '18; Same abr. *Dom Eng* 82:291-2+ F 23 '18; Excerpt. *Eng & Contr* 50:79-80 J1 24 '18; Discussion. *Am Soc Heat & V E* 24:106-12 '18

Where does the heat go? *diag Power* 47:805 Je 4 '18

*See also* Heat conductivity; Heat radiation; Insulation (heat); Radiators

**Heat treatment**

Complete and modern heat-treating plant. L. A. Danse. *II diagrs plan Am Mach* 51:149-60 J1 24 '19

Effect of heat treatment on bronze. F. F. Hausen and O. A. Knight. *II Iron Age* 103:347-9 F 6 '19

Fuller system of heat treatment. *Iron Age* 102:564 S 5 '18

Growth of gray cast iron by repeated heating. J. E. Hurst. *II Foundry* 46:227-9 My '18; Abstracts. *Mach* 24:435 Ja '18; *Iron Age* 101:587 F 23 '18; *Int Marine Eng* 23:116 Mr '18

Heat treatment in gun erosion. *Sci Am* 121:440 N 1 '19

Heat treatment of aeroplane parts. *II Engineer* 126:497 D 6 '18

Heat treatment of aluminum-alloy castings. Z. Jeffries and W. A. Gibson. *II Am Inst Min Bul* 153:sup2493-2512 S '19; Discussion. 156:3158-61 D '19

Heat treatment of duralumin. P. D. Merica, R. G. Waltenberg and H. Scott. *II diagrs Am Inst Min Bul* 150:913-49 Je '19; Abstract. *Chem & Met Eng* 21:552-4 O 29 '19; Summary. *J Fr Inst* 188:549-50 O '19; Same. *Mech Eng* 41:836-7 O '19; Same. *Metal Ind* 17:361 Ag '19; Same. *Automotive Ind* 41:677 O 2 '19; Discussion. *Am Inst Min Bul* 156:3184-6 D '19

Influence of heat treatment on gun metal. C. F. Smart. *II Am Inst Min Bul* 153:1875-81 S '19; Discussion. 155:3043-4; 156:3182-4 N-D '19

Lincoln motor co.'s heat treating plant. F. L. Prentiss. *II Iron Age* 103:107-11 Ja 9 '19

New features in heat treating plant. *II Iron Age* 103:1493-5 Je 5 '19

Prevention of season and corrosion cracks. W. B. Price. *II Am Mach* 49:848-50 N 7 '18

Relation of microstructure to phase changes in heat-treated aluminum bronzes. L. R. Seidell and G. J. Horvitz. *biblog II Chem & Met Eng* 21:179-81 Ag 15 '19

Results of heat-treating bronze castings. G. F. Comstock. *II Foundry* 47:189-94+ Ap 15 '19; Abstract. *Mech Eng* 41:643 Je '19

Some tests of light aluminum casting alloys; the effect of heat treatment; abstract. P. D. Merica and C. P. Karr. *J Fr Inst* 188:691-3 N '19

*See also* Steel, Heat treatment of

**Heat treatment of steel.** *See* Steel, Heat treatment of

**Heat unit**

Definition of frigories. *Heat & Ven* 15:57-8 N '18

**Heaters**

**Soldiers' tent heater.** *II Metal Work* 88:691 D 7 '17

*See also* Electric heaters; Feed water heaters; Gas heaters; Gas water heaters; Steam heaters

**Heaters, Electric.** *See* Electric heaters

**Heaters, Feed water.** *See* Feed water heaters

**Heaters, Gas.** *See* Gas heaters

**Heating**

Average and maximum heating demand.

M. W. Ehrlich. *Power* 47:332-3 Mr 5 '18

Better heating in residences. R. E. Dockham.

*diagrs Dom Eng* 84:429-30+ S 21 '18

Care of heating and ventilating equipment. H.

L. Alt. *Power* 48:383-4, 527-30, 662-4, 736-8,

801-3, 910-12; 49:156-9, 306-8, 675-9, 722-3 S

10, O 8, N 5, 19, D 3, 24 '18, F 4, Mr 4, My

6-13 '19

Circulating furnace system for lodge hall. *II*

*plans Metal Work* 89:595-6 My 10 '18

Combination heating. C. L. Hubbard. *diagrs*

*Dom Eng* 85:438-40, 476-7 D 21-23 '18

Comparison of warm-air and hot-water

heating. W. E. Pratt. *plans Metal Work*

91:825-7+; 92:37-9+ Je 27, J1 11 '19

Development in heating and ventilation during

the past five decades. W. Nygren. *Heat &*

*Ven* 15:14-18 Ag '18

Economical heating of cottages and small

houses. F. Grant. *diagrs plans Dom Eng* 85:

160-2 N 2 '18

Economical purchase and use of coal for heat-

ing homes, with special reference to condi-

tions in Illinois. *chart diagrs map III U Eng*

*Exp Sta Circ* 4:1-53 '17; Same cond. (Re-

quirements of economical heating systems).

*Metal Work* 88:292-4, 347-8, 469-71 S 7, 21,

O 19 '17; Abstract. *Heat & Ven* 14:34-40 O

'17; Excerpts. *Sci Am* S 85:39 Ja 19 '18

Economy in heating. K. Meier. *Am Soc Heat &*

*V E* 24:387-97 '18; Abstract. *Heat & Ven*

15:37-8 J1 '18; Discussion. *Am Soc Heat &*

*V E* 24:397-402 '18

Electric fans for fuel conservation; with agi-

tation of the air less heat is required. C.

Catlett. *Elec W* 71:255 F 2 '18

Engineering of warm-air furnace heating.

M. W. Ehrlich. *II diagrs Am Soc Heat &*

*V E* 24:121-36 '18; Same. *Metal Work* 89:

418-19+, 481-4 Mr 29, Ap 12 '18; Discussion.

*Am Soc Heat & V E* 24:137-42 '18

Equipping the farm for comfort and efficiency.

W. Hutton. *II diag plans Dom Eng* 88:432-5+

S 6 '19

Errors in engineering design and operation.

*diagrs Heat & Ven* 16:19-25 N '19

Expert's observations on fuel economy. A. J.

McNeill. *Metal Work* 89:321+ Mr 8 '18

Factors that must be considered in heating.

*Metal Work* 90:534-5 N 8 '18

Fan heating system installed without the

use of galvanized iron. F. B. Rowley and

J. R. Allen. *II diagrs plans Heat & Ven*

16:17-23 Ar '19

Five ways of saving fuel in heating houses.

H. Kreisinger. *diag U S Bur Mines Tech*

*Pa* 199:1-10 '18

Fresh air, sunlight and sanitation. *Am Arch*

113:595-6 My 15 '18

Fuel saving heating systems. A. G. King.

*plans Dom Eng* 83:412-14+, 492-4+; 85:320-

2 Je 15, 29, N 30 '18

Fuel saving in household heating. R. E. Dil-

lon. *diagrs Gen Elec R* 21:119-23 F '18

Furnace trade; remodeling and replacing

heating systems. *diagrs Metal Work* 90:

125-6 Ag 2 '18

Government publication on requirements and

standards for heating and ventilation. *Heat*

*& Ven* 16:17-21 Ja '19

Heater selected to warm model residence. *II*

*plans Metal Work* 90:330-2 S 20 '18

Heating and ventilating dormitory buildings.

C. L. Hubbard. *diagrs Dom Eng* 85:398-401+

D 14 '18

Heating and ventilating equipment; synopsis

of the mechanics of heating and ventilat-

ing. D. D. Kimball, J. I. Lytle and A. K.

Ohmes. *II Am Soc Heat & V E* 23:482-94

'17



**Heating—Continued**

- Heating and ventilating small audience halls. C: L. Hubbard. diags Dom Eng 84:156-9+ Ag 3 '18
- Heating and ventilation a national issue. W. Nygren. Dom Eng 87:47-9+ Ap 12 '19
- Heating and ventilation of engine houses. T. W. Reynolds. diags plans Ry Age 66:1245-8 My 23 '19
- Heating and ventilation of workshops. II diags Engineer 127:504-6, 599-602, 608 My 23, Je 20 '19
- Heating army camps and cantonments. B. Natkin. Dom Eng 83:5-6+ Ap 6 '18; Same cond. Power 47:454-5 Mr 26 '18; Same cond. Eng N 80:770 Ap 18 '18; Abstract. Heat & Ven 15:46-7 My '18
- Heating as an equalizer in central stations. M. A. Beurienne. Power 49:886 Je 10 '19
- Heating contractor can help consumer during coal crisis. C: Rosemont. Dom Eng 89:160-2 O 25 '19
- Heating, cooking and laundry equipment of the national army cantonments. A. C. Willard. diags plans W Soc E J 22:683-95 D '17; Same. Metal Work 89:571-4, 633-4 My 3, 17 '18
- Heating equipment for a great military camp; with details of the installation. at Camp Upton, Yaphank, L.I. plans diags Heat & Ven 14:18-28 D '17
- Heating greenhouses. C: L. Hubbard. diags Dom Eng 82:369-71+, 404-6+ Mr 9-16 '18
- Heating homes and beating Huns. H. E. Dart. Locomotive 32:98-104 O '18
- Heating plans as a valuable time-saving aid in completing heating installations. F: Grant. plans Dom Eng 87:280-2+ My 17 '19
- Heating radiator from range boiler. diag Metal Work 91:558-9, 589 My 2-9 '19
- Heating shop floors by circulation. diags Metal Work 90:662-3 D 18 '18
- House heating with kerosene. Heat & Ven 15:69 S '18
- Housing workmen and heating their homes. Metal Work 90:11-12 JI 5 '18
- How can this pipeless furnace be made to heat the house? diag plans Bldg Age 41:130-1 Ap '19; Same. Metal Work 91:344-5 Mr 14 '19
- How heating in bungalow illustrated in Nov. issue should have been installed. F. K. Chew. diag plans Bldg Age 41:46-7 F '19
- How to run household heaters. Factory 21:878+ N '18; Same. Metal Work 90:445-6 O 18 '18
- How 20 percent of the cost of heating buildings can be saved. Eng & Contr 49:323-4 Mr 27 '18
- Improperly installed heating system. diags Dom Eng 85:200-2+, 242-3 N 9-16 '18
- Improving efficiency of heating system. diags Metal Work 90:279-80 S 6 '18
- Industrial housing and heating problems. Metal Work 92:136-7 Ag 1 '19
- Installing pipeless furnaces for service. Metal Work 88:689-90 D 7 '17
- Meeting the high cost of heating and ventilating apparatus. chart diags plans Heat & Ven 15:15-21 Mr '18; Discussion. G: T. Mott. 15:18-24 Ag '18
- Modified systems of heating. F: Grant. Dom Eng 88:589-90; 89:113-15 S 27, O 18 '19
- Most common faults in heating system. E. Stern. Metal Work 90:558 N 15 '18
- My lesson of the pipeless furnace. J: Troland. Metal Work 90:12 JI 5 '18
- Novel arrangement for heating and cooling an auditorium. II diags Heat & Ven 16:23-7 O '19
- One-pipe heaters. Am Arch 113:222 F 20 '18
- Operating the heater in zero weather. G: H. Cushing. Metal Work 91:245 F 21 '19
- Proper temperatures for various rooms. Heat & Ven 16:68 Ja '19
- Provision to heat bungalow neglected. II plans Metal Work 90:610-11 N 29 '18
- Radiant heat. J. P. Conroy. Am Gas Eng J 108:28-30 Ja 12 '18
- Reasons for failures of heating systems. J. D. Hoffman. Am Soc Heat & V E 24:367-76 '18; Same. Metal Work 90:30-4 JI 12 '18; Same cond. Heat & Ven 15:18-18 JI '18; Discussion. Am Soc Heat & V E 24:376-8 '18
- Reducing fuel wastes. C: L. Hubbard. diags Dom Eng 85:200-2+, 242-3 N 9-16 '18
- Report of warm-air furnace committee of the National association of sheet metal contractors. E. B. Langenberg. Metal Work 90:96-8 JI 26 '18
- Requirements and standards for heating and ventilation. W. Nygren and R. Hering. Dom Eng 86:219-21 F 1 '19
- Standard heating and ventilating symbols. Heat & Ven 15:65 Mr '18
- Temperature control in modern heating systems. C: L. Hubbard. II diags Dom Eng 84:40-2, 78-81 JI 13-20 '18
- Utilization of waste heat of tunnels; test made at Chicago state hospital. F. J. Postel. II diags plans Heat & Ven 16:26-31 My '19
- Vento heater connections for various types of systems. diags Heat & Ven 16:41-2 O '19
- Warm air furnace heating. I. F. Grumbeln. Am Soc Heat & V E 23:665-70 '17
- Warm air furnace heating. J. M. McHenry. Am Soc Heat & V E 23:81-6 '17
- Warm-air furnace heating plant design. Metal Work 89:445-8 Ap 5 '18
- Warm air heating for fifty suburban homes at Sharon, Pa. II plans Metal Work 88:709-11 D 15 '17
- Warm air heating solved this problem. II Metal Work 92:359-61 S 26 '19
- What coal economies can be effected in residence heating; symposium. diag Am Soc M E J 40:pt 2, 644-9 JI '18
- What we do and don't know about heating. J: R. Allen. Am Soc Heat & V E 24:99-105 '18; Same. Power 47:238-9 F 12 '18; Same. Metal Work 89:325-7 Mr 8 '18; Same abr. Dom Eng 82:291-2+ F 23 '18; Excerpt. Eng & Contr 50:79-80 JI 24 '18; Discussion. Am Soc Heat & V E 24:106-12 '18
- See also* Boilers, Heating; Car heating; Chimneys; Churches—Heating and ventilation; Electric heating; Factories—Heating and ventilation; Fireplaces; Fuel; Furnaces, Hot air; Garages—Heating and ventilation; Gas heating; Heaters; Heating apparatus; Heating contracts; Heating from central stations; Heating pipes; Hot water heating; Hotels—Heating and ventilation; Insulation (heat); Office buildings—Heating and ventilation; Pavilions—Heating and ventilation; Radiators; Schoolhouses—Heating and ventilation; Ships—Heating; Steam heating; Stoves; Theaters—Heating and ventilation; Ventilation
- Bibliography**
- Structural service department; heating and ventilating and mechanical equipment in general. Am Inst Arch J 5:522-9 O '17; Same cond. Heat & Ven 15:36-44 Ja '18
- Cost**
- Coal and electricity compared for the heating of homes. Heat & Ven 16:24-8 Ag '19
- Estimates**
- Estimating furnace work. G: Harms. Metal Work 89:517-18 Ap 19 '18
- Laws and regulations**
- Another Michigan bill on furnace heating. Metal Work 91:398 Mr 23 '19
- Furnace law as enacted in Michigan. Metal Work 91:613-14 My 16 '19
- Michigan bill to regulate furnace heating. P. J. Dougherty. Metal Work 91:578-9 My 9 '19
- Proposed Michigan furnace law; comments. Metal Work 91:487 Ap 18 '19
- Proposed Michigan law on furnace heating. Metal Work 91:372-4 Mr 21 '19
- See also* Fixtures; Mechanics' liens
- Research**
- See* American society of heating and ventilating engineers—Research bureau

**Heating—Continued****Tables, calculations, etc.**

- Air heating table. Power 48:616 O 22 '18  
 Design of the warm-air furnace. J: R. Allen. Metal Work 91:784-6+ Je 20 '19  
 Designing hot air heating systems. D: H. Cuyler. diags Metal Work 91:757-9+ Je 13 '19  
 Engineering economics of heating. M. W. Ehrlich. Heat & Ven 16:17-23 F '19  
 Equivalent hot blast temperatures for other temperatures than zero. Heat & Ven 15:65 O '18  
 Equivalent inside temperature for direct radiation. Heat & Ven 15:65 N '18  
 Equivalent temperature of guaranteed steam and hot water heat. H: N. Dix. Am Arch 115:358-60 Mr 5 '19; Same (Tests for heating plants in mild weather). Metal Work 91:365-7 Mr 21 '19  
 Estimating required radiation. F: Grant. plans Dom Eng 87:5-8 Ap 5 '19  
 Figuring direct radiator heating surface. W. B. Gray. Metal Work 90:653-5+ D 13 '18  
 Forecasting heating loads. W: B. Campbell. Heat & Ven 16:19-22 O '19  
 Fuel requirements for factories. C: L. Hubbard. Ind Management 57:125-6 F '19  
 Heat losses for ventilated rooms and in hot blast heating. Heat & Ven 15:69-70 D '18  
 Indirect heating problem. Heat & Ven 16:56 Je '19  
 New heat transmission tables. W: R. Jones. Heat & Ven 15:36-41 O; 24-9 N; 36-40 D '18; 16:22-7 Ja '19  
 Notes on figuring radiation. J. D. Hoffman. Heat & Ven 16:23-6 My '19  
 Radiation required to offset heat losses. F: Grant. Dom Eng 86:513-15+ Mr 22 '19  
 Right and wrong size boiler connections. D: H. Cuyler. diags Metal Work 91:584-5 My 9 '19  
 Standard rule for figuring radiation. H. R. Wetherell. Heat & Ven 15:62-3 S '18  
 Standard rules for computing required radiation. Metal Work 91:790-2 Je 20 '19; Same. Dom Eng 88:5-7 JI 5 '19; Same. Heat & Ven 16:36-9 Je '19  
 Temperatures and their duration during the heating season. R. P. Bolton. Am Soc M E J 40:689-91 Ag '18  
 Three-store heating problem. plans Heat & Ven 15:55-7 My '18  
 To determine heating requirements. M. W. Ehrlich. diag Power 47:223-5 F 12 '18  
 What is temperature of room X? C: A. Fuller. Metal Work 90:306 S 13 '18  
*See also* Air pipes; Heat transmission; Heating pipes; Steam flow
- Heating, Electric.** *See* Electric heating
- Heating, Hot water.** *See* Hot water heating
- Heating, Industrial**  
 Oil heating system for industrial processes. plan Met & Chem Eng 17:717 D 15 '17  
 Practical oil circulating system for indirect heating. II Chem & Met Eng 19:733-5 N 15 '18  
*See also* Electric heating, Industrial
- Heating, Steam.** *See* Steam heating
- Heating and piping contractors' national association** (formerly National association of master steam and hot water fitters)  
 How the Chicago master steam fitters came to join the national organization. Heat & Ven 15:60-1 S '18  
 29th annual convention, Chicago, June 3-5. Metal Work 89:794-7 Je 14 '18; Dom Eng 83:384-91 Je 8 '18; Heat & Ven 15:43-8 JI '18  
 30th annual meeting, Atlantic City, June 12-14. Dom Eng 87:597-609+ Je 28 '19; Heat & Ven 16:54-7 JI '19; Metal Work 91:803-6 Je 20 '19
- Heating and ventilating engineers, American society of.** *See* American society of heating and ventilating engineers
- Heating apparatus**  
 Baetz portable blower heating system. II Heat & Ven 15:65-6 Ja '18

Heating and ventilating equipment as realty fixtures. A. L. H. Street. Heat & Ven 15:25-8 Ag '18

Heating and ventilating plants and mechanicals' lens. A. L. H. Street. Heat & Ven 16:19-23 My; 32-5 Je '19

*See also* Boilers, Heating; Furnaces; Heaters; Heating; Heating industry; Heating pipes; Radiators

**Testing**

Equivalent temperature of guaranteed steam and hot water heat. H: N. Dix. Am Arch 115:358-60 Mr 5 '19; Same (Tests for heating plants in mild weather). Metal Work 91:365-7 Mr 21 '19

**Heating boilers.** *See* Boilers, Heating

**Heating contracts**

Contest for possession of tools and equipment. Heat & Ven 15:60 S '18

Form of agreement between owner or architect, and contractor approved and adopted by Central supply association. Dom Eng 89:176 O 25 '19

Guaranty of sufficiency of heating system installed from engineer's plans should be clearly stated. Dom Eng 87:331-2+ My 24 '19

Legal questionnaire. Dom Eng 82:141-71+ Ja 26-F 2 '18

**Heating from central stations**

Abatement of corrosion in central heating systems. F. N. Speller. diags U S Bur Mines Tech Pa 236:1-11 '19

Central heating plant of the Colorado state college. II diags Power 49:346-8 Mr 11 '19

Central station heating. Metal Work 90:605-6+ N 29 '18

Central station heating. J: C. White. U S Bur Mines Tech Pa 191:1-20 '18; Excerpts. Eng & Contr 51:265-7 Mr 13 '19; Excerpts. Heat & Ven 16:33-7 Mr; 35-8 My '19; Excerpts. Power 49:418-19 Mr 18 '19

Central-station heating in Detroit. J. H. Walker. II diags Mech Eng 41:497-503 Je '19; Excerpts. Power 49:952-5 Je 17 '19; Excerpts. Heat & Ven 16:23-31 Ag '19

Central-station heating in Detroit. Mich. J. H. Walker. II diags plans Power 47:646-52 My 7 '18

Central station town heating proposed for England. A. E. A. Edwards. Heat & Ven 15:52-3 Ag '18

Centralization of heating, lighting and refrigeration for groups of dwelling houses and apartments. C: L. Hubbard. diags Dom Eng 87:422-4 Je 7 '19

Community heating of dwellings. Munic J 46:249-52 Ap 5 '19

Contents and arrangement of proposed central station heating handbook. Heat & Ven 16:35-6 Ag '19

District steam heating as related to fuel conservation. H. S. Markey. Mech Eng 41:268 Mr '19

Fuel saving and other advantages of heating a group of related buildings from a single boiler plant. H. E. Dart. plan Locomotive 32:76-83 JI '18

Getting the heat to the consumer. H. E. Long. Heat & Ven 16:23-5 JI '19

Inside data on central station heating. W. H. Frehsee. diags Heat & Ven 15:19-27 Je '18

New York steam company's rates reviewed by Public service commission. Heat & Ven 15:56 Ja '18

Outlook in the central station heating industry. G: W. Martin. Heat & Ven 15:45-6 Je '18

Pressure and temperature control in an office building supplied with steam from a central station. diag Heat & Ven 15:63-5 Je '18

Problems in underground pipe construction. II diag plans Heat & Ven 15:31-6 Je '18

Providing heat and power for the modern office building. O. E. Goldman. J Elec 42:583-5 Je 15 '19

Public steam and electrical systems; analysis of the building heating situation in large cities. J. A. M'Hollan. Elec W 71:513-15 Mr 9 '18

**Heating from central stations—Continued**

- Real help for the heating contractor. *diags plans Metal Work 90:636-8 D 6 '18*  
 Standards of central station hot water heating service. *Heat & Ven 15:31-6 O '18*  
 Steam heating in Salt Lake City, Utah. *H. M. Ferguson. Heat & Ven 15:38-9 Mr '18*  
 Transmission of steam in a central heating system. *J. H. Walker. 11 chart diags maps Am Soc Heat & V E 23:161-72 '17*  
 Transmission of steam in a district heating system by means of high-velocity feeders. *N. W. Calvert. diag map Heat & Ven 16:32-5 Ag '19*  
 Use of cast-iron returns in district heating work. *11 Heat & Ven 15:43 Je '18*

**Accounting**

- Division of values between electrical and heating departments. *J. D. Hoffman. Heat & Ven 16:38-9 My '19*

**Rates**

- Determination of meter rates for heating service. *W. J. Kline. Heat & Ven 16:31-5 My '19*  
 Items to be considered in fixing a heating rate. *J. D. Hoffman. Heat & Ven 16:39 My '19*

**Heating Industry**

- Annual convention of master steam fitters prepares for readjustment period. *Heat & Ven 16:64-7 J1 '19*  
 Cost-keeping system for plumbing and heating contractors. *W. G. Astle. 11 Dom Eng 81:448-51 D 15 '17*  
 Creating heating business is your job now. *Metal Work 89:733-5 Je 7 '18*  
 Exhibit of plumbing and heating goods at St Louis convention. *11 Dom Eng 83:378-83, 426-8 Je 8-15 '18*  
 Furnacemen must insist on doing better work. *Metal Work 89:673-5 My 24 '18*  
 How I make money selling garage heating apparatus. *F. K. Mitchell. Dom Eng 89:65-6 O 11 '19*  
 How the heating trade can do its bit by launching an educational campaign for fuel saving. *M. W. Ehrlich. Metal Work 90:241-3 Ag 30 '18*  
 How to increase your heating business. *Dom Eng 83:452-4 Je 22 '18*  
 Making service a business-pulling power. *J. S. Vogel. Dom Eng 84:325 Ag 31 '18*  
 More money from heating jobs. *Dom Eng 83:322-6 Je 1 '18*  
 Now is the time to sell heat regulators. *A. Henry. 11 Dom Eng 89:366-7+ N 22 '19*  
 War industries board answers questions of vital interest. *A. Wheeler. Dom Eng 84:207-8 Ag 10 '18*

*See also Furnace industry; Heating apparatus; Heating from central stations; also American society of heating and ventilating engineers; Heating and piping contractors' national association; National district heating association; National warm air heating and ventilating association*

**Advertising**

- Explosion of an advertising campaign bubble. *E. A. Munro. Metal Work 90:307-9 S 13 '18*  
 Heating ads. wanted. *Dom Eng 89:128-9 O 18 '19*  
 Newspaper advertising for the plumber and steamfitter. *I. Spear. Dom Eng 83:48-9 Ap 13 '18*  
 Putting across the bigger business idea in newspaper advertising. *Dom Eng 84:48+ J1 13 '18*  
 Sales ideas for your fall campaign. *Metal Work 90:493-4 N 1 '18*  
 Sending Uncle Sam after trade needed now. *Metal Work 90:297-300 S 13 '18*

**Heating pipes**

- Efficiency of underground conduit. *G. B. Nichols. diags plans Am Soc Heat & V E 23:173-84; Discussion. 185-92 '17*  
 Figuring pipe sizes for steam, water and air. *diags plans Heat & Ven 15:54-7 Ag '18*  
 Homemade anchors for underground heating mains. *W. B. Gray. diags Metal Work 90:573-5 N 22 '18*

How is trunk line size figured? *diags Metal Work 91:94-5 Ja 17 '19*

Meeting the high cost of heating and ventilating apparatus. *chart diags plans Heat & Ven 15:15-21 Mr '18; Discussion. G. T. Mott. 15:18-24 Ag '18*

Pattern for double offset wall stack boot. *diags plan Metal Work 92:288-9 S 5 '19*

Pipe stoppages in new heating systems. *Power 48:488-9 O 1 '18*

Piping direct radiator heating plants. *Metal Work 89:413-15 Mr 29 '18*

Pitting of steel piping. *11 Power 46:824 D 18 '17; Discussion. N. Bowland. 47:301-2 F 26 '18*

Proper methods of making run-out connections. *diags Heat & Ven 16:47-8 N '19*

*See also Furnaces, Hot air—Pipes and fittings; Hot water heating; Steam heating; Steam pipes*

**Repair**

Repairing feed pipe without shutting down steam plant. *W. H. Wakeman. diags Dom Eng 88:591-2 S 27 '19*

Heating rates. *See Heating from central stations—Rates*

**Heaviside, Oliver**

America's belated recognition of Oliver Heaviside. *Elec W 71:913 My 4 '18*  
 Made A. I. E. E. honorary member. *Elec W 71:943 My 4 '18*

Hellianthine. *See Methyl orange*

Helical gearing. *See Gearing, Spiral*

Helical springs. *See Springs (mechanism)*

Helicopter. *See Flying machines*

**Heliograph**

New heliograph. *J. Dupaigne. 11 diag Sci Am S 84:412 D 29 '17*  
 Use of the heliograph. *M. R. Tillotson. Sci Am S 86:141 Ag 31 '18*

**Helium**

Commercial helium. *Engineer 127:279-80 Mr 21 '19*

Commercial production of helium. *F. G. Cottrell. 11 diags Chem & Met Eng 20:104-14 F 1 '19; Excerpt. J Ind & Eng Chem 11:148-53 F '19; Abstract. Am Soc M E J 41:155-8+ F '19*

Effect of electric field on spectrum of helium; abstract. *T. Takamine and U. Yoshida. Elec W 72:170 J1 27 '18*

Final solution of the airship problem. *L. d'Orcy. Sci Am 120:73+ Ja 25 '19*

Future of the helium airship. *L. d'Orcy. 11 Aviation 5:696-7 Ja 1 '19*

Helium. *Gas Age 44:155 Ag 15 '19*

Helium, new natural gas by-product in demand. *B. B. Baker. 11 Gas Age 43:456+ Ap 15 '19*

Helium or hydrogen. *Sci Am 121:104 Ag 2 '19*

History of the development of helium. *Automotive Ind 41:578-9 S 18 '19*

Inauguration of safe aerial transportation. *H. F. Blanchard. 11 Automotive Ind 40:845-9 Ap 17 '19*

Petroleum investigations and production of helium. *V. H. Manning. U S Bur Mines Bul 178C:75-87 '19*

Preparation of helium. *diag Sci Am S 86:173 S 14 '18*

Production of helium for use in airships. *A. Stewart. Aviation 7:32-5 Ag 1 '19*

Production of helium on a commercial scale. *G. O. Squier. Am Inst E E Pro 38:75 F '19; Same. Elec R 74:131 Ja 25 '19; Same abr. Eng & Min J 107:273 F 8 '19*

Wave lengths of the stronger lines in the helium spectrum. *P. W. Merrill. U S Bur Stand Bul 14:159-66 Ap 6 '18*

**Bibliography**

Bibliography of helium literature. *E. R. Weaver. J Ind & Eng Chem 11:682-8 J1 '19*

Bibliography of scientific literature relating to helium. *U S Bur Stand Circ 81:1-21 '19*

Hell Gate bridge. *See New York (city)—Bridges*

**Hell Gate channel**

Industrial influence of waterways. H. C. Plummer. *Il Ind Management* 57:353-8 My '19

**Helmets**

Alloy steels for helmets and armor. J. A. Coyle. *diag Chem & Met Eng* 20:618-20 Je 15 '19

Ancient defensive armor in modern warfare; the shield, the cuirass and the helmet revived. N. Flamel. *Il diags Sci Am S* 85:180-2 Mr 23 '18

Ancient helmet making. H. H. Manchester. *Il Am Mach* 49:503-7 S 19 '18

Coincidence or copy in tin hat? Iron Tr R 65:695-6 S 11 '19

Helmets from an alloy which contains aluminum. *Am Mach* 48:716 Ap 25 '18

Helmets will be ordered; tentative specifications issued. Iron Tr R 63:274 Ag 1 '18

Our most fashionable hat for 1918. *Il Sci Am* 118:84+ Ja 26 '18

Punching test to indicate strength of steel trench helmets. H. A. Thomas. *diag Eng N* 80:385 F 21 '18

**Hematite**

Some of the relations of magnetite and hematite. T. M. Broderick. *Il diags Econ Geol* 14:353-66 Ag '19

**Hemlock**

Present status of hemlock and hardwoods. E. C. Strong. *Am Lumberman* 2283:46 F 15 '19

Hemlock and hardwood association, Northern. See Northern hemlock and hardwood association

**Hemorrhage**

Loss of blood treated by the serum method. *Sci Am* 119:39+ Jl 13 '18

**Hemp**

Carbone method for retting textile plants. *Sci Am S* 86:147 S 7 '18

Fabrics from nettle and hemp. *Il Textile World* 55:1441+ Mr 1 '19

See also Fibers; Jute; Rope; Sisal hemp

Hen houses. See Poultry houses

Henderson bill. See War minerals bill

Henequen. See Sisal hemp

**Heredity**

Collocation of plasmas within the cell. L. LeGrand. *diags Sci Am S* 85:60-4, 76-7 Ja 26-F 2 '18

Heredity, environment, and civilization; factors controlling human behavior as illustrated by the natives of the southwestern United States. A. L. Kroeber. *Sci Am S* 86:210-12 O 5 '18

See also Hybridization; Natural selection; Plant breeding; Variation (biology)

**Hering, Henry**

Henry Hering's sculpture for the Field museum of natural history in Chicago. C. O. Cornelius. *Il Arch Rec* 44:430-49 N '18

**Hering, Rudolph**

Looking back half a century. C. W. Baker. *por Eng N* 81:274-6 Ag 8 '18

Hetch Hetchy project. See San Francisco, California—Water supply

**Hexamethylenetetramine**

Studies in synthetic drug analysis—evaluation of hexamethylenetetramine tablets. W. O. Emery and C. D. Wright. *J Ind & Eng Chem* 10:606-8 Ag '18

**Hexanitro-diphenylamine**

Preparation of hexanitro-diphenylamine from chlorobenzene. E. J. Hoffman and P. A. Dame. *Am Chem Soc J* 41:1013-20 Je '19

Heye foundation. See Museum of the American Indian

**Hides and skins**

Country hides and skins. C. V. Whalin and others. *Il diags U S Agric Farmers' Bul* 1055:1-64 '19

See also Leather; Tanning

**High buildings**

Shadows cast by skyscrapers. *Am Arch* 114:728-9 D 18 '18

Skyscraper and building heights in the United States. R. Fleming. *Il W Soc E J* 23:432-9 Je '18; *Excerpt. Eng & Contr* 51:315-16 Mr 28 '19

See also Office buildings; Steel construction; also New York (city)—Architecture

**High schools**

Electric motor drive in the Schenley high school in Pittsburgh. D. H. Colcord. *Il Elec R* 74:331-4 Mr 1 '19

High school building, Girard college, Philadelphia, Pa. *Am Arch* 113:pl 142-6 Ap 24 '18

High school building, Park boulevard, Camden, N.J. *Am Arch* 114:12, pl 1-5 Jl 3 '18

High school, Cordova, Tenn.; views. *Am Arch* 114:pl 53-4 Ag 14 '18

High school, Lucy, Tenn.; view and plan. *Am Arch* 115:pl 16-17 Ja 8 '19

High school, Maynard, Mass. *Am Arch* 113:pl 102-3 Mr 20 '18

Merced union high school, Merced, Cal. *Am Arch* 113:92, pl 47-8 Ja 23 '18

Port Chester high school, Port Chester, N.Y.; views and plans. *Arch Forum* 31:pl 65-7 N '19

Standardization of schoolhouse planning and construction. E. I. Cooper. *charts Am Arch* 114:241-5 Ag 21 '18

High speed steel. See Tool steel

High temperature. See Temperature, High

**Highway accounting**

Classification of expenditures for highway cost accounting. *Good Roads n s* 16:178-9 N 9 '18

Cost keeping and construction accounting. G. E. Ross. *Eng & Contr* 49:197-200 F 20 '18

Cost keeping for highway contractors. H. P. Gillette. *Eng & Contr* 51:234-5 Mr 5 '19; Same. *Munic J* 46:236-8 Mr 29 '19; Same. *Good Roads n s* 17:169-71 Ap 19 '19

Cost keeping system for county highway work. H. A. Sewell. *Eng & Contr* 50:145-7 Ag 7 '18

Highway cost keeping. J. J. Tobin and A. R. Losh. *U S Agric Bul* 660:1-52 '18

Maintenance accounting in Washington. *Good Roads n s* 15:197-200 Ap 13 '18

Maintenance costs of primary highways in Washington for two-years period. G. F. Cotterill. *Munic Eng* 57:51-6 Ag '19

System without red tape makes success of day-labor road maintenance. *Eng N* 82:384-6 F 20 '19

Uniform maintenance cost-records for roads adopted in Washington. G. F. Cottrell. *Eng N* 80:660-2 Ap 4 '18

Uniform road accounting. E. N. Hines. *Good Roads n s* 15:164-6 Mr 23 '18; Same. *Eng N* 80:718-20 Ap 11 '18

**Highway administration**

All 1919 street and highway improvement projects must be presented for approval by December 10, 1918. M. B. Greenough. *Munic Eng* 55:163-4 N '18

Correlation of highway and waterway transport. P. G. Ten Eyck. *Good Roads n s* 17:124-5 Mr 15 '19

Daily code letter shows status of all highway work. J. Montgomery. *Eng N* 82:1060-1 My 29 '19

Duties of the county highway engineer-manager. E. E. Sours. *Eng & Contr* 52:273-4 S 3 '19; *Excerpts. Munic Eng* 56:101-2 Mr '19

Features of highway work in Kansas. M. W. Watson. *Il Munic Eng* 56:86-8 Mr '19

Force account work by New York state highway department. *Eng & Contr* 51:611 Je 4 '19; Same. *Good Roads n s* 17:273-4 Je 28 '19; Same. *Munic Eng* 56:206 Je '19

Highway construction in New Jersey to meet future traffic conditions. W. G. Thompson. *Eng & Contr* 51:598 Je 4 '19; Same. *Good Roads n s* 17:252-3 Je 14 '19; Same. *Munic Eng* 56:208-10 Je '19

Highway department organized in Texas to spend \$9,000,000. *charts map Eng N* 79:1068-9 D 6 '17

**Highway administration—Continued**

- Highway problems considered. H. E. Breed. Eng N 80:610-14 Mr 28 '18
- Highway work in Ontario. Il Good Roads n s 16:185-6+ N 16 '18
- Highways transport committee for New York. Good Roads n s 18:77-80 Ag 6 '19
- Interrelationship of highways, railways and waterways. G. H. Pride. Good Roads n s 17:127-8 Mr 22 '19; Same abr. Eng & Contr 51:353 Mr 5 '19
- Keep the commercial highways open; an appeal to county authorities in Colorado. T. J. Ehrhart. Il Good Roads n s 18:147-8 O 19 '18
- Large committee will promote Federal highway commission and system. Eng N 82:303-4 F 6 '19
- Laying out, marking and maintaining a state trunk highway system. P. D. Sargent. Eng N 81:1189-90 D 26 '18
- Methods of maintaining highway systems prior to construction by state or county. F. E. Everett. Good Roads n s 17:137-8 Mr 29 '19
- Pavement guarantees. Munic J 46:355-6 My 17 '19
- Principles controlling the layout, marking and maintenance of trunk highway systems. A. R. Hirst. map Eng N 81:1065-8, 1128-34 D 12-19 '18; Same. Good Roads n s 17:13-15, 41-2, 49-52 Ja 11, F 1-8 '19; Excerpts. Eng & Contr 51:138-9, 148-9 F 5 '19
- Relation of highways to motor transport efficiency. A. H. Blanchard. Good Roads n s 16:231-2 D 14 '18; Same. Eng & Contr 50:523-4 D 4 '18
- Relation of street systems to highways outside of urban district. N. P. Lewis. Eng & Contr 51:249 Mr 5 '19; Same. Good Roads n s 17:99-100 Mr 1 '19; Excerpts. Eng N 82:465-6 Mr 6 '19
- Selecting road men in North Carolina. D. H. Winslow. Munic Eng 54:107 Mr '18
- State highway system for Delaware. C. M. Upham. Il Good Roads n s 15:39-40+ Ja 26 '18
- State highway work in Louisiana. D. Bule. Il chart Good Roads n s 15:319-21+ Je 29 '18
- State highway work in 1919. Good Roads n s 17:4-6 Ja 4 '19
- Twenty-five state highway engineers report their plans for 1919. Munic Eng 56:46-51 F '19
- Wanted: a federal highway commission. F. M. Loomis. Motor Age 34:20-2 D 19 '18
- War work of the state highway departments. G. P. Coleman. Good Roads n s 14:808+ D 15 '17
- Weekly report for resident engineers on state aid road work. C. M. Hathaway. Eng & Contr 50:235 S 4 '18
- Why Secretary Houston opposes a Federal highway commission at this time. Automotive Ind 40:1139-41 My 23 '19; Same. Eng & Contr 51:608-4 Je 4 '19; Same abr. Good Roads n s 17:222+ My 24 '19
- Work of the Highway Industries association and necessity for closer co-operation between federal, state and county road authorities. H. G. Shirley. Munic Eng 55:94-6 S '18
- See also Highway accounting; Highway inspection; Highway law; Roads—Finance; Roads—Maintenance and repair*
- Highway bonds.** *See Roads—Finance*
- Highway commission.** *See Highway administration*
- Highway contracts.** *See Roads—Contracts*
- Highway council.** *See United States—Highways council*
- Highway engineering**
- Engineer in road work. R. Wiley. Good Roads n s 16:197-8+ N 23 '18; Same. Munic Eng 55:200-1 D '18; Same cond. Eng & Contr 50:535-6 D 4 '18
- Ethics of highway engineering. W. C. Riddick. Good Roads n s 15:177-8+ Mr 30 '18
- Highway engineering; relation between highway and railway engineering. W. G. Thompson. Il Good Roads n s 18:161-2 O 1 '19

- Instructions of Arizona state highway department for guidance of its engineers. Eng & Contr 52:271-3 S 3 '19
- Laboratory control a cheap insurance for success of road construction. H. E. Breed. Eng & Contr 49:432 My 1 '18
- Mechanical plant largely used in Pennsylvania road maintenance. G. H. Biles. Eng N 79:1101-2 D 13 '17
- Road design and regulation of traffic. H. J. Fixmer. diag Eng & Contr 51:328-31 Ap 2 '19
- Some suggestions for highway design. G. W. Tillson. Munic Eng 57:150-1 O '19
- See also Bridges; Pavements; Roads*

**Examinations**

- Examination for county engineers in Oklahoma. Good Roads n s 18:134+ S 10 '19

**Study and teaching**

- Suggested course in highway engineering. R. T. Brown. Eng N 83:580 S 18 '19

**Tables, calculations, etc.**

- Economic balancing of highway excavation by a semi-graphic method. D. P. Babcock. diag Eng N 82:361-4 F 20 '19
- Page of useful tables for the highway engineer. Eng & Contr 52:3 JI 2 '19
- Simple method of computing and showing overhaul. E. H. Steele. diag Eng & Contr 52:386 O 1 '19

**Highway engineers**

- Colleges should play a part in highway program. R. L. Morrison. Eng N 82:1054-5 My 29 '19
- Duties of the county highway engineer-manager. E. E. Soura. Eng & Contr 52:273-4 S 3 '19; Excerpts. Munic Eng 56:101-2 Mr '19
- Engineers for highway work. J. H. Mullen. Eng & Contr 51:15-16 Ja 1 '19; Same cond. Eng N 81:1188 D 26 '18

**Salaries**

- Proposed schedule of salaries for state highway engineers. Eng N 83:677 O 2 '19; Same. Eng & Contr 52:396 O 1 '19; Same. Munic Eng 57:200-1 N '19

**Highway Industries association**

- Convention, Chicago. Dec. 9-13. Good Roads n s 16:218-22, 243-4 D 7, 21 '18; Eng N 81:1146-6+ D 19 '18
- Form highway association. Iron Tr R 62:608 Mr 7 '18
- Organization. Good Roads n s 15:41+ Ja 26 '18; Eng N 80:239-40 Ja 31 '18
- Work of the association and necessity for closer co-operation between federal, state and county road authorities. H. G. Shirley. Munic Eng 55:94-6 S '18

**Highway inspection**

- Inspection cost an index of the contractor's ability. H. W. Skidmore. Eng N 80:314-15 F 14 '18

**Highway law**

- Contractors' bonds for New York highway work. Munic J 47:198 S 27 '19
- Federal aid road act regulations. Munic J 46:385-6 My 31 '19
- Federal aid road law; experience to date and suggestions for better co-operation. L. W. Page. Il Munic Eng 56:20-3 Ja '19
- Federal highway plan outlined in bill. Automotive Ind 40:497+ F 27 '19
- Guaranties from contractors. J. Simpson. Munic J 47:14-16 JI 12 '19
- Highway legislation in New York. Good Roads n s 15:224+ Ap 27 '18
- Highway legislation in New York. Good Roads n s 17:123 Mr 15 '19
- Highway legislation in Virginia. G. P. Coleman. Good Roads n s 15:84-5 F 9 '18
- Indiana state highway law declared invalid. Munic J 44:435 My 25 '18
- New Jersey road law upheld by court. Munic J 44:20 Ja 5 '18
- New Massachusetts state aid law. Good Roads n s 15:246 My 11 '18
- New road laws in Kentucky. Good Roads n s 15:179-80+ Mr 30 '18

**Highway law—Continued**

- New state road law of Iowa. Good Roads n s 18:25-6 JI 16 '19
- New York law provides for suspension of contracts. Munic J 44:417-18 My 18 '18
- One year's experience in the federal aid road law. L. W. Page. Good Roads n s 14:321-2, 326 D 22 '17
- Provisions of proposed Indiana highway law. Good Roads n s 17:58-60 F 15 '19
- Road laws enacted in Massachusetts. Good Roads n s 17:267 Je 21 '19
- Road legislation at the 1917 session of the Pennsylvania legislature. Good Roads n s 14:320, 324 D 22 '17
- Road vs. load. Sci Am 120:8 Ja 4 '19
- Townsend federal aid bill. Good Roads n s 17:254+ Je 14 '19
- Traffic laws in relation to highway construction and maintenance. W. A. McLean. Good Roads n s 15:97-8+ F 16 '18
- See also Automobile laws and regulations; Highway administration; Jitney buses—Regulation; Streets—Law; Traffic regulations
- Highway officials, American association of state.** See American association of state highway officials
- Highway reports**  
Code letters as highway reports. Munic J 46:230 Mr 29 '19
- Highway traffic association, National.** See National highway traffic association
- Highway transport engineering.** A. H. Blanchard. Good Roads n s 17:268-9 Je 21 '19; Same. Munic Eng 57:sup27-8 JI '19; Same abr. Eng N 82:1153 Je 12 '19; Same cond. Eng & Contr 51:590 Je 4 '19
- Highways. See Roads; Streets**
- Highways transport committee.** See Council of national defense—Highways transport committee
- Hilton Village, Virginia**  
First war emergency government towns for shipyard workers. H. V. Hubbard and F. Y. Joannes. II diag plans Am Inst Arch J 6:333-45 JI '18
- Government industrial housing a business proposition. II plans Am Arch 114:157-66, pl 42-52 Ag 7 '18
- Hindley, Henry, d. 1771**  
Inventor of the Hindley worm-gear. Mach 25:1055 JI '19; Same. Sci Am S 88:144 Ag 30 '19
- Hines, Walker D., 1870-**  
Appointed director general of railroads. Ry R 64:107-8 Ja 18 '19; Ry Age 66:187-8 Ja 17 '19; Ry Mech Eng 93:79-80 F '19
- Hiring.** See Employment systems
- History**  
**Sources**  
Our links with the past. Sci Am 120:620 Je 14 '19
- Hoadley, George Arthur, 1848-**  
President-elect of the Illuminating engineering society. por Illum Eng Soc 13:66 no 6 '18; Elec W 72:227 Ag 3 '18
- Hobart, Tasmania**  
**Water supply**  
Hobart water supply. diags Engineer 126:205 S 6 '18
- Hobbing machines.** See Gear cutting machines
- Hobs**  
Grinding hobs to remove distortion. E. K. Hammond. II diags Mach 24:583-9 Mr '18
- Hobs and hobbing. F. G. Hoffman and J. Edgar. Automotive Ind 38:961-3 My 16 '18; Same. Am Mach 48:881-3 My 23 '18; Same cond. Mach 24:941-2 Je '18; Abstract. Iron Age 101:1540 Je 13 '18
- Indexing device for relieving multiple-threaded hobs. R. V. Hutchinson. diags Am Mach 49:865 N 7 '18
- Problem of the theoretically correct involute hob. N. Trbojevič. diags Mach 25:423-33 Ja '19
- Universal relieving machine for hobs and cutters. II diag Mach 25:467-8 Ja '19
- Hocking Valley railway**  
Report for the fiscal year ended December 31, 1917. Ry Age 64:1159-60, 1212-13 My 10 '18
- 20th annual report. map Ry Age 67:240-1, 286-7 Ag 8 '19
- Hodges, George**  
Manager of railroad troop movements, awarded distinguished service medal. Ry Age 66:1275-6 My 23 '19
- Hog Island**  
Hog Island; views. Gen Elec R 21:969-73 D '18
- Hogs.** See Swine
- Hoisting**  
Handling materials in construction of New York hotels. II diag plan Eng N 83:222-3 JI 31 '19
- How a forty-ton drum was moved up a mountain. R. W. Mayer. Coal Age 13:230-1 F 2 '18
- Length of service and care of hoisting ropes. Eng & Min J 105:992-4 Je 1 '18; Same. Coal Age 14:11-13 JI 6 '18
- Long-stuff elevators handle reinforcing and forms. diags Eng N 81:334 Ag 15 '18
- New type of locomotive cinder handling plant. II diag Ry Age 66:319-20 Ja 31 '19
- Raising two 350-hp. boilers. M. C. Scheble. II Coal Age 14:392 Ag 29 '18
- Solving a stack-raising problem. M. Fishback. II diags Eng & Min J 108:95-6 JI 19 '19; Excerpt. Eng N 83:337 Ag 14 '19
- See also Cableways; Mine hoisting
- Accidents**  
Fatal hoisting accident. M. Johnson. II diag Coal Age 16:120 JI 17 '19
- Hoisting machinery**  
Air hoist built from old brake cylinders. II Elec Ry J 53:1234 Je 21 '19
- Albro-Clem worm-driven electric hoist. II Iron Age 101:447 F 14 '18
- Automatic elevator-bucket discharge. H. M. Schleicher. diag Eng & Min J 106:484 S 14 '18
- Auxiliary hoist for traveling cranes. II Iron Age 103:878 Ap 3 '19; Iron Tr R 64:962 Ap 10 '19
- Blast-furnace hoist installations. D: L. Lindquist. II diags Iron Tr R 62:1543-9 Je 20 '18; Abstract. Iron Age 102:563 S 5 '18
- Converting scrap into a sinking hoist. Eng & Min J 106:453-4 S 7 '18
- Design and construction of bucket elevators for crushed ore and pulp. R. Reddie. diags Eng & Min J 104:1113-20 D 29 '17
- Development of air hoists. Am Mach 48:152 Ja 24 '18
- Drum shapes as affecting the mine hoist duty cycle and motor rating. F. L. Stone. II diags Am Inst E E Pro 37:1203-21 O '18
- Electric control equipment of mine hoist. II Coal Age 13:929 My 18 '18
- Electric lifting block. II Engineer 128:261 S 12 '19
- Electric two-drum two-speed dragline excavator hoist. II Eng & Contr 49:131 Ja 30 '18
- Enginehouse trolley hoist. diag Ry Mech Eng 92:579 O '18
- Homemade air hoist. diag Coal Age 14:723 O 17 '18
- Induction motor drive for skip hoists. F. R. Burt. diags Elec J 16:381-2 S '19
- Jaws of grab bucket close by steam power. II Eng N 80:979 My 16 '18
- Motor-driven shaft-hoist installation. R. P. Hines. II Coal Age 14:50-4 JI 13 '18
- New room hoist has three-jawed clutch instead of sliding pinion. II Coal Age 15:324 F 13 '19
- Otis skip hoists. diags Elec W 71:178 Ja 19 '18
- Practical hints in bucket-elevator operation. A. M. Nicholas. Am Inst Min E Bul 134:273-4 F '18
- Safety on an electric hoist. R. J. Calloway. diag Coal Age 14:478 S 12 '18
- Skip hoist for gas plants. diag Gas Age 44:248-9 S 15 '19

**Hoisting machinery—Continued**

- Strength of winding drums. J. S. Watts. *diags* Power 48:127-8 JI 23 '18  
 Wonder hoist for builders. *il* Eng & Contr 49:102 Ja 30 '18  
 Yale & Towne small electric hoist. *il* Iron Tr R 63:328 Ag 8 '18; *Automotive Ind* 39:199 Ag 1 '18; *Power* 48:664-5 N 5 '18  
*See also* Buckets; Cableways; Canal lifts; Chains; Conveying machinery; Cranes, derricks, etc.; Elevators; Lifting magnets; Mine hoisting; Mining machinery; Ore handling; Wire rope

Hoisting rope. *See* Wire rope

Hoke gage. *See* Gages—Testing

**Holding companies**

- Consolidated statements. S. Walton. J Account 25:225-37, 303-20, 384-99, 460-76 Mr-Je '18  
 Holding company control denied in New York case. *Elec W* 71:482 Mr 2 '18

Holding devices. *See* Arbors (machinery); Chucks; Machine tools—Fixtures

Holiday printing. *See* Christmas printing

Holland. *See* Netherlands

Hollinger consolidated gold mining company. Report for the year ended Dec. 31, 1917. *Eng & Min J* 105:592-3 Mr 30 '18

**Hollow tile**

- Hollow tile church for the suburbs. *il diags* plans Bldg Age 40:1-9 Ja '18  
 Hollow tile for industrial housing. *Am Arch* 118:783-4 Je 5 '18  
 How to build and fireproof with hollow tile. J. J. Cosgrove. *il diags* Bldg Age 40:252-3, 300-1, 346-7, 392-4, 449-51, 492-4, 540-1, 576-7; 41:28-30, 68-70, 103-4, 137-9, 165-7, 204-5, 238-40, 268-70, 310-11, 340-2, 367-8 My '18-N '19

**Bibliography**

Structural service department; brick, hollow tile, and architectural terra cotta. *Am Inst Arch J* 6:150-3 Mr '18

**Testing**

Tests of hollow building tiles. B. D. Hathcock and E. Skillman. *il* U S Bur Stand Tech Pa 120:1-29 '18; *Abstracts. Am Soc M E J* 41:168 F '19; *J Fr Inst* 187:217-19 F '19; *Eng & Contr* 51:411-13 Ap 23 '19

**Holly sugar corporation**

Annual report for fiscal year ended March 31, 1918. *Ry Age* 65:901 N 15 sec 2 '18

**Holmium**

Observations on the rare earths; holmium and dysprosium. H. C. Kremers and C. W. Balke. *Am Chem Soc J* 40:593-8 Ap '18

Observations on the rare earths; the separation of holmium. L. F. Yntema and B. S. Hopkins. *Am Chem Soc J* 40:1163-7 Ag '18

Holtwood power station. *See* Pennsylvania water and power company

**Holyoke street railway**

Zone system approved for Holyoke (Mass.) company. *Elec Ry J* 51:77-80 Ja 12 '18

**Home economics**

Safety for the household. *il diags* U S Bur Stand Circ 75:1-124 '18

**Home owning**

American lumberman's national home-owning essay contest. *Am Lumberman* 2234:1, 40-2; 2235:39; 2239:44 Mr 9-16, Ap 13 '18

Home buying in Detroit. J. H. Collins. *Munic J* 46:384 My 31 '19

Home-ownership in New York city. H. S. Swan. *Am Inst Arch J* 6:28-9 Ja '18

Making home owning easy; permanent bureau organized in Elgin, Ill. *il* plans *Am Lumberman* 2304:40 JI 12 '19

Sidelights on the zone fare—home owning by British workmen. W. Jackson. *Elec Ry J* 53:1017-18 My 24 '19

Homing habits of the pulmonate mollusk oncidium. L. B. Arey and W. J. Crozier. *Sci Am S* 87:288 My 3 '19

**Homologous series**

Synthesis of some homologs of the terpenes, derivatives of 1, 4-diisopropyl cyclohexane. M. T. Bogert and C. P. Harris. *diag Am Chem Soc J* 41:1676-90 O '19

**Honey**

Honey; newest theories concerning the function of the nectary in flowers. G. Bonnier. *Sci Am S* 88:22-3 JI 12 '19

*See also* Bees

**Hongkong**

Tin at Hongkong in 1917. *Eng & Min J* 105:658 Ap 6 '18

**Hongkong university**

Engineering equipment at Hong-Kong university. *il* plans *maps Engineer* 125:136-8, 168-9, 199-200 F 15-22, Mr 8 '18

**Honolulu, Hawaii**

Piezometers and current meters used to test wells; water conservation program at Honolulu. R. D. Klise. *il Eng N* 81:407-8 Ag 29 '18

**Hooks**

Coupling hooks for slopes, planes and rope haulages. *diags* *Coal Age* 16:520 S 25 '19

**Hookworm disease**

Hookworm in California mines. E. Higgins. *Eng & Min J* 104:1087-8 D 22 '17  
 Prevention and cure of hookworm. *il map Sci Am* 120:334+ Ap 5 '19

**Hoover, Herbert Clark, 1874-**

Herbert C. Hoover returns. *por Eng & Min J* 108:472-3 S 13 '19

Herbert Hoover's address at the A.I.M.E. reception in his honor. *Eng & Min J* 108:547-50 S 27 '19

Hoover acclaimed as genius of constructive administration by fellow engineers. *por Eng N* 83:600-4 S 25 '19

Hoover the nearest approach to a dictator since Napoleon. *Am Inst Min Bul* 154:sup19-27 O '19

Hoover: the true engineer. W. L. Saunders. *Am Inst Min Bul* 154:sup7-10 O '19; *Same. Eng & Min J* 108:544-6 S 27 '19; *Excerpt. Eng & Contr* 52:351 S 24 '19; *Excerpt. Munic Eng* 57:168-9 O '19

Mining engineers honor Hoover. *Chem & Met Eng* 21:419-23 O 1 '19

Mining engineers in the war. F. F. Sharpless. *por Eng & Min J* 107:1-2 Ja 4 '19

San Francisco engineers hear Hoover. L. A. Palmer. *Eng & Min J* 108:689 O 25 '19

Welcome-home dinner to Herbert Hoover. *por Mech Eng* 41:831 O '19

**Hoover, Theodore J., 1871-**

Stanford school of mines; T. J. Hoover appointed professor of mining and metallurgy. J. P. Smith. *Eng & Min J* 107:869-70 My 17 '19

**Hopkinson, Bertram**

Sketch. *Automotive Ind* 39:753 O 31 '18

Hopper cars. *See* Freight cars

**Hoppers**

Green cast-iron storage hopper. *il Power* 49:431 Mr 25 '19

Patterns for hoppers with different outlet. *diags* *Metal Work* 91:828-9; 92:34-5 Je 27, JI 11 '19

*See also* Coal hoppers

**Hops**

Effect of fertilizers on the composition of hops. G. A. Russell. *J Ind & Eng Chem* 11:218-24 Mr '19

Growing hops in California. A. L. Dahl. *il Sci Am S* 87:312-13 My 17 '19

**Horns**

World's horned heads. W. T. Hornaday. *il Sci Am* 121:338-9 O 4 '19

Horse-play among employees. C. C. Sherlock. *Inland Ptr* 64:33-4 O '19

**Horseless age (periodical)**

Horseless age merged with the *Class* journal publications. *Automotive Ind* 38:1071-8 Je 6 '18

- Horseless age (periodical)—Continued**  
 Motoring of early days recalled by merging of Horseless age with Class journal co. publications. *Il Motor Age* 33:5-11 Je 6 '18
- Horsepower**  
 Boiler horsepower. *Coal Age* 13:161 Ja 19 '18  
 Engine horse-power. *Heat & Ven* 16:67 Ap '19  
 Horsepower chart for gear teeth. *J. Will. Mach* 25:820-1 My '19  
 Horsepower chart for spur and bevel gears. *M. T. Schumb. chart Mach* 25:646 Mr '19  
 How horsepower is measured. *Il diags Motor Age* 34:32-3 Jl 18 '18  
 Practical brake horse power formula for internal combustion engines. *H. Lemp. Il Gen Elec R* 22:808-9 O '19  
 Rainfall and horsepower. *H. R. Kempe. Sci Am S* 88:110-11 Ag 16 '19
- Horses**  
 Draft-horse situation. *Sci Am* 121:510 N 22 '19  
 Striking example of equine intelligence. *Il Sci Am* 121:316 S 27 '19  
 Work done by 1,500,000 horses in France during the war. *Sci Am S* 87:105 F 15 '19
- Cost**  
 Cost of maintaining city owned teams. *Eng & Contr* 52:21 Jl 3 '19  
 Horses vs. motor trucks in refuse collection. *Munic J* 47:110-11, 119-20 Ag 16-23 '19
- Hose**  
 Drop of pressure in compressed-air hose; abstract. *W. S. Weeks. Am Soc M E J* 40:104 Ja '19  
 Metal hose without packing. *Il diags Automobile* 37:686 O 18 '17  
 Proposed specifications for air line hose for pneumatic tools. *Eng & Contr* 48:517 D 19 '17  
 Rubber hose for use with gasoline. *Automotive Ind* 37:867+ N 15 '17  
 Steam hose for car heating. *H. J. Force. Ry Mech Eng* 93:527-8 S '19  
*See also Fire hose*
- Hose, Air brake. See Air brake hose**
- Hose couplings**  
 M.C.B. standard hose coupling and packing ring gages. *Il diags Ry Mech Eng* 93:496-7 Ag '19  
 Nut and gasket for air-hose couplings. *W. V. De Camp. diag Eng & Min J* 105:599 Mr 30 '18
- Hosiery**  
 Analysis of silk hosiery. *J. Chittick. Textile World* 53:5778 My 25 '18  
 Anti-ravel course in hosiery. *diags Textile World* 53:4805+ Ap 20 '18  
 Backwinding full fashioned hosiery pressoffs. *Textile World* 53:4947 Ap 27 '18  
 Bleaching mixed hosiery. *Textile World* 53:3076 Ja 12 '18  
 Blue spots on hosiery. *Textile World* 53:2369 D 8 '17  
 Detachable stocking feet; invention of clever Irish woman may result in large wool saving. *Il Textile World* 54:301 Jl 20 '18  
 Dyeing and bleaching silk and cotton hosiery. *Textile World* 56:1787 S 27 '19  
 Fast black on cotton hosiery. *Textile World* 53:3375+ Ja 19 '18  
 54-inch hosiery press. *Il Textile World* 54:1445 S 26 '18  
 Finishing cotton and silk hosiery. *Textile World* 54:1737 O 12 '18  
 Hosiery for Scottish Highland regiments. *W. Davis. Il Textile World* 53:3813+ F 16 '18  
 Hosiery's year governed by war. *Textile World* 55:456-7 Ja 11 '19  
 Inspection machine. *Il Textile World* 56:371 Jl 19 '19  
 Ladies' 288 needle rib top hosiery. *Textile World* 53:5777 My 25 '18  
 Making half-hose. *Textile World* 54:187 Jl 13 '18  
 Manufacturing full fashioned silk hosiery. *W. Davis. diags Textile World* 55:2209+ Ap 12 '19  
 Particulars of children's hosiery. *Textile World* 53:4805 Ap 20 '18
- Particulars of children's socks. *Textile World* 53:4339 Mr 23 '18  
 Scouring cotton and worsted hosiery. *Textile World* 54:1081 S 7 '18  
 Scouring wool half hose. *Textile World* 54:1737 O 12 '18  
 Sizes for infants' and children's stockings. *diag Textile World* 53:2525, 2619, 3377 D 15-22 '17, Ja 19 '18  
 Socks worn by soldiers in France; particulars of plain stitch hosiery supplied British army. *W. Davis. diag Textile World* 53:2613 D 22 '17  
 Trouble in knitting full fashion hosiery. *Textile World* 53:2703 D 29 '17  
 Weighting silk hosiery. *Textile World* 54:2578 N 23 '18  
 Yarns and machinery for hosiery. *Textile World* 53:6217 Je 22 '18
- Hosiery and underwear manufacturers, National association of. See National association of hosiery and underwear manufacturers**
- Hosiery machines**  
 Drilling jigs used in the manufacture of hosiery machines. *R. Mawson. Il Am Mach* 49:563-5 S 26 '18  
 Hosiery machinery of revolving cylinder type, with five yarn fingers. *Il Textile World* 55:3317 My 31 '19  
 Machining the stitch-making mechanism for hosiery machines. *R. Mawson. Il Am Mach* 48:788-90 My 9 '18  
 Making hosiery-machine parts. *R. Mawson. Il Am Mach* 49:709-10 O 17 '18
- Hosiery mills**  
 Automatic inventory for hosiery mill; permanent record of goods in process—forms used. *Textile World* 55:3505+; 56:1055+; 3363+ Je 7, Ag 23, D 13 '19 (to be cont)  
 Handling hosiery in the mill. *Textile World* 53:6217+ Je 22 '18
- Hospital cars**  
 Hospital car for the Erie. *Il plan Ry Age* 63:1083-4 D 14 '17  
 Interurban car built for hospital service at Chicago. *Il diags Elec Ry J* 51:1153-4 Je 15 '18  
 Officers' ambulance car, Great Indian Peninsula Ry. *F. C. Coleman. Il plan Ry R* 62:822 Je 8 '18  
*See also Hospital trains*
- Hospital ships**  
 Surgery in the navy; U. S. S. Mercy the latest development of the hospital ship. *Il Sci Am* 118:480-1+ My 25 '18
- Hospital trains**  
 Ambulance train for the American army. *Il diags Engineer* 126:260-3, 266 S 27 '18  
 Ambulance train for the United States army. *Il Ry Age* 64:1032-4 Ap 19 '18; *Abstract. Engineer* 125:181, 186 Mr 1 '18  
 British built ambulance train for the American expeditionary force. *F. C. Coleman. Il diags Ry R* 62:147-8 F 2 '18; *Same. Ry Age* 64:319-20 F 8 '18; *Same. Ry Mech Eng* 92:897-8 Jl '18  
 British railways under war conditions. *Il Engineer* 127:73-5 Ja 24 '19  
 Great white train. *Il Ry R* 65:747-8 N 15 '19  
 Hospital on rails. *F. C. Coleman. Il Sci Am* 118:228 Mr 16 '18  
 Two ambulance trains built by the Great Western railway for the United States army. *Il Ry Age* 65:70-1 Jl 12 '18  
*See also Hospital cars*
- Hospitals**  
 Abington memorial hospital and nurses' home. *Il plans Arch Forum* 31:159-60, pl 78-80 N '19  
 American hospital of the twentieth century, by E. F. Stevens. *Review. Am Arch* 114:475-6 O 16 '18  
 Barre (Vt.) city hospital. *Il plans Am Arch* 113:849-51 Je 26 '18  
 Brooklyn hospital, Brooklyn, N.Y. plans *Arch Forum* 30:168-9, pl 92-3 Je '19  
 Carson C. Peck memorial hospital and nurses' home, Brooklyn, N.Y. L. V. Solon. *Il plans Arch Rec* 45:404-16 My '19



**Hospitals—Continued**

- Carson C. Peck memorial hospital, Brooklyn, N.Y. II plans Arch Forum 30:177-80 Je '19  
 Contagious ward of the Morristown memorial hospital, Morristown, N. J. II plans Am Arch 114:226-7, pl 66 Ag 21 '18  
 County tuberculosis hospital. W: H. Scopes and M. M. Feustmann. plans Arch Forum 30:155-8 Je '19  
 Free hospital for women, Brookline, Mass.; views. Am Arch 115:pl 4-5 Ja 1 '19  
 Green operating room. H. M. Sherman. Am Arch 113:503 Ap 24 '18  
 Hospital design: the relation of initial cost to the expense of operation and maintenance. L. M. Franklin. Arch Forum 30:171-2 Je '19  
 Hospital of the House of Calvary, Perry street, New York; views and plan. Am Arch 116:pl 55-7 Ag 6 '19  
 Hospital that was a house. II plans Am Arch 113:851-6 Je 26 '18  
 Norfolk county tuberculosis hospital, Braintree, Mass. Arch Forum 30:165-6, pl 86-9 Je '19  
 Principles of hospital planning in view of future expansion. R: E. Schmidt. II plans Arch Forum 30:159-61 Je '19  
 Radium laboratory, the Memorial hospital, New York. II plans Am Arch 114:227-8, pl 64-5 Ag 21 '18  
 St Joseph's hospital, Far Rockaway, N. Y. E: A. Lehmann. II plans Am Arch 114:225-6, pl 61-3 Ag 21 '18  
 Salem hospital, Salem, Mass. II plans Arch Forum 30:166-8, pl 91 Je '19  
 Spanish influenza hospital that can be erected in 6 days. plan Eng & Contr 50:389 O 23 '18  
 Use of color in operating rooms. II diag plans Am Arch 114:681-8 D 4 '18  
 Water supply for maternity hospital. II diag Metal Work 90:6-7 J 5 '18  
 William Wirt Winchester memorial hospital, New Haven, Conn. II plans Arch Forum 30:162-4, pl 81-5 Je '19

See also Hospitals, Military

**Electric equipment**

- Electrically heated food truck. II Sci Am 120:176 F 22 '19  
 Electricity in Blodgett memorial hospital, Grand Rapids, Mich. II Elec R 71:1054-5 D 22 '17  
 Engineering equipment in a New Zealand hospital. II Engineer 127:40 Ja 10 '19  
 Some electrical features of new San Francisco hospital. II Elec R 74:493-6 Mr 29 '19

**Equipment**

- Mechanical equipment. D. D. Kimball. Arch Forum 30:173-5 Je '19

**Lighting**

- Modern hospital lighting. F. L. Godinez. II Am Arch 113:100-3, 125-8 Ja 23-30 '18

**Hospitals, Military**

- Army hospitals in the United States. R. H. Kettell. II diag plans Am Inst Arch J 7:435-52 O '19  
 How army hospitals are being protected against fire. diag plans Eng N 80:1054-6 My 30 '18  
 Liberty field hospital ward. II plan Bldg Age 40:13-15 Ja '18  
 Liberty field hospital ward. C: O. Cornelius. II diag plan Arch Rec 44:269-72 S '18  
 Our overseas hospitals. II diag plans Am Arch 113:785-97, pl 206-8 Je 12 '18  
 Our war hospitals in France. E: F. Stevens. II diag plans Arch Rec 43:257-84 Mr '18  
 Plumbing equipment in United States base hospital no. 40. II diag Dom Eng 87:278-9 My 17 '19  
 Plumbing in a camp hospital. diag Metal Work 90:578 N 22 '18  
 Progress of army hospitals. Am Arch 113:861 Je 26 '18

See also Hospital cars; Hospital ships; Hospital trains

**Heating and ventilation**

- Army hospital heating. Heat & Ven 15:86-8 Mr '18  
 Army hospital heating problem. diag Heat & Ven 15:59-60 Ap '18  
 Heating a base hospital. P. M. O'Connell. diag plans Dom Eng 84:2-4+ J 1 6 '18  
 Hospitals, Naval  
 Report of the special committee of the American institute of architects. C. G. La Farge. Am Inst Arch J 6:33-4 Ja '18  
 United States naval hospital building, Wards Island, N.Y. Arch & Bldg 51:70, pl 131-2 S '19

See also Hospital ships

- Hot air furnaces. See Furnaces, Hot air  
 Hot-blast stoves. See Blast furnace stoves  
 Hot box. See Bearings; Cars—Bearings  
 Hot bulb engines. See Gas and oil engines  
 Hot water heating  
 Advantages of meter system for hot water heating. Metal Work 90:605 N 29 '18  
 Care of heating and ventilating equipment. H. L. Alt. diag Power 49:932-3 Je 17 '19  
 Comparison of warm-air and hot-water heating. W. E. Pratt. plans Metal Work 91:825-7+; 92:37-9+ Je 27, J 11 '19  
 Designing data as applied to a large hot water heating plant. G: E. Reed. II diag plan Heat & Ven 16:17-26 Mr; 26-34 Ap '19  
 Factory heating. A. G. King. diag Dom Eng 86:466-8+ Mr 15 '19  
 Fuel saving heating systems. A. G. King. plans Dom Eng 84:116-19+ J 1 27 '18  
 Heating domestic hot water supply and radiators from furnace. diag Dom Eng 85:168-9 N 2 '18  
 Heating job that met special conditions. II diag plans Metal Work 91:12-14 Ja 3 '19  
 Heating system for a house without a basement. II Sci Am 120:490 My 10 '19  
 Hot water heating. O. Bartholomew. Metal Work 91:520 Ap 25 '19  
 Hot water heating by forced circulation. II diag Metal Work 89:539-43 Ap 26 '18  
 Hot water heating connection to garage. diag plan Heat & Ven 15:50-1 Ja; 51-3 F; 58-9 Ap '18  
 Hot water heating system of Crane co. Chicago works. F. E. McCreary. II diag Am Soc Heat & V E 23:415-30 '17  
 Hot water practice in relation to mains; a method of determining size. W. B. Gray. plan Metal Work 91:518-19 Ap 25 '19  
 How to balance hot water heating systems. W: Hutton. diag Metal Work 88:658-60, 719-21, 778-80 N 30, D 14, 28 '17  
 How to vent heating system properly. diag Dom Eng 84:359 S 7 '18  
 Placing hot water radiators below boiler level. W: Hutton. diag Dom Eng 88:297-9 Ag 16 '19  
 Points on indirect hot water heating. C: L. Hubbard. diag Metal Work 89:858-9 Je 28 '18  
 Savings possible in large hot water heating systems. Heat & Ven 15:31-2 S '18  
 Scheme for improving hot-water circulation. diag Metal Work 89:391-2 Mr 22 '18  
 Some facts about the early history of steam and hot water heating. J: A. Ward. Dom Eng 81:444-5 D 15 '17  
 Standards of central station hot water heating service. Heat & Ven 15:31-6 O '18  
 Steam to heat water for house heating. P. J. Bryant. II Power 47:471 Ap 2 '18  
 Utilization of sprinkler system piping for heating. A. W. Moulder. diag Heat & Ven 16:34-6 J 1 '19  
 Water-supply, sewerage and heating for Florida home. W. G. Kirchoffer. diag plan Eng N 81:443-4 S 5 '18  
 What it pays to know about heating and ventilating. C: L. Hubbard. diag Factory 21:431-5 S '18

See also Radiators

**Hot water supply**

- Air-bound plumbing system. diag Dom Eng 85:368 D 7 '18

**Hot water supply—Continued**

- Best way to connect up range and radiator in basement to boiler on first floor. *diags* Dom Eng 84:434-5 S 21 '18
- Circulating hot water to two lavatories. *diags* Dom Eng 83:207-8 My 11 '18
- Coal economy and the range boiler. *il diags* Metal Work 89:353 Mr 15 '18
- Coil in furnace to heat range boiler and radiator. *diags* Dom Eng 82:374 Mr 9 '18
- Combination hot water connections for domestic supply. *diags* Dom Eng 83:498-9 Je 29 '18
- Connecting boiler in cellar with kitchen range. *diags* Metal Work 88:714 D 14 '17
- Connecting heater and horizontal hot water tank in low ceiling basement. *diag* Dom Eng 87:10 Ap 5 '19
- Connecting up domestic hot water heaters in series. *diag* Dom Eng 87:106-7 Ap 19 '19
- Deactivator system for elimination of corrosion in hot water supply pipes; abstracts. F. N. Speller. Eng & Contr 51:221-2 F 26 '19; Eng & Min J 107:480 Mr 15 '19; Heat & Ven 18:44-5 Mr '19
- Domestic hot water connections. H. L. Alt. *diags* Dom Eng 82:208-10, 246-8, 288-90, 329-31, 368-8+, 407-8; 83:2-4, 45-7, 83-4 F 9-Mr 16, Ap 6-20 '18
- Electrically heated faucet that supplies hot water. *il Elec W* 71:1346 Je 22 '18
- Hot and cold water in the farm kitchen. *il Sci Am* 118:109+ F 2 '18
- Hot water circulation to plumbing fixtures in school building. *diags* Dom Eng 85:8-9 O 5 '18
- Hot water from oil engines; utilization of jacket water from internal combustion engines in manufacturing. W. L. H. Doyle. *diag* Textile World 54:77+ J1 6 '18
- Hot water practice in relation to risers. W. B. Gray. Metal Work 91:455-6 Ap 11 '19
- Hot water service requirements; 300,000 new houses with gas cookers and gas water heaters to be built in Britain. *il Metal Work* 91:605-7 My 16 '19
- Hot water service with forced circulation; a method of arriving at quantity delivered and pipe sizes for large systems and different conditions. Metal Work 90:335-8 S 20 '18
- Hot water supply circulating systems. H. L. Alt. *diags* Dom Eng 83:455-8 Je 22 '18
- Hot-water supply for domestic purposes. *diags* Metal Work 92:65-6 J1 18 '19
- Hot water supply of textile mills. W. C. Beekley. Textile World 56:661+, 2003+ Ag 2, O 4 '19
- How cold water mixes with hot water in domestic service work. J. F. Newman. *diags* Dom Eng 85:478-80 D 28 '18
- How to prevent air-lock in domestic hot water circulation system. *diags* Dom Eng 82:445-6 Mr 23 '18
- How to run circulation to lavatory in barber shop with low ceiling. *diags* Dom Eng 86:471 Mr 15 '19
- Information about hot water circulation. *diag* Dom Eng 83:331-2 Je 1 '18
- Installation of four-pipe steam coil in horizontal hot water supply tank. *diags* Dom Eng 89:17-18 O 4 '19
- Installing basement range as booster to domestic hot water supply. *diag* Dom Eng 82:137-8 Ja 26 '18
- Installing coal-fired tank heaters for domestic hot water service. R. J. Gordon. *diags* Dom Eng 89:11-13+ O 4 '19
- Lack of circulating head causes trouble in hot water supply system. *diags* Dom Eng 86:516-17 Mr 22 '19
- Multiple range and boiler connections. *diags* Dom Eng 85:207-8 N 9 '18
- Noiseless water heating in closed tanks. *diag* Metal Work 91:835 Je 27 '19
- Notes on the heating of water. A. G. King. *diags* Dom Eng 83:42-4 Ap 13 '18
- Overheating hot water wasteful. C. W. Peters. Power 49:624 Ap 22 '19
- Plan to heat several range boilers from furnace coil without checks. *diag* Dom Eng 83:245-6 My 18 '18
- Preservation of hot water supply pipe in theory and practice. F. N. Speller and R. G. Knowland. *il diags* Am Soc Heat & V E 24:217-34 '18; Excerpts. Eng & Contr 50:297-9 S 25 '18; Eng & Min J 108:360 N 30 '18; Iron Tr R 64:324-5 Ja 30 '19; Discussion. Am Soc Heat & V E 24:235-40 '18
- Pressure boiler—plumbing trade's big mistake. R. E. Dockham. Metal Work 90:66-7 J1 19 '18
- Problem of connecting range boiler to laundry stove and furnace. *diags* Dom Eng 82:6-7 Ja 5 '18
- Rearranging piping at domestic boilers to secure better hot water supply. *diags* Dom Eng 81:545-6 D 29 '17
- Reducing fuel wastes. C. L. Hubbard. *diags* Dom Eng 85:242-3 N 16 '18
- Relation of hot water service heating to various types of buildings. H. L. Alt. Am Soc Heat & V E 24:241-9 '18; Same. Metal Work 89:358-90+ Mr 22 '18; Same. Dom Eng 83:123-5+ Ap 27 '18; Same. Am Arch 113:546-8, 576-8 My 1-8 '18; Discussion. Am Soc Heat & V E 24:250-6 '18
- Remedy for air in domestic hot water piping. *diags* Dom Eng 87:154-5 Ap 26 '19
- Remedy for an unwholesome combination of domestic water heating appliances. *diags* Dom Eng 88:393-4 Ag 30 '19
- Remedy for cold water coming at hot water faucets. *diags* Dom Eng 87:153 Ap 26 '19
- Remedy for cold water mixing with hot from range boiler. *diags* Dom Eng 85:433 D 28 '18
- Remedy for pounding at circulation check in domestic hot water supply. *diag* Dom Eng 88:551 S 20 '19
- Several ways of supplying hot water to factory and mill. W. H. Wakeman. *diags* Dom Eng 88:305-6 Ag 16 '19
- Trouble with condensation in hot water supply system. *diag* Dom Eng 82:7+ Ja 5 '18
- Ventilation, hot water supply and steam cooking equipment for large kitchens. C. L. Hubbard. *diags* plan Dom Eng 83:160-2, 205-6 My 4-11 '18
- Water heating coil over grate fire. *diag* Metal Work 91:717 Je 6 '19
- What it pays to know about factory water supply. C. L. Hubbard. *il diags* Factory 22:1165-8 Je '19
- See also Electric water heaters; Garages—Hot water supply; Gas water heaters; Plumbing
- Hotchkiss drive. See Automobiles—Gearing; Motor trucks—Gearing
- Hotels**
- Allerton house, New York. *il plans* Am Arch 115:773-6, pl 179-87 Je 4 '19
- Allerton house, New York city. Arch & Bldg 51:51-2, pl 90-3 Je '19
- Annex to Hotel McAlpin. *il Arch & Bldg* 50:53-4, pl 139-41 Ag '18
- Broadmoor hotel, Colorado Springs, Colo.; views. Arch & Bldg 50:pl 101-4 Je '18
- Comforts for American army and navy officers; Washington Inn, London, England. *diag* plans Metal Work 90:504-5 N 1 '18
- The Commodore—a new hotel on Pershing square, New York. plans Am Arch 115:337-8, pl 69-77 Mr 5 '19
- Design and decoration of the public rooms in Hotel Pennsylvania. G. A. Holmes. *il Arch Forum* 30:105-8 Ap '19
- Emergency fleet corporation hotels. *diags* plans Am Inst Arch J 6:518-23 N '18
- Entertainment annex to a hotel; views and plans. Am Arch 116:307 S 3 '19
- Fort Shelby hotel, Detroit, Mich.; views. Am Arch 114:pl 82-6 S 11 '18
- Hotel Ambassador, Atlantic City, N.J. C. W. Hastings. *il Arch & Bldg* 51:60-4, pl 116-24 Ag '19
- Hotel Chatham, Vanderbilt avenue, 48th to 49th streets, New York city; views. Arch & Bldg 49:111, pl 170-2 D '17
- Hotel Cleveland, Cleveland, Ohio. Arch & Bldg 51:58, pl 110-12 J1 '19
- Hotel Commodore, New York. C. W. Hastings. *il Arch & Bldg* 51:39-35, pl 57-71 Ap '19

**Hotels—Continued**

- Hotel Lincoln, Indianapolis, Ind. *il* Am Arch 115:238-40, pl 51-5 F 12 '19
- Hotel Pennsylvania, New York. *il* plans Am Arch 115:297-306, pl 63-8 F 26 '19; Ry R 64:409 Mr 15 '19
- Hotel Pennsylvania, New York. C: W. Hastings. *il* plans Arch & Bldg 51:17-24, pl 39-56 Mr '19
- Hotel Pennsylvania, New York city. *il* diag plans Arch Forum 30:95-104, pl 49-58 Ap '19
- Hotel Statler, St Louis, Mo., Hotel Whitcomb, San Francisco, and Fairmont hotel, Fairmont, W. Va.; views. Arch & Bldg 50:pl 31-7 F '18
- Meeting the demand for hotels in the smaller cities. plan Arch Forum 31:169-74 N '19
- New York's newest hotel; the Commodore. *il* Ry R 64:612-13 Ap 26 '19
- Out-of-doors sleeping room. A. T. North. plans Am Arch 112:456-8 D 19 '17
- Prince George hotel, New York city; views. Arch & Bldg 50:pl 106-7 Je '18
- Southern hotel, Baltimore, Md.; views. Arch & Bldg 50:pl 87-90 My '18
- See also* Apartment houses; Lodging houses; Restaurants

**Electric equipment**

- Electric and elevator equipment of the Hotel Pennsylvania, New York. C: E. Knox. *il* Power 49:708-12 My 13 '19; Excerpts. Arch & Bldg 51:25-6 Mr '19
- Electric service in world's largest hotel; the Pennsylvania, New York city. *il* diag Elec W 73:940-3, 1169-63 My 10, 31 '19
- Electricity in the world's largest hotel; the Pennsylvania. W: H. Easton. *il* plan Elec J 16:288-94 Jl '19
- Importance of electricity in world's largest hotel, Hotel Pennsylvania. Am Arch 115:734 My 21 '19

**Equipment**

- Big field for equipment of hotel kitchens. *il* Gas Age 42:404-6 N 1 '18
- Gas appliances in the Carpenter hotel, Sioux Falls, S. D. A. S. Graham. Am Gas Eng J 108:544 Je 8 '18
- Hotel and restaurant fuel sales. W: E. Dugdel. Gas Age 41:122-3 F 1 '18
- Mechanical equipment of a modern hotel; Hotel Pennsylvania, New York city. *il* diag plans Power 49:230-3 F 18 '19
- Plant of the hotel Traymore, Atlantic City. *il* Power 49:760-2 My 20 '19
- Refrigerating equipment of the Pennsylvania hotel. *il* diag Power 49:522-4 Ap 8 '19
- Sioux City (Ia.) company installs all gas kitchens. H. R. Stephenson. Am Gas Eng J 108:558 Je 8 '18
- 35,000 cu. ft. a day used in St Louis' biggest kitchen. L: Resnick. *il* Am Gas Eng J 109:393-5 O 26 '18

**Heating and ventilation**

- Heating and ventilation of hotels. C: L. Hubbard. diag Dom Eng 88:384-7+ Ag 30 '19
- Mechanical equipment of a modern hotel; Hotel Pennsylvania, New York city. *il* diag plans Power 49:230-3 F 18 '19

**Lighting**

- Hotel rooms. W. F. Little and A. C. Dick. Illum Eng Soc 14:45-51; Discussion. 52-9 no 1 '19

**Hothouses. See Greenhouses****Hours of labor**

- Effect of long working hours on industrial efficiency. Automotive Ind 39:89-91 Jl 18 '18
- Eight-hour day defined. Textile World 55:219+ Ja 11 '19; Same. Eng & Min J 107:271-3 F 8 '19
- Eight-hour day; meaning of campaign of United textile workers of America. J: Golden. Textile World 55:649 Ja 18 '19
- 8-hour day voted by French Parliament for all industries. Automotive Ind 40:1081 My 15 '19
- Eight hours' day in Germany. Engineer 126:534 D 20 '18

- Facts about war-work fatigue. Iron Tr R 63:318-19 Ja 31 '18
- 48-hour week in North. Textile World 55:1039+ F 8 '19
- 48-hour week in woolen mills. Textile World 55:2073+ Ap 5 '19
- 48-hour week muddle. Textile World 55:2335+ Ap 19 '19
- 47-hour week. Engineer 127:88 Ja 24 '19
- Freight rates and hours of labor. H. Elliott. Ry R 65:393-4 S 13 '19
- Hours of labor. L: Conant. Textile World 53:5144a My 4 '18
- Hours of work. Ind Management 58:330 O '19
- Hours of work as related to output and health of workers. Mach 26:128 O '19
- Illinois agitates for shorter hours. Coal Age 15:584-5 Mr 27 '19
- Increasing the output in Great Britain. P. Kennaday. *il* Factory 19:201-4 Ag '17
- Independent steel manufacturers consider adoption of the basic 8-hour day. Iron Tr R 63:800 O 3 '18
- Influence of the six-hour day on industrial efficiency and fatigue. H. M. Vernon. Sci Am S 88:263 N 8 '19
- More output from a shorter day. C. A. Marston. Ind Management 57:140 F '19
- Report of the eight-hour day commission. Ry Age 64:259-67 F 1 '18; Ry R 62:169-72 F 2 '18; Iron Age 101:362-3 Ja 31 '18
- Short-day labor schedule hit. Iron Tr R 65:37 Jl 3 '19
- Short day will not win war; New England manufacturer attacks union limitations. C. E. Whitney. Iron Age 101:496 F 21 '18
- Shorten mine working day in Canada. Coal Age 13:888 My 11 '18
- Should government clerks have a shorter day than other clerks? Eng & Contr 50:50 Jl 17 '18; Discussion. O. W. Childs. 50:186 Ag 21 '18
- Umpire in case of Wheeling mold & foundry co. provides for permanent committee to decide when company and employees disagree. Iron Age 102:754-5 S 26 '18
- United States steel corporation adopts eight-hour day. Iron Tr R 63:709 S 26 '18; Chem & Met Eng 19:539 O 1 '18; Iron Age 102:850-1 O 3 '18
- Wage scale and conditions of labor at Delaware river and Baltimore shipyards; final report of Shipbuilding labor adjustment board. Iron Age 101:551-2 F 28 '18
- Wages and hours of labor in cotton goods manufacturing and finishing, 1916. U S Bur Labor Statistics Bul 239:1-258 '18
- Wages and hours of labor in the iron and steel industry: 1907-1916; with a glossary of occupations. U S Bur Labor Statistics Bul 218:1-526 '17
- Wages and hours of labor in the lumber, mill-work, and furniture industries, 1915. U S Bur Labor Statistics Bul 225:1-314 '18
- Wages and hours of labor in woolen and worsted goods manufacturing, 1918. U S Bur Labor Statistics Bul 261:1-93 '19
- War labor board upholds 8-hour day. Iron Tr R 63:735 S 26 '18
- West coast lumber industry on 8-hour basis. Am Lumberman 2234:47 Mr 9 '18
- Working day should be left alone; National metal trades expresses opinion. Iron Tr R 64:1157-9 My 1 '19

***See also* Daylight saving****Hours of opening and closing. See Staggered hours****House boats**

- Evolution of a bungalow. R. H. Moulton. *il* Arch Rec 43:581-4 Je '18
- House-boats with steel bunks used for dredge crews on ditch work. *il* diag Eng N 79:1216-17 D 27 '17

**House decoration**

- Color schemes for up-to-date rooms. G. V. Leonard. Bldg Age 41:223-4 Jl '19
- Decorative treatment of modern interiors. *il* Am Arch 116:71-5 Jl 16 '19

***See also* Curtains; Fireplaces; Mural painting and decoration; Tapestry; Woodwork**

- House drainage.** See Drainage, House; Plumbing
- House files.** See Files
- House mottoes**  
Book of old house mottoes. Am Arch 116:444 O 1 '19
- House moving.** See Moving of structures
- House organs**  
Achilles heel of the printer's house-organ. R. E. Ramsay. Inland Ptr 62:635-6 Mr '19  
Factory newspaper. R. Voorhees. Ind Management 55:145 F '18  
Few house-organ covers. Inland Ptr 64:56a-56d O '19  
Fostering plant spirit through a plant paper. H. W. Kimball. Ind Management 57:245-6 Mr '19  
House-organ covers. II Inland Ptr 62:188 N '18  
House-organ idea popular. F. L. Martin. Inland Ptr 62:667-9 Mr '19  
House organs. Am Ind 19:8-9 O '18  
House organs in the Applied science department of the St Louis public library. Bul of Bibliog 10:73-5, 92-3 O '18, Ja '19  
Make the house organ a human interest organ with a punch. R. E. Park. Automotive Ind 41:572-4 S 18 '19  
Printer's house-organ—what shall and shall not go into it. M. Droke. Inland Ptr 61:589-91 Ag '18  
Shipyard journalism. A. G. Brenton. Inland Ptr 62:321-2 D '18  
Shop paper as an aid to management. Factory 20:68+, 556+, 776+, 880+, 21:348+, 918+, 1184+, 22:102+, 482+, 710+, 1098+, 23:67, 140+, 302+, 1064+ Ja, Mr-My, Ag, N '18-Ja, Mr-My, Jl-Ag, N '19  
Shop paper as an aid to morale. P. F. O'Shea. II Factory 23:518-22 S '19  
Story of our social magnet. T. J. McMahon. II Ind Management 57:159 F '19
- House painting**  
Adding value by proper painting. G. Leonard. Bldg Age 41:7-8 Ja '19
- House plans.** See Architecture, Domestic—Designs and plans
- Houses.** See Apartment houses; Architecture, Domestic; Bungalows; Concrete houses; Cottages; Country houses; Housing problem
- Houses, Concrete.** See Concrete houses
- Houses, Portable.** See Buildings, Portable
- Houses, Remodeled.** See Building—Repair and reconstruction
- Housing corporation.** See United States housing corporation
- Housing law.** See Building laws and regulations
- Housing problem**  
Address at the convention of the Ohio state association of architects. L. S. Bellman. Am Arch 113:307-8 Mr 13 '18  
Advantages of the two-family house. W. H. Kilham. Bldg Age 40:114 F '18  
Community courts for factory workers. C. A. Byers. II Arch Rec 43:190-5 F '18  
Concrete for industrial housing—a review. II Concrete 12:30-1 Ja '18  
Concrete walled house cheaper than frame. II plans Concrete 12:27-8 Ja '18  
Discussion on housing. D. Eppelsheimer; L. Veiller. Am Inst Min Bul 149:767-71 My '19  
Effects of proper housing on labor turnover. J. C. Chase. Automotive Ind 38:1126-7 Je 13 '18  
Essentials in planning industrial houses. C. J. Thompson. Bldg Age 40:420-1 S '18  
Factory and the home. Sci Am 120:4 Ja 4 '19  
Future of industrial housing. S. Baxter. Arch Rec 45:567-72 Je '19  
General housing problem; its importance, magnitude and character. Am Arch 113:592-3 My 15 '18  
Good house for farm help. H. A. Shearer. diag plans Am Lumberman 2246:50 Je 1 '18  
Group house—its advantages and possibilities. R. H. Dana, Jr. Am Arch 115:163-5 Ja 29 '19
- Home attractions keep Mexican track laborers satisfied. C. A. Elliott. II diag plan Elec Ry J 52:150-2 Jl 27 '18
- Housing and reconstruction.** C. S. Stein. Am Inst Arch J 6:469-72 O '18
- Housing and stabilizing labor.** F. L. Ackerman. Textile World 53:3499 Ja 26 '18
- Housing as a war problem.** A. R. Ellis. II plans Am Arch 114:190-7 Ag 14 '18
- Housing question in other countries.** Am Inst Arch J 7:222-3 My '19
- How a city's housing shortage is estimated.** Am Arch 116:77-8 Jl 16 '19
- Ideas for American small houses; eight sketches by A. H. Hepburn for the Housing company, Boston.** Am Inst Arch J 6:175-82 Ap '18
- Industrial housing.** H. W. Forster. Eng Soc W Pa 33:610-20 D '17; Same. Iron Tr R 62:855-7 Ap 4 '18; Same cond. Eng & Contr 49:412-15 Ap 24 '18; Abstract. Iron Age 101:430 F 7 '18; Discussion. Eng Soc W Pa 33:620-42 D '17
- Industrial housing problem.** diag plans Textile World 54:1093+ S 7 '18
- Industrial housing problems.** L. H. Allen. plans Iron Age 100:1530-3 D 27 '17; Same abr. Eng & Contr 48:529-31 D 26 '17; Excerpt. Concrete 13:64 Ag '18
- Interior industrial house construction.** M. D. Morrill. Am Arch 114:573-4 N 13 '18
- Labor problem solved by housing.** Iron Tr R 61:1392-3 D 27 '17
- Labor turnover reduced and financial saving effected by better housing.** Eng N 81:1103 D 12 '18
- Let the housing problem be solved right.** N. F. Hoggson. Bldg Age 40:424 S '18
- Military and social need of better wartime housing.** C. M. Robinson. Am Inst Arch J 6:138-9 Mr '18
- Multifamily house for industrial housing.** H. A. Smith. diag plan Ind Management 55:483-4 Je '18
- New type of apartment housing for workmen at Astoria, N.Y.** II plan Eng & Contr 49:227-8 F 27 '18
- New type of construction for low-cost housing.** W. E. Groben. II diag plans Am Arch 113:419-23 Ap 3 '18
- Notes on the housing problem.** C. F. Willis. Eng & Min J 107:864-5 My 17 '19
- Observations on government housing, and on town planning and housing in general.** W. E. Shannon. Eng & Contr 52:350 S 24 '19
- Old box cars made habitable.** II Ry R 63:275-6 Ag 24 '18
- One way to build labor good will; housing plans that you can use.** J. Heywood. II Factory 20:42-4 Ja '18
- Practical housing a commercial asset.** H. Lucas. diag plans Am Arch 113:149-52 F 6 '18
- Preparing for peace.** K. V. Haymaker. Am Lumberman 2257:50 Ag 17 '18
- Preserving community standards.** W. R. Greeley. Am Arch 113:591-2 My 15 '18
- Problem of industrial housing.** J. Nolen. Am Ind 18:25 Mr '18
- Real meaning of the housing problem.** F. L. Ackerman. Am Inst Arch J 6:229-32 My '18
- Rebate plan for housing.** Am Arch 113:532-3 My 1 '18
- Recommendations for emergency housing construction made by National fire protection association committee.** Am Arch 113:734-5 My 29 '18
- Regional surveys—their aim and importance in war and in peace.** C. G. La Farge. Am Inst Arch J 6:402-4 Ag '18
- Report of the Milwaukee housing commission.** Am Inst Arch J 7:79-81 F '19
- Scrapping the slums.** R. A. Cram. Am Arch 114:761-3 D 25 '18
- Some causes for the failure of past housing experiments.** Am Arch 113:594 My 15 '18
- Some ingenious solutions of the high-cost-of-building problem.** II diag plan Sci Am 121:255 S 13 '19
- Standardization.** Am Arch 113:593-4 My 15 '18
- Standardization in buildings.** Am Inst Arch J 7:427-32 O '19

**Housing problem—Continued**

- Steamers may house workers. *Am Arch* 113: 295 Mr 6 '18
- Transportation or housing. C. S. Stein. *Am Inst Arch J* 6:363 JI '18
- Use of government money for house building. W. R. Greeley. *Am Arch* 114:97-100 JI 24 '18
- War and industrial housing. H. A. Smith. II plans *Am Arch* 113:33-7, 377-80 Ja 9, Mr 27 '18
- Ways and means of securing improved housing. E. T. Hartman. *Am Inst Arch J* 6:27-8 Ja '18
- What is a house? F. L. Ackerman. *Am Inst Arch J* 5:591-639 D '17
- What is a house? R. S. Childs. *Am Inst Arch J* 6:14-18 Ja '18
- What is a house?; constructive housing legislation and its lesson for the United States. E. E. Wood. *Am Inst Arch J* 6:58-67 F '18
- Workingman and his house. A. D. F. Hamlin. II diag plans *Arch Rec* 44:302-26 O '18
- Workman's home: its influence upon production in the factory and labor turnover. L. H. Allen. *Am Soc M E J* 40:453-8 Je '18

See also Apartment houses; City planning; Construction camps; Garden cities; Housing projects; Labor camps; Lodging houses; Lumber camps; Miners' houses; Mining camps; Model towns; Tenement houses; United States housing corporation

**Bibliography**

- Selected bibliography of industrial housing in America and Great Britain during and after the war; preprint from report of Bureau of industrial housing and transportation, United States housing corporation. 19p '19 U S Department of labor, Washington, D.C.

**Canada**

- Dominion of Canada housing loan. S. T. J. Fryer. diag plans *Arch Forum* 31:41-5 Ag '19
- Housing in Canada. *Am Inst Arch J* 7:271-3 Je '19

**Cleveland**

- Cleveland (O.) plan for financing house building. *Am Arch* 113:159-60 F 6 '18

**Detroit**

- What Detroit is doing to solve the housing problem. *Automotive Ind* 40:997-8 My 8 '19

**France.**

- Concrete dwellings in France. H. J. Harms. Jr. II Concrete 12:16-17, 41-6, 78-81 Ja-Mr '18
- Notes on rebuilding in France and Belgium. T. Kimball. *Am Inst Arch J* 6:164-8 Ap '18
- Small-house reconstruction in France. H. Lavedan. II *Am Inst Arch J* 6:120-30 Mr '18
- Workpeople's welfare at a French explosives factory. diag *Engineer* 125:25-6 Ja 11 '18

**Germany**

- German housing plans. *Am Arch* 114:282-3 S 4 '18
- Housing problem in Germany acute. *Am Arch* 113:532 My 1 '18

**Great Britain**

- Bracebridge hall club, Lincoln, England. *Engineer* 125:203 Mr 8 '18
- British housing notes. *Am Inst Arch J* 7:494-6 N '19
- British housing plans after the war. *Am Arch* 113:508 Ap 24 '18
- British housing problems. I. W. Chubb. *Ind Management* 55:39 Ja '18
- Co-partnership housing in England. H. S. Swan. bibliog *Am Inst Arch J* 6:183-9 Ap '18
- Cost of England's national housing scheme. *Am Arch* 116:242 Ag 20 '19
- Final report of the Women's housing subcommittee of the Ministry of reconstruction, Advisory council, England. *Am Inst Arch J* 7:supl-8 My '19
- Housing in England; second reading of the housing bill. *Am Inst Arch J* 7:220 My '19
- Housing in the British Isles. *Am Inst Arch J* 6:528-31 N '18

- Housing problem in England. *Sci Am S* 85:173 Mr 16 '18
- Housing question taking definite shape in Great Britain. S. Brinton. II plans *Am Arch* 115:739-43 My 28 '19
- Notes from England with special references to post-war housing developments. H. J. Birnatingl. II diag plans *Arch Forum* 31: 163-8 N '19
- Public utility housing societies. *Eng & Min J* 107:912 My 24 '19
- State and the housing problem. *Engineer* 126: 119-20 Ag 9 '18
- Studying housing in Great Britain. *Am Lumberman* 2274:54-5 D 14 '18

**Halifax**

- Re-housing in Halifax with concrete block. II diag plans map *Concrete* 14:44-52 F '19

**Ireland**

- Dublin's housing problem. W. Jackson. II map *Elec Ry J* 53:1038-43 My 31 '19

**Italy**

- Workingmen's houses in Italy. A. Melani. II diag plans *Arch Rec* 46:176-85, 243-50 Ag-S '19

**New York city**

- Housing crisis in New York city. C. S. Stein. *Am Inst Arch J* 7:220-1 My '19
- Indictment which must be examined; letter to the directors of the title and mortgage companies of New York. *Am Inst Arch J* 6:79-81 F '18

**St Louis**

- Model housing plan for reclaiming a St Louis district. II *Am Arch* 116:8-13 JI 2 '19

**Seattle**

- How Seattle, Wash., is solving housing problem. *Iron Tr R* 62:336 Ja 31 '18
- Seattle plan of home-building. C. Bush. *Am Ind* 19:25-6 JI '19
- Seattle solves its housing problems. *Am Lumberman* 2266:41 O 19 '18

**United States**

- American housing notes. *Am Inst Arch J* 7: 409-10 S '19
- American small houses lead the world's. W. E. Shannon. *Am Arch* 116:415-16 S 24 '19
- Architects urge government to house workers. *Am Arch* 113:82 Ja 23 '18
- Best homes planned for recent industrial housing operations; views and plans. *Bldg Age* 40:433-48 S '18
- English conception of the American workingman's house. *Am Arch* 114:234-5 Ag 21 '18
- Federal aid to home building. F. R. Howe. *Arch Forum* 30:137-40 My '19
- Government individual home building corporation. C. E. Schermerhorn. *Am Arch* 114: 338-40 S 18 '18
- Homes for wartime workers. A. C. Bossom. II plan *Arch Rec* 44:214-24 S '18; Abstract. *Am Lumberman* 2263:30 S 28 '18
- Houses for returned soldiers. *Dom Eng* 88: 592 S 27 '19
- Housing and race friction. E. K. Jones. *Am Arch* 116:445-6 O 1 '19
- Housing for women war workers. R. H. Moulton. II plans *Arch Rec* 44:422-9 N '18
- Housing plan taking form. *Iron Tr R* 62:624 Mr 7 '18
- Housing situation. W. M. Calder. *Eng & Contr* 52:244-5 Ag 27 '19
- National housing association urges government intervention to provide housing. *Concrete* 12:62 F '18
- 7th annual conference on housing in America. *Am Lumberman* 2272:44 N 30 '18
- Solution of the housing problem in the United States. M. Hastings. plan *Am Inst Arch J* 7:259-66 Je '19
- Solution of the housing problem in the United States. R. A. Pope. plans *Am Inst Arch J* 7:305-14 JI '19
- Structural service department; list of societies interested in workmen's houses. *Am Inst Arch J* 5:655-6 D '17

**Housing problem—United States—Continued**

Suggestions for housing women war workers; result of investigation by the housing committee of the war work council of the Young women's Christian association. *Il* plans *Am Ind* 18:23-5 Mr '18

War time housing; report of committee of National housing association. *Am Arch* 112: 486 D 26 '17

*See also* Housing projects, Government

**Washington, D.C.**

Housing for government clerks. *Am Arch* 113:66-6 Ja 16 '18

Housing problem in Washington, D.C. E. M. Jenkins. *Am Mach* 48:504-5 Mr 21 '18

Washington's alley dwellers homeless after July 1st. *Am Arch* 113:354 Mr 20 '18

**Housing projects**

Bridgeport (Conn.) housing development. *Il* diag. plans *Am Arch* 113:129-47 F 6 '18

Community planning for peace-time industries. plans *Am Arch* 113:635-8 My 15 '18

Developing speculative and investment home-building projects in American cities. *Arch Forum* 31:25-8 Jl '19

Housing problem, Bridgeport, Conn. W. E. Freeland. *Il Iron Age* 101:729-34 Mr 21 '18

Housing project construction costs. C. F. Willis. *Il* plans *Concrete* 14:185-90 My '19

Housing project schedules. N. M. Woods. *Arch Rec* 45:118-22 F '19

How Flint, Michigan, sought to solve the housing problem. *Il Am Lumberman* 2233: 40 Mr 2 '18

Industrial housing development, for the Civic building co., at Flint, Michigan. *Il* plans *Am Arch* 113:622-34 My 15 '18

Industrial housing developments in America. L. Veller. *Il* diag. plans map *Arch Rec* 43: 231-56, 344-59, 447-69, 547-59; 44:48-58, 140-51 Mr-Ag '18

Industrial housing schemes of Dundee. J. Thompson. *Eng & Contr* 50:120 Jl 31 '18

Kenosha, Wis., offers a detailed plan for thoro housing. *Am Lumberman* 2302:42-3 Je 28 '19

Noteworthy housing development in Philadelphia. F. C. Feld. *Il Am Inst Arch J* 6:77-8 F '18

Planning and financing the industrial housing project. A. F. Clough. *Am Arch* 113:583-7, 653-6 My 15-22 '18

Sawyer Park—an industrial development at Williamsport, Pa., views and plans. *Am Arch* 113:639-42 My 15 '18

Solving the housing problem; the Worcester, Mass., plan. *Iron Age* 103:1449 My 29 '19

Street improvements in housing developments. Good Roads n s 15:263+ My 25 '18

Various ways in which the industrial housing project is financed. J. Natté. *Bldg Age* 40: 431 S '18

**Housing projects, Company**

Company residences for railroad employees. *Il* diag. plans *Ry R* 63:197-200 Ag 10 '18

Cost of housing to an employer. L. Magnusson. *Concrete* 12:223 Je '18

Garden apartments for industrial workers. H. A. Smith. *Il* plans *Am Arch* 113:686-9 My 23 '18

Gulf Coast shipyard solves housing problem. *Il Int Marine Eng* 23:129-30 Mr '18

Housing development at Danielson, Conn. W. H. Cox. *Il* plans *Am Arch* 113:677-85 My 23 '18

How Erie is solving the housing problem. *Il* diag. *Iron Age* 101:1385-9 My 30 '18

Hydraulic pressed steel co., Cleveland, builds houses for workmen. *Il Iron Age* 103:1506 Je 5 '19

Industrial housing. *Il Arch & Bldg* 51:2-5, pl 1-17, 19-21 Ja '19

Lumber retailer builds forty-two houses for Clark equipment co. *Il Am Lumberman* 2258:38-9 Ag 24 '18

Morgan Park, Minn.; industrial suburb for the Minnesota steel company. *Il* plans *Am Arch* 113:743-58+ Je 5 '18

New steel mill communities; treatment of housing problems at Youngstown and the Clairton by-product plant. *Iron Age* 101: 1487 Je 6 '18

146 unit-built concrete dwellings at Youngstown. H. Whipple. *Il* plans *Concrete* 12:5-9 Ja '18; Same. *Coal Age* 13:862-5 My 11 '18

Planning a housing development for an industrial plant. B. Wilk. *Ind Management* 56:282-3 O '18

Precast and field-cast concrete houses built by Lehigh coal and navigation co., at Lansford, Pa. J. B. Warriner. *Il* diag. plans *Coal Age* 13:228-30 F 2 '18

Selling homes to workmen at cost; Clark equipment co., Buchanan, Mich. *Il Iron Age* 104:695-7 S 11 '19

Unit-built concrete cottages to house foreign labor of Youngstown steel and tube co. *Il* diag. plans map *Eng N* 80:695-8 Ap 11 '18

Wage earners' community development at Beloit, Wisconsin. R. F. Warner. *Il* diag. plans *Am Arch* 113:667-66 My 22 '18

Wisconsin town solves the housing problem. *Am Lumberman* 2234:42 Mr 9 '18

Workmen's colony, East Youngstown, O. F. J. Herding. *Il* diag. plans *Am Arch* 114: 383-98 O 2 '18

**Housing projects, Government**

Atlantic Heights housing development. plans *Textile World* 55:233-4+ Ja 11 '19

Brief record of progress in the government's war housing program. *Am Inst Arch J* 6: 445-7 S '18

Bristol, Pa., America's greatest single industrial housing development. C. S. Taylor. *Il* plans *Am Arch* 113:599-615 My 15 '18

Building a town at Bristol, Pa., to house three thousand shipbuilders. *Il* plan *Eng N* 80:227-30 Ja 31 '18

Construction features of government housing development at Cradock, Va. *Il Eng & Contr* 51:62-3 Ja 15 '19

Emergency fleet corporation hotels. diag. plans *Am Inst Arch J* 6:513-23 N '18

Engineer and government housing developments. J. W. Alvord. *Eng & Contr* 51:227-8 F 26 '19

Engineering data required for a housing project; Federal bureau of housing of Department of labor issues instructions to be followed by preliminary investigators. *Eng N* 80:1141-3 Je 13 '18

Essentials of industrial housing standards of federal government. J. Nolen. *Eng & Contr* 50:600 D 25 '18

Extensive housing plan; large appropriation asked by Shipping board. *Iron Age* 101:149 Ja 10 '18

Extent of the operations of the U.S. housing corporation. *Munic Eng* 55:176-7 N '18

\$50,000,000 federal housing project. *Munic J* 44:232 Mr 16 '18

First war emergency government towns, Atlantic Heights, N.H. *Il* diag. plans *Am Inst Arch J* 6:427-34 S '18

First war emergency government towns for shipyard workers; Hilton, Virginia. H. V. Hubbard and F. Y. Joannes. *Il* diag. plans *Am Inst Arch J* 6:333-45 Jl '18

First war emergency government towns for shipyard workers; Yorkship village at Camden, N.J. R. S. Childs. *Il* diag. plan *Am Inst Arch J* 6:237-44, 249-51 My '18

First war emergency government towns, Groton, Conn. *Il* plans *Am Inst Arch J* 6:510-17 N '18

Future and influence of American war housing developments. C. S. Taylor. *Am Arch* 114:721-5 D 18 '18

Future of government industrial villages. *Am Arch* 114:259-60 Ag 28 '18

Future of government villages. C. W. Brazer. *Am Arch* 115:219-21 F 12 '19

Government housing at home and abroad. W. E. Shannon. *Am Ind* 20:25-7 S '19

Government housing details. *Iron Age* 101:1270 My 16 '18

Government housing plans. *Eng N* 80:94-5, 276-7, 331 Ja 10, F 7-14 '18

Government housing project appointments announced. Good Roads n s 16:5 Jl 6 '18

**Housing projects, Government—Continued**

- Government housing; what will follow? C. G. La Farge. *Am Arch* 115:55-9 Ja 8 '19
- Government industrial housing a business proposition. *il plans Am Arch* 114:157-66, pl 42-52 Ag 7 '18
- Government's housing activities. S. Baxter. *Arch Rec* 44:561-5 D '18
- Government's housing at Bridgeport, Connecticut. S. Baxter. *il diags plans Arch Rec* 45:123-41 F '19
- Government's housing project at Quincy, Mass. S. Baxter. *il diags plans Arch Rec* 45:242-61 Mr '19
- Great housing plan for workingmen; employees of shipyards and other war industries will be cared for. *Iron Age* 101:611 Mr 7 '18
- Housing construction at Cradock, Va. *il Munic J* 46:61-3 Ja 25 '19
- Housing development that solves the lodger problem; the Naval ordnance housing development, South Charleston, W. Va. *il Am Arch* 115:565-9, pl 133-9 Ap 23 '19
- Housing developments projected by the United States housing corporation. *Am Inst Arch J* 6:410 Ag '18
- Housing our shipyard workers. W. Fawcett. *Int Marine Eng* 23:273-5 My '18
- Housing standards of the federal government. J. Nolen. *Am Arch* 114:763-5 D 25 '18
- Housing war workers in Washington. *il Am Arch* 114:661-5 D 4 '18
- How shipyard housing work is organized and operated. *Eng N* 81:122-4 Jl 18 '18
- Important changes made in government housing policy. *Am Arch* 114:48 Jl 10 '18
- Industrial housing at Perryville, Md. *il plans Am Arch* 114:503-10, pl 129-35 O 30 '18
- Municipal and state employees' residences in Budapest. R. Grimshaw. *plan Am Inst Arch J* 6:67 F '18
- New housing projects announced. *Munic J* 45:236 S 21 '18
- New London, Conn., housing project. L. L. Tribus. *il plan Munic J* 47:102-4 Ag 16 '19
- New munitions town of Gretna built by the British government; views. *Am Inst Arch J* 6:54, 71-6 F '18
- Portsmouth and the war; notes on the development at Atlantic Heights, N.H. W. R. Greeley. *il diags plans Am Arch* 114:447-56 O 16 '18
- Present and future government of war-created communities. E. Cawcroft. *Am Inst Arch J* 6:553-8 D '18
- Public utilities and housing projects; notes concerning the general policy of the United States housing corporation. *Munic J* 45:267-8 O 5 '18
- Quantity house production methods, construction branch, Emergency fleet corporation. *il Am Arch* 115:353-8, 393-8 Mr 5-12 '19
- Surveying for housing projects; instructions by Bureau of industrial housing and transportation for making topographical surveys and maps of sites. *Munic J* 45:28-9 Jl 13 '18
- United States housing corporation; project no. 59 at Bath, Maine. *il plans Arch Rec* 45:21-5 Ja '19
- What about the government housing program? M. Knowles. *Eng N* 82:329-31 F 13 '19
- Yorkship village for ship workers. *plan Munic J* 45:85-7 Ag 3 '18
- Yorkship village; housing development for New York shipbuilding corporation, Camden, N.J.; views and plans. *Am Arch* 113:pl 195-200 Je 5 '18

**Housing projects, State**

- Housing by the commonwealth of Massachusetts; homesteads built at Lowell, Mass. W. H. Kilham. *il plans Am Inst Arch J* 6:131-4 Mr '18
- Massachusetts homestead commission plans for the Lowell, Mass., homestead project. *il Am Lumberman* 2230:40 F 9 '18; *Excerpt. Am Arch* 113:354 Mr 20 '18
- Massachusetts housing demonstration. W. R. Greeley. *il plans Am Arch* 113:643-6 My 15 '18

**Houston, Texas****Harbor**

- Harbor facilities and development at Houston, Texas. *il diags plan Eng N* 83:156-9 Jl 24 '19

**Rapid transit**

- Public, if informed, is fair; Houston, Texas, fare situation. F. Putnam. *Elec Ry J* 52:662-3 O 12 '18

**Howitzers. See Guns (ordnance)—Manufacture****Hudson river**

- Long-term variations in the flow of the Hudson river. E. H. Sargent. *Eng N* 83:360 Ag 21 '19

**Hudson river tunnels**

- Canal street Hudson river tunnel. C. E. Fowler. *Sci Am* 120:337+ Ap 5 '19
- Hudson river tunnel. *Sci Am* 120:196 Mr 1 '19
- Moving platform for the vehicular tunnel. J. P. B. Casgrain; C. N. Tousley. *Sci Am* 121:365 O 11 '19
- New Jersey vehicular tunnel. *Sci Am* 121:104 Ag 2 '19
- Project for a vehicular tunnel under the Hudson. *diag Ry R* 64:262-3 F 15 '19
- Proposed New Jersey-New York vehicular tunnel. *diags maps Heat & Ven* 15:25-33 Ap '18
- Proposed types of vehicular tunnel under the Hudson river. *diags Eng N* 83:422-4 Ag 28 '19
- Proposed vehicular tunnel under the Hudson at New York. *diags plan Ry R* 64:329-38 Je 21 '19
- Proposed vehicular tunnel under the Hudson river. *il diags Sci Am* 120:222-3 Mr 8 '19
- Vehicle tunnel under Hudson favored by commissions. *Eng N* 79:1220; 80:584-5 D 27 '17, Mr 21 '18
- Vehicular tunnels under the Hudson river. M. Schreiber. *diags plans map J Fr Inst* 187:273-88 Mr '19
- Ventilation of highway tunnels. C. D. Hill. *Eng N* 80:878 My 2 '18
- Ventilation of the vehicular tunnel. *Sci Am* 121:200 Ag 30 '19

**Hughes aircraft report. See United States—Aircraft production investigation****Hughitt, Marvin, 1837-**

- Retires as North western chairman. *por Ry Age* 64:1044-5 Ap 19 '18

**Human engineering. See Employees; Employment management; Employment systems; Industrial betterment; Scientific management****Humidifiers**

- Demand for double-pipe type of air moisteners. *diag Heat & Ven* 15:62-3 F '18
- Doctors say homes are too hot and dry. F. K. Chew. *diags Metal Work* 91:432-3 Ap 4 '19
- Floor register humidifier sharply criticized. F. K. Chew. *diag Metal Work* 91:525 Ap 25 '19
- Humidity machine an interesting use of gas in the tobacco factory. *Am Gas Eng J* 109:123-4 Ag 10 '18

**Humidity**

- Are schoolrooms drier than deserts? G. T. Palmer. *bibliog il Am Soc Heat & V E* 23:629-43 '17
- Atmospheric humidity and the testing of internal-combustion engines. C. Boileau. *diag Mech Eng* 41:545-7 Je '19
- Better humidity needed with furnaces. *Metal Work* 89:264-5 F 22 '18
- Commercial and manufacturing aspects of humidification. S. P. Munroe. *Textile World* 53:3161+ Ja 12 '18
- Constant temperature and humidity room for the testing of paper, textiles, etc. F. P. Veltch and E. O. Reed. *il diag J Ind & Eng Chem* 10:38-44 Ja '18; *Excerpt. Textile World* 53:4237+ Mr 16 '18
- Discussion of the papers of E. V. Hill and G. T. Palmer. *Am Soc Heat & V E* 23:644-8 '17
- Fuel economy in humidity control. F. J. McCullough. *Heat & Ven* 16:33 O '19

**Humidity—Continued**

How to use a psychrometric chart. J. I. Lyle. folding chart Heat & Ven 15:33-6 Ja '18

Humidity controlled by electric regulator. Elec W 71:1116 My 25 '18

Moisture of humidified air. M. J. Lenihan. Metal Work 90:161 Ag 9 '18

Relation of moisture content and drying rate of wood to humidity of atmosphere. A. Koehler. Am Lumberman 2304:54-5 Jl 12 '19

Removal of moisture from special rooms and buildings. C. L. Hubbard. diag Dom Eng 85: 283-5+ N 23 '18

Study of degrees of discomfort, based on temperature comfort tests made at the Chicago normal college. J. W. Shepherd. Heat & Ven 15:11-14 Ag '18

Testing of atmospheric conditions; description of apparatus. D. D. Kimball, J. I. Lyle and A. K. Ohmes. II diag Am Soc Heat & V E 23:453-81 '17

Ventilation, temperature and humidity; their effect on health, comfort and energy. W. A. Evans. Metal Work 89:359-60 Mr 15 '18

See also Humidifiers; Psychrometry

Hurley, Edward N., 1864-  
Chairman, United States Shipping board. por Iron Tr R 62:1265 My 16 '18

**Hurricanes**

Effects of hurricanes on the upper-air currents. Sci Am S 87:189 Mr 22 '19

Hutton, Frederick Remsen, 1853-1918

Sketch. por Am Mach 48:893-4 My 23 '18; Automotive Ind 38:978 My 16 '18; Eng N 80: 1016 My 23 '18; Power 47:750 My 21 '18; Am Soc M E J 40:473-7 Je '18; Mach 24:967 Je '18

**Hybridization**

Hybrid vigor and its meaning. D. F. Jones. II Sci Am 121:230-1+ S 6 '19

**Hydrants**

Damages to fire hydrants by motor vehicles and remedies therefor. Munic J 46:447-8 Je 21 '19; Excerpt. Eng & Contr 52:189 Ag 13 '19

High-pressure hydrant regulation. C. W. Gelger. II diag Sci Am 120:234+ Mr 8 '19

Hydrants and street washers that do not drain. W. B. Gray. diag Metal Work 90:415 O 11 '18

Improvements in water distribution system under efficient organization. R. S. Spalding. II diag Eng N 80:923 My 9 '18

Procedure in maintenance of fire hydrants in Minneapolis. II Munic Eng 54:43 Ja '18

Protection of water mains, fire hydrants and valves in Winnipeg. T. H. Hooper. Munic J 45:410 N 23 '18; Same. Munic Eng 55:202 D '18; Same abr. Eng & Contr 51:178 F 12 '19

Thawing at Middletown, Conn. E. T. McDowell. II Munic J 44:446-7 Je 1 '18

Thawing services and hydrants at Windsor, Conn. H. R. Turner. diag Munic J 44:512 Je 22 '18

Water works operation—distribution system. Munic J 44:467+ Je 8 '18

Waterworks operation; freezing and thawing of water mains and services. Munic J 45: 408-10 N 23 '18

See also Fire service; Hose couplings

**Hydrated lime. See Lime****Hydration**

Influence of the temperature of burning on the rate of hydration of magnesium oxide. E. D. Campbell. J Ind & Eng Chem 10: 595-6 Ag '18; Same. Concrete 14:sup32 Mr '19

**Hydraulic elevators. See Elevators****Hydraulic engineering**

Additional meteorological data needed by engineers. R. E. Horton. Eng N 82:614-16 Mr 27 '19

Automatic apparatus for regulating the output of pressure piping. W. De Schoulen-  
nikow. diag Mech Eng 41:543-5 Je '19

Municipal and hydraulic engineering in Washington's day. C. B. Burdick. W Soc E J 24: 323-7 My '19

Shock in hydraulic systems. A. Towler. Sci Am S 87:84 F 8 '19

See also Aqueducts; Artesian wells; Breakwaters; Bridges—Foundations and piers; Calissons; Canals; Cofferdams; Culverts; Dams; Dikes; Docks; Drainage; Dredging; Embankments; Flood control; Flumes; Fountains; Harbors; Hydraulic excavation; Hydraulic filling; Hydraulic machinery; Hydraulic mining; Hydraulic presses; Hydraulics; Hydrodynamics; Hydroelectric plants; Irrigation; Levees; Lighthouses; Locks (canals and rivers); Mattresses (hydraulic engineering); Piers; Pumping machinery; Pumping stations; Pumps; Reclamation of land; Reservoirs; Retaining walls; Rivers—Regulation; Siphons; Spillways; Stream measurement; Tide power; Tunnels and tunneling; Subaqueous; Turbines; Water; Water flow; Water power; Water supply; Water supply engineering; Water wheels; Wells; Wharves

**Hydraulic excavation**

Cost of hydrauliclicking a small yardage of earth. Eng & Contr 48:500 D 19 '17

Hydraulic stripping in quarrying. II Eng & Contr 50:564-5 D 18 '18

Sluicing method for moving earth applied to three small jobs. W. G. Fargo. II diag Eng N 80:328-9 F 14 '18

**Hydraulic filling**

Construction methods used on the Junction dam. II Eng N 81:495-7 S 12 '18

Construction of 18,000 ft. of 42 ft. top width, 21 ft. high embankment by hydraulic dredge method. II Eng & Contr 49:477-8 My 15 '18

Five million yards moved to dam three rivers near Bridgewater, N.C. II diag Eng N 79: 1197-9 D 27 '17

Hydraulic sluicing for blanketing porous canal banks; abstracts. R. B. Stevens. Eng & Contr 49:298-9 Mr 20 '18; Eng N 81:911 N 14 '18

Hydrauliclicking dam embankment on Miami flood-control project. II Eng N 83:371-3 Ag 21 '19

Methods of constructing hydraulic fill dams of Miami conservancy district. H. S. R. McCurdy. diag plans Eng & Contr 52:432-5 O 15 '19

Sluicing method for moving earth applied to three small jobs. W. G. Fargo. II diag Eng N 80:328-9 F 14 '18

Tests to determine pressures due to hydraulic fills. A. W. Goldbeck. II diag plan Eng N 80:758-60 Ap 18 '18

Yukon mining methods keep hydraulic fill soft. Eng N 81:100 Jl 11 '18

**Hydraulic jacks**

Hydraulic car lift gives increased output to shops. H. MacNutt. II diag Elec Ry J 52: 927-8 N 23 '18

Portable hydraulic jack made from old car axle. II diag Elec Ry J 53:365 F 22 '19

**Hydraulic machinery**

Hydraulically operated shell machines. P. B. Cochrane. II Am Mach 50:1127-9 Je 12 '19

Hydraulically operated shell production machinery. I. W. Chubb. II Am Mach 48:939-43 Je 6 '18

TWP hydraulic ingot stripper. II Iron Age 103:1148 My 1 '19

Valves and fittings for high hydraulic pressures. W. W. Gaylord. diag Am Soc M E J 40:952-4 N '18

See also Gates, Hydraulic; Hydraulic presses; Hydraulic rams; Pumping machinery; Turbines; Water wheels

**Hydraulic mining**

Gold washing on the banks of the Yangtze. H. K. Richardson. II Eng & Min J 107: 1069-70 Je 21 '19

Placer mining in Oregon. A. E. Kellogg. II Eng & Min J 108:90-1 Jl 19 '19

Placer operations in Cariboo area of British Columbia. B. R. MacKay. diag Eng & Min J 107:1036-41 Je 14 '19



**Hydraulic mining—Continued**

Stripping on Cuyuna range by hydraulic sluicing method. E. S. Hill. Eng & Contr 51:659 Je 18 '19

See also Gold dredging

Hydraulic motors. See Turbines

**Hydraulic presses**

Baily & Allen hydraulic press facilitates shaping of plates. II Iron Tr R 63:88 Jl 11 '18  
Hydraulic press for shortening drawbars. E. A. Murray. diags Ry Mech Eng 92:681 D '18

Hydraulic scrap metal compress. II Iron Age 101:802 Mr 28 '18

Hydraulic shell drawing. G. R. Smith. diags Am Mach 51:195 Jl 24 '19

Hydrostatic press for testing shells. II Iron Age 101:141 Ja 10 '18

Metalwood hydraulic shell-testing press. II diags Mach 24:655-6 Mr '18; Am Mach 48:388 F 28 '18; Iron Age 101:561 F 28 '18

Milling threads on columns of hydraulic press. diags Mach 25:245 N '18

Southwark hydraulic presses. II Am Mach 48:257-8 F 7 '18

Southwark lead cable covering press. II Mach 24:749-50 Ap '18; Am Mach 49:176-7 Jl 26 '18; Metal Ind 16:376 Ag '18

Southwark plate bending press. II Mach 24:465-6 Ja '18

**Bibliography**

Hydraulic forging presses; literature on the machinery used in plastic metal deformation. E. C. Buck. Iron Age 100:1480, 1522-4 D 20 '17

**Hydraulic rams**

How to calculate the force of the shock of a hydraulic ram. diag Dom Eng 81:391 D 8 '17

Hydraulic ram, its installation and operation. A. Bateman. II diags Dom Eng 86:169-70 Ja 25 '19

Hydraulic rams show 91 per cent efficiency. T. H. Carver. II diag plan Eng N 80:1000-1 My 23 '18

Notable hydraulic ram installation at Fort Pierce, Fla. II Ry R 64:460 Mr 22 '19

Water supply systems for hilly country. J. H. Brookes. diags Metal Work 91:747-8+ Je 13 '19

Hydraulic valves. See Valves, Hydraulic

Hydrauliccking. See Hydraulic filling

**Hydraulics**

Action of flame in furnaces as explained by the laws of hydraulics. A. D. Williams. diags Iron Tr R 61:1319-23 D 20 '17

Calculation of flow in open channels, by I. E. Houk. Review by R. E. Horton. Eng N 82:149-50 Ja 16 '19

Chart for solution of Manning formula. M. F. Sayre. chart Eng N 82:1126-7 Je 5 '19

Diagram for solving the Manning hydraulic formula. R. D. Goodrich. Eng N 83:648-9 O 2 '19

Economic pressure pipe on penstock pipe design. B. F. Jacobsen. Eng & Contr 50:554-6 D 11 '18

History and use of the Manning formula. H. W. King. Eng N 82:685 Ap 3 '19

Hydraulic efficiency of a drainage ditch for five different channel conditions. C. E. Ramser. II Eng N 82:522-3 Mr 13 '19

Hydraulic experiments with valves, orifices, hose, nozzles, and orifice buckets. A. N. Talbot and others. II diags plan Ill U Eng Exp Sta Bul 105:1-76 '18

Hydraulic tests of a 715-hp. high-speed water turbine of Swiss construction. W. Schmid. diags Am Soc M E J 40:1045-7 D '18

Manning formula again. I. E. Houk. Eng N 82:1274-6 Je 26 '19

New methods for the solution of backwater problems. H. R. Leach. diags Eng N 82:768-70 Ap 17 '19

Nomographic chart for solution of Manning formula. M. J. Shamray. chart Eng N 83:194 Jl 24 '19

Progressive erosion in a dredged drainage channel. C. E. Ramser. II diag Eng N 82:876-7 My 1 '19

Proposed hydraulic experiment. Sci Am S 88:163 S 6 '19

Proposed hydraulic experiment; abstract. Lord Rayleigh. diag Am Soc M E J 40:1047 D '18

Standard symbols for mechanics and hydraulics. Eng N 79:1113-14 D 13 '17

Variation of roughness coefficient in Manning and Kutter formulas. H. R. Leach; R. E. Horton. diags Eng N 82:536-8 Mr 18 '19

Variation of roughness coefficient in Manning's and Kutter's formulas. P. Parker. Eng N 82:1276-7 Je 26 '19

See also Fluids; Hydraulic engineering; Hydraulic machinery; Hydrodynamics; Hydrometers; Liquids; Nozzles; Pitot tube; Siphons; Stream flow; Stream measurement; Water; Water flow; Water power

Hydroaeroplanes. See Seaplanes

**Hydrobromic acid**

Potential of the bromine electrode; the free energy of dilution of hydrogen bromide; the distribution of bromine between several phases. G. N. Lewis and H. Storch. diags Am Chem Soc J 39:2544-54 D '17

**Hydrocarbons**

Comparative study of the thermal decomposition of coal and of some of the products of its carbonization. M. C. Whitaker and J. R. Suydam, jr. J Ind & Eng Chem 10:431-2 Je '18

Determination of unsaturated hydrocarbons in gasoline. E. W. Dean and H. H. Hill. U S Bur Mines Tech Pa 181:1-22 '17

Fractionating hydrocarbons; patent. diag Met & Chem Eng 18:98-9 Ja 15 '18

Geosynclines and petroliferous deposits. M. R. Daly. diag maps Am Inst Min E Bul 128:1135-46 Ag '17; Discussion. 133:97-9; 135:695-7 Ja. Mr '18

Influence of catalysts on the chlorination of hydrocarbons. V. R. Kokatnur. Am Chem Soc J 41:120-4 Ja '19

New reaction of paraffin hydrocarbons. E. V. Lynn. Am Chem Soc J 41:368-70 Mr '19

Separation of aromatic from paraffine hydrocarbons. Chem & Met Eng 19:555 O 1 '18

Studies in the production of oils and tars from bituminous materials. J. C. Ingram. II diag Mo U Sch Mines & Met Bul tech ser 3:1-65 My '17

Synthesis of some homologs of the terpenes, derivatives of 1,4-diisopropyl cyclohexane. M. T. Bogert and C. P. Harris. diag Am Chem Soc J 41:1676-90 O '19

See also Cyclopropane derivatives; Naphthalene; Petroleum

**Hydrocarbons, Aromatic**

Action of aromatic alcohols on aromatic compounds in the presence of aluminum chloride. R. C. Huston and T. E. Friedemann. Am Chem Soc J 40:785-93 My '18

Formation of aromatic hydrocarbons from natural gas condensate. J. G. Davidson. diags J Ind & Eng Chem 10:901-10 N '18

**Hydrochloric acid**

Applicability of the precipitated silver-silver chloride electrode to the measurement of the activity of hydrochloric acid in extremely dilute solutions. G. A. Linhart. diags Am Chem Soc J 41:1175-80 Ag '19

Comparison of the activities of two typical electrolytes. G. A. Linhart. Am Chem Soc J 39:2601-5 D '17

Free energy of hydrochloric acid in aqueous solution. A. A. Noyes and J. H. Ellis. diag Am Chem Soc J 39:2532-44 D '17

Hydrochloric acid color method for determining iron. J. C. Hostetter. Am Chem Soc J 41:1531-43 O '19

Solubility of bismuth oxychloride in hydrochloric acid and its relation to complex formation. A. A. Noyes, F. W. Hall and J. A. Beattie. Am Chem Soc J 39:2526-32 D '17

**Hydrocupreine**

Syntheses in the cinchona series: the simpler cinchona alkaloids and their dihydro derivatives. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 41:821-6 My '19

**Hydrocyanic acid**

Glacial acetic acid as a solvent for prussic acid; benzalhydrazinophenylacetonitrile and some derivatives. J. R. Bailey and R. H. Pritchett. *Am Chem Soc J* 40:1230-5 Ag '18  
 Manufacture of hydrocyanic acid. H. A. Pelton and M. W. Schwarz. *diags Chem & Met Eng* 20:166-6 F 15 '19  
 Safe cyanide fumigation. T. O. Smith. *diags Eng & Min J* 107:312 F 15 '19

**Hydrodrome**

Seventy-mile hydrodrome. W. W. Nutting. *Il Sci Am* 121:534-5+ N 29 '19

**Hydrodynamics**

Way of a ship at sea. *diag Sci Am S* 87:184-5 Mr 22 '19

*See also* Drops; Ship resistance; Soap bubbles and films; Viscosity; Waves

**Hydroelectric plants**

Changing from steam to hydroelectric power. W. E. Boden. *Elec W* 73:1118-19 My 24 '19  
 Economic proportion of hydroelectric and steam power. F. G. Baum. *Am Inst E E Pro* 37:1115-19 S '18; Same. *Elec R* 73:450-1 S 21 '18

Economy of water effected by interconnection. R. H. Halpenny. *Il diag Elec W* 72:828-31 N 2 '18

Factors in obtaining maximum output from hydro-electric plants. F. A. Allner. *Power* 50:118-19 JI 15 '19

Features of mammoth waterwheel generator; Niagara Falls power co. *Il diag Elec W* 73:1156-8 My 31 '19

General principles of the development and storage of water for electrical purposes. J. W. Meares. *diags Inst E E J* 57:426-39 Je '19; Same cond. *Engineer* 128:186-9 Ag 22 '19

How a large power plant was kept in service. L. W. Wyss. *diags Power* 50:388-9 S 2 '19

Hydroelectric economies; abstract. J. P. Jollyman. *Elec W* 71:1045-6 My 18 '18

Opportunities for and data on small municipal hydro-electric plants. W. G. Fargo. *Il Munic Eng* 56:168-71 My '19

Power loss in waterwheel pit. D. R. Shearer. *diags Power* 47:793 Je 4 '18

Progress in water power. *Power* 50:121 JI 15 '19

Record in quick construction; Kerckhoff project of the San Joaquin light and power corporation. *Il J Elec* 43:309-10 O 1 '19

Spinning mill's hydroelectric scheme. *Elec W* 74:254 Ag 2 '19

Subdivision of waterfalls in hydroelectric practice; abstract. F. Pagliaro. *Elec W* 71:421 F 23 '18

13½ ft. wood stave pipe used in Ontario power company's extension. *Eng & Contr* 52:415-16 O 8 '19

32,500-kva. waterwheel generator. R. B. Williamson. *Il diags Elec W* 74:456-8 Ag 30 '19

Water economy in hydroelectric plants. L. W. Wyss. *Elec W* 73:727-8 Ap 12 '19

Where to direct attention to increase economy. A. Bauhan. *Elec W* 73:1329 Je 21 '19

*See also* Dams; Turbines

**Auxiliary plants**

Appalachian power system. H. S. Slocum. *Il diags map Power* 49:438-44 Mr 25 '19; Same cond. *Elec W* 73:123-7 Ja 18 '19

Metering of auxiliaries aids economy of hydroelectric plant. M. A. Stillson. *Elec R* 75:410 S 6 '19

**Control**

Automatic apparatus for regulating the output of pressure piping. W. De Schoulenkow. *diags Mech Eng* 41:543-5 Je '19

Operation at Holtwood—features of station operation and maintenance. C. H. Bromley. *Il diag Power* 49:892-6 Je 10 '19

**Cost**

Construction costs of Rice Rips station. J. A. Leonard. *Il diags Elec W* 74:228-30 Ag 2 '19

Cost of hydroelectric development; abstracts. H. K. Barrows. *Elec W* 73:413-17 Mr 1 '19; *Eng & Contr* 51:271-3 Mr 12 '19

**Employees**

Operation at Holtwood, Pa. C: H. Bromley. *Il diag Power* 49:450-4 Mr 25 '19

**Ice protection**

Ice in hydro-electric plants. J. M. Purcell. *Power* 48:951 D 31 '18

Installing apparatus to protect dam from heavy ice. *Elec W* 71:778 Ap 13 '18

Methods of handling frazil ice at hydroelectric plants. J. A. Walls. *Eng & Contr* 50:351-2 O 9 '18

Model of river made to study water conditions. *Elec W* 74:130-1 JI 19 '19

New installation keeps ice away from Keokuk dam. *Il Eng N* 80:821-3 Ap 25 '18

Operation at Holtwood. C: H. Bromley. *Il Power* 49:850-4 Je 3 '19

**Reconstruction**

How to reconstruct small water power plants. R. K. Holland. *Munic Eng* 57:180-2 O '19; Same. *Eng & Contr* 52:296-8 S 10 '19

Rebuilding of a small hydroelectric station. *Il diags Elec W* 74:462-4 Ag 30 '19

**Records**

Operation at Holtwood. C: H. Bromley. *Il Power* 49:770-6 My 20 '19

**Alabama**

*See* Muscle Shoals, Alabama

**Bombay**

Bombay water-power developments. *diag maps Engineer* 126:507-8 D 13 '18

Tata hydroelectric power-supply works, Bombay; abstracts. R. B. Joyner. *Elec R* 73:1010-11 D 28 '18; *Eng & Contr* 51:462-3 Ap 30 '19; *J Elec* 43:162 Ag 15 '19

**California**

Automatic induction generator plants. E. A. Quinn. *Il diags plans J Elec* 42:342-4 Ap 15 '19

Electricity used in construction of Hetch Hetchy hydroelectric project. *Il Elec R* 73:646-7 O 26 '18

Great Western Power plan to spend \$6,000,000. *Elec W* 73:494-5 Mr 8 '19

Hydro-electric plant installed to utilize waste energy. *Eng N* 80:996 My 23 '18

Induction-generator plants in California; two hydroelectric plants under construction will utilize water otherwise wasted. L. J. Moore. *map Elec W* 72:831-2 N 2 '18

Interconnection reduces steam reserve necessary. L. J. Moore. *map Elec W* 73:840-2 Ap 26 '19; Same cond. *Mech Eng* 41:548-9 Je '19

New construction work on San Joaquin system. L. J. Moore. *Il map Elec W* 74:594-5 S 13 '19

New Kern river development. G. E. Armstrong. *diags Elec W* 74:116-18 JI 19 '19

San Francisco's Hetch Hetchy project. C. W. Geiger. *Il diag Munic J* 45:223-6 S 21 '18

Southern California Edison company enlarges holdings. *Elec W* 74:204 JI 26 '19

Water-power development on the Pacific coast. G. F. Sever. *Elec W* 73:177-8 Ja 25 '19

**Canada**

Electrical generation and distribution. L. G. Denis. *maps Elec R* 74:376-80 Mr 8 '19

Electrochemical development at Shawinigan. *Il Elec R* 71:1050-1 D 22 '17

Hydroelectric plant and paper mill at Ocean Falls. B. C. W. A. Scott. *Il Elec R* 75:551-4 O 4 '19

Statistical analysis of the central electric stations. *Power* 49:309-10 Mr 4 '19

**Chile**

New hydroelectric power plant at Rio Pangal. H. L. Cooper. *Il Elec R* 75:853-6 N 22 '19

**Hydroelectric plants—Continued****Colorado**

First hydroelectric plant in America. C. E. Doolittle. *Il J Elec* 42:56-8 Ja 15 '19

**France**

Hydro-electric development at Vernes. *Il diag Power* 49:554-6 Ap 15 '19  
Hydroelectric energy in France. C. W. A. Veditz. *Elec W* 74:182-3 Jl 26 '19  
Water powers of France. L. B. Stillwell. *Elec W* 73:331-2 F 15 '19; *Excerpts. Power* 49:298 F 25 '19

**Great Britain**

Dee hydroelectric development. S. E. Britton. *Elec W* 74:198 Jl 26 '19

**Idaho**

Conditions and costs of electric heating on Minidoka project. *Elec R* 74:312-14 F 22 '19

**Illinois**

40,000-kw. hydro plant near Chicago probable. *Elec W* 73:963 My 10 '19

**Iowa**

Automatic hydro-electric generating station of the Iowa railway and light company. L. B. Bonnett. *Il Gen Elec R* 20:918-23 D '17; *Abstract. Engineer* 125:316 Ap 12 '18  
Automatic hydroelectric plant; a description of the station of the Iowa railway and light company at Cedar Rapids, Iowa. J. M. Drabbe and L. B. Bonnett. *Il diag Am Inst E E Pro* 37:497-507 My '18; *Excerpts. Elec R* 73:219-21 Ag 10 '18; *Abstract. Elec Ry J* 52:8-9 Jl 6 '18  
Automatic hydroelectric plant, Cedar Rapids. *la. Sci Am* 119:263 S 28 '18  
Utilizing old mills for hydroelectric power plants. F. L. Clark. *Il Elec R* 75:181-2 Ag 2 '19

**Maine**

Construction and operating costs of water power; comparative utility of water and steam power. H. K. Barrows and E. F. Miller. *Power* 49:544-6 Ap 8 '19  
Construction costs of Rice Rips station. J. A. Leonard. *Il diags Elec W* 74:228-30 Ag 2 '19  
Fourth successive hydro-electric plant nears completion at Rumford. *Il diag plans Eng N* 81:654-7 O 10 '18  
Hydroelectric emergency plant. *Elec W* 74:227 Ag 2 '19  
Investigation of Maine water powers. map *Elec W* 73:120-1 Ja 18 '19

**Massachusetts**

Concrete draft tube at state of Massachusetts' hydroelectric plant. W. B. Conant. *Il Concrete* 12:225-6 Je '18

**Mexico**

Bocaquilla plant. *Elec W* 72:311 Ag 17 '18

**Michigan**

Hydroelectric development in Iron Mountain region. *Il Elec R* 72:1027-8 Je 22 '18  
Hydro-electric development on Dead river, Michigan. M. H. Wright. *Il Eng & Min J* 106:285-6 Ag 17 '18  
Interesting small-capacity low-head hydro-electric development. *Il Elec R* 73:158-60 Ag 3 '18  
Largest hydroelectric plant in Michigan. *Il diags plan Elec W* 72:244-8 Ag 10 '18; *Same. Power* 48:258-62 Ag 20 '18  
McClure hydro-electric plant. *Il Eng & Min J* 108:457-60 S 13 '19  
Mining company builds new hydroelectric plant. W. P. Potter. *Elec R* 73:890 D 7 '18  
Simplicity marks Michigan's largest hydro-electric development. *Il diag Elec R* 74:167-70 F 1 '19  
Solving hydro-electric problems of Lowell, Mich. *Il plans Eng N* 83:650-1 O 2 '19

**Minnesota**

Enlarging and improving water-power plants about Minnesota. *Elec R* 73:176 Ag 3 '18

**Montana**

Hydroelectric plant of Montana power company. W. A. Scott. *Il Elec R* 73:487-90, 535-7 S 28-O 5 '18

**New England**

Use of efficient stations to conserve coal supply. H. I. Harriman. *Elec W* 72:219 Ag 3 '18

**New Jersey**

New Pompton Lake hydroelectric plant. *Il Elec R* 74:711 My 3 '19

**New York**

Station no. 5 of the Rochester railway & light company. P. B. Findley. *Il Elec R* 72:503-5 Mr 23 '18  
Trebling the capacity of Trenton Falls (N.Y.) hydro-electric plant during operation. B. S. White. *Il diags map Eng N* 80:1028-31 My 30 '18

**New Zealand**

Development of hydroelectric power in New Zealand; abstract. L. Birks. *Elec W* 72:264 Ag 10 '18  
Hydroelectric development in Canterbury. L. Birks. *Il J Elec* 43:155-6 Ag 15 '19  
Lake Coleridge hydro-electric developments in New Zealand. *Eng & Contr* 50:112 Jl 31 '18

**Norway**

Hydroelectric installations in Norway. C. H. Tallant. *Il J Elec* 43:417-18 N 1 '19

**Ontario**

Canada rushing huge Niagara development as war conservation measure. *Il diags plan map Eng N* 81:801-5 O 31 '18  
Canada's new Niagara development. A. C. Carty. *Il map Sci Am* 119:412-13+ N 23 '18  
Electric power generation in Ontario on systems of hydroelectric power commission. A. H. Hull. *Il diags map plans Am Inst E E Pro* 38:29-52 Ja '19  
Features of Ontario's hydroelectric power system outlined and St Lawrence river crossing near three rivers described. *Elec W* 72:1041 N 30 '18  
New hydro-electric developments at Niagara. *Il diags map Engineer* 128:427-9, 454-5 O 31-N 7 '19  
Structural details of plant extension at Niagara Falls. *Il Elec R* 74:1028-32 Je 21 '19

**Oregon**

Construction problems at Copco plant. *Il Elec W* 72:201-2 Ag 3 '18  
Hydroelectric plant on John Day river finds good demand for power. *Elec R* 73:414 S 14 '18

**Pacific coast**

Pacific coast plants fully loaded. *Il maps Elec W* 73:1031-7 My 17 '19

**Panama canal**

Development of the Gatun hydroelectric station. *Il J Elec* 43:198-201 S 1 '19

**Pennsylvania**

Governors at Holtwood. F. H. Rogers. *Il Power* 49:600-2 Ap 22 '19  
Operation at Holtwood. C. H. Bromley. *Il diag Power* 49:450-4, 646-50, 683-4, 713-15, 770-6, 850-4, 892-6, 973-6; 50:8-9 Mr 25, Ap 29-My 20, Je 3-10, 24-Jl 1 '19  
Pittsburgh to get water power. *Power* 48:213 Ag 6 '18

**Spain**

Development of hydroelectric installations in Spain; abstract. *Elec W* 73:1223 Je 7 '19  
Pearson hydro electric development in Catalogne. C. Dantin. *diags Eng & Contr* 49:554-6 My 29 '18

**Tasmania**

Engineering features of Lake Margaret hydro-electric power scheme. *Il Eng & Contr* 50:126-7 Jl 31 '18  
Great Lake hydro-electric development. L. W. Schmidt. *Il Power* 48:328-30 S 3 '18

**Hydroelectric plants—Tasmania—Continued**

Recent hydroelectric development in Tasmania. L. W. Alwyn-Schmidt. *Il Elec W* 73:75-6 Ja 11 '19

**United States**

America's energy supply. C. P. Steinmetz. *Am Inst E E Pro* 37:591-615 Je '18; Same. *Gen Elec R* 21:454-66 Jl '18; Excerpts. *Power* 48:364-5 S 3 '18; Abstract. *Elec W* 71:1367-8 Je 29 '18

Interconnected power systems of the South. *Il map Met & Chem Eng* 18:470-9 My 1 '18; Same, without map. *Power* 47:720-7 My 21 '18

Power systems of the North Central states. C. H. Jones. *Il maps Chem & Met Eng* 21:341-7 S 15 '19

**Virginia**

Appalachian power system. H. S. Slocum. *Il diag map Power* 49:438-44 Mr 25 '19; Same cond. *Elec W* 73:123-7 Ja 18 '19

**Washington**

Largest high-head Francis turbine installed in plant of Puget Sound traction, light and power co. *Il diag plan Power* 47:174-7 F 5 '18; Abstract. *Am Soc M E J* 40:272-3 Mr '18; Abstract. *Elec R* 72:417-18 Mr 9 '18

Power development of the Puget Sound system. *Elec R* 74:897 My 31 '19

**Wisconsin**

Brule river hydro-electric development. C. V. Seastone. *Il diag plan Power* 49:842-5 Je 3 '19

Hydroelectric development on Wisconsin river at Stevens Point. W. F. Snyder. *Il diag Elec W* 74:881-4 My 31 '19

**Hydroelectric power**

America's energy supply. C. P. Steinmetz. *Am Inst E E Pro* 37:591-615 Je '18; Same. *Gen Elec R* 21:454-66 Jl '18; Excerpts. *Power* 48:364-5 S 3 '18; Abstract. *Elec W* 71:1367-8 Je 29 '18

California. 220,000-volt—1100-mile—1,500,000-kw. transmission bus. R. W. Sorensen, H. H. Cox and G. E. Armstrong. *maps Am Inst E E Pro* 38:1027-38 S '19; Same. *J Elec* 43:202-5 S 1 '19; Same. *Elec R* 75:477-80 S 20 '19; Excerpt. *Power* 50:522 S 23 '19; Excerpt. *Elec W* 74:743-5 O 4 '19

Coal and electricity question in Switzerland. *Engineer* 125:24-5 Ja 11 '18

Coal, oil and water-power statistics. charts *Power* 49:279 F 25 '19

Conditions in the power industry abroad. L. W. Alwyn-Schmidt. *Power* 49:777-8 My 20 '19

Connected load in war and peace; government analysis of business of the Southern California Edison company. S. M. Kennedy. *Il Elec W* 72:972-3 N 23 '18

Development of hydroelectric resources in eastern United States. D. H. Colcord. *Il Elec R* 74:207-9 F 8 '19

Economic proportion of hydroelectric and steam power. F. G. Baum. *Am Inst E E Pro* 37:1115-19 S '18; Same. *Elec R* 73:450-1 S 21 '18

Extensive hydroelectric development is urged in California. *Power* 47:567 Ap 16 '18; Excerpt. *Elec W* 71:688 Mr 30 '18

Helping France to help herself; hydroelectric power can supplant her coal supply. A. C. Clogher and V. F. Hammel. *Il map Elec W* 71:142-5 Ja 19 '18

Horsepower developed from water in Canada. *Power* 49:296-7 F 25 '19

Hydroelectric development. *Am Inst E E Pro* 37:sup41-5 F '18; Same. *Elec R* 72:150-2 Ja 26 '18; Same. *Sci Am S* 85:262-3 Ap 27 '18; Same cond. *Elec Ry J* 51:177-8 Ja 26 '18; Same cond. *Elec W* 71:203-3 Ja 26 '18; Same cond. *Eng N* 80:160-2 Ja 24 '18; Same cond. *Power* 47:236-7 F 12 '18

Hydro-electric energy as a conservator of oil. H. F. Jackson and F. E. Hoar. *Gen Elec R* 21:68-70 Ja '18

Hydroelectric energy in France. C. W. A. Veditz. *Elec R* 75:438-9 S 13 '19

Hydroelectric industry in Scandinavia and in the Dutch East Indies; abstract. A. Groot-hoff. *Elec W* 71:834 Ap 20 '18

Hydro-electric power development in Australia and New Zealand. L. Schmidt. *Power* 47:465-7 Ap 2 '18

Hydroelectric power for Ireland. J. P. Tierney. *Inst E E J* 57:27-30 D '18

Hydro-electric power in relation to industry. J. A. Johnson. *Met & Chem Eng* 18:462-6 My 1 '18

Increased hydroelectric development in France. *Elec R* 72:1083 Je 29 '18

Industrial power problems. W. F. Uhl. *Am Soc M E J* 40:923-8 N '18

Major power possibilities in California; abstract. F. H. Fowler. *Elec W* 72:214 Ag 3 '18

Nature's gift to the electrochemist at Muscle Shoals, Ala. W. G. Waldo. *Il Met & Chem Eng* 18:444-6 My 1 '18

Niagara power in war industries. *Elec W* 72:109-11 Jl 20 '18; Same (tables). *Chem & Met Eng* 19:120 Ag 1 '18; Excerpt. *Power* 48:177-8 Jl 30 '18

Pacific coast companies meet war problems. J. A. Britton. *Il Elec W* 71:15-16 Ja 5 '18

Pacific gas & electric company's record of power service. *Il Elec R* 73:822-3 N 23 '18

Production of electrometallurgical or electrochemical products per kilowatt-year. *Met & Chem Eng* 18:447 My 1 '18

Production of energy. A. M. Markwart. *Mech Eng* 41:265 Mr '19

Purchase of the Lake Cushman power site. *map J Elec* 43:361-2 O 15 '19

Reconstructing a logical program for hydro-electric development. *Il Elec R* 73:807-9 N 23 '18

Report on hydroelectric power in India. *Elec R* 75:909 N 29 '19

Seattle seeks funds to develop the Skagit river. *Elec W* 72:221-2 Ag 3 '18

Skagit River development. *Power* 47:853 Je 11 '18

Some features of hydro-electric engineering practice and possibilities. H. de B. Parsons. *Munic Eng* 57:13-16 Jl '19

Sources of power for California railroad electrification. F. H. Fowler and R. Sibley. *Il map J Elec* 43:371-3 O 15 '19

Spain plans national transmission network. G. F. Paul. *map Elec W* 74:122-3 Jl 19 '19

Technical features of the interconnections of electric power systems of California. F. M. Downing. *Am Inst E E Pro* 37:1297-1304 D '18

Two million more horse power from the Niagara river. R. G. Skerrett. *Il map Sci Am* 117:489 D 29 '17

Uses of water power and raw materials in the metallurgical and chemical industries in France; abstract. E. F. Côté and G. Flussin. *Chem & Met Eng* 21:399 S 15 '19

War-time value of hydroelectric power. H. I. Harriman. *Elec W* 71:17 Ja 5 '18

See also Hydroelectric plants; Tide power

**Hydrofluoric acid**

Use of hydrofluoric acid in analysis. N. H. Furman. *Am Chem Soc J* 40:895-906 Je '18

**Hydrofluosilicic acid**

Manufacture of phosphoric and hydrofluosilicic acids; patent. *diag Chem & Met Eng* 19:99 Jl 15 '18

**Hydrogen**

Chemical action produced by radium emanation; the combination of hydrogen and oxygen. S. C. Lind. *diag Am Chem Soc J* 41:581-51 Ap '19

Cutting steel ingots with oxy-hydrogen. W. B. Perdue. *Il Iron Tr R* 63:504-5 Ag 29 '18

Effect of hydrochloric acid on the nitrogen-hydrogen equilibrium. E. B. Ludlam. *Met & Chem Eng* 18:208 F 15 '18

Electricity used in oxygen and hydrogen making. *Il Elec R* 74:908-10 My 31 '19

Helium or hydrogen. *Sci Am* 121:104 Ag 2 '19

Hydrogen from ferrosilicon. *Iron Age* 103:608 Mr 6 '19

**Hydrogen—Continued**

- Hydrogen overvoltage. D. A. MacInnes and L. Adler. *diags Am Chem Soc J* 41:194-207, 2013-19 F, D '19
- Hydrogen reactions and catalysts. *Sci Am S* 85:384 Je 15 '18
- International type 4-1000 oxygen-hydrogen generator. *II Int Marine Eng* 23:48 Ja '18
- Measurement of low temperatures; vapor pressures of hydrogen in the neighborhood of the boiling-point and between the boiling-point and the critical temperature; abstract. P. G. Cath and H. K. Onnes. *Am Soc M E J* 40:1052 D '18
- Methods of producing hydrogen. *Sci Am* 120: 140 F 15 '19
- Modern welding and cutting; oxygen and hydrogen by the electrolytic method. E. Viall. *II diags plans Am Mach* 50:733-7 Ap 17 '19
- Oxy-hydrogen gas—its uses at the J. I. Case threshing machine company, manufacturers of tractors and farm implements. C. Kandel. *II plan Am Gas Eng J* 111:219-22 S 13 '19
- Preparation and testing of hydrogen of high purity. J. D. Edwards. *diag J Ind & Eng Chem* 11:961-3 O '19
- Production of hydrogen and water glass by the silicol process. *II Chem & Met Eng* 20: 289-90 Mr 15 '19
- Reagents for use in gas analysis; the absorption of hydrogen by sodium oleate. R. P. Anderson and M. H. Katz. *J Ind & Eng Chem* 10:23-4 Ja '18
- Richborough transportation depot and train ferry terminus. *II Engineer* 127:219-20, 226 Mr 7 '19
- Hydrogen bromide.** See Hydrobromic acid
- Hydrogen-ion concentration**
- Influence of hydrogen-ion concentration upon enzymic activity of three typical amylases. H. C. Sherman, A. W. Thomas and M. E. Baldwin. *Am Chem Soc J* 41:231-5 F '19
- Hydrogen peroxide**
- Action of hydrogen peroxide upon uric acid; second paper on hydrogen peroxide as a reagent in the purin group. C. S. Venable. *II diags Am Chem Soc J* 40:1099-1120 Jl '18
- Allantoxanic acid as an oxidation product of uric acid; third paper on hydrogen peroxide as a reagent in the purin group. F. J. Moore and R. M. Thomas. *Am Chem Soc J* 40:1120-32 Jl '18
- Hydrogen sulfide**
- Automatic hydrogen sulfide stopcock. C. H. Classen. *diags J Ind & Eng Chem* 10:131-2 F '18
- Equilibrium in the reaction between water and sulfur at high temperatures; the dissociation of hydrogen sulfide. M. Randall and F. R. v. Blichowsky. *diags Am Chem Soc J* 40:368-75 F '18
- Hydrogen sulfide generator. T. R. Ernest. *diag Am Chem Soc J* 40:1224-6 Ag '18
- Hydrogen sulfide generator. L. Sattler. *II J Ind & Eng Chem* 10:226 Mr '18
- Portable hydrogen sulfide generator. W. F. Munn. *diags J Ind & Eng Chem* 10:130-1 F '18
- Studies on the bacterial metabolism of sulfur; formation of hydrogen sulfide from certain sulfur compounds by yeast-like fungi. F. W. Tanner. *Am Chem Soc J* 40:663-9 Ap '18
- Hydrography**
- Latest guide to the Arctic. *Sci Am* 118:206 Mr 9 '18
- See also Harbors; Rivers; Tides
- Hydrolysis**
- Effect of prolonged acid hydrolysis upon the nitrogen distribution of fibrin with especial reference to the ammonia fraction. R. A. Gortner and G. E. Holm. *Am Chem Soc J* 39:2736-45 D '17
- Hydrolysis of organic halides and the corrosion of metals. H. W. Doughty. *Am Chem Soc J* 39:2685-92 D '17
- Influence of aspartic acid and asparagin upon the enzymic hydrolysis of starch. H. C. Sherman and F. Walker. *Am Chem Soc J* 41:1866-73 N '19

Nitrogenous auxoamylases. E. W. Rockwood. *Am Chem Soc J* 39:2745-52 D '17

Preparation and hydrolysis of esters derived from the substituted aliphatic alcohols. G. R. Bancroft. *Am Chem Soc J* 41:424-31 Mr '19

**Hydrometallurgy**

- Advent of modern mill mechanism to nitrate leaching. D. F. Irvin. *flow sheet diags Eng & Min J* 105:987-91 Je 1 '18
- Ammonia leaching; patent. *diag Chem & Met Eng* 19:263 S 1 '18
- Automatic separation of solution from solids in the hydrometallurgical treatment of ore pulps. B. Macdonald. *II diags Am Inst Min E Bul* 139:1141-4 Jl '18
- Calculation of extraction in continuous agitation. A. Ham and H. S. Coe. *Chem & Met Eng* 19:663-6 N 1 '18
- Cheap leaching of gold-ore tailings. *Eng & Min J* 107:226 F 1 '19
- Chemical and electrochemical problems involved in New Cornelia copper co.'s leaching process. H. S. Mackay. *Am Inst Min Bul* 153: 1929-44 S '19; Discussion. 155:3056-7 N '19
- Elimination of gelatinous silica in the hydrometallurgy of zinc. *Eng & Min J* 106:1117-18 D 28 '18
- Experiments in heap-leaching copper ores. G. D. Van Arsdale. *II diags Eng & Min J* 105:225-33 F 2 '18; Discussion. 105:339, 430-1, 832 F 16, Mr 2, My 11 '18
- First year of leaching by the New Cornelia copper co. H. A. Tobelmann and J. A. Potter. *flow sheet II diags plan Am Inst Min E Bul* 146:449-95 F '19; Discussion. 148:684-90; 149:777-8 Ap-May '19
- Free acid determination in presence of metallic salts. L. F. Clark. *Eng & Min J* 106: 1066-8 D 21 '18
- Hydrometallurgy and the electrolytic precipitation of zinc. F. D. James. *II Mo U Sch Mines & Met Bul tech ser* 4:1-26 Ag '17
- Innovations in the metallurgy of lead. D. A. Lyon and O. C. Ralston. 4 flow sheets. *II diags plans U S Bur Mines Bul* 157:1-169 '18
- Leaching copper. *II diag Sci Am* 118:145 F 16 '18
- Leaching process; patent. *diag Chem & Met Eng* 19:262 S 1 '18
- Practical considerations in ammonia leaching of copper-bearing ores. L. Eddy. *diags Chem & Met Eng* 20:328-34 Ap 1 '19; Same. *Eng & Min J* 107:1162-7 Je 28 '19
- Tailing excavator at the plant of the New Cornelia copper co., Ajo, Ariz. F. Moeller. *II Am Inst Min E Bul* 140:1229-34 Ag '18; Discussion. 143:1670-2 N '18

**Terminology**

- Defining tailings and residues. A. W. Allen. *Eng & Min J* 107:317 F 15 '19
- Distinction between extraction and recovery. A. W. Allen. *Eng & Min J* 106:740-1 O 26 '18
- Leaching and filtration nomenclature. A. W. Allen. *Eng & Min J* 106:990 D 7 '18

**Hydrometers**

- Calculation of hydrometer degrees, gravities and weights with the slide rule. W. Savage. *Chem & Met Eng* 21:395-7 S 15 '19
- Total-immersion hydrometer; abstract. A. Angstrom and H. Pettersson. *Am Soc M E J* 40:348 Ap '18; Same. *Sci Am S* 85:275 My 4 '18

**Hydronitrogens**

- Behavior of the hydronitrogens and their derivatives in liquid ammonia; electrolytic nitridation of various anodes in a solution of ammonium trinitride. A. W. Browne, M. E. Holmes and J. S. King. *Am Chem Soc J* 41:1769-76 N '19

**Hydrophone**

- Hydrophone for locating submarines. *II diag Sci Am* 120:229 Mr 8 '19

Problems of the vessel operator. J. C. McLennan. *Marine R* 49:466 O '19

**Hydroplanes.** See Hydrodrome

**Hydrostatics.** See Fluids; Hydrometers

**Hydroxy acids**

Molecular rearrangements in the camphor series; the decomposition products of the methyl ester of isosaminocamphonic acid; a new reaction involving the formation of the methyl ether of a hydroxy acid. W: A. Noyes and G. S. Skinner. *Am Chem Soc J* 39:2692-718 D '17

**Hydroxylamine**

Volumetric determination of hydroxylamine. W: C. Bray, M. E. Simpson and A. A. MacKenzie. *Am Chem Soc J* 41:1363-78 S '19

**Hydroxyphenylarsonic acids**

Isomeric hydroxyphenylarsonic acids and the direct arsenation of phenol. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1440-50 S '19

**Hygiene**

Care of the human machine. T: Darlington. *Eng & Min J* 108:311-13 Ag 23 '19; Same. *Eng & Contr* 52:331-2 S 17 '19

Illness in industry—its cost and prevention. T: Darlington. *Am Inst Min E Bul* 134:279-94 F '18; Discussion. 136:874-81 Ap '18

Relation of respiratory diseases to classroom ventilation. *Heat & Ven* 15:37 My '18

See also Air pollution; Baths; Dust removal; Fatigue; Food; Humidity; Military hygiene; Water pollution

**Hygiene, Industrial**

Dust inhalation in mines; abstracts. J. S. Haldane. *Sci Am* 88:119 Ag 24 '18; *Eng & Min J* 106:475-7 S 14 '18

Health of industrial workers. *Mach* 52:11 S '18

Health supervision for utility employees. R. B. Mateer. *Il Elec W* 74:27 J1 5 '19

Heat in relation to the health of workmen. J. A. Watkins. *Gas Age* 42:104-7 Ag 1 '18;

Excerpts. *Iron Tr R* 61:1387-8 D 27 '17; Excerpts. *Eng & Min J* 105:998-9 Je 1 '19

How we keep our men well. R. W. Elliott. *Factory* 22:247-9 F '19

Hygiene for lead workers. H. C. Ernst. *Eng & Min J* 105:384 F 23 '18

Illness in industry—its cost and prevention. T: Darlington. *Am Inst Min E Bul* 134:279-94 F '18; Excerpts. *Iron Tr R* 62:383-4 F 7 '18

Industrial health and efficiency. *Il diags plans* U S Bur Labor Statistics Bul 249:1-374 '19

Keeping workers well. *Factory* 23:350-1 Ag '19

Mortality from respiratory diseases in dusty trades. F: L. Hoffman. U S Bur Labor Statistics Bul 231:1-458 '18

Physical exercises made part of day's routine; White company establishes gymnasium. *Il Automotive Ind* 38:688-9 Ap 4 '18;

Same. *Gas Age* 41:353-4 Ap 15 '18

Why a health audit pays. *Factory* 20:437-9 Mr '18

See also Diseases, Industrial; Dust removal; Factory sanitation; Foundry sanitation; Medical service, Industrial; Mine sanitation; Miners—Diseases and hygiene; Occupations, Dangerous; Physical examinations; Safety devices and measures; Water supply for factories

**Bibliography**

Industrial hygiene. Russell Sage Foundation Lib Bul 36:1-4 Ag '19

Hygiene, Military. See Military hygiene

Hygiene, Public. See Public health

Hyperbolic functions. See Functions, Exponential

Hyperspace. See Fourth dimension

Hypo. See Sodium hyposulfite

**Hypochlorites**

Device for feeding hypochlorite. W. O. Myers. *diags Eng & Contr* 49:457 My 8 '18

See also Dakin's solution; Water purification—Chlorination

**Hysteresis**

Concept of resilience with respect to indicating instruments. F: J. Schlink. *J Fr Inst* 187:147-69 F '19; Abstract. *Mech Eng* 41:396-7 Ap '19

Hysteretic losses in iron; abstract. M. Latour. *Elec W* 72:561 S 21 '18

Magnetic permeability of steel. F. P. Fahy. *Il diags Chem & Met Eng* 19:247-50 S 1 '18

Study of mechanical hysteresis will advance our knowledge of materials. F: J. Schlink. *Eng N* 80:1035-7 My 30 '18

Suppression of hysteresis in iron-carbon alloys by a longitudinal alternating magnetic field. C. W. Waggoner and H. M. Freeman. *diags Gen Elec R* 21:143-5 F '18

**Hysteria**

Malingering and loafing. C. C. Sherlock. *Eng & Min J* 105:549 Mr 23 '18

**Hytempite**

Cementing jamb joints. *Il diags Chem & Met Eng* 21:153-4 Ag 1 '19

Difficult repairs made with hytempite. *Il diags Gas Age* 41:426-7 My 1 '18

Hytempite for hot patching. *Il Gas Age* 43:328 Mr 15 '19

Hytempite furnace cement. *Il Power* 49:268 F 25 '19

**I****Ice**

Food administration on ammonia and ice. C: W. Merrill. *Power* 47:348 Mr 5 '18

Ice in hydro-electric plants. J. M. Purcell. *Power* 48:951 D 31 '18

Observations on ice, water and steam. W. D. Owens. *Il Coal Age* 13:1056-7 Je 8 '18

Operation at Holtwood. C: H. Bromley. *Il Power* 49:850-4 Je 3 '19

Something about ice and how it affects the plumbing trade. J: H. Perry. *diags Dom Eng* 81:386-8 D 8 '17

See also Cold storage; Glaciers; Ice houses; Ice on rivers, lakes, etc.; Refrigeration and refrigerating machinery

**Manufacture**

Arctic-Pownall system of ice making. *Il diags plan Heat & Ven* 15:47-9 N '18

Central-station service for ice making and refrigeration. C: J. Carlsen. *Il Elec R* 74:783-7 My 17 '19

Electricity in raw-water ice plants. C. H. Stevens. *Il Elec R* 71:1005-8 D 15 '17

Feed-water heaters in ice plants. V: J. Azbe. *Power* 48:526 O 8 '18

Industrial applications of refrigeration. C: L. Hubbard. *Il diags plan Ind Management* 58:289-91 O '19

Largest ice plant in the West. V: J. Azbe. *Il Power* 50:168-70 J1 29 '19

Opportunity of electrical refrigeration; abstract. H. N. Sessions. *Elec W* 72:991 N 23 '18

Performance of a steam-driven raw-water ice manufacturing plant. V: H. Greene. *Power* 46:848-9 D 18 '17

Power rate for electrically driven ice plants. H. B. Joyce. *Power* 47:137-8 Ja 22 '18

Refrigerating plant efficiency; with discussion. V: J. Azbe. *diags Mech Eng* 41:362-8 Ap '19; Same abr. *Power* 49:547-50 Ap 8 '19

Refrigeration and ice making. C: L. Hubbard. *Il diags plan Ind Management* 56:105-9 Ag '18

Typical motor-driven ice plant. *Il Elec R* 72:147-9 Ja 26 '18

See also Refrigeration and refrigerating machinery

**Ice cutters**

Ice cutter made from a snowplow. *Il diags Elec Ry J* 52:699 O 19 '18

**Ice handling**

Car-icing plant accommodates twenty-eight cars. E. F. Ackerman. *Il Eng N* 82:276-7 F 6 '19

**Ice harvesting**

Harvesting ice with an automobile. *Il Sci Am* 118:169 F 23 '18

- Ice houses**  
Building a thirty-ton ice house for the farm. *diags Bldg Age* 41:73-4 F '19  
Farm ice house. *diags Am Lumberman* 2263: 47 S 28 '18  
Ice houses. L. C. Corbett. *il diags plan U S Agric Farmers' Bul* 475:1-20 '11
- Ice making.** See Ice—Manufacture
- Ice on rivers, lakes, etc.**  
Breaking up ice jams with powder. *Elec R* 74: 153-4 Ja 25 '19  
Effects of ice on river discharge. C. H. Pierce. *diags 3 pls Boston Soc C E J* 5:414-19 D '18  
Keeping ice from ports of water intake. C. M. Daily. *il diags plan Eng N* 80:900-1 My 9 '18  
Method of blasting out ice gorge. H. W. Stickle. *Eng & Contr* 50:283-4 S 18 '18  
Method of breaking up ice gorges with dynamite. S. R. Russell. *il diags Eng & Contr* 51:217-18 F 26 '19  
See also Hydroelectric plants—Ice protection
- Ice storage.** See Ice houses
- Idaho**  
See Copper mines and mining—Idaho; Mines and mineral resources—Idaho
- Idaho (United States steamship)**  
Our latest dreadnought Idaho. *il Sci Am* 120: 460 My 3 '19
- Identification**  
Admission tickets to your plant. *il Factory* 20:846-7 My '18  
Navy identification tags. *il Sci Am* 117:413 D 1 '17; Correction. 118:87 Ja 26 '18  
Tagging fighting men for identification purposes. *il Sci Am* 118:149+ F 16 '18  
See also Finger prints
- Identifying parts in process.** *Factory* 23:48-9 JI '19
- Ignition**  
Ignition temperature of gaseous mixtures. *Sci Am S* 87:55 Ja 25 '19  
Ignition temperature of gaseous mixtures. P. M. Heldt. *Automotive Ind* 38:738-9 Ap 11 '18  
See also Airplane engines—Ignition; Automobile engines—Ignition devices; Gas—Ignition; Gas and oil engines—Ignition
- Ilex vomitoria**  
Ilex vomitoria as a native source of caffeine. F. B. Power and V. K. Chesnut. *il Am Chem Soc J* 41:1307-12 Ag '19
- Illinois**  
Mecca for the motorist, Cook county. A. G. Vestal. *il map Motor Age* 33:5-7+ Je 13 '18  
See also Chemical industries—Illinois; Roads—Illinois; Water supply—Illinois
- Public health, Department of**  
Problems of the State department of public health during the war. H. P. Matte. *Am Water Works Assn J* 6:285-9 Je '19
- Public utilities commission**  
Illinois legislative matters interesting to Chicago engineers. *Elec R* 74:555-6 Ap 5 '19
- Illinois Central railroad**  
Annual report, 1917. *map Ry Age* 64:1408-9 Je 14 '18  
Markham yards, plan *Ry R* 62:270-1 F 23 '18  
Sanitarian's work is valuable to a railroad. A. E. Campbell. *diags Ry Age* 64:550-2 Mr 15 '18  
Subsidence tests for valuation made under difficulty. *il Eng N* 80:460-1 Mr 7 '18
- Illinois electric railway association**  
Annual meeting, Chicago, Jan. 17. *Elec Ry J* 53:179-81 Ja 25 '19  
Annual meeting, St Louis, Mo., June 20. *Elec Ry J* 51:1231 Je 29 '18  
Illinois association holds summer meeting. *il Elec Ry J* 54:159-61 JI 26 '19
- Illinois gas association**  
14th annual meeting, Chicago, March 20. *Am Gas Eng J* 108:283-4 Mr 23 '18; *Gas Age* 41:301-4 Ap 1 '18
- Illinois mining institute**  
Meeting. *Coal Age* 15:1112-13 Je 19 '19
- Illinois society of architects**  
Annual meeting, June 25. *Am Arch* 114:77-80 JI 17 '18
- Illinois society of engineers**  
Annual meeting, Quincy, Jan. 24-25. *Eng N* 80:330 F 14 '18
- Illinois state association of electrical contractors and dealers**  
Semi-annual meeting, Peoria, Ill., Sept. 19-20. *Elec R* 73:499-500 S 28 '18
- Illinois state electric association**  
First post-war convention, Chicago, Oct. 23-24. *Elec R* 75:746-8 N 1 '19
- Illinois. University**  
Railroads should make use of locomotive laboratory. E. C. Schmidt. *Ry Mech Eng* 92:19 Ja '18  
Research fellowships at University of Illinois experiment station. *Coal Age* 13:197 Ja 26 '18
- Illuminants.** See Lighting
- Illuminating engineering society**  
Annual report of the council for 1917-1918. *illum Eng Soc* 13:539-46 no 9 '18  
Annual report to the council for the fiscal year 1918-1917. C. L. Law. *illum Eng Soc* 12:506-22 no 9 '17  
Illuminating engineer at war. G. H. Stickney. *illum Eng Soc* 13:439-47 no 9 '18  
Illuminating engineering society work in the war. *Elec W* 72:806-7 O 26 '18  
Membership list. *illum Eng Soc* 14:sup64-117 no 6 '19  
New officers. *Elec R* 73:99 JI 20 '18  
New officers. *Elec R* 74:1041 Je 21 '19  
Presidential address. G. A. Hoadley. *illum Eng Soc* 14:295-305 no 7 '19  
Report of the committee on progress. *illum Eng Soc* 12:344-408 no 8 '17; Excerpts. *illum Engr* 10:285-9 N '17  
Report of the committee on progress. *illum Eng Soc* 13:450-511 no 9 '18; Abstract. *illum Engr* 11:235-6 O '18; Abstract. *Gen Elec R* 22:47-60 Ja '19  
Report on code of lighting school buildings. *il diags plans illum Eng Soc* 13:185-200 no 3 '18; Same cond. *illum Engr* 11:47-52 F '18; Excerpt. *Elec W* 70:1155-6 D 15 '17  
Some aspects of society endeavor. G. H. Stickney. *illum Eng Soc* 12:433-7 no 9 '17  
10th anniversary dinner, March 18. *illum Engr* 12:93-104 Ap '19  
12th annual convention, New York, Oct. 10. *Elec R* 73:619-20 O 19 '18  
13th annual convention, Chicago, Oct. 20-23. *Elec R* 75:698-704 O 25 '19; *Elec W* 74:906-7 O 25 '19
- Illuminating engineering society, London**  
Annual meeting, London, May 14, 1918. *illum Engr* 11:127-33 My '18  
Annual meeting, London, June 24. *illum Engr* 12:205-6 Ag '19  
Commencement of the illuminating engineering movement in this country. *illum Engr* 11:2-3 Ja '18  
Notes on events during the vacation. L. Gaster. *illum Engr* 10:307-8 D '17  
Presidential address. A. P. Trotter. *illum Engr* 10:309-20 D '17  
Report of the council for the session (November 1918—June 1919). *illum Engr* 12:207-14 Ag '19  
Work of the society. *illum Engr* 12:215-24 Ag '19
- Illuminating glass manufacturers' association**  
Representatives of fixture and illuminating glassware manufacturers organize at Pittsburgh. *Elec R* 74:311 F 23 '19
- Illuminating rockets**  
Illuminating devices in the great war. H. M. Brayton. *diag Sci Am S* 88:114-15+ Ag 23 '19  
Luminous rockets and bombs. *diags Sci Am S* 86:252-3 O 19 '18  
Rockets and illuminating shells as used in the present war; with discussion. A. Bergman. *illum Eng Soc* 13:219-31 no 4 '18; Same cond. *illum Engr* 11:189-91 Ag '18

**Illuminating shells**

- Illuminating devices in the great war. H. M. Brayton. *diag Sci Am S* 88:114-15+, 146-7+ Ag 23, S 6 '19
- Luminous rockets and bombs. *diags Sci Am S* 86:252-3 O 19 '18
- Rockets and illuminating shells as used in the present war; with discussion. A. Bergman. *Illum Eng Soc* 13:219-31 no 4 '18; Same cond. *Illum Engr* 11:189-91 Ag '18
- Sky-rockets of the night fighters. *Sci Am* 119: 18 J1 6 '18

**Illumination. See Lighting****Illumination, International commission on. See International commission on illumination****Iseemannite**

- Iseemannite; results of a study of a blue, water-soluble molybdenum compound occurring in Utah. H. F. Yancey. *Chem & Met Eng* 19:186-90 Ag 15 '18

**Imhoff tanks**

- Burn sewage gas to eliminate odor. J. G. Barnwell. *Eng N* 79:1100 D 13 '17
- Characteristic design features of the Northeast sewage treatment works at Philadelphia. W. L. Stevenson. *diags plan Munic Eng* 54:112-14 Mr '18
- Experience in six years' operation of Imhoff tanks. P. Molitor. *Eng & Contr* 49:270-1 Mr 13 '18
- Experiences with Imhoff tank foaming told by sewage-works operators. *Eng N* 80:671-2 Ap 4 '18; Discussion. J. Porter; W. S. Coulter. 80:877 My 2 '18
- Foaming of Dallas (Tex.) Imhoff tanks. C. Saville and R. H. Gould. *Eng N* 79:1067 D 6 '17
- Greenwich, Conn., sewage treatment plant. *Il Munic J* 43:621-3 D 29 '17
- Operating methods at York, Pa., sewage treatment plant. *Il Munic Eng* 53:197-200 N '17
- Operating sewage plants; abstract of instructions issued by Texas state board of health. *Munic J* 45:327-8 O 26 '18
- Operating small sewage disposal plants. G. W. Fuller. *Munic J* 44:202-4 Mr 9 '18; Excerpt. *Eng N* 80:409-10 F 28 '18; Excerpt. *Eng & Contr* 49:259-60 Mr 13 '18
- Prevention of Imhoff tank foaming at Schenectady, N.Y. H. P. Eddy. *Munic Eng* 55: 138-9 O '18
- Rules for operation of Imhoff tanks. *Eng & Contr* 50:30 J1 10 '18
- Septic and Imhoff tanks. M. C. Welborn. *Texas U Bul* 1733:32-3 Je 10 '17
- Sewage-treatment works at Langley field, Virginia. T. Saville and C. L. Well. *Il diags plans Eng N* 83:374-7 Ag 21 '19
- Some unusual sewerage problems and how they were solved at Ocean Beach, New York. A. J. Provost, Jr. *Il diags Munic Eng* 56:203-5 Je '19
- Specific suggestions on the design of Imhoff sewage settling tanks. C. F. Mebus and P. E. Mebus. *diags plans Munic Eng* 54:149-51 Ap '18
- Truth about Imhoff sewage tanks at Baltimore. T. D. Pitts. *Eng N* 81:84 J1 11 '18; Discussion. 81:374 Ag 22 '18

**Iminouracil acetic acid**

- Synthesis of iminouracil-6-acetic acid. D. E. Worrall. *Am Chem Soc J* 40:1133-5 J1 '18

**Immigrants in the United States**

- Experiment in internationalism; exhibition of foreign handicraft at the galleries of the Art alliance. E. C. Gray. *Il Color Tr J* 5:6-9 J1 '19
- Getting the foreign workman's viewpoint. S. L. E. Lazarovich-Hrebellanovich. *Am Inst Min E Bul* 136:905-12 Ap '18; Same cond. *Am Arch* 113:765-7 Je 5 '18; Excerpts. *Iron Tr R* 63:721-2 S 26 '18; Abstract. *Iron Age* 101:559 F 28 '18
- Hyphen a cause of industrial inefficiency. E. Szepesl. *Il Textile World* 53:2962+ Ja 12 '18
- Increasing efficiency of foreign employees. A. P. Gwiazdowski. *Am Mach* 49:650 O 10 '18

**Loyalty of foreign-born miners. Coal Age** 14: 189-90 J1 25 '18

*See also* Aliens; Americanization; English language (for foreigners)

**Education****See Americanization****Immigration and emigration**

- Construction labor's instability. W. P. Schmuck. *Eng N* 83:813-14 O 30 '19
- Emigration after the war. *Sci Am* 120:242 Mr 8 '19
- Relaxing labor laws favored in report of labor committee of cotton manufacturers. *Textile World* 54:1593 O 5 '18
- Suspend immigration? What of industry? A. J. Hain. *Il Iron Tr R* 65:757-63 S 18 '19
- Who shall do the work? R. D. La Guardia. *Il Sci Am* 121:108 Ag 2 '19

**Impact**

- New method of testing hardness. C. A. Edwards and F. W. Willis. *Engineer* 126:142 Ag 16 '18
- New pressure table for Eley lead crushers; abstract. F. W. Jones. *Am Soc M E J* 40: 432-3 My '18

**Impact machine. See Charpy impact machine****Impact tubes**

- Velocity measured by impact tube. S. A. Moss. *Il diags Iron Tr R* 62:777-85 Mr 28 '18

**Imposition. See Printing, Practical—Imposition****Incandescent electric lamps. See Electric lamps, Incandescent****Incinerators. See Refuse incinerators****Income tax**

- Advantages of the engineering appraisal. C. W. McKay. *Textile World* 55:2993+ My 17 '19
- American and English income taxes. *Am Gas Eng J* 108:274 Mr 23 '18
- Answers to income tax problems. *Dom Eng* 86:223-4 F 1 '19
- Application of federal income tax laws to mine taxation. *Eng & Min J* 105:639-43 Ap 6 '18
- Computation of excess profits and income taxes. *J Account* 25:199-202 Mr '18
- Corporation income and profits tax; specimen return. *Iron Tr R* 64:905-6 Ap 3 '19
- Deductibility of interest charges under federal tax laws. F. Thulin. *J Account* 26:23-32 J1 '18
- Depletion of copper mines in relation to income tax returns. W. B. Gower. *J Account* 26:81-92 Ag '18
- Depreciation and depletion in relation to income tax returns. G. Nelson. *J Account* 27: 111-19 F '19
- Depreciation and depletion in tax returns. W. Cairns. *J Account* 28:204-11 S '19
- Depreciation and federal income tax. C. W. McKay. *Ind Management* 58:148-52 Ag '19
- Depreciation and obsolescence as governed by federal income tax regulations. H. B. Fernald. *J Account* 25:241-7 Ap '18
- Federal income tax on mines. *Eng & Min J* 105:301 F 9 '18
- Form for income tax report of employees' earnings. H. J. Fletcher. *Ind Management* 58:288 O '19
- How to compute natural gas taxes. *Gas Age* 43:440-1 Ap 15 '19
- How to report income. *Textile World* 53: 3659 F 2 '18
- How to report net income under war revenue act. R. H. Butz. *Metal Ind* 16:81-2 F '18
- Income tax—an engineer's analysis. C. G. Barth. *Am Soc M E J* 40:839-42 O '18; Abstract. *Iron Age* 101:608 Mr 7 '18
- Income tax department. J. B. Niven. *See* monthly numbers of the *Journal of accountancy*
- Income-tax reports for shop employees. T. J. Walsh. *Am Mach* 48:479 Mr 21 '18
- Individual and partnership taxes. *Iron Tr R* 64:228-9 Ja 18 '19
- Lumber industry and the income tax. R. B. Goodman. *Am Lumberman* 2306:50-1 J1 26 '19



**Income tax—Continued**

- New corporation taxes explained. Iron Tr R 64:340-1 Ja 30 '19  
 New forms and departmental regulations. J. B. Niven. J Account 27:272-304 Ap '19  
 Pay the income tax in installments. J. P. Brophy. Ind Management 56:230 S '18  
 Preparation of tax returns. J Account 25:447-51 Je '18  
 Revenue act of 1918. J Account 27:176-226 Mr '19  
 Supreme court decision in Mitchell case; not necessary that increase in value of timberlands be entered on books. Am Lumberman 2245:57 My 25 '18  
 Systematically handling income tax returns for employees by Ford motor co. Automotive Ind 38:282-3 Ja 31 '18  
 Tax returns on basis of consolidated accounts. J Account 25:196-9 Mr '18  
 Tenant does not have to pay income tax assessed on rent unless lease so provides. Dom Eng 83:87 Ap 20 '18  
 Undistributed net income tax. J. B. Niven. J Account 26:113-42 Ag '18  
 War tax returns of the printer. W. Fawcett. Inland Ptr 60:636-8 F '18  
*See also* War revenue act, 1918

**Incorporation. See Corporation law****Incubators**

- Application of electric heat to incubators and brooders. Il Elec R 75:835 N 15 '19  
 Incubator business as an industrial field for gas. G. C. Shadwell. Il Am Gas Eng J 111:1-5 Jl 5 '19  
 Supplying gas for hatching and brooding. G. C. Shadwell. Il Am Gas Eng J 108:289-91 Mr 30 '18

**Indanthrene**

- Notes on the application of indanthrenes RS, GCD, and BCD. Color Tr J 4:83-4 Ap '19

**Index numbers**

- Method for a compensated wage by index numbers. L. K. Comstock. J Account 26:1-22 Jl '18  
 Rise in prices of metals, commodities and wages of labor. Eng & Min J 105:568-70 Mr 23 '18  
 Should accounts reflect the changing value of the dollar? L. Middleditch, jr. J Account 25:114-20 F '18

**Indexing**

- Control of industrial and scientific information; abstract. W. Rintoul. J Fr Inst 186:264 Ag '18  
 Introducing the index of equipment. Il diags Power 49:260-1 F 18 '19  
*See also* Card system in business; Files and filing (documents)

**Indexing (machine work)**

- Automatically indexed piercing and shearing tool. L. L. Dodds. Il diags Am Mach 50:1133-5 Je 12 '19  
 Indexing angles on the dividing head. D. E. Mapes. Am Mach 48:540 Mr 28 '18  
 Indexing attachment. diags Mach 24:936 Je '18  
 Indexing device. F. O. Martin. diags Am Mach 48:348 F 21 '18  
 Indexing device for relieving multiple-threaded hobs. R. V. Hutchinson. diags Am Mach 49:865 N 7 '18  
 Indexing drill jig. P. W. Hirsch. diag Mach 25:695 Ap '19  
 Indexing fixture for use in turret. C. W. Hathaway. diags Mach 24:1137 Ag '18  
 Indexing to fractional parts of minutes. D. E. Mapes. diag Am Mach 49:208 Ag 1 '18  
 Schipper universal index center. Il Iron Age 102:569 S 5 '18; Am Mach 49:544 S 19 '18  
 Special compound indexing device. P. H. Byer. diag Mach 25:1175 Ag '19  
 Special indexing fixture for milling large nuts. W. C. Loring. diag Am Mach 51:35-6 Jl 3 '19

**India**

- Antiquity of the Tamil speech. J. Lazarus. Sci Am S 87:238 Ap 12 '19  
 Indian boats and their origin. Sci Am S 85:73 F 2 '18

- Sanitary engineers get direct results in East Indian mining camp. H. N. Jenks. Il Eng N 82:172-5 Ja 23 '19

*See also* Hydroelectric plants—Bombay; Sikhs

**Commerce**

- Cotton goods in British India. R. M. Odell. Il U S Bur For & Dom Com 157:1-57 '18  
 Cotton goods in British India; pt 4, Bombay presidency. R. M. Odell. U S Bur For & Dom Com 149:1-132 '17

**Industries and resources**

- Adoption of modern methods enables India to meet war conditions. Elec R 73:729 N 9 '18  
 Forests and lumbering in South India. L. Memminger. Am Lumberman 2258:58 Ag 24 '18  
 Jute culture and industry in British India. Am Ind 18:31 Ap '18  
 Sugar industry in India. Sci Am S 85:64. Ja 26 '18  
 Zinc smelting in India. T. R. Wynne. Eng & Min J 107:356-8 F 22 '19

**Railroads**

*See* Railroads—India

**Social life and customs**

- Some aspects of Hindu life in India. B. Basu. Sci Am S 87:82-3 F 8 '19

**India rubber. See Rubber****Indian Hill, Massachusetts**

- Model industrial village. C. S. Anderson. Am Soc M E J 40:pt 1, 557-8 Jl '18

**Indian music. See Indians of North America—Music****Indian society of engineers**

- Engineers in India to unite in single society. Eng N 83:840 O 30 '19

**Indian yellow**

- Use of organic dyestuffs for lake manufacture. B. DePuyster. Color Tr J 4:98-100 Ap '19

**Indiana. See Mines and mineral resources—Indiana****Indiana electric light association**

- Annual convention. French Lick Springs, Ind., Sept. 11-12. Elec R 75:488-9 S 20 '19

**Indiana gas association**

- 10th annual meeting, Indianapolis, Ind., April 24. Am Gas Eng J 108:403-5 Ap 27 '18; Gas Age 41:455-7 My 15 '18

**Indiana society of sanitary engineers**

- 22d annual convention. South Bend, Ind., March 11-13. Dom Eng 82:414-17 Mr 16 '18

**Indianapolis, Indiana**

- Hotel Lincoln. Il Am Arch 115:238-40, pl 51-5 F 12 '19

**Arsenal technical schools**

- New Arsenal technical schools at Indianapolis, Ind. Il plans Arch Forum 30:55-61 F '19

**Public works**

- Public works and the city engineer. Munic J 44:274-5 Ap 6 '18

**Railroads**

- Extensive grade separation work at Indianapolis. Il diags plan Ry Age 67:95-101 Jl 18 '19

- Grade-crossing elimination at Indianapolis. Eng N 83:266-7 Ag 7 '19

- New freight terminal of P. C. C. & St L. Ry. Il diags plan Ry R 62:233-7 F 16 '18

- Pennsylvania builds large gravity yard at Indianapolis. diags plans Eng N 80:514-16 Mr 14 '18

- Track elevation on the Indianapolis Union railroad. diags Eng N 83:265-6 Ag 7 '19

- Union station is rebuilt without interrupting traffic. Il diags plans Eng N 83:84-7 Jl 10 '19

**Rapid transit**

- Indianapolis fare hearings reviewed. Elec Ry J 52:527 S 21 '18

## Indianapolis, Indiana—Continued

## Sewerage

Considerations leading to recommendations for fine screens, sprinkling filters, humus tanks and sludge recovery as sewage disposal method for Indianapolis. G. W. Fuller. *Eng & Contr* 49:368-72 Ap 10 '18

## Water supply

Supplementary artesian supply. *diag Eng N* 81:633 O 8 '18

## Indianapolis and Frankfort railroad

New Pennsylvania entrance into Indianapolis: a 41-mile line between Ben Davis and Frankfort. *Il map Ry Age* 64:195-8 Ja 25 '18

## Indians of North America

Early Indian raids on Mexico. J. B. Tyrrell. *Eng & Min J* 107:477-8 Mr 15 '19

Heredity, environment, and civilization; factors controlling human behavior as illustrated by the natives of the southwestern United States. A. L. Kroeber. *Sci Am S* 86:210-12 O 5 '18

See also Museum of the American Indian

## Antiquities

Cibola revealed; relics of Coronado's seven cities in a New York museum. J. W. Harrington. *Il Sci Am* 120:24-5 Ja 11 '19

Stone age in America. A. F. Bonney. *Il Sci Am S* 85:340 Je 1 '18

Unique form of prehistoric pottery. J. W. Fewkes. *Sci Am S* 87:377-8 Je 14 '19

## Art

Odd paintings by American Indian. *Sci Am S* 85:329 My 25 '18

## History

Peopling of the American plains by the Indians. F. H. Sterns. *Sci Am S* 85:234-5 Ap 13 '18

## Medicine

Indian medicines; numerous popular remedies obtained from forest trees. H. Maxwell. *Il Sci Am S* 86:100-3 Ag 17 '18

## Music

Study of Indian music. F. Densmore. *diags Sci Am S* 85:253-4 Ap 20 '18

## Reservations

Senate passes bill to authorize mining on Indian reservations. *Eng & Min J* 106:210 Ag 3 '18

## Secret societies

Age-societies of the Plains Indians. R. H. Lowie. *Il Sci Am S* 85:201 Mr 30 '18

## Social life and customs

Miniature from the past; dwellers in Arizona today who appear to be left-overs from the stone age. *Il Sci Am S* 87:324-5 My 24 '19

Scenes in Acoma, a pueblo city of New Mexico. *Il Sci Am S* 87:152 Mr 8 '19

## Indians of South America

Macao Indians of Venezuela. T. De Booy. *Il map Sci Am S* 87:8-10, 24-6, 40-2 Ja 4-18 '19

## Indicator diagrams

Awards made in indicator contest. *diags Power* 49:390-2 Mr 18 '19

Built-up indicator diagram. F. L. Johnson. *diags Power* 48:354 S 3 '18

Odd indicator diagrams. R. A. Cultra. *diags Power* 49:291 F 25 '19

Percentage of clearance and cutoff from indicator diagram. *diag Power* 48:789 N 26 '18

Theoretical indicator diagram; a method of predetermining the gas temperatures and pressures for various points in the engine cycles. O. A. Malychewitch. *diag Automotive Ind* 89:499-502, 546-7 S 19-26 '18

Unsymmetrical indicator diagrams. *diag Power* 49:140, 410 Ja 28, Mr 18 '19

## Indicators

Concept of resilience with respect to indicating instruments. F. J. Schlink. *J Fr Inst* 187:147-69 F '19; *Abstract. Mech Eng* 41:396-7 Ap '19

Dial indicator for truing buttons. R. S. Myers. *diag Mach* 25:1117 Ag '19

Distant-load indicator. R. S. Seese. *diag Power* 47:558 Ap 16 '18

Electric temperature indicator. V. H. Todd. *Il diags Power* 50:180-1 JI 29 '19

Gas-engine cycle indicator. J. Fetzner. *diag Power* 47:884 Je 18 '18

Non-lifting injector indicator. *diag Ry Age* 87:75 JI 11 sec 1 '19

Simple center indicator or wiggler. A. R. Durant. *diags Am Mach* 51:327 Ag 14 '19

Testing out correctness of indicator reducing motion. *Power* 47:485 Ap 2 '18

Using indicator on internal combustion engines. R. Miller. *diags Power* 50:422-3 S 9 '19

Valveless tank indicator. L. V. Lauther. *Il Coal Age* 13:861 My 11 '18

See also Carbon dioxide indicators; Train indicators

## Indicators and test papers

On the quinone-phenolate theory of indicators. R. T. Birge and S. F. Acree. *Am Chem Soc J* 41:1031-50 JI '19

On the quinone-phenolate theory of indicators; on the reactions of phenolsulfonphthalein, and its bromo and nitro derivatives, and their monobasic and dibasic salts. E. C. White and S. F. Acree. *Am Chem Soc J* 41:1190-1212 Ag '19

Quinone phenolate theory of indicators; a spectrophotometric study of the end-points and fading of phenolsulfonphthalein indicators. C. L. Brightman and others. *Am Chem Soc J* 40:1940-4 D '18

Quinone-phenolate theory of indicators; the absorption spectra of solutions of phenolsulfonphthalein and its tetrabromo and tetranitro derivatives and their salts, and of analogous substances. E. C. White and S. F. Acree. *Am Chem Soc J* 40:1092-9 JI '18

Use of thymosulfonphthalein as an indicator in acidimetric titrations. A. B. Clark and H. A. Lubs. *Am Chem Soc J* 40:1443-8 S '18

## Indigo

Indigo on cotton piece goods. G. Tagliani and W. Krostewitz. *Textile World* 54:2687 N 80 '18

Practical observations on the determination of indigo. W. Heinisch. *Color Tr J* 4:70 Mr '19

Revival of indigo. H. E. Armstrong. *Sci Am S* 88:271 N 8 '19

## Indium

Gallium. L. M. Dennis and J. A. Bridgman. *Il diags Am Chem Soc J* 40:1531-61 O '18

Induced draft. See Mechanical draft

## Inductance

Additions to the formulas for the calculation of mutual and self inductance. F. W. Grover. *U S Bur Stand Bul* 14:537-70 JI 12 '19

Change of specific inductive capacity with temperature and impregnation in paper. H. C. P. Weber and T. C. MacKay. *J Fr Inst* 186:374-7 S '18; *Same. Elec R* 73:525 O 5 '18

Direct current vs. power factor. F. E. Austin. *diags Sci Am S* 87:316-17 My 17 '19

Electrical study course—current in the inductances of a three-wire generator. *diags Power* 49:616-18 Ap 22 '19

Electrical study course—inductance and resistance on three-wire generator. *diags Power* 49:570-3 Ap 15 '19

Electrical study course—inductances used on a three-wire generator. *diags Power* 49:532-4 Ap 8 '19

Induced currents in pipe framework. A. R. Zahoraky. *diags Elec R* 72:926-7 Je 1 '18

Inductance of tubular conductors. H. B. Dwight. *diag Elec R* 72:224-5 F 9 '18

Self-inductance of long reactance coils. H. B. Dwight. *diag Elec W* 71:300-2 F 9 '18; *Discussion. 71:1330; 72:313 Je 22, Ag 17 '18*

Self-inductance of short reactance coils. H. B. Dwight. *diag Elec W* 71:1078-9 My 35 '18

- Induction (electricity)**  
Report on electromagnetic induction. S. J. Barnett. Am Inst E E Pro 38:1161-69 O '19
- Induction coils**  
Calculating growth of current in an induction. C. Hering. Elec W 74:175 J1 26 '19  
Energization of the ignition coil. H. F. Geist. diags Automotive Ind 41:824-8 O 23 '19  
Induction—transformers—interpoles. H. H. Bliss. II diags J Elec 43:369-70 O 15 '19
- Induction heaters.** See Electric heaters
- Induction motors.** See Electric motors, Induction
- Inductive interference.** See Electric lines—Inductive interference
- Inductometers**  
Variable self and mutual inductometer. II Elec W 71:854 Ap 20 '18
- Industrial accidents.** See Accidents, Industrial
- Industrial arts**  
Art education and the industrial arts. L. V. Solon. Arch Rec 44:571-4 D '18  
Mobilizing the art industries. R. F. Bach. Am Ind 19:21-3 Ag '18  
Recent developments in the industrial and decorative arts. C. O. Cornlius. Arch Rec 45:92-3 Ja '19  
*See also* Agriculture; Architecture; Blacksmithing; Bookbinding; Building; Business; Canning and preserving; Chemical engineering; Chemistry, Technical; Commerce; Design; Dyes and dyeing; Electric engineering; Engineering; Engraving; Factories; Foundry practice; Glass manufacture; Industrial education; Industry; Inventions; Machine shop practice; Machine shops; Machinery; Manufactures; Masonry; Mechanical engineering; Metal work; Metallurgy; Mills and millwork; Occupations, Dangerous; Painting, Industrial; Patents; Photography; Plumbing; Pottery; Printing; Shipbuilding; Tanning; Textile industry; Waste products; Weaving; Woodwork
- Bibliography**  
One thousand technical books; a selected list with annotations emphasizing especially elementary practical books. H. L. Cowing, comp. 123p '19 A. L. A.
- Industrial betterment**  
Americanization a problem in human engineering. H. D. Hammond. Eng N 80:1116-19 Je 13 '18  
Babson conference on cooperation. Am Mach 49:749-52 O 24 '18  
Brotherhood in industry. J. D. Rockefeller, Jr. Metal Ind 16:486-7 O '18  
Cost and outcome of betterment activities. Am Inst Min E Bul 137:sup29 My '18  
Developing the community interest at the plant of the Burroughs adding machine co. II chart Iron Age 101:369-72 F 7 '18  
Development of community interest. C. F. Willis. Eng & Min J 105:830-1 My 4 '18  
Discussion on labor and employment problems. Am Inst Min E Bul 139:sup13-22 J1 '18  
Doesn't believe in welfare work. S. G. Addison. Am Gas Eng J 111:58-9+ J1 19 '19  
Employment and personnel policy of Thomas A. Edison interests. M. M. Jones. Ind Management 55:303-6 Ap '18  
General electric co. creates skilled labor. II Automobile 37:499-501 S 20 '17  
How to reduce labor turnover. B. Fisher. U S Bur Labor Statistics Bul 227:29-47 '17  
Human factor. Factory 16:352+, 468+; 17: 26+, 342+, 428+, 542-3; 18:46+, 338+, 608+; 19:108+, 206+, 458+, 590+, 776+, 950+; 20:88+, 322+, 576+, 898+; 21:96+, 314+, 528+, 1164+; 22:304+, 760+; 23:1148+ Ap-My, J1, S-N '16, Ja, Mr-Ap, Ag, O '17-Mr, My-S, D '18, F, Ap, N '19  
Human potential in industry. O. P. Geier. Am Soc M E J 39:604-8 J1 '17; Same. Sci Am S 84:386-7 D 22 '17; Same cond. Am Mach 46:1107-9 Je 28 '17; Discussion. Am Soc M E J 39:608 J1 '17
- Human problem thought of paramount importance in Paris shrapnel plant.** R. K. Tomlin, Jr. II Eng N 80:813-16 Ap 25 '18
- Illness in industry—its cost and prevention.** T. Darlington. Am Inst Min E Bul 134:279-94 F '18; Excerpts. Iron Tr R 62:383-4 F 7 '18; Discussion. Am Inst Min E Bul 136:874-81 Ap '18
- Important phases of the labor problem.** M. W. Alexander. Iron Age 102:1258-61, 1322-5 N 21-28 '18
- Increasing dividends through personnel work.** T. T. Read. Am Inst Min E Bul 130:1833-48 O '17; Same cond. Iron Tr R 61:880-3 O 25 '17; Same cond. Iron Age 100:1058-60 N 1 '17; Discussion. Am Inst Min E Bul 133: 111-17 Ja '18
- Industrial creed.** J. D. Rockefeller, Jr. Am Gas Eng J 109:564 D 21 '18; Same. Ind Management 57:44 Ja '19
- Industry, democracy, and education; with discussion.** C. V. Corless. Am Inst Min Bul 148:621-35 Ap '19
- Labour administration; works co-ordination committee.** E. T. Elbourne. Engineer 126: 257-8 S 27 '18
- Labor problem of a great French shell factory.** R. K. Tomlin, Jr. II Am Mach 49:22-4 J1 4 '18
- Life in a large manufacturing plant.** II Gen Elec R 20:661-70, 754-64, 829-36, 906-14, 968-78; 21:82-91, 202-15, 300-12, 517-24, 579-84 Ag '17-Ja, Mr-Ap, J1-Ag '18
- Making the factory a place of both work and play.** II Mach 25:1130-1 Ag '19
- Man power.** J. P. Channing. Am Inst Min E Bul 137:963-9 My '18; Same. Iron Tr R 62:1611-13 Je 27 '18; Same cond. Am Soc M E J 40:464-5 Je '18
- Need for a new incentive for the industrial worker.** H. Tipper. Automotive Ind 39:582-4 O 3 '18
- New cycle in industrial organization.** M. M. Jones. Sci Am 119:229+ S 21 '18
- Problems of modern industry.** W. L. Hichens. Engineer 125:67-8 Ja 25 '18
- Proceedings of the Employment managers' conference, Rochester, N.Y., May 9-11, 1918.** U S Bur Labor Statistics Bul 247:1-249 '19
- Production involves intensive study of human side.** H. Tipper. Automotive Ind 40: 744-5 Ap 3 '19
- Social reconstruction bound to follow victory.** C. G. Lang. Eng N 80:566-7 Mr 21 '18
- Standardization and administration of wages; abstracts.** H. P. Kendall and E. D. Howard. Am Soc M E J 41:35-7 Ja '19; Iron Age 103: 182-3 Ja 16 '19
- Standards for army work; recommendations for sound industrial conditions.** Textile World 53:2663 D 22 '17
- Teaching human engineering in the college curriculum.** F. H. Rindge, Jr. Am Mach 48: 713-15 Ap 25 '18
- What the Bush terminal is doing for its employees.** D. Bloomfield. Ind Management 55: 66-7 Ja '18
- Work of National production committee of U. S. Fuel administration.** J. B. Neale. Am Inst Min E Bul 146:439-44 F '19; Discussion. 148:748-9 Ap '19  
*See also* Bonus system; Employees; Factories—Lighting; Factory sanitation; Hours of labor; Housing problem; Industrial education; Industrial relations; Insurance, Industrial; Lunch rooms; Medical service, Industrial; Profit sharing; Safety devices and measures; Welfare work in industry; Workmen's compensation
- Industrial board.** See United States—Industrial board
- Industrial buildings**  
Aesthetic treatment of plant structures. II plans Iron Age 104:427-9 Ag 14 '19  
Building for international tailoring co., Chicago; views and plans. Am Arch 113:29, pl 9-12 Ja 2 '18  
Description of industrial buildings. II plan Arch Forum 31:13-16 J1 '19  
Design of industrial plants. H. L. Gilman. Arch Forum 31:153-6 N '19

**Industrial buildings—Continued**

- Essential elements of industrial buildings. *Il* Am Arch 113:243-6 F 27 '18
- Getting the greatest return from plant investment. H. M. Wharton. *Ind Management* 55:45-6 Ja '18
- Modern industrial plants. G. C. Nimmons. *Il* plans map Arch Rec 44:414-21, 532-49; 45:26-43, 148-68, 262-82, 343-55, 450-70, 506-25 N '18-Je '19
- Practical considerations in design of steel mill buildings. R. Fleming. *Eng & Contr* 51:567-8 My 28 '19
- Some elements in a satisfactory substation building. C. F. Lloyd. *Il* diag plans Elec Ry J 54:832-4 N 1 '19
- Three stories serving for five in automobile storage and sales building. St Louis. *Il* diag plan Am Arch 113:305-6 Mr 6 '18
- United States explosives plant C. Nitro, West Virginia. Arch & Bldg 51:70-1, pl 133-4 S '19
- United States nitrate plant no. 2, Muscle Shoals, Alabama. Arch & Bldg 51:71-2, pl 137-40 S '19
- See also Bush terminal sales building; Department stores; Factories; Foundries; Laboratories; Warehouses
- Industrial chemistry.** See Chemistry, Technical
- Industrial conference, Washington, 1919**
- Declaration of American principles by employers' group. Ry R 65:691 N 8 '19
- Industrial conference at Washington, Oct. 6-23. Ry R 65:540-2, 571-3, 606-9 O 11-25 '19
- Industrial conference without result. Ry Age 67:839-42 O 24 '19
- National industrial conference at Washington. Am Ind 20:7-16 N '19
- President's industrial conference meets in Washington. Chem & Met Eng 21:481-6 O 15 '19
- Rise and fall of the Industrial conference. Heat & Ven 16:35 N '19
- Industrial councils**
- Joint industrial councils in Great Britain. U S Bur Labor Statistics Bul 255:1-207 '19
- Just what is the Whitley report? S: Crowther. plan Factory 23:269-73 Ag '19
- National industrial council for waterworks undertakings. A. B. Pilling. *Engineer* 128:28, 30 Jl 11 '19
- Industrial democracy.** See Industrial management—Employee representation
- Industrial diseases.** See Diseases, Industrial
- Industrial districts**
- Industrial zoning. H. S. Swan. Arch & Bldg 50:39-42 Je '18; Same. Munic J 45:206-8 S 14 '18; Same. Am Arch 115:500-3 Ap 2 '19
- Non-conforming building in zoning. H. S. Swan. Am Arch 114:692-4 N 13 '18
- Planning an industrial zone. Am Arch 114:47-8 Jl 10 '18
- Private industrial district in Chicago growing. Eng N 81:120-1 Jl 18 '18
- Railways form industrial district at St Paul. diag Eng N 82:186-7 Ja 23 '19
- War shows central control needed in industrial district; Delaware River territory should have unity of planning in transportation and housing. Eng N 80:994-5 My 23 '18
- Industrial education**
- Industrial training. H. H. Pratt. *Textile World* 55:3477 Je 7 '19
- Industrial training in army service; abstracts. C. R. Dooley. *Iron Age* 102:1586-7 D 26 '18; Am Soc M E J 41:37-8 Ja '19
- Industrial training urged. *Textile World* 55:2986-7 My 17 '19
- Right kind of industrial art training. J. P. Haney. Am Ind 19:39-41 Mr '19
- Technical and industrial education and the war. Am Mach 50:540 Mr 20 '19
- Training of workmen for positions of higher responsibility. F. C. Stanford. Am Inst Min E Bul 134:309-15 F '18; Excerpt. *Iron Tr R* 62:382-3 F 7 '18; Discussion. Am Inst Min E Bul 134:315-20; 136:888-91 F, Ap '18

U. S. Training service and its work. C. T. Clayton. *Ind Management* 57:108-4 F '19

See also Apprentices; Corporation schools; Employees, Training of; Engineering education; Evening and continuation schools; Technical education; Trade schools; Vocational education

**Industrial efficiency.** See Efficiency, Industrial

**Industrial electric heating.** See Electric heating, Industrial

**Industrial engineers**

Character first for industrial engineer. J. W. Roe. *Iron Tr R* 65:1385 N 20 '19

Industrial democracy and engineering. I. A. Berndt. *Sci Am* 120:253+ Mr 15 '19

**Industrial engineers, Society of.** See Society of Industrial engineers

**Industrial exhibitions.** See Exhibitions

**Industrial fellowships.** See Pittsburgh university. Mellon Institute; Purdue university

**Industrial heating.** See Heating, Industrial

**Industrial hygiene.** See Hygiene, Industrial

**Industrial insurance.** See Insurance, Industrial

**Industrial laws and legislation.** See Employers' liability; Labor laws; Workmen's compensation

**Industrial league**

Industrial league. *Engineer* 128:160-1, 177-8 Ag 15-22 '19

**Industrial lighting.** See Factories—Lighting

**Industrial management**

Advances in industrial management. J: Calder. Am Mach 50:807-9 Ap 24 '19

Business precision. *Sci Am* 119:406 N 23 '18

Cost accounting to aid production. G. C. Harrison. diag *Ind Management* 56:278-82, 291-8, 456-63; 57:49-55, 181-9, 218-24, 314-18 O '18-Apr '19

Efficiency by consent. L: D. Brandels. *Ind Management* 55:108-9 F '18

Eliminating the stop watch from industry. C. E. Knoeppel. *Iron Age* 104:766-7 S 18 '19; Same. *Sci Am* 121:308 S 27 '19

Engineering organization and routine. G: L. McCain. *Automotive Ind* 41:562-7 S 18 '19

First aid for factories and plants. G. H. Radebaugh and J. H. Beard. *Il* charts Am Mach 50:109-14 Ja 16 '19

Good and bad features of system. J. B. Gray. Am Mach 50:1039-40 My 29 '19

Governing by written orders. B. L. Van Schaick. *Ind Management* 57:112 F '19

Hints on management. E: N. Hurley. *Eng & Contr* 49:646-7 Je 26 '18

How American industry can meet world competition after the war; with discussion. W: O. Lichtner. *Il* chart diag plans W Soc E J 23:239-69 Ap '18

Human factor in industry. A. P. M. Fleming. *Inst E E J* 57:47-56 D '18

Improving industrial management. M. H. Potter. *Iron Tr R* 65:1323-5, 1449-51 N 13, 27 '19

Increased value of the Taylor system for post-war times. E. Wintermeyer. *Chem & Met Eng* 21:470-1 O 8 '19

**Industrial management.** *Ind Management* 58:161-2 Ag '19

Industrial organization as it affects executives and workers; abstracts. C: E. Knoeppel. Am Soc M E J 40:1031-3 D '18; *Iron Tr R* 63:1408-11 D 19 '18

Laws of industrial organization. C. E. Knoeppel. *Ind Management* 58:265-8 O '19 (to be cont)

Machinist's criticisms of modern shop systems. J. B. Gray. Am Mach 50:777-8 Ap 24 '19

Management—the solution of the shipbuilding problem. W. L. Churchill. charts *Ind Management* 56:361-6 N '18

Managing for maximum production. L. V. Estes. *Ind Management* 57:169-75, 284-8, 379-84, 439-43; 58:54-61, 134-8 Mr-Ag '19

Mastering power production. W. N. Polakov. *Ind Management* 55:31-3, 100-4, 185-9, 298-302, 380-4, 485-90; 56:321-9, 399-403 Ja-Je, O-N '18

**Industrial management—Continued**

- Mistaken ideas of efficiency engineering. Metal Ind n s 15:22-3 Ja '17
- Next move—human interest. Am Mach 50:213-14. 493 Ja 30, Mr 13 '19
- Organization of efficient concrete road construction gangs. H. P. Gillette. Eng & Contr 52:4-5 Jl 2 '19
- Organizing for work. H. L. Gantt. Ind Management 58:89-93 Ag '19
- Passing the buck. Ind Management 55:401 My '18
- Planning—the solution of the management problem in shipbuilding. Ind Management 57:42-3 Ja '19
- Seven common questions regarding scientific management. C. M. Bigelow. Ind Management 57:281-3 Ap '19
- Society of industrial engineers national conference, New York. Iron Age 103:821-3 Mr 27 '19
- Supplement to Frederick W. Taylor's, On the art of cutting metals. C. G. Barth. diags Ind Management 58:169-75, 282-7 S-O '19 (to be cont)
- System for controlling production. R. H. Wadsworth. Am Mach 51:451-5 S 4 '19
- System versus foremanship. H. Senior. Am Mach 51:26 Jl 3 '19
- Visualizing the management's part in business for employees. H. Tipper, charts Automotive Ind 41:378-81 Ag 21 '19
- What is the elementary basis of scientific management? Ind Management 57:231-2 Mr '19
- What should organization achieve? H. Tipper. Automotive Ind 40:17-18 Ja 2 '19
- Why we are all managers in our plant. A. S. Bond. Il Factory 22:237-40 F '19
- See also Bonus system; Efficiency, Industrial; Employment management; Factory management; Foundry management; Inventories; Machine shop management; Mine management; Office management; Organization in industry; Piece work; Planning; Rest periods; Routing systems; Shop management; Suggestion systems; Time study; also subdivision Management under various headings, e.g. Garages—Management, Gas companies—Management, Railroads—Management

**Bibliography**

- Index of articles on industrial management appearing in current publications. See monthly numbers of Industrial management
- List of selected business and management books. Eng & Contr 51:633-5 Je 11 '19

**Employee representation**

- Anti-social, militant methods condemned. W. G. Merritt. Iron Age 104:9-12 Jl 8 '19
- Bethlehem plan of employee representation. charts Iron Age 102:1020-2 O 24 '18; Abstract. Iron Tr R 63:972-3 O 24 '18
- Brotherhood in industry. J. D. Rockefeller, jr. Metal Ind 16:486-7 O '18
- Committee system in American shops. W. L. Stoddard. Ind Management 57:473-6 Je '19
- Constructive labor program demanded. R. P. Bass. Iron Age 103:1091 Ap 24 '19
- Co-operation in labor matters imperative. W. G. Merritt. Iron Age 103:1705-9 Je 28 '19
- Co-operation profitable to employer and worker. H. Tipper. Automotive Ind 40:1208-9 Je 5 '19
- Co-operative management is gaining. Iron Tr R 64:1697 Je 28 '19
- Discussion on industrial relations. C. McCormick, jr. Mech Eng 41:575-6 Jl '19
- Employee participation as a central station answer. R. H. Ballard. J Elec 43:375 O 15 '19
- Employees' representation. J. N. Larkin. Ind Management 57:503e-f Je '19
- Equal representation in management offered employees of the International harvester co. Automotive Ind 40:564-8 Mr 13 '19
- Getting the employee to pledge his part in management. H. Tipper. Automotive Ind 41:429-31 Ag 28 '19

- Handling employment relations without help from the outside; a collective bargaining plan. Automotive Ind 39:722-3 O 24 '18
- How are you giving to workers a share of responsibility? H. Tipper. Automotive Ind 41:180-1 Jl 24 '19
- How industrial democracy works at our plant. A. Printz. Factory 22:677-81 Ap '19
- How my men help me manage. S. Cary. Il Factory 22:917-19 My '19
- How to make your business a human story for employees. H. Tipper. Automotive Ind 41:330-2 Ag 14 '19
- Huge experiment in industrial democracy. Am Lumberman 2306:36-7 Jl 26 '19
- Industrial cooperation. C. P. Steinmetz. Eng & Min J 107:748-9 Ap 26 '19; Same. Automotive Ind 40:831-8 Ap 17 '19; Same. Am Mach 50:893-4 My 8 '19; Same. Coal Age 15:904-6 My 15 '19; Excerpt. Elec R 74:678 Ap 26 '19
- Industrial democracy. Sci Am 121:52 Jl 19 '19
- Industrial democracy. C. A. Eaton. Am Mach 50:933-5 My 15 '19
- Industrial democracy. F. C. Henderschott. Eng & Min J 108:267 Ag 16 '19
- Industrial democracy. J. Leitch. Am Ind 19:34 Je '19
- Industrial democracy. E. Sheldon. Am Mach 49:201-2 Ag 1 '18
- Industrial democracy and engineering. I. A. Berndt. Sci Am 120:253+ Mr 15 '19
- Industrial democracy in a textile plant. Textile World 55:3660+ Je 14 '19
- Industrial democracy in operation. B. C. Forbes. Iron Age 104:239-40 Jl 28 '19
- Industrial personnel relations. A. H. Young. Mech Eng 41:581-6 Jl '19
- Industrial relations. H. F. J. Porter. Mech Eng 41:833-4 O '19
- Industrial representation? H. Tipper. Automotive Ind 40:1455 Je 26 '19
- Inland steel co. inaugurates employee representation plan. Iron Age 103:122-3 Ja 9 '19
- Interesting experiments by the government; employees at arsenals given unusual part in management. Iron Age 104:633-5 S 4 '19
- Just what is the Whitley report? S. Crowther. plan Factory 23:269-73 Ag '19
- Labor and democracy. Coal Age 16:72, 544-5 Jl 10, S 25 '19
- Labor, the next great problem; Bethlehem steel co.'s plan for dealing with labor. H. Tipper. Automotive Ind 39:873-4 N 21 '18
- Labor's representation in plant management the immediate problem. H. Tipper, charts Automotive Ind 40:476-7 F 27 '19
- Lack of care in promotion retards conference-plan development. H. Tipper. Automotive Ind 40:805-6 Ap 10 '19
- Midvale plan of employee representation. Iron Age 102:763, 834-5 S 26-O 3 '18
- Need for a new incentive for the industrial worker. H. Tipper. Automotive Ind 39:582-4 O 3 '18
- New ideas in industrial organization. W. G. Merritt. Iron Age 103:1627-9 Je 19 '19
- New Philadelphia co-operative plan. T. E. Mitten. chart Elec Ry J 52:1135-6 D 28 '18
- Organized co-operation; employer and employee. J. B. Douglas. Gas Age 43:575-6 Je 2 '19
- Organizing an industrial republic. A. J. Hain. Il Iron Tr R 65:221-9 Jl 24 '19
- Organizing the working force. W. M. Lieserson. Ind Management 57:503b-e Je '19
- Philadelphia rapid transit system co-operative plan extended. Elec Ry J 52:459-62 S 14 '18
- Philadelphia's answer to the traction question. T. E. Mitten. Elec Ry J 54:sup114-16 O 11 '19
- Practical advice on labor plans. E. B. Tolsted. Iron Tr R 65:1327-8 N 13 '19
- Real labor representation; plan of the Midvale steel & ordnance co. H. Tipper. plan Automotive Ind 39:1006-7+ D 12 '18
- Representative government in a manufacturing plant; Passaic metal ware co. J. J. Callahan. Il Mach 26:256-8 N '19
- Representative shop committees. W. G. Aborn and W. L. Shafer. Ind Management 58:29-32 Jl '19

**Industrial management—Employee representation—Continued**

- Responsibility of labor. N. H. Seaburg. Coal Age 15:696 Ap 17 '19
- Results of democracy in industry. Iron Age 104:305-6 J1 31 '19
- Selling the worker an interest in the business. H. Tipper. Automotive Ind 41:278-9 Ag 7 '19
- Shall the workmen sit in with their employers and institute an industrial democracy? Am Lumberman 2305:39 J1 19 '19
- Shop committees as lubricants in management. W. L. Stoddard. Factory 23:37-40 J1 '19
- Solving labor problem with Colorado representation plan. Iron Tr R 64:1139-47 My 1 '19
- Solving the labor problem. K. H. Condit. Am Mach 51:301-4 Ag 14 '19
- Status of the unproductive worker. H. Tipper. Automotive Ind 39:1045-6 D 19 '18
- Successful industrial democracy. D. Wolf. Ind Management 58:67-71 J1 '19
- Survey on plans for improving industrial relations. Elec R 75:202-3 Ag 2 '19
- Taylor-Wharton plan. Iron Age 104:520 Ag 21 '19
- Textile mill adopts new labor plan. Textile World 56:1979 O 4 '19
- Two years' of industrial democracy. L. Demuth. Textile World 55:3308b-c My 31 '19; Same. Factory 23:502-4 S '19
- Works council serves as court. Iron Tr R 65:1041-3 O 16 '19
- Works council standing the test. Iron Tr R 65:1268 N 6 '19
- Youngstown Sheet employee representation. Iron Age 102:1468-9 D 12 '18
- See also Shop committees*
- Industrial medical service.** *See Medical service, Industrial*
- Industrial organization.** *See Organization in industry*
- Industrial physician.** *See Medical service, Industrial*
- Industrial plants.** *See Chemical plants; Factories; Foundries; Industrial buildings; Iron works; Machine shops; Metallurgical plants; Power plants; Steel works*
- Industrial railroads.** *See Railroads, Industrial*
- Industrial relations**
- Any labor plan to succeed must be based on mutual understanding. H. Tipper. Automotive Ind 41:228-9 J1 31 '19
- Babson conference on cooperation. Am Mach 49:749-52 O 24 '18
- Barrier of false dignity. G. A. Laub. Ind Management 58:333-4 O '19
- Barring out Bolshevism. A. J. Hain. Iron Tr R 64:559-63 F 27 '19
- Benevolent enterprises and high wages offer no solution of labor problem. H. Tipper. Automotive Ind 40:540-1 Mr 6 '19
- Building morale in industrial relations. G. E. Holmes. Iron Tr R 65:362 Ag 7 '19; Same. Textile World 56:1653 S 20 '19
- Causes of labor unrest pointed out by National mediation board. Elec Ry J 51:333 F 16 '18
- Coming status of the employee in industry. C. F. Lang. Eng N 82:1050-1 My 29 '19
- Conference club plans agreement with labor. Elec W 73:962 My 10 '19
- Contractors' association to cooperate with labor. Elec W 74:202-3 J1 26 '19
- Cooperation between management and employees. E. O. Davis. Textile World 56:359-4 J1 19 '19
- Co-operation in labor matters imperative. W. G. Merritt. Iron Age 103:1705-9 Je 26 '19
- Discussion on industrial relations. Mech Eng 41:572-80 J1 '19
- Employer, employee and the community. L. P. Alford. Ind Management 57:498-9 Je 19 '19
- Employer's duty in dealing with labor. H. Tipper. Automotive Ind 41:882-3 O 23 '19
- Employers have serious task in present labor situation. H. Tipper. Automotive Ind 41:484-5 S 4 '19
- Ethics in treating employees. P. Kreuzpointner. Ind Management 58:248-9 S '19

- Fellowship; basis of true relation of employer and employee. C. H. Howard. U S Bur Labor Statistics Bul 227:92-5 '17
- Fundamental factors in sound industrial relations. H. T. Waller. Ind Management 56:367-71 N '18
- Fundamental relations in business conduct. J. A. Emery. Am Ind 20:18-20 O '19
- Getting plant spirit into our men. C. R. Hook. chart Factory 20:225-7 F '18
- Golden rule best labor plan. W. A. Grieves. Iron Tr R 65:565-6 Ag 28 '19
- Government to assist employers of labor. G. Hamilton. Textile World 55:218-19 Ja 11 '19
- Handling employment relations without help from the outside; a collective bargaining plan. Automotive Ind 39:722-3 O 24 '18
- How American manufacturers view employment relations. S. C. Mason. Am Ind 19:41-4 Ap '19
- Human factor first in industry. Iron Age 104:923-4 O 2 '19
- Human factor in the operation of industry. H. R. Seager. Mech Eng 41:886-7 N '19
- Human problem in industry. H. Tipper. Textile World 55:216+ Ja 11 '19
- Humanity and tolerance will solve U.S. labor problems. H. Tipper. Automotive Ind 40:1394-8 Je 19 '19
- Humanity becomes important factor in British labor settlements. H. Tipper. Automotive Ind 40:1336-41 Je 12 '19
- Improving relations of employer and employee. R. H. Rice. Elec W 73:418-19 Mr 1 '19
- Industrial cooperation as a factor in reconstruction. F. B. Gilbreth and L. M. Gilbreth. Sci Am 120:200+ Mr 1 '19
- Industrial democracy a leading topic. Iron Age 103:1153-7 My 1 '19
- Industrial development depends upon partnership of capital, management and labor. H. Tipper. Automotive Ind 40:689-90 Mr 27 '19
- Industrial league. Engineer 128:160-1, 177-8 Ag 15-22 '19
- Industrial personnel relations. A. H. Young. Mech Eng 41:581-6 J1 '19
- Industrial relations after the war. H. P. Kendall. Textile World 55:217+ Ja 11 '19
- Industrial relations commission reports on Canadian situation. Eng & Min J 108:101 J1 19 '19
- Industrial relations 4th conference, Newark, N.J., Sept. 18. Iron Age 104:832 S 25 '19
- Industrial relationship. B. Smith. Am Mach 51:471-2 S 4 '19
- Labor is not a commodity. H. Tipper. Automotive Ind 39:912-13 N 28 '18
- Labor the next great problem; Bethlehem steel co.'s plan for dealing with labor. H. Tipper. Automotive Ind 39:873-4 N 21 '18
- Labor unrest and some remedies. C. Plez. Eng & Contr 52:337-9 S 17 '19
- Lack of confidence between employer and employee; the white plague of labor efficiency. H. Tipper. diag Automotive Ind 39:625-6+ O 10 '18
- Mental factors in industrial organization. T. T. Read. Am Inst Min E Bul 146:563-7 F '19
- Multiple representation in industry. J. D. Rockefeller, Jr. Textile World 55:216+ Ja 11 '19
- Need of personal responsibility in industry. H. Tipper. Automotive Ind 41:534-5 S 11 '19
- New industrial relations. J. C. Smith. Iron Age 102:845 O 3 '18
- Place of democracy in business. C. Fraboni. Iron Age 101:1402-4 My 30 '18
- Plan for industrial peace; an armistice. S. C. Mason. Am Ind 20:7-8 O '19
- Plan for the prevention of industrial dispute. E. Williamson. Am Mach 51:243 J1 19 '19
- Prepare for labor unrest while labor is content. H. Tipper. Automotive Ind 41:77-9 J1 10 '19
- Principles of industrial relations. Eng & Min J 107:754-6 Ap 26 '19
- Problems in labor administration. D. L. Hopfinger. Int Marine Eng 24:627-8 S '19

**Industrial relations—Continued**

- Problems of American industrial readjustment. Elec W 73:333 F 15 '19
- Promoting cooperation between employer and employee. G. E. Randles. Mach 25:1036 JI '19
- Propaganda in industrial relations. L. L. Warren. Ind Management 55:197-8 Mr '18
- Radical element is destroying labor organizations. H. Tipper. Automotive Ind 40:430-1 F 20 '19
- Readjustments after the war; abstract of committee report. Am Ind 19:8-10 Je '19
- Reasons for industrial discontent. I. Fisher. Coal Age 13:1066-7 Je 8 '18
- Reciprocity on the part of labor needed to solve industrial problem. J. P. Channing. Eng & Min J 106:1046-6 D 14 '18
- Relation of employer and employee. J. H. Richardson. Ind Management 57:328-9 Ap '19
- Shop versus the world. E. H. Fish. Ind Management 58:308-11 O '19
- Simplicity and frankness in industrial relations. H. S. Trecartin. Automotive Ind 40:1021 My 8 '19
- Social surroundings have important bearing on all labor questions. H. Tipper. Automotive Ind 40:366-7 F 13 '19
- Society of industrial engineers seek national industrial court. Iron Tr R 65:1272-3 N 6 '19
- Status of industrial relations. L. P. Alford. Ind Management 58:61-6 JI '19; Same cond. Mech Eng 41:513-16+ Je '19; Excerpts. Iron Tr R 64:1620-1 Je '19; Excerpts. Iron Age 104:185 JI 17 '19
- Views on the European industrial situation. R. Horne. Elec W 74:409 Ag 23 '19
- What I found the British employer thinking about. S. Crowther. Factory 22:57-61 JI '19
- What the employer must do in present labor situation. B. Tipper. Automotive Ind 41:634-6 S 25 '19
- Why fight labor? R. Hadfield. Factory 22:1157-9 Je '19
- See also Employment management; Industrial betterment; Industrial councils; Industrial management—Employee representation; Labor and capital; Labor disputes; Welfare work in industry; also International labor convention
- Industrial representation.** See Industrial management—Employee representation
- Industrial research**
- Abstracts of recent papers on engineering research. Eng & Contr 49:217-21 F 27 '18
- Aims, organization and work of Nela research laboratory. E. P. Hyde. Il Sibley J 32:123-6 My '18
- American research methods. C. H. McDowell. W Soc E J 22:546-52; Discussion. 552-65 O '17
- British government plan for industrial research. Mach 25:1069 JI '19
- Condition of research in the United States; abstracts. A. M. Greene, jr. Il Mech Eng 41:587-92 JI '19; Gas Age 44:50-3 JI 15 '19; Eng & Contr 52:108-10 JI 23 '19; Iron Tr R 64:1621-3 Je '19; Textile World 56:477+ JI 26 '19
- Cooperation in research by government of Great Britain. P. Bancel. Mech Eng 41:691 Ag '19
- Department of scientific and industrial research. F. Heath. Engineer 127:184 F 21 '19
- Development of research work. G. E. Hale. Textile World 53:5185 My 4 '18
- Developments in Great Britain. J. Johnston. Iron Age 102:140-1 JI 18 '18
- Developments in industrial research. C. L. Reese. plan Chem & Met Eng 19:197-9 Ag 15 '18
- Discussion at research session of spring meeting. Mech Eng 41:669-71+ Ag '19
- Efficiency in industrial research. C. W. Hill. Met & Chem Eng 18:182-4 F 15 '18
- Engineering research in chemical organizations. C. Field. Chem & Met Eng 20:34-5 Ja 15 '19
- Establishing an oil research bureau proposed. V. H. Manning. Gas Age 44:279-80 O 1 '19
- Federal aid for research. Sci Am 120:58 Ja 18 '19

- Growth of the industrial fellowship system. J Ind & Eng Chem 10:401-2 My '18
- How research work brings results. H. E. Diller. Il Foundry 47:546-9 Ag 15 '19
- Human element in the mill. H. K. Moore. charts Chem & Met Eng 19:146-50 Ag 1 '18
- Human factor in industry. A. P. M. Fleming. Inst E E J 57:47-56 D '18
- Importance of industrial and trade research brought out by the war. Eng N 81:sup159 S 26 '18
- Important phases of the labor problem. M. W. Alexander. Iron Age 102:1258-61, 1322-5 N 21-28 '18
- Industrial and scientific research in Italy. Engineer 125:178-9 Mr 1 '18
- Industrial research. F. B. Jewett. Mech Eng 41:825 O '19
- Industrial research for sharp answers to definite questions. H. M. Howe. Eng N 81:45-6 JI 4 '18; Same abr. Eng & Contr 50:89-90 JI 24 '18
- Industrial research laboratories. F. K. Richtmyer. Sibley J 32:80-1 Mr '18
- Institutes of applied science. P. G. Nutting. J Fr Inst 187:487-93 Ap '19
- Italy to establish industrial laboratories. Elec R 75:265 Ag 16 '19
- Labor and scientific research. Il plan Mech Eng 41:691-5 Ag '19
- Manufacturing in relation to banking, research and management. W. Rautenstrauch. Am Soc M E J 40:459-63 Je '18
- National industrial research laboratory. R. Glazebrook. Engineer 125:180-1 Mr 1 '18; Same. Eng & Contr 50:423-5 O 30 '18
- New Westinghouse research building. C. E. Skinner and R. W. E. Moore. Il Elec W 71:1132-3 Je 1 '18
- Opportunity for industrial research. C. E. Skinner. Am Soc M E J 40:23-4 Ja '18
- Organization of an industrial laboratory. A. D. Little and H. E. Howe. Textile World 56:665+ Ag 2 '19; Same cond. Mech Eng 41:663-6 Ag '19; Excerpts. Iron Tr R 65:572-3 Ag 28 '19; Excerpt. Eng & Contr 52:365-7 S 24 '19
- Organization of industrial research; abstracts. A. D. Little. Eng N 81:46-8 JI 4 '18; Iron Age 102:141-3 JI 18 '18; Eng & Contr 50:90-2 JI 24 '18
- Organizing research work on a national scale. Am Mach 49:81 JI 11 '18
- Outlook for research in America. N. M. Hopkins. Eng & Contr 52:245-8 Ag 27 '19
- Planning a research laboratory for an industry. C. E. K. Mees. diag J Ind & Eng Chem 10:476-80 Je '18
- Planning a works research organization. A. P. M. Fleming. diag plans Inst E E J 57:153-70 F 19; Abstract. Elec R 74:251 F 15 '19; Abstract. Illum Engr 12:9-12 Ja '19; Discussion. Inst E E J 57:170-92, 386-406 F, My '19
- Practical views of research. J. S. Unger. Iron Age 102:143-4 JI 18 '18
- Presidential address before Iron and steel institute. E. Schneider. Engineer 125:408-9 My 10 '18
- Production in industrial research. S. Moreell. Il chart diag Ind Management 58:95-9 Ag '19
- Reconstruction; what has already been done to restore our industries to a peace basis. W. C. Redfield. Sci Am 119:410 N 23 '18
- Relation of research to industrial development. A. D. Little. (Professional pa no. 7) 17p '17 A. D. Little, 93 Broad st., Boston
- Report of American society of heating and ventilating commission on research bureau. Il Heat & Ven 16:38-41 F '19
- Report of the Advisory council. Engineer 128:419-21 O 24 '19
- Report of the committee of the Privy council for scientific and industrial research (1917-1918). Illum Engr 11:169 JI '18
- Report of the committee of the Privy council for scientific and industrial research for the year 1918-19. Engineer 128:236-7 S 5 '19
- Report of the Honorary advisory council for scientific and industrial research of Canada. Chem & Met Eng 19:650-1 N 1 '18

**Industrial research—Continued**

- Research and manufacturing methods. C. Newman. *Mach* 24:908-9 Je '18
- Research and the industries. P. G. Nutting. Sibley J 32:81-4 Mr '18
- Research as aid to efficiency. *Textile World* 53:5144c My 4 '18
- Research associations. *Engineer* 125:549-50 Je 28 '18
- Research couplet, research in pure science and industrial research; abstract. W: A. Hamor. *Am Soc M E J* 40:435 My '18
- Research in the canning industry. F. E. Gorrrell. *Iron Age* 102:143 Jl '18
- Research laboratories for coal and by-products. F. W. Sperr, Jr. *Il Gas Age* 44:281-8 O 1 '19
- Research laboratories should co-operate. *Iron Tr R* 63:36-7 Jl 4 '18
- Research laboratory of the General electric company at Schenectady. H. R. Hosmer. *Il Sibley J* 32:98-103 Ap '18
- Research organization for the electrical industry. A. P. M. Fleming. *Elec R* 74:251 F 15 '19
- Science and industry. E: R. Weidlein. *Textile World* 53:5208+ My 4 '18
- Scientific and industrial research; report of the Advisory council. *Engineer* 126:272-3 S 27 '18
- Scientific research in the canning industry. W. D. Bigelow. *J Fr Inst* 186:1-14 Jl '18
- Something usually lacking in annual reports. *Met & Chem Eng* 18:497-8 My 15 '18
- State-aided research and the small manufacturer. *Sci Am S* 85:269 Ap 27 '18
- United States bureau of mines; reorganization. *Mech Eng* 41:826-30 O '19
- Universities and railroad equipment development. *Ry Mech Eng* 92:47-9 Ja '18
- Value of a chemical organization. C. L. Reese. *Textile World* 53:5183+ My 4 '18
- Work of the committee of the Privy council for scientific and industrial research. *Engineer* 126:197 S 6 '18
- See also* Chemical research; Chemistry, Technical; Laboratories; Mining research; Scientific research; Textile research; United States—Mines, Bureau of—Pittsburgh station
- Industrial service movement**
- Teaching human engineering in the college curriculum. F. H. Rindge, Jr. *Am Mach* 48: 713-15 Ap 25 '18
- Industrial statistics**
- Efficiency and productivity of wage and salary earners in the chemical industries, an attempt to obtain an answer. O. P. Hopkins. *J Ind & Eng Chem* 11:727-38 Ag '19
- Importance of industrial and trade research brought out by the war. *Eng N* 81:supl59 S 26 '18
- Natural and industrial resources of France, Germany, Great Britain and Ireland, the United States and the world for 1913. *Chem & Met Eng* 21:400 S 15 '19
- Relation of statistics and accounts in industrial management. M. B. Ignatius. *Ind Management* 56:312-15 O '18
- Industrial surveys**
- City planning for small cities with special reference to an industrial survey. A. P. Hoover. *Arch & Bldg* 50:9-11 F '18; Excerpts. *Eng & Contr* 50:242-3 S 4 '18
- Industrial towns.** *See* Model towns
- Industries, Electric.** *See* Electric industries
- Industry**
- Adjusting industry to strain of war finance. C: H. Sabin. *Textile World* 53:5205+ My 4 '18
- After war problems. *Am Arch* 114:114 Jl 24 '18
- Conditions after the war. C: Lundberg. *Iron Age* 102:285 Ag 1 '18
- Essentials and non-essentials of industry in war times. W. Catchings. *Dom Eng* 32:454-5 Mr 23 '18
- Industrial co-operation after the war. R. W. Babson. *Eng & Min J* 105:33 Ja 5 '18

- Industrial evolution and its effect upon the forces of industry. C: S. Keith. *Am Lumberman* 2312:54-6 S 6 '19
- Industrial reactions. E: K. Nicholson. *Iron Age* 101:1139-40 My 2 '18
- Industrial readjustment. J. A. Emery. *Am Ind* 19:12-15 Ja '19
- Manufacturing in relation to banking, research and management. W. Rautenstrauch. *Am Soc M E J* 40:459-63 Je '18
- Materials and prices. *Engineer* 127:88 Ja 24 '19
- Milwaukee's organization for war. W. Pollock. *Ind Management* 56:121-3 Ag '18
- Northwest assured busy future. *Iron Tr R* 63: 1299-1300 D 5 '18
- One manufacturer's perspective on the labor and material market. A. W. Douglas. *Factory* 20:836 My '18
- Personality of American industry. J. O. Fagan. *Am Ind* 18:30-1 Je '18
- Preparing after-the-war construction program. *Am Arch* 114:114-15 Jl 24 '18
- Rapid progress in regional plan. *Iron Tr R* 63:155-6 Jl 18 '18
- Serious business problems ahead after war. W. S. Kies. *Eng N* 81:73-6 Jl 11 '18
- Small industry in a democracy; abstracts. G: H. Haynes. *Am Soc M E J* 40:pt 1, 533-8 Jl '18; *Iron Tr R* 62:1607-10 Je 27 '18; Excerpts. *Iron Age* 102:77 Jl 11 '18
- Specialisation in industry. *Engineer* 125:397 My 10 '18
- Utilize the non-essential industries. S. H. Bunnell. *Iron Age* 101:603-5 Mr 7 '18
- See also* Efficiency, Industrial; Government regulation of industry; Labor and laboring classes; Machinery in industry; Manufactures; Priority; Substitutes; also headings beginning Industrial; also subdivision Industries and resources under names of countries
- Industry, Localization of**
- Diffusion of factories to country points. C. C. McChord. *Metal Work* 90:179-83 Ag 16 '18; Excerpts. *Automotive Ind* 39:281 Ag 15 '18; Excerpts. *Am Arch* 114:330 S 11 '18; Abstract. *Eng N* 81:412 Ag 29 '18
- Segregation of industries. *Engineer* 127:431-2 My 2 '19
- Industry and state**
- Great buying power, its dangers and duties. W: C. Redfield. *Ry R* 64:769-71 My 24 '19; Same. *Ry Age* 66:1263-5 My 23 '19
- Nationalisation of German industries. *Engineer* 128:137-8 Ag 8 '19
- Religion of democracy. H. L. Gantt. *Ind Management* 57:404-5 My '19
- Resources and conversion section of War industries board; lining up war-work possibilities. C. W. Stark. *map Am Mach* 49:393-4 Ag 29 '18
- Technocracy—national industrial management.** W: H: Smyth. *Ind Management* 57: 208-12 Mr '19
- Technocracy—ways and means to gain industrial democracy.** W: H: Smyth. *Ind Management* 57:385-9 My '19
- War industries board would extend aid to many industries; chairman Baruch hopes to save companies from bankruptcy. *Iron Age* 102:578 S 5 '18
- War taxation and effect upon business. J: W. Weeks. *Textile World* 53:2950 Ja 12 '18
- See also* Commercial policy; Government ownership; Government regulation of industry; Industrial councils; Labor laws; Priority; Public utilities
- Inertia**
- Are there no such forces as inertia and centrifugal force? *Eng & Contr* 49:631-2 Je 26 '18; Discussion. R. Fletcher. 50:208-9 Ag 28 '18
- Inertia effects in the operation of shop machinery. C. E. Clewell. *Il diags Am Mach* 51:607-9 S 25 '19
- Inertia, Moments of. See** Moments of inertia
- Infant mortality**
- Decrease in infant mortality in New York city. *Munic J* 45:96 Ag 3 '18



- Infantry**  
What the French assault trooper carries. Sci Am 118:286 Mr 30 '18
- Infants**  
Care and hygiene  
Standardized infant. Sci Am S 85:368 Je 8 '18
- Infectious diseases**  
Epidemiology and recent epidemics. S. Flexner. Sci Am S 88:234-5 O 25 '19  
See also Influenza
- Inflammable mixtures**  
Dangers of explosion with inflammable liquids and vapors. W. Payman. Sci Am S 87:7 Ja 4 '19  
Flash and burning points of gasoline-kerosene mixtures. J. T. Robson and J. R. Withrow. bibliog diag Chem & Met Eng 21:244-52 S 1 '19  
Ignition temperature of gaseous mixtures. Sci Am S 87:55 Ja 25 '19  
Ignition temperature of gaseous mixtures. P. M. Heldt. Automotive Ind 38:738-9 Ap 11 '18  
Limits of complete inflammability of mixtures of mine gases and of industrial gases with air. G. A. Burrell and A. W. Gauger. diag Sci Am S 86:236 O 12 '18  
Propagation of flames through tubes of small diameter. Sci Am S 86:381 D 14 '18
- Inflation (finance)**  
Inflation of prices, credits and currency. R. H. Tingley. Am Ind 13:12-13 Jl '18
- Influenza**  
Control of influenza. Eng & Min J 106:1131-2 D 28 '18  
Fighting influenza on the coast. Il Elec Ry J 52:1100-1 D 21 '18  
Influenza crusade in Philadelphia. Il Elec Ry J 52:888-90 N 16 '18  
Influenza epidemic at the Receiving ship, Commonwealth pier and the naval camp at Framingham, Mass.; with discussion. R. W. Mathes. Boston Soc C E J 5:443-8 D '18  
Influenza mystery deepens. Sci Am 120:92 F 1 '19  
Influenza pandemic—cause, preventive measures and medical treatment. T. F. Harrington. Il Boston Soc C E J 5:431-41 D '18  
Influenza-pneumonia pandemic in United States army camps. G. A. Soper. Eng N 81:1171 D 26 '18  
Influenza—the sphinx of diseases. W. W. Oliver. Sci Am 120:200+ Mr 1 '19  
Medical inspection at Miami camps checks influenza. Il plan Eng N 82:197 Ja 23 '19  
Open-air treatment of influenza. C. F. Dingman. Boston Soc C E J 6:61-3 F '19  
Origin of Camp Brooks and the open-air treatment of influenza. W. A. Brooks. Il Boston Soc C E J 5:423-30 D '18  
Sandfly fever or influenza. Sci Am S 86:300 N 9 '18  
Sanitary service rids construction camp of influenza. M. D. Kauffman. Il diag plans Eng N 82:620-2 Mr 27 '19  
Spanish influenza; how does it happen that the present epidemic is so fatal? W. W. Oliver. Il Sci Am 119:356+ N 2 '18  
Visualizing the recent pandemic in army camps. G. A. Soper. Eng N 83:72-4 Jl 10 '19
- Infra-red rays**  
Progress in manufacturing radio-protective glasses. W. W. Coblenz. Sci Am S 88:188 S 20 '19
- Ingels, Howard P.**  
Secretary, War Industries board. por Iron Tr R 62:1513 Je 13 '18
- Ingots**  
Bethlehem's ingot mold foundry. E. C. Kreutzberg. Il Iron Tr R 65:495-8 Ag 21 '19; Same. Foundry 47:601-3 S 1 '19  
New metal ingot mold; patent. diag Metal Ind 16:426-7 S '18
- Ingots, Steel. See Steel ingots**
- Injectors**  
Indiscriminate use of the injector causes boilers to leak. G. Austin. Ry Mech Eng 92:284-5 My '18  
Injector gage. E. F. Glass. diag Ry Mech Eng 92:410 Jl '18  
Non-lifting injector indicator. diag Ry Mech Eng 93:218 Ap '19  
Use for exhaust steam in summer; feed boilers by exhaust steam injector. Power 48:521 O 8 '18; Discussion. J. W. Connolly. 48:753 N 19 '18
- Injectors (liquid fuel)**  
Liquid fuel injector. H. B. Higgins, jr. diag Automotive Ind 40:1076-7 My 15 '19
- Ink**  
Commissions and gratuities eliminated in selling ink. W. Fawcett. Inland Ptr 60:495-6 Ja '18  
Dyestuffs and the printing ink industry. Color Tr J 4:143 Je '19  
Mixing colors. G. Colt. Inland Ptr 61:334 Je '18  
Printing ink for half-tone work. Sci Am S 86:139 Ag 31 '18  
Printing-inks: their history, composition and manufacture. F. L. Burt. Inland Ptr 64:190-2, 310-12 N-D '19 (to be cont)  
Use of gas in manufacture and utilization of glue, inks and similar substances. G. C. Shadwell. Il Am Gas Eng J 109:29-30 Jl 13 '18
- Ink stains**  
Removal of blood and ink stains. Color Tr J 4:62-3 Mr '19
- Inland steel company, Chicago**  
Doubles steelmaking capacity. G. H. Manlove. Il diag plans Iron Tr R 65:87-95 Jl 10 '19  
How the Inland steel co. met war demand. Il diag Iron Age 104:91-7 Jl 10 '19  
Rolling equipment of the Inland steel co. Il plan Iron Age 104:155-61 Jl 17 '19
- Inosite phosphoric acids**  
Nature of the inosite phosphoric acids of some important feeding materials. J. B. Rather. Am Chem Soc J 40:523-36 Mr '18
- Insecticides**  
Consumption and cost of economic poisons in California in 1916. G. P. Gray. J Ind & Eng Chem 10:301-2 Ap '18  
Contact insecticides; physical properties governing their efficacy. W. Moore and S. A. Graham. bibliog Sci Am S 86:142-4 Ag 31 '18  
Determination of arsenic in insecticides by potassium iodate. G. S. Jamieson. J Ind & Eng Chem 10:290-2 Ap '18  
Determination of copper in insecticides. G. S. Jamieson. Chem & Met Eng 19:185 Ag 15 '18  
Killing vegetable parasites with poisoned gases. Sci Am 121:31 Jl 12 '19  
Quassia extract as a contact insecticide; note. Sci Am S 86:299 N 9 '18  
Sulpho-calcic solution for grapevine parasites. Sci Am S 86:171 S 14 '18
- Insects**  
Efficiency of light-production in organisms. E. Karrer. bibliog J Fr Inst 185:775-83 Je '18  
Familiar insects through the camera. Il Sci Am S 87:248-9 Ap 19 '19  
Flower that catches insects; a little-known characteristic of the common milkweed. A. J. Eldredge. Il Sci Am 119:64 Jl 27 '18  
How insects were named. Sci Am S 87:150 Mr 8 '19  
Life habits of insects recorded with the camera. Il Sci Am S 88:244-5 O 25 '19  
Odors emitted by bees; abstracts. Sci Am S 85:8 Ja 5 '18; Sci Am 118:184 Mr 2 '18  
Photography of insects. G. Grace. Sci Am S 86:91 Ag 10 '18  
Recognition among insects. N. E. McIndoo. Sci Am S 85:40 Ja 19 '18  
Study of the proteins of certain insects with reference to their value as food for poultry. J. S. McHargue. bibliog Sci Am S 86:31 Jl 13 '18  
Wars of insects. F. L. Bouvier. Sci Am S 85:274-5 My 4 '18

**Insects—Continued**

Why animals play dead; a study of curious phenomena in insect and animal life. E. Rabaud. Sci Am S 86:290-1+ N 9 '18

See also Ants; Cicadas; Flies; Insecticides; Locusts; Mosquitoes; Wasps

**Insects, Fossil**

Life of insects in the primary era; a study of certain fossil remains in France. A. Lameere. Sci Am S 86:158-60 S 7 '18

**Insects, Injurious and beneficial**

California timber badly infested by insects. T. Friant. Am Lumberman 2245:67 My 25 '18  
Fifty billion German allies already in the American field; pests already intrenched to destroy \$1,000,000,000 in grain this summer. Il Sci Am 119:47+ J1 20 '18

Fighting insects with insects. Sci Am 119:167 Ag 31 '18

In winter war can be made on many insects injurious to agriculture. Am Lumberman 2226:41 Ja 12 '18

Insect aid to filtration. H. D. Bell and W. H. Parkinson. Munic J 46:383-4 My 31 '19

Insects helpful to man. Sci Am S 86:59 J1 27 '18

Southern pine beetle timber menace. Il Am Lumberman 2299:43 Je 7 '19

See also Cicadas; Flies; Lice; Locusts; Mosquitoes

**Insignia.** See Decorations of honor; United States—Army—Insignia; United States—Navy—Insignia

**Inspection**

General principles of government inspection and relations between inspectors and manufacturers. B. W. Dunn. Am Soc M E J 40:65-7 Ja '18

Getting better inspection 100 per cent faster. W. H. Main. diag Factory 23:499-501 S '19

Government inspection of machines and small tools. Am Mach 50:647-8 Ap 3 '19

Great value of constructive inspection. Am Mach 48:213, 442 Ja 31, Mr 14 '18

How ordnance is inspected. F. H. Colvin. Il Am Mach 50:263-8, 311-16 F 6-13 '19

How to increase the efficiency of the shipyards. C. P. Norton. Am Mach 48:525-6 Mr 28 '18

Inspection and quality control. F. E. Merriam. Il Ind Management 56:305-11 O '18

Inspection methods of the future. C. C. Marsh. Mach 24:1003-4 J1 '18

Inspection without reason. M. E. Hoag. Am Mach 47:914 N 22 '17; Discussion. 48:22, 325 Ja 3, F 21 '18

Inspectors and inspection. W. B. Seigle. Am Mach 47:1091-2; 48:105-6 D 20 '17, Ja 17 '18

Lodge and Shipley control system; shop inspection and assembly. D. M. Perrill. Il Ind Management 55:24-30 Ja '18

Logic of inspection. A. L. DeLeeuw. Am Soc M E J 40:61-3 Ja '18; Discussion. 40:67-70, 247-8 Ja, Mr '18

Maintaining efficiency by inspection and tests. J. O. Kammerman. Power 48:876-7 D 17 '18

Organizing production to prevent internal friction. H. W. Slauson. Factory 20:246-7 F '18

Qualifications of an inspector. W. R. Fradell. Am Mach 48:824 My 16 '18

Relation of inspection to product. F. A. Waldron. Am Soc M E J 40:63-4 Ja '18

Reorganizing the inspection department. D. R. Stevens. Il Factory 21:428-30 S '18

Some hints on inspection. W. E. Wilbur. Am Mach 49:111 J1 18 '18

This will pass and that won't. F. H. LeMont. Il Factory 21:1067-71 D '18

See also Boiler inspection; Bridge inspection; Car inspection; Coal inspection; Electric inspection; Factory inspection; Highway inspection; Lumber inspection; Mine inspection; Plumbing inspection; also subdivision inspection, under various subjects, e.g. Airplanes—Inspection, Cartridge cases—Inspection; Locomotives—Inspection, Shells (projectiles)—Inspection

**Inspiration consolidated copper company**

Annual report, 1917. Eng & Min J 105:1092-3 Je 15 '18

**Instinct**

Appetites and aversions as constituents of instincts. W. Craig. Sci Am S 85:291 My 11 '18

Biological aspects of warfare. H. Campbell. Sci Am S 85:46-8, 58 Ja 19-26 '18

Is man a rational animal? Sci Am 121:384 O 18 '19

**Institute of lighting fixture manufacturers**

Open price competition offers remedy for overproduction; system of the Institute. Elec R 73:580 O 12 '18

**Institute of metals**

Activities of the British Institute of metals; a summary of the fourth report of the Corrosion committee. G. D. Bengough and O. F. Hudson. Metal Ind 17:464-5, 489-90 O-N '19

Annual general meeting, March 25-26. Engineer 127:301-2, 322-3 Mr 28-Apr 4 '19

Annual meeting, March, 1918. Engineer 125:226, 248-9, 270 Mr 15-29 '18

Autumn conference, September 24-25. Engineer 128:313, 330-1, 351 S 26-O 10 '19

Autumn meeting; abstracts of papers. Engineer 126:216-17, 250-1 S 20-27 '18

Presidential address. H. C. H. Carpenter. Metal Ind 16:311-14 J1 '18

**Institution of British foundrymen (formerly British foundrymen's association)**

British foundrymen welcome president of A.F.A. Foundry 47:385-6 Je 15 '19

16th annual meeting, Liverpool, July 17-18. Foundry 47:590-1 S 1 '19

**Institution of civil engineers**

Centenary of the Civils. Engineer 124:563 D 28 '17; Discussion. 125:49 Ja 18 '18

Life and work during the century of its existence. J. H. T. Tudsbury. Engineer 125:26-7 Ja 11 '18; Same. Eng & Contr 50:417-18 O 30 '18

Presidential address. J. P. Griffith. Engineer 128:457-9 N 7 '19

**Institution of electrical engineers**

Accounts for the year ended 31st Dec., 1917. Inst E E J 56:338-48 My '18

Address before Manchester local section. C. H. Wordingham. Inst E E J 56:sup22-4 My '18

Address to the territorial centers. C. H. Wordingham. diags Inst E E J 57:338-48 Ap '19

46th annual general meeting, 30 May, 1918. Inst E E J 56:532-4 J1 '18

Inaugural address. C. H. Wordingham. Inst E E J 56:1-16 D '17

Proceedings, 600th ordinary meeting, 8 November, 1917. Inst E E J 56:54-6 D '17

Report of the council for presentation at the annual general meeting of 30 May, 1918. Inst E E J 56:330-7 My '18

Visit to Holland. Engineer 128:387 O 17 '19

**Institution of mechanical engineers**

Annual general meeting, London, Feb. 18. Engineer 125:160-1 F 22 '18

Annual general meeting, Feb. 21. Engineer 127:193-4 F 28 '19

Excerpts from the address by the president. E. Hopkinson. Engineer 128:431-2 O 31 '19

Meeting, Jan. 24. Engineer 127:108-9 Ja 31 '19

Meeting, March 21. Engineer 127:299-300 Mr 28 '19

**Institution of naval architects**

Annual conference, April 9. Engineer 127:350-1, 374, 396-7, 420-1 Ap 11-May 2 '19

Annual spring meeting. Engineer 125:251-2, 267-8, 290-1 Mr 22-Apr 5 '18

**Institutions, Public**

Institutional architecture and the social point of view. L. N. Robinson. Am Inst Arch J 6:552-3 D '18

Leaks and wastes in state institutions. F. J. McCullough. Power 49:742-4 My 13 '19

Water supply problem of our state institutions; with discussion. F. J. Postel. Am Water Works Assn J 6:276-84 Je '19

See also Detention homes; Hospitals; Orphan asylums; Reformatories; State buildings

**Instruments, Aeronautic.** See Aeronautic instruments

- Instruments, Drawing. See Drawing instruments  
 Instruments, Electric. See Electric instruments  
 Instruments, Optical. See Optical instruments  
 Instruments, Surgical. See Surgical instruments  
 Insulating materials. See Dielectrics; insulation  
 insulation  
 Acid fumes cause insulation deterioration. B. H. Smith. Elec R 75:577-8 O 4 '19  
 Apparent dielectric strength of varnished cambric. A. E. Kennelly and R. J. Wiseman. diag plans Elec W 70:1138-41 D 15 '17; Abstract. J Fr Inst 185:143-5 Ja '18  
 Application of theory and practice to the design of transmission line insulators. G. I. Gilchrist. II diag Am Inst E E Pro 37:571-90 Je '18; Abstract. Elec W 71:1372 Je 29 '18  
 Application of theory and practice to the design of transmission line insulators. G. I. Gilchrist and T. A. Klinefelter. II diag Elec J 16:8-16 Ja '19  
 Cause of failure of high-tension insulators; abstract. E. O. Meyer. Elec W 74:842 O 18 '19  
 Cellon insulating varnishes. Automotive Ind 40:419 F 20 '19  
 Cement post insulating supports for flat and round buses. II Elec R 73:142 JI 27 '18  
 Change of specific inductive capacity with temperature and impregnation in paper. H. C. P. Weber and T. C. MacKay. J Fr Inst 186:374-7 S '18; Same. Elec R 73:525 O 5 '18  
 Chart for determining economy of insulation. A. Bolam. Elec W 71:1275 Je 15 '18  
 Cracking of pin type corner porcelain insulators. S. L. Foster. J Elec 43:213-15 S 1 '19  
 Cutting loose insulation from overhead lines. O. P. Morse. II Elec Ry J 51:1101 Je 8 '18  
 Design of high voltage insulators. C. E. Oakes. Sibley J 32:14-20, 34-9, 51-4 N '17-Ja '18  
 Designing moulded insulation. W. H. Kempton. II Elec J 16:152-7 Ap '19  
 Determination of electric fields of insulators by the electrolytic method; abstract. W. Estorff. Elec W 73:231-2 F 1 '19  
 Dielectric strength of air films entrapped in solid insulation and a practical application of the problem for alternator coils and cables. F. Dubsky. diag Am Inst E E Pro 38:141-61 F '19  
 Dorrte insulating material. Elec W 70:1176 D 15 '17  
 Economical substitute for matting; mastic insulite. M. S. Montgomery. Elec R 71:1070 D 22 '17  
 Effect of temperature on spark plug insulations. Automotive Ind 40:25 Ja 2 '19  
 Electrical properties of vulcanized fiber. W. Eves. Elec W 71:190-2 Ja 26 '18; Same cond. Elec Ry J 51:238-9 F 2 '18  
 Factors affecting selection of insulators. A. O. Austin. diag Elec W 70:1234-6 D 29 '17  
 High-tension disk insulator. diag Elec W 71:1062 My 18 '18  
 Insulating material. J Ind & Eng Chem 10:314 Ap '18  
 Insulating material from fish oil; abstract. Elec W 72:170 JI 27 '18  
 Insulation of armatures. Elec R 73:1022-3 D 28 '18  
 Insulation of distribution transformers. A. C. Farmer. II diag Elec J 16:223-7 My '19  
 Insulator committee report. J Elec 42:488-9 My 15 '19  
 Insulator selection from a manufacturing view. R. M. Johnson. J Elec 42:429-30 My 1 '19  
 Insulators replaced on a 23,000-volt live line. Elec Ry J 52:282 Ag 17 '18  
 Ionization of occluded gases in high-tension insulation. G. B. Shanklin and J. J. Matson. Am Inst E E Pro 38:163-210 F '19; Abstract. Elec W 73:427 Mr 1 '19  
 Locating defective transmission-line insulators. T. F. Johnson, Jr. diag Elec W 74:568-72 S 13 '19  
 Methods of insulating A. C. generator coils. H. D. Stephens. II diag Power 48:333-5 S 3 '18  
 Micanite insulation for commutators. Elec R 73:307 Ag 24 '18  
 Moulded insulation. W. H. Kempton. Elec J 16:84-7 Mr '19  
 New insulating material; abstract. Elec W 71:159 Ja 19 '18  
 New insulator tie is developed by utility. II Elec W 73:1038 My 17 '19  
 Notes on suspension insulator design. H. L. Garbutt. diag J Elec 43:19-21 JI 1 '19  
 Operating view of high-tension insulators. P. Ackerman. II diag Elec W 73:116-19 Ja 18 '19  
 Paper-insulated cable properties. W. S. Clark. Elec R 75:960 D 6 '19  
 Penetration of moisture in insulating materials. C. J. Rottmann. J Fr Inst 188:409-10 S '19; Same. Elec R 75:561 O 4 '19  
 Photographic study of porcelain insulators. H. G. Tufty. II Elec W 73:268-71 F 8 '19  
 Pin or arm insulation not sufficient. II diag Elec W 72:394-6 Ag 31 '18  
 Practical experience with high-voltage insulators; discussion of N. E. L. A. report by California operating engineers. Elec R 74:867 My 24 '19  
 Proper installation of strain insulators in guys. II Elec W 71:416 F 23 '18  
 Rack insulation. W. H. Weber. Metal Ind 15:194 My '17  
 Reduction of insulation resistance in high pressure fire service motors, due to moisture. W. W. Brush. Eng & Contr 52:421-2 O 8 '19; Abstract. Eng N 83:818 O 30 '19  
 Resistance of hot spark plug insulators. R. H. Cunningham. II diag Automotive Ind 39:907-11 N 28 '18  
 Re-use of line insulators. Elec Ry J 51:495 Mr 16 '18  
 Rewinding 12,000-kw. turbo-generator field. II Elec W 73:893-4 My 3 '19  
 Salient features of high-voltage oil-impregnated strain insulator. diag Elec R 72:281-2 F 16 '18  
 Size of the gas films in mica insulation. G. B. Shanklin and J. J. Matson. Elec W 73:533 Mr 15 '19  
 Substitutes for rubber-insulated wires; abstracts. Elec W 73:900 My 3 '19; Sci Am S 87:307 My 17 '19  
 Theory of probabilities applied to failures of suspension insulators. L. M. Klauber. diag Am Inst E E Pro 38:959-72 Ag '19; Abstract. Elec R 75:573 O 4 '19  
 Tool for locating defective pin-type insulators on wooden poles. II Elec R 75:752-3 N 1 '19  
 Use of mica insulation for alternating-current generators. H. D. Stephens. II Elec J 16:21-4 Mr '19  
 Varnished cambric cable for underground service. W. E. Hazeltine. II Gen Elec R 22:442-4 Je '19  
 What are safe operating temperatures for mica insulation. H. D. Stephens. II diag Elec J 16:131-3 Ap '19; Abstract. Elec W 73:1280 Je 14 '19  
 Wishbone cross-arms favored in California. L. J. Moore. diag Elec W 72:1118 D 14 '18  
 See also Dielectrics; Electric cables; Electric resistance; Electric wire and wiring
- ### Testing
- Flexible and accurate method for dielectric tests. C. A. Butman. diag Elec W 71:502-6 Mr 9 '18; Discussion. G. Thompson. 71:1382 Je 29 '18  
 Half-million-volt condenser for testing. II Elec W 74:404-5 Ag 23 '19  
 Insulation-testing panel. J. W. Wauchope. diag Power 50:399 S 2 '19  
 Insulator fault-finder tests 125 poles a day. diag Elec W 74:805 O 11 '19  
 Pacific coast practice in insulator testing. J Elec 42:345-7 Ap 15 '19; Same. Elec R 74:741-3 My 10 '19; Abstract. Elec W 73:896 My 3 '19  
 Testing insulators on line at two and one-half cents each. Elec R 74:1006 Je 14 '19  
 Tests of ignition apparatus. P. M. Heldt. II diag Automotive Ind 40:578-9 Mr 18 '19

- Insulation (heat)**  
 Boiler insulation practice in oil-burning steam plants. A. L. Gossman. *Il diags J Elec* 43:366-8 O 15 '19  
 Boiler-setting radiation and air leakage. E. S. Hight. *diags Elec W* 72:974-5 N 23 '18; Same. *Power* 48:953-4 D 31 '18  
 Conservation of heat losses from pipes and boilers. G. D. Bagley. *diag Am Soc M E J* 40:918-23 N '18; Same *abr. Elec R* 74:89-93 Ja 18 '19; Same *cond. Power* 48:932-4 D 24 '18; Same *cond. Textile World* 55:355+ Ja 11 '19  
 Cost of heat losses from bare pipes. W. F. Schaphorst. *Elec R* 72:846-7 My 18 '18; Same. *Gas Age* 42:68 JI 15 '18  
 Directions and data for reducing radiation losses. J. Harrington. *Elec R* 73:866 N 30 '18; Same. *Power* 48:814 D 3 '18  
 Easily made pipe covering. J. E. Noble. *Il Power* 47:742 My 21 '18; Discussion. A. G. Collins. 47:924 Je 25 '18  
 Efficiency of underground conduit. G. B. Nichols. *diags plans Am Soc Heat & V E* 23:173-84; Discussion. 185-92 '17  
 Efficient pipe covering. *Il Coal Age* 13:692-3 Ap 13 '18  
 Fuel saved through insulation. G. D. Bagley. *Gas Age* 42:113 Ag 1 '18  
 Heating contractor's opportunity to cash in on pipe and boiler covering. J. A. Ward. *Dom Eng* 85:246-7 N 16 '18  
 How soon will heat insulating material pay for itself? W. F. Schaphorst. *Am Gas Eng J* 108:52 Ja 19 '18; *Concrete* 12:sup20 F '18; *Coal Age* 13:910-11 My 18 '18  
 Insulation for by-product coke ovens. P. A. Boeck. *Il diags Gas Age* 43:24-6 Ja 1 '19  
 Is your furnace a heat slacker? L. W. Mof-fett. *Il Iron Tr R* 61:1274-6 D 13 '17  
 Measurement of heat losses through insulating materials. *Sci Am S* 87:373 Je 14 '19  
 Molersten, Danish heat-insulating material. *Sci Am* 118:499 Je 1 '18  
 Report on heat-insulating materials. *diags plan Power* 45:593-6 My 1 '17; Abstract. *Am Soc M E J* 39:567 Je '17; Abstract. *Met & Chem Eng* 17:605 N 15 '17; Correction. E. R. Weidlein. *Power* 47:484 Ap 2 '18  
 Saving coal with insulation. *Factory* 21:904+ N '18  
 Saving derived from covering steam pipes. *Elec W* 70:671-2 O 6 '17; Excerpt. *Dom Eng* 81:501 D 22 '17; Discussion. A. Bolam. *Elec W* 70:1253 D 29 '17  
 Sponge-felt insulation for steam lines proves value. *Elec W* 71:1377 Je 29 '18  
 Thermal insulation; abstract. R. B. Fehr. *Elec W* 72:215 Ag 3 '18  
 Value of insulation and losses in B.t.u.'s. W. N. Allman. *Ry Mech Eng* 98:128-30 Mr '18  
 Watch your radiation losses to help save coal. A. Bolam. *diag Elec W* 71:554-6 Mr 16 '18  
 Why you should insulate that bare pipe. C. H. Bromley. *Power* 48:626 O 29 '18
- Insurance**  
 By-products from your boiler insurance policy. C. Collier. *Factory* 20:235-6 F '18  
 Merits of reciprocal insurance. B. P. Bailey. *Textile World* 53:6208-9 Je 22 '18  
 Stock liability insurance advantages. E. L. Lott. *Textile World* 53:6207-9 Je 22 '18  
 When insurance companies pay indemnity for disability. R. H. Butz. *Am Ind* 18:27 D '17; Same. *Dom Eng* 84:123 JI 27 '18  
 See also Benefit societies
- Accounting**  
 Insurance expense accounting. W. H. Draughon. *J Account* 28:16-24 JI '19
- Insurance, Accident.** See Insurance, Employers' liability
- Insurance, Employers' liability**  
 Experiment in insurance co-operation. C. E. Morrison. *Elec W* 71:1082-3 My 25 '18  
 Liability of employers during strikes. C. C. Sherlock. *Mach* 25:1157-8 Ag '19  
 Merit rating of coal mines under workmen's compensation insurance. E. C. Lee. *Am Inst Min E Bul* 130:1825-32 O '17; Discussion. 133:28-30 Ja '18
- Participating stock insurance companies.** H. J. Shoemaker. *Am Ind* 18:28-9 Mr '18  
 Which is the best form of compensation insurance? *Dom Eng* 83:41 Ap 13 '18  
 See also Insurance, Industrial
- Insurance, Fire**  
 Are you safe under your eighty per cent insurance clause to-day? E. J. Buckley. *Metal Work* 90:253 Ag 30 '18  
 Article 21 of the 3d edition, Standard documents of the American institute of architects. *Am Inst Arch J* 6:272 My '18  
 Fixture inventory reduces fire loss. *Metal Work* 89:774 Je 14 '18  
 How a merchant lost his fire insurance. E. J. Buckley. *Metal Work* 89:429 Mr 29 '18  
 Insurance on block buildings. *Concrete* 12:146-7 Ap '18  
 Water works improvements and fire insurance rates. K. L. Walling. *Am Water Works Assn J* 6:839-43 N '19; Same. *Munic Eng* 57:95-6 Ag '19  
 Will your business survive a fire? *Il Factory* 21:648-50 O '18
- Insurance, Group.** See Insurance, Industrial
- Insurance, Health**  
 Compulsory health insurance. G. E. Tucker. *Am Ind* 19:19-20 Ja; 24-7 F '19  
 Health insurance plan as aid to labor. J. R. Commons. *Iron Tr R* 63:1243 N 28 '18
- Insurance, Industrial**  
 Cincinnati planer co.'s first year's experience. A. J. Schneider. *Am Mach* 50:580 Mr 27 '19  
 Employee group insurance. *Automotive Ind* 39:94 JI 18 '18  
 Group insurance. H. W. Kimball. *Ind Management* 57:154-6 F '19  
 Group insurance for the industrial worker. E. E. Rice. *Ind Management* 57:234-6 Mr '19  
 Group insurance plan of Cincinnati planer co. A. J. Schneider. *Ind Management* 55:67-8 Ja '18; Same. *Am Mach* 48:197-8 Ja 31 '18; Same *cond. Mach* 24:572 F '18; Abstract. *Ry Mech Eng* 92:170 Mr '18  
 Insurance granted to all cement plant employees. *Concrete* 15:sup28 Ag '19  
 One way to get men to stay. *Factory* 21:836-8 N '18  
 Philadelphia rapid transit company's insurance plan. *Elec Ry J* 52:428 S 7 '18  
 Self-insurance for workmen's compensation. O. G. Browne. *Elec Ry J* 53:1176-7 Je 14 '19  
 State industrial insurance in Nevada. J. A. Carpenter. *Il Eng & Min J* 107:985-8 Je 7 '19  
 See also Benefit societies; Insurance, Employers' liability; Workmen's compensation
- Insurance, Marine**  
 America gains strength in marine insurance field. H. W. Loweree. *Marine R* 49:522-4 N '19  
 Classification society necessary to the merchant marine. *Int Marine Eng* 23:674+ D '18
- Insurance, Partnership**  
 Insuring the life of a partner or executive. *Dom Eng* 84:284 Ag 24 '18  
 Partnership insurance a phase of goodwill. J. Hunter. *J Account* 25:259-62 Ap '18
- Insurance, War risk**  
 Plans to continue war risk insurance among railroad men. *Ry R* 65:666-7 N 1 '19
- Insurance, Workingmen's.** See Insurance, Industrial
- Integrating hemisphere**  
 Integrating hemisphere; advantages over sphere. F. A. Benford, Jr. *Il diags Illum Eng Soc* 13:323-51 no 6 '18
- Intelligence tests.** See Ability tests
- Interallied chemical confederation** (now International union of pure and applied chemistry)  
 Organization, Paris, April 14, 1919. *Chem & Met Eng* 20:561 Je 1 '19; *J Ind & Eng Chem* 11:691-2 JI '19

- Interallied chemical conference**  
Meeting, London, July 14-17. *J Ind & Eng Chem* 11:886-8 S '19
- Interallied congress for chemical warfare**  
Interallied organizations for chemical warfare. J. E. Zanetti. *J Ind & Eng Chem* 11:721-3 Ag '19
- Interborough rapid transit company, New York**  
Important power contracts. *Elec R* 71:980 D 8 '17  
Interborough publicity sets public to thinking. *Elec Ry J* 51:217-19 F 2 '18  
Report, year ended June 30, 1918. *Elec Ry J* 52:632 O 5 '18
- Interchange car inspectors & car foremen's association, Chief. See Chief interchange car inspectors & car foremen's association**
- Interchange of freight cars. See Freight cars, Interchange of**
- Interchangeable mechanism**  
Checking gages to decrease your scrap pile. H. L. Wittstein. *Il Factory* 22:456-7 Mr '19  
Developing a gaging system for small arms and heavy ordnance. E. Oberg. *Il diags Mach* 25:93-107 O '18  
Flush-pin, sliding bar and hole gages. E. Oberg. *Il diags Mach* 25:404-12 Ja '19  
Fool-proof precision gage. *Il Sci Am* 118:456+ My 18 '18  
Interchangeability, tolerances and finish. J. P. Brophy. *Am Mach* 48:156-7 Ja 24 '18  
Machine accuracy in manufacturing small interchangeable parts. G. C. White. *diags Mach* 25:67 S '18  
Machine design in interchangeable manufacturing practice. E. Buckingham. *Il Mach* 26:8-11 S '19  
Principles of interchangeable manufacturing. E. Buckingham. *Mach* 25:1024-9 JI '19  
Purpose of models in interchangeable manufacturing. E. Buckingham. *Mach* 26:129-30 O '19  
Standardization and interchangeability; factors which help or hinder according to the work in hand. F. H. Colvin. *Am Mach* 50:1143-6 Je 12 '19; Discussion. 51:226, 286, 341 JI 31-Ag 14 '19  
Thread gages; wing gages. E. Oberg. *Il diags Mach* 25:502-6 F '19  
*See also Gages*
- Terminology**  
Terms used in interchangeable manufacturing. E. Buckingham. *diags Mach* 25:1118-21 Ag '19
- Intercollegiate chemical society**  
Chemical technology for college students. H. Grossman. *Chem & Met Eng* 21:4 JI 1 '19
- Interconnection. See Electric plants—Interconnection**
- Interest**  
Deductibility of interest charges under federal tax laws. F. Thulin. *J Account* 26:23-32 JI '18  
Equal payments to liquidate a debt with interest. R. B. Shepard, Jr. *Eng N* 80:871-2 My 2 '18; Discussion. 81:143-4, 372-3 JI 18, Ag 22 '18  
Interest and cost. H. C. Magee. *J Account* 26:398-400 N '18  
Interest can be collected on unpaid accounts. E. J. Buckley. *Metal Work* 89:744 Je 7 '18  
Is interest on invested capital a cost? W. B. Castenholz. *J Account* 25:248-54 Ap '18  
Rapid calculation of compound interest processes. F. C. Belser. *J Account* 27:241-8 Ap '19  
Relation between interest and manufacturing costs. E. C. Gause. *J Account* 25:187-90 Mr '18
- Interference (light)**  
Flatness tests at Bureau of standards. R. L. Rankin. *Il Am Mach* 50:1218-20 Je 26 '19  
Measuring to the millionth part of an inch; practical utilization of light waves. R. I. Clegg. *Il diag Iron Age* 103:1345-8 My 22 '19  
Millionth of an inch; how the wave-length of light is used to detect errors of this infinitesimal amount. *Il diags Sci Am* 121:62-3+ JI 19 '19
- Interferometer**  
Application of the interferometer to gas analysis. J. D. Edwards. *U S Bur Stand Tech Pa* 131:1-19 '19  
Correction of optical surfaces. A. A. Michelson. *Sci Am S* 86:181 S 21 '18  
Gas interferometer calibration. J. D. Edwards. *U S Bur Stand Bul* 14:473-7 Je 24 '18  
Use of the interferometer in gas analysis. F. M. Selbert and W. C. Harpster. *Il diags plan U S Bur Mines Tech Pa* 185:1-16 '18
- Interior decoration. See Furniture; House decoration**
- Interlocking plants**  
Electropneumatic interlocking. J. W. Stephenson. *Elec Ry J* 51:820 Ap 27 '18
- Internal combustion engines. See Gas and oil engines**
- International association of industrial accident boards and commissions**  
4th annual meeting, Boston, Mass., Aug. 21-25, 1917. *Il diags U S Bur Labor Statistics Bul* 248:1-306 '19
- International association of manufacturing photoengravers**  
22d annual convention, Detroit, June 20. *Inland Ptr* 61:604-8 Ag '18
- International association of municipal electricians**  
23d annual meeting, Atlanta, Ga., Sept. 24-27. *Elec R* 73:500-1, 621-2 S 28, O 19 '18; *Elec W* 72:805 O 26 '18  
24th annual convention, Chicago, Sept. 23-26. *Elec R* 75:523-4 S 27 '19
- International bureau of weights and measures**  
Work of the bureau. C.-E. Guillaume. *Sci Am S* 86:186-7 S 21 '18
- International commission on illumination**  
Statement on behalf of U. S. National committee. E. P. Hyde. *Illum Eng Soc* 13:530-1 no 9 '18
- International concrete ship association**  
New organization formed to boost building of concrete ships. *Int Marine Eng* 23:522-3 S '18
- International electrotechnical commission**  
Work of the commission. *Elec W* 73:856-7 Ap 26 '19
- International federation of master cotton spinners' and manufacturers' associations**  
Aims and objects of international federation. A. S. Pearce. *Textile World* 53:5195+ My 4 '18
- International finance. See Finance, International**
- International general electric corporation**  
Organization. *Elec R* 74:64 Ja 11 '19
- International harvester company**  
Dissolution. *Iron Age* 102:335 Ag 8 '18  
Equal representation in management offered Harvester employees. *Automotive Ind* 40:564-8 Mr 13 '19  
Turning out 100 tractors per day. P. M. Heldt. *Il plan Automotive Ind* 40:788-92, 852-7 Ap 10-17 '19
- International institute of agriculture**  
Organization and growth. *Sci Am* 120:248 Mr 15 '19
- International labor convention**  
Enforcement in U. S. of international labor standards. G. W. Wickersham. *Am Ind* 19:11-16+ JI '19
- International language. See Esperanto; Language, Universal**
- International mining convention**  
Convention, Vancouver, B.C., March 17. *Eng & Min J* 107:660-6 Ap 12 '19
- International money. See Money, International**
- International nickel company**  
International nickel company's refining works at Port Colborne, Ontario. W. L. Wotherspoon. *Il Eng & Min J* 107:429-35, 446-7 Mr 8 '19
- International parcel post. See Parcel post**

- International power economy conference**  
1st meeting, Chicago, Dec. 6. Elec R 73:936-7 D 14 '18  
2nd meeting, Chicago, Oct. 30-31. Elec R 75:788-91 N 8 '19
- International railroad master blacksmiths' association**  
25th annual convention, Chicago, Aug. 19-21. Ry Age 67:425-9 Ag 29 '19; Ry Mech Eng 93:541-7 S '19
- International railway association**  
International railway congress association reconstituted. Ry R 65:702-3 N 8 '19  
Reorganization. Ry Age 67:636 S 26 '19
- International railway congress.** See International railway association
- International railway fuel association**  
10th annual convention, Chicago, May 23-24, 1918. Ry Age 64:1287-92, 1339-44 My 24-31 '18; Ry R 62:747-9 My 25 '18; Coal Age 13:1010-14 Je 1 '18; Ry Mech Eng 92:351-6 Je '18; Power 47:817-18 Je 4 '18  
11th annual convention, Chicago. Ry Age 66:1248-56, 1309-17 My 23-30 '19; Ry R 64:755-9, 791-6 My 24-31 '19
- International railway general foremen's association**  
15th annual convention, Chicago, Sept. 2-5. Ry Age 67:521-4 S 12 '19; Ry R 65:355-7 S 6 '19; Ry Mech Eng 93:601-4 O '19
- International regulation of industry**  
World control of minerals. C. K. Leith. Iron Tr R 65:160-1 JI 17 '19
- International tailoring company, Chicago**  
Building for International tailoring co.; views and plans. Am Arch 113:29, pl 9-12 Ja 2 '18
- International union of pure and applied chemistry**  
Statutes of the International union of pure and applied chemistry. J Ind & Eng Chem 11:887-8 S '19; Same. Chem & Met Eng 21:424-5 O 1 '19
- Interpolation**  
Practical interpolation. A. S. Little. diags J Account 27:48-60 Ja 19
- Interpoles**  
Effect of interpoles on commutation of direct-current machines. R. L. Witham. II diags Power 49:303-5 Mr 4 '19  
How interpoles affect the operation of direct-current machines. R. L. Witham. diags Power 49:358-60 Mr 1 '19
- Inter-professional conference**  
Address. T. R. Kimball. Eng N 83:808-9 O 30 '19  
Inter-professional body formally organized. Eng N 83:835+ O 30 '19
- Inter-racial council**  
Conference for industrial peace. Metal Work 91:283-4 F 28 '19
- Interstate commerce commission**  
Address. W. M. Daniels. Ry Age 65:851-4 N 15 sec 1 '18; Same. Ry R 63:693-5 N 16 '18  
Annual report of I. C. C. Bureau of safety. W. P. Borland. Ry Mech Eng 93:89-90 F '19  
Annual report of the Bureau of safety; abstracts. H. W. Beinap. Ry Age 63:1177-80 D 28 '17; Ry Mech Eng 92:17 Ja '18  
Change in the express contract suggested. Ry Age 65:765-6 N 1 '18  
Commission and administration rates. Ry R 62:953 Je 29 '18  
Esch-Pomerene bill to increase commission's powers. Ry Age 66:1367-70 Je 6 '19  
Executive suggests relieving I. C. C. of power. E. P. Ripley. Ry Age 66:1815-16 Je 27 '19  
Has the Interstate commerce commission seen a great light. S. Thompson. Ry R 64:874-5 Je 14 '19  
Interstate commerce commission holds railroad control act has not deprived it of authority to decide on relations of rates. Ry Age 65:767-9 N 1 '18  
Interstate commerce commission on railway legislation. Ry R 64:56-9 Ja 11 '19
- I. C. C. recommends consolidated classification. Ry Age 67:644-6 S 26 '19  
Plea for the Interstate commerce commission. Ry R 65:312-13 Ag 30 '19  
President vetoes bill to restore I. C. C. rate powers. Ry Age 67:737-8 O 10 '19  
Procedure in increasing rates or charges; notice to all carriers. Ry R 61:732-3 D 15 '17  
Report on valuation of Texas Midland. Ry Age 65:377-82 Ag 30 '18  
Reports of the various bureaus. Ry R 63:839-43 D 14 '18  
Restoration of I. C. C. rate power proposed. Ry Age 66:1418-19 Je 13 '19  
Rules of practice. Ry R 63:200-1 Ag 10 '18  
Shipping organizations favor extension of powers of I. C. C. E. H. Hogueland. Ry R 64:170 F 1 '19  
Special report to Congress. Ry R 61:691-3 D 8 '17; Same cond. Ry Age 63:1045-6 D 7 '17  
Status of rate cases before the Interstate commerce commission. Ry R 63:21 JI 6 '18  
Supreme court decisions affecting railroads. Ry Age 64:220-2 Ja 25 '18  
Suspension of commission regulation. Ry Age 66:65-6 Ja 3 '19  
31st annual report for the year ended October 31, 1917. Ry Age 63:1017-22 D 7 '17; Excerpts. Ry R 61:735-8 D 15 '17  
33d annual report, covering the year ending October 31, 1918. Ry Age 67:877-84 O 31 '19  
Three year operating returns of railroads that will be certified by the I. C. C. Ry R 63:613-14 O 26 '18  
See also Railroads—Rates
- Interstate commerce law**  
Comprehensive revised interstate commerce law. L. F. Loree. Ry Age 67:105-8 JI 18 '19
- Interurban railroads**  
Interurban after the war. H. Reid. Elec Ry J 52:956-7 N 30 '18  
Interurban cars slow up city service; third section of the Beeler report. Elec Ry J 51:405-6 Mr 2 '18  
Interurbans have not done duty. C. J. Laney. Elec Ry J 52:954-5 N 30 '18  
Proper basis for interurban passenger rates. A. Swartz. Elec Ry J 52:925 N 23 '18  
Why not apply the safety car to interurban service? D. C. Hershanberger. Elec Ry J 53:1270 Je 28 '19  
Why the interurban needs money now. Elec Ry J 52:791-3 N 2 '18  
See also Electric railroads
- Intrinchments**  
Concrete structures in German defenses. J. E. Cassidy and A. H. Bond. II diags Concrete 15:115-16 S '19  
Intrinchments and the wire barrier. H. H. Manchester. II Am Mach 49:991-3 N 28 '18  
Trench system of defense vs. the pill-box system. II Sci Am 117:469+ D 22 '17  
See also Trench warfare
- Inventions**  
Barking up the wrong tree. F. H. Kneeland. Coal Age 15:574-6 Mr 27 '19  
British, French and Americans as leaders in engineering and inventing. Eng & Contr 50:97-9 JI 31 '18  
Commercializing inventions. D. A. Hampson. Mach 25:14 S '18  
Discovery and invention. D. Clerk. Engineer 124:514-15 D 14 '17  
Fair royalty contract for employees. G. B. Harris. Am Mach 48:143-4 Ja 24 '18  
Fair royalty contract for employees. R. G. Pilkington. Am Mach 47:1027-8; 48:363-4 D 13 '17, F 28 '18  
Inventing as a business. J. L. Lane. Am Mach 50:62-4 Ja 9 '19  
Invention as the foundation of the nation's wealth; exhibition of the Interior department. C. H. Claudy. Sci Am 120:625+ Je 14 '19  
Inventions and inventors. C. Newman; E. E. Johnson. Mach 24:703, 940 Ap. Je '18  
Inventors and patents. G. B. Harris. Am Mach 48:65-6 Ja 10 '18  
Oliver Evans, inventor and mechanic. J. M. Whitham. Power 48:777-8 N 26 '18

**Inventions—Continued**

- Report on airplane problems; bulletin of the Naval consulting board and the Engineering council's War committee of technical societies; abstracts. *Automotive Ind* 39:271+ Ag 15 '18; *Am Soc M E J* 40:769-70 S '18
- Rights to patents and inventions. C. C. Sherlock. *Am Mach* 50:115-18 Ja 16 '19
- Romance of invention. C. H. Claudy. *Il Sci Am* 121:252+, 340+, 442-3+ S 13, O 4, N 1 '19
- War and discovery. T. Blake. *Sci Am* 119:391+ N 16 '18

**See also Patents****Inventions, Military**

- Aeronautical inventions; British air ministry's suggestions to inventors. *Engineer* 126:5 J1 5 '18; Same cond. *Am Soc M E J* 40:768 S '18
- Inventions—allied and German. *Sci Am* 119:370 N 9 '18
- Inventions which meet the needs of modern warfare. *Il Sci Am* 117:480 D 22 '17
- Offensive against the submarine, with annotations to the suggestions to inventors made by the Naval consulting board. J. A. Steinmetz. *Am Soc M E J* 40:220-4 Mr '18
- U.S. War department bureau to pass on inventions. *Iron Age* 101:1341 My 23 '18; Same. *Am Mach* 48:1043-4 Je 20 '18
- Why most of the inventions for war purposes are useless. *Eng & Contr* 50:161-2 Ag 14 '18

**Inventories**

- Auditor's responsibility in regard to verification of inventories. E. H. Moeran. *J Account* 25:176-86 Mr '18
- Automatic inventory for hosiery mill. *Textile World* 55:3504+; 56:1055+, 3363+ Je 7, Ag 23, D 13 '19 (to be cont)
- Fixture inventory reduces fire loss. *Metal Work* 39:774 Je 14 '18
- Forms for equipment inventory. *Ry Age* 64:807 Mr 29 '18
- How to take and how to use an inventory. W. D. Isham. *Horseless Age* 43:20-1+ Mr 1 '18
- How we keep our inventory correct. H. F. Harris. *Factory* 22:1181-5 Je '19
- How we prepare for and take inventory. H. F. Harris. *Factory* 22:681-5 Ap '19
- Importance of inventories in figuring excess profits tax and fire insurance. C. S. Brown. *Inland Ptr* 62:681-2 Mr '19
- Inexpensive perpetual inventory. *Factory* 20:682+ Ap '18
- Inventory an indispensable business guide. W. D. Isham. *Horseless Age* 43:18-19 F 15 '18
- Inventory that has stood a two-year test. M. H. Reasoner. *Factory* 23:1041-4 N '19
- Inventorying materials and supplies. B. J. Yungbluth. *Elec Ry J* 54:518-20 S 13 '19
- Keeping a perpetual inventory. *Factory* 20:133 Ja '18
- Perpetual inventory board. R. Shaw. *Am Mach* 48:757 My 2 '18
- Perpetual stock-inventory board. G. G. Porter. *Il Am Mach* 47:733-6 O 25 '17; Same cond. *Eng & Min J* 104:1047 D 15 '17
- Perpetual versus annual inventory; prize essays. *Horseless Age* 43:26-7 F 1 '18
- Systematic inventory for a knitting mill. *Textile World* 54:3101 D 21 '18
- Universal inventory. G. W. Greenwood. *Ind Management* 58:33-4 J1 '19
- Verification of inventories. A. L. Philbrick. *J Account* 26:417-28 D '18

**Inventors**

- Six inventions needed by the military aviation units. *Sci Am* 121:121+ Ag 2 '19

**See also Inventions**

- Inverse-rate method for thermal analysis, Simplification of. P. D. Merica. *Am Inst Min Bul* 151:1021-3 J1 '19; Same. *U S Bur Stand Sci Pa* 336:101-4 '19; Same cond. *Iron Tr R* 65:235-6 J1 24 '19

**Invertebrates**

- Anomalies in the animal world. R. W. Shufeldt. *Sci Am* S 87:85-7 F 8 '19

- Chemical differentiation of the central nervous system in invertebrates. A. R. Moore. *Sci Am* S 84:389 D 22 '17

**Investment trusts**

- Investment trusts for holding foreign securities. L. Fredrick. *Am Ind* 19:26-7 My '19

**Investments**

- Bankers and mining. H. A. Wheeler. *Eng & Min J* 108:690-1 O 25 '19
- Building now—from the investor's viewpoint. *Arch Forum* 31:56-9 Ag '19
- High-class apartment buildings as investments. B. H. Marshall. *Am Arch* 114:74-6 J1 17 '18
- Relation between the stock market and investment. *Ry Age* 64:958 Ap 5 sec 2 '18
- Thrift and investment protection. *Eng & Min J* 107:932-3 My 24 '19
- What is an investment? *Ry Age* 64:957-8 Ap 5 sec 2 '18

**See also Bonds; Building and loan associations; Building loans; Loans; Railroads—Securities; Securities****Investments, Foreign**

- American investment abroad and essential raw material. P. Farquhar. *Ry Age* 65:108-9 sec 2 J1 12 '18
- Americans build foreign plants. V. G. Iden. *Il Iron Tr R* 64:509-13 F 20 '19
- Investment trusts for holding foreign securities. L. Fredrick. *Am Ind* 19:26-7 My '19
- Investments in Latin America and the British West Indies. F. M. Halsey. *Il map U S Bur For & Dom Com* 169:1-544 '18

- Invisible light. See Infra-red rays; Ultra-violet rays

**Invoice forms**

- Invoice forms to be standardized. *Ind Management* 57:445 Je '19

**Iodides**

- Detection of iodides in the presence of cyanides. L. J. Curtman and C. Kaufman. *Am Chem Soc J* 40:914-17 Je '18
- Organic chemical reagents; the preparation of alkyl iodides. R. Adams and V. Voorhees. *diag Am Chem Soc J* 41:789-98 My '19

**Iodine**

- Determination of iodide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *J Ind & Eng Chem* 11:563-8 Je '19
- Iodine and iodine-thiourea as subtractive reducers for photographic negatives and positives. *Sci Am* S 85:309 My 18 '18
- Mineral elements in animal nutrition. E. B. Forbes. *Sci Am* S 87:218-19+ Ap 5 '19
- Oxidizing action of potassium dichromate as compared with that of pure iodine. C. R. McCrosky. *diag Am Chem Soc J* 40:1662-74 N '18

**Iodometry**

- Arsenious oxide as a standard substance in iodimetry. R. M. Chapin. *Am Chem Soc J* 41:351-8 Mr '19
- Cuprous chloride-iodine method for reducing sugars simplified. F. M. Scales. *J Ind & Eng Chem* 11:747-50 Ag '19

**Iodophthalic acids**

- Phthalic acid derivatives; constitution and color, diiodo-, triiodo-, and dichlorodiodophthalic acids. D. S. Pratt and G. A. Perkins. *Am Chem Soc J* 40:219-36 Ja '18

**Ionization**

- Chemical action produced by radium emanation; the chemical effect of recoil atoms. S. C. Lind. *Am Chem Soc J* 41:551-9 Ap '19
- Chemical reactions in the corona; ozone formation. F. O. Anderegg. *diag Am Chem Soc J* 39:2581-95 D '17
- Direct ionization by means of iodine and nitric acid. R. L. Datta and N. R. Chatterjee. *Am Chem Soc J* 41:292-5 F '19
- Ionization of occluded gases in high-tension insulation. G. B. Shanklin and J. J. Matson. *Am Inst E E Pro* 38:163-210 F '19; Abstract. *Elec W* 73:427 Mr 1 '19
- Ionization relations of potassium and strontium chlorides in mixtures. G. M. Smith and E. A. Rees. *Am Chem Soc J* 40:1802-47 D '18

**Ionization—Continued**

Scale of influence of substituents in paraffine monobasic acids and the correlation of ionization with structure. C. G. Derick and R. W. Hess. *Am Chem Soc J* 40:537-58 Mr '18

*See also* Ions; Radioactivity

**Ions**

Activities of the ions of strong electrolytes. D. A. MacInnes. *Am Chem Soc J* 41:1086-92 J1 '19

Elements of electro-chemistry. J. Haas, Jr. *diags Metal Ind* 17:420-4 S '19

Influence of aluminum ions on seed germination. J. Stoklasa and others. *Sci Am S* 87:318-20 My 17 '19

Intermediate and complex ions; the solubility product and activity of the ions in bi-valent salts. W. D. Harkins and H. M. Paine. *Am Chem Soc J* 41:1155-68 Ag '19

*See also* Dissociation; Electric discharges thru gases; Electrochemistry; Electrolysis; Electrons; Ionization; Solution (chemistry)

**Iowa. See Roads—Iowa****Iowa board of conciliation**

Iowa state board of conciliation. W. G. Raymond. *Elec Ry J* 53:1274-6 Je 28 '19

**Iowa district gas association**

13th annual convention, Des Moines, Ia., May 28-29. *Am Gas Eng J* 108:553-5 Je 8 '18

14th annual convention, Lincoln, Neb., May 21. *Am Gas Eng J* 110:519, 523-4 Je 14 '19

**Iowa electric railway association**

Meeting, Colfax, June 18-19. *Elec Ry J* 53:1271-3 Je 28 '19

Mid-year convention, Davenport, Iowa, Sept. 17. *Elec Ry J* 54:761-2 O 18 '19

**Iowa engineering society**

Divides into three sections: municipal, drainage and highway. *Eng N* 80:433-4 F 28 '18

**Ipswich, Suffolk, England**

Sparrow house and the rabbit house. J. W. Dow. *Il plans Am Arch* 115:505-10 Ap 9 '19

**Ireland****Industries and resources**

Dublin local section: chairman's address. O. E. O. Webber. *Inst E E J* 56:17-18 D '17

**Iridescent cloth**

Designing and manufacturing iridescent cloth. *Il Textile World* 55:3691+ Je 14 '19

**Iron**

Application of rotating reducers in the determination of iron. W. Scott. *J Ind & Eng Chem* 11:1135-7 D '19

Behavior of iron compounds at extremely high temperatures. G. A. Hemsalech. *Chem & Met Eng* 19:720 N 15 '18

Calorized iron as an element for thermocouples. O. L. Kowalke. *J Fr Inst* 185:57-8 Ja '18

Changes in iron after repeated heating. *Il Sci Am* 120:29 Ja 11 '19

Demagnetization of iron. *Sci Am S* 84:371 D 15 '17

Experiences of an iron atom. C. R. Sturdevant. *Sci Am S* 85:14-16, 30-2 Ja 5-12 '18

Grain-size inheritance in iron and carbon steel. Z. Jeffries. *Il Am Inst Min E Bul* 131:1883-99 N '17; Abstract. *Am Soc M E J* 39:1036-7 D '17; Discussion. *Am Inst Min E Bul* 135:699-700; 136:727-34; 137:1023-5 Mr-May '18

Hardness of soft iron and copper compared. F. C. Kelley. *diags Gen Elec R* 21:672-3 O '18; Same cond. *Mach* 25:921 Je '19

Iron, carbon and phosphorus. J. E. Stead. *Chem & Met Eng* 19:592 O 1 '18

Ironing out cracks in iron; Bardeen electrical method of eliminating fatigue of metals. *Elec R* 72:844 My 18 '18; Same. *Sci Am S* 86:48 J1 20 '18

Mechanical properties of steel and iron. *Iron Age* 104:565-8 Ag 28 '19

Metallic coatings for rust-proofing iron and steel. H. S. Rawdon, M. A. Grossman and A. N. Finn. *diags Chem & Met Eng* 20:458-64, 530-7 My 1-15 '19

Microstructure of certain titanite iron ores. C. H. Warren. *Il Econ Geol* 13:419-46 S '18

Microstructure of iron deposited by electric arc welding. G. F. Comstock. *Il Am Inst Min E Bul* 145:43-50 Ja '19; Discussion. 149:849-53 My '19

Non-allotropic nature of the  $A_2$  transformation in iron; abstract. K. Honda. *Chem & Met Eng* 21:40 J1 1 '19

Role of oxidases and of iron in the color changes of sugar cane juice. F. W. Zerbán. *J Ind & Eng Chem* 10:814-17 O '18

Rust-proofing of iron and steel. E. S. Whittier. *Metal Ind* 17:79-82 F '19

Supposed reversal of inheritance of ferrite grain size from that of austenite. H. M. Howe. *Am Inst Min E Bul* 129:1365-7 S '17; Discussion. 133:105-6 Ja '18

*See also* Blast furnaces; Cast iron; Chilled iron; Corrosion and anti-corrosives; Foundry practice; Galvanizing; Hardware; Iron alloys; Iron founding; Iron industry and trade; Iron metallurgy; Iron mines and mining; Iron ores; Ironwork; Metallography; Pickling (metals); Pig iron; Steel; Wrought iron

**Analysis**

Critical study of the Ledebur method for determining oxygen in iron and steel. J. R. Cain and E. Pettijohn. *U S Bur Stand Tech Pa* 118:1-33 '19

Determination of oxygen in iron. *J Ind & Eng Chem* 10:745 S '18

Hydrochloric acid color method for determining iron. J. C. Hostetter. *Am Chem Soc J* 41:1531-43 O '19

Microscopic analysis of iron and steel. C. G. Nicholson. *Il Sci Am* 121:460+ N 8 '19

Oxygen in iron. F. Schmitz. *Sci Am S* 86:393 D 21 '18

Standard apparatus for the determination of sulfur in iron and steel by the evolution method. H. B. Pulsifer. *Il diag J Ind & Eng Chem* 10:545-50 J1 '18

Use of metallic silver as a reducing agent in the volumetric estimation of iron. G. Edgar and A. R. Kemp. *Am Chem Soc J* 40:777-84 My '18

*See also* Steel—Analysis

**Cost**

Labor absorbs rise in iron costs. *Iron Tr R* 64:1618-19 Je 19 '19

**Prices**

Agreed prices on iron rolls and pinions. *Foundry* 46:63 F '18

American iron and steel institute general steel committee recommends more price schedules. *Iron Tr R* 62:146-7 Ja 10 '18

Appeal to iron and steel industry; manufacturers asked to adjust prices in harmony with those agreed upon. E. H. Gary. *Iron Age* 101:134-5 Ja 10 '18

Average monthly prices of iron and steel products, 1906-1917. *Iron Tr R* 62:128 Ja 3 '18

Average monthly prices of leading iron and steel products, 1907-1918. *Iron Tr R* 64:124 Ja 2 '19

Bar market has many new features. *Iron Tr R* 64:108-9 Ja 2 '19

Basing points in fixing pig iron prices shown by typical examples. *Iron Tr R* 63:851 O 10 '18

Cincinnati iron trade conditions in 1917. C. L. Smith. *Iron Age* 101:61-2 Ja 3 '18

Developments of the Pittsburgh market in 1917. R. A. Walker. *Iron Age* 101:59-60 Ja 3 '18

Developments of the Pittsburgh market in 1918. R. A. Walker. *Iron Age* 103:8-10 Ja 2 '19

Eastern Pennsylvania iron and steel market in 1917. C. E. Wright. *Iron Age* 101:62-3 Ja 3 '18

Eastern Pennsylvania iron and steel markets in 1918. C. E. Wright. *Iron Age* 103:13-14 Ja 2 '19

Features of the Chicago iron trade in 1917. C. Lundberg. *Iron Age* 101:60-1 Ja 3 '18

Fluctuations in iron and steel prices for twenty-four years. *Iron Tr R* 64:96a Ja 2 '19



**Iron—Prices—Continued**

Iron and steel prices during the war. Iron Age 103:1642-3; 104:579-81 Je 19, Ag 28 '19  
 Iron and steel prices for twenty years, 1898-1917. chart (supp) Iron Age 101:68-75 Ja 3 '18

Iron and steel prices for twenty-one years, 1898-1918. supp Iron Age 103:18-19 Ja 2 '19  
 Judge Gary announces additional prices. Iron Age 100:1542-3, 1564 D 27 '17; Iron Tr R 61:1370-1 D 27 '17  
 Many price changes. Iron Age 102:758-62 S 26 '18

Official prices revised to date. Iron Tr R 62:1294-5 My 23 '18  
 Ore and pig iron granted advance. Iron Tr R 63:705-6 S 26 '18

Pig iron market has abnormal year. chart Iron Tr R 64:96-8 Ja 2 '19

Pittsburgh iron and steel markets in 1917. B. E. V. Luty. Eng & Min J 105:72-3 Ja 12 '18

Pittsburgh iron and steel markets in 1918. B. E. V. Luty. Eng & Min J 107:60-2 Ja 11 '19  
 Reasons for price decision. E. H. Gary. Iron Tr R 63:1337-9 D 12 '18

Views of 1918 war-time iron trade conditions in Chicago. C. Lundberg. Iron Age 103:10-12 Ja 2 '19

**Specifications**

Standard specifications; English and Spanish. U S Bur For & Dom Com Industrial Standards nos 23-29, 45-49 '19

**Testing**

Iron not weakened by service in elevated railway for thirty-five years. G. H. Pegram. diag Eng N 80:646-7 Ap 4 '18

Tests on the bars from the Menai suspension bridge. II diag Engineer 126:47-9 JI 19 '18  
 Thermoelectric measurement of critical ranges of pure iron. G. K. Burgess and H. Scott. diag U S Bur Stand Bul 14:15-21 Ap 6 '18

See also Cast iron—Testing

Iron, Wrought. See Wrought iron

**Iron alloys**

Acid resisting iron; abstracts. S. J. Tungay. Engineer 125:238-9 Mr 15 '18; Sci Am S 85:288 My 4 '18; Am Soc M E J 40:424 My '18; Sci Am 126:336 Ap 5 '19

Chemical iron ware. II Chem & Met Eng 19:520-3 S 28 '18

Electric furnaces for the production of steel and ferro-alloys. J. A. Seede. II diag plan Gen Elec R 21:767-80 N '18

Ferro-alloys. J. W. Richards. Gen Elec R 21:751-5 N '18; Same. Sci Am S 86:342-3 N 30 '18; Same. Eng & Min J 106:787-90 N 2 '18  
 Ferro-alloys in 1918. R. J. Anderson. Eng & Min J 107:83-6 Ja 11 '19

Ferroalloys production stimulated. Iron Tr R 64:118, 120 Ja 2 '19

Influence of the chemical composition and heat treatment of iron alloys on their magnetic properties, specific resistance, and density. Sci Am S 86:176 S 14 '18

Manufacture of ferro-alloys in electric furnaces. C. B. Gibson. II Elec J 16:366-72 S '19

Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. Am Inst Min E Bul 140:1321-78 Ag '18; Excerpts. Iron Age 102:564, 624-5, 747, 786-7 S 5-12, 26 '18; Excerpts. Eng & Min J 106:405-9 Ag 31 '18; Abstract. Chem & Met Eng 19:281-2 S 15 '18; Discussion. Am Inst Min E Bul 143:1651-4 N '18

Metallurgical ferroalloys in 1917. R. J. Anderson. Eng & Min J 105:191-3 Ja 26 '18

Occluded gases in ferrous alloys. G. Alleman and C. J. Darlington. diag J Fr Inst 185:161-98, 333-57, 461-80 F-Ap '18; Abstract. Chem & Met Eng 19:42 JI 1 '18

Our lead in ferroalloys. Iron Age 101:1151 My 2 '18

Stricter control over ferro alloys; American iron and steel institute to act as clearing agent. Iron Tr R 62:439-40 F 14 '18

Tungsten, vanadium and manganese during war. H. R. Aldrich and J. Schmuckler. Iron Age 104:581-2 Ag 28 '19

Variation of physical properties of iron alloys with composition and treatment. Sci Am S 88:151 S 6 '19

See also Duriron; Ferromanganese; Iron-carbon alloys; Spiegeleisen; Tantalum

Iron and steel electrical engineers, Association of. See Association of iron and steel electrical engineers

**Iron and steel institute**

Annual meeting, London, May 1-2. Engineer 125:399-401, 421-3, 443-5 My 10-24 '18; Iron Tr R 63:160-1 JI 18 '18

Autumn meeting, Sept. 12-13. Engineer 126:238-9, 258-60 S 20-27 '18

Autumn meeting, Sept. 18-19. Engineer 128:299-300, 327-8 S 26-O 3 '19; Iron Tr R 65:1044-5 O 16 '19

Discussion of papers at the fall session. J. Horton. Iron Tr R 63:953-5 O 24 '18

50th annual meeting, London, May 8-9. Engineer 127:474-6, 502-4 My 16-23 '19; Iron Tr R 64:1499-1500 Je 5 '19; Chem & Met Eng 21:40-5 JI 1 '19

**Iron bars**

Punch and die for cutting and punching T-iron. E. A. Walters. diag Mach 26:1068-9 JI '19

Punch press operations on T-iron bars. J. Clarkson. diag Mach 26:270 N '19

**Iron-carbon alloys**

Graphitization in iron-carbon alloys; abstract. K. Tawara and G. Asahara. Chem & Met Eng 21:41 JI 1 '19

How graphite forms in iron-carbon alloys. Sci Am S 88:151 S 6 '19

Suppression of hysteresis in iron-carbon alloys by a longitudinal alternating magnetic field. C. W. Waggoner and H. M. Freeman. diag Gen Elec R 21:143-5 F '18

**Iron-carbon-chromium alloys**

Structure of iron-carbon-chromium alloys; abstract. T. Murakami. Mech Eng 41:894 N '19

**Iron founding**

Addition of steel to cast iron. J. E. Hurst. Engineer 126:93 Ag 2 '18; Same. Sci Am S 86:235 O 12 '18

Arc welding makes good in the foundry. R. E. Kinkad. Iron Tr R 65:985-6 O 9 '19; Same. Foundry 47:752 O 15 '19

Beginnings of iron founding in England. R. Jenkins. Engineer 124:493 D 7 '17

Bethlehem's ingot mold foundry. E. C. Kreutzberg. II Iron Tr R 65:495-8 Ag 21 '19; Same. Foundry 47:601-3 S 1 '19

Centrifugally cast pipe in South America. II Iron Age 104:863-5 S 25 '19

Conservation of fuel in the melting of iron. W. J. Keep. Foundry 46:133-4 Mr '18

Continuous tunnel furnace in malleable industry. P. d'H. Dressler. II diag Foundry 46:566-7 D '18; Same. Iron Tr R 63:1416-17 D 19 '18

Desulphurizing in the pig-iron mixer. L. Blum. Sci Am S 88:143 Ag 30 '19

Economies in a malleable iron foundry. A. F. Conant. II plan Iron Age 104:859-61 S 25 '19

Effects of the contraction of iron. E. Schwartz. diag Foundry 47:836-8 N 15 '19

Electric furnace an adjunct to cupola. G. K. Elliott. Foundry 47:687 O 1 '19; Same. Iron Tr R 65:891-2 O 2 '19

Elementary discussion of foundry metallurgy. W. W. Cox. Foundry 47:225-6 Ap 15 '19

Ferrosilicon in the cupola. H. E. Diller. Foundry 47:394 Je 15 '19

How to insure the soundness of castings. E. Touceda. Iron Tr R 63:841-2 O 10 '18

Improving the quality of gray-iron castings by the electric furnace. G. K. Elliott. Iron Age 103:939-40 Ap 10 '19; Same. Foundry 47:585-6 S 1 '19

Insure the integrity of malleable. E. Touceda. Foundry 47:551-2 Ag 15 '19

Integrity of the malleable casting. E. Touceda. Iron Age 102:1204-5 N 14 '18

Iron mixture for motor frames. W. J. Keep. Foundry 46:43-4 Ja '18

Labor is saved by pouring device. II Foundry 47:519-20 Ag 1 '19; Same. Iron Tr R 66:637-8 S 4 '19

**Iron founding—Continued**

Making gray iron castings in a brass foundry. W. H. Parry. Metal Ind 16:12 Ja '18  
 Making iron castings by the lost wax process. Il Foundry 47:425 Jl 1 '19  
 Manufacture of malleable iron. H. A. Johnson. Mach 25:1163-4 Ag '19  
 Molding locomotive cylinder bushings in dry sand on a jar-ramming machine. J. Goos-tray. diags plan Foundry 46:64 F '18  
 Pit molding an intricate condenser casting. Il diags Foundry 46:562-7 D '18  
 Powdered coal for malleable iron melting; abstract. J. Harrington. Iron Age 100:1498 D 20 '17  
 Research work on malleable iron. E. Tounda. Il Mech Eng 41:593-600 Jl '19; Ex-cerpts. Foundry 47:436-7 Jl 1 '19  
 Straightening castings with the torch. J. Hoffmann. diags Foundry 47:485 Jl 15 '19  
 Strive for strength in malleable. H. E. Diller. Il Foundry 47:803-7 N 15 '19  
 Sulphur reduced in malleable iron. A. W. Merrick. Il Foundry 47:685-7 O 1 '19  
 Time studies on grey iron molding. C. A. Marston. Il Ind Management 57:198-202+ Mr '19  
 Using the upstairs in a foundry. J. F. Ervin. Il Iron Tr R 62:1173-5 N 21 '18; Same. Foundry 47:40-2 Ja '19  
 What is modern malleable iron? H. A. Schwartz. Ry Mech Eng 93:479-81 Ag '19  
*See also* Cast iron; Cupola furnaces; Foundry practice; Molding machines; Pattern making; Pig iron

**Iron industry and trade**

Factors in world trade competition. Met & Chem Eng 18:224-5 Mr 1 '18  
 God of war retires—what now? M. L. Shaner. Il chart Iron Tr R 64:58-64 Ja 2 '19  
 Plan to improve foreign trade statistics. Iron Age 103:685-7 Mr 13 '19; Same. Iron Tr R 64:714-15 Mr 13 '19  
 World's iron and steel output. Mach 26:70 S '19

*See also* Cast iron; Hardware; Iron founding; Iron mines and mining; Iron ores; Iron works; Pig iron; Rolling mills; Scrap metal; Steel industry and trade; Stoves; also United States steel corporation

**Belgium**

Belgian iron and steel industry during the war. L. Greiner. Engineer 127:476-7 My 16 '19

**Brazil**

War stimulated Brazilian iron industry. G. H. Robinson. Iron Tr R 63:1406-7 D 19 '18

**Canada**

Canada's heavy trade with United States. W. L. Edmonds. Iron Age 104:101-2 Jl 10 '19  
 Statistics, 1917. Iron Age 101:806 Mr 28 '18

**France**

Coke bars France's steel future. Iron Tr R 65:775-7 S 18 '19  
 Drive foe from French iron fields. F. Miltoun. Iron Tr R 63:266 Ag 1 '18  
 French expert's view. M. Knecht. Iron Age 102:701 S 19 '18  
 French maximum prices for iron and steel. Iron Age 102:580 S 5 '18  
 French operating German plants. F. Miltoun. Il Iron Tr R 65:501-3 Ag 21 '19  
 Future of the French iron and steel industries. Engineer 127:204 F 28 '19  
 German wiles gain Normandy ore. F. Miltoun. Iron Tr R 62:1310-11 My 23 '18  
 Growth of the mining and metal industries in France. Eng & Min J 106:364 Ag 24 '18  
 Iron wealth of Lorraine. F. Miltoun. Iron Tr R 63:208 Jl 25 '18  
 Lorraine ore insures future for French iron and steel. map Iron Tr R 65:296-7 Jl 31 '19  
 Syndicate rules French iron trade. F. Miltoun. Iron Tr R 64:1553-5 Je 12 '19  
 War converges on French iron ore. F. Miltoun. Iron Tr R 62:543+ F 28 '18

World's division of iron analyzed. A. J. Hain. map Iron Tr R 64:28-32 Ja 2 '19

*See also* Iron mines and mining—Lorraine

**Germany**

French expert's view. M. Knecht. Iron Age 102:701 S 19 '18  
 German iron and copper ore imports after the war. Iron Age 102:701 S 19 '18  
 Germany wants to keep Briey mines. Iron Tr R 62:1043-4 Ap 25 '18  
 Germany's designs on French iron ore; abstracts. Sci Am S 85:123 F 23 '18; Iron Tr R 62:1044 Ap 25 '18  
 Iron and steel industry in occupied Germany. Engineer 128:262 S 12 '19  
 Light on the German iron and steel industry. Iron Age 104:246-7 Jl 24 '19  
 War converges on French iron ore. F. Miltoun. Iron Tr R 62:543+ F 28 '18  
 World's division of iron analyzed. A. J. Hain. map Iron Tr R 64:28-32 Ja 2 '19

**Great Britain**

Britain has iron-steel exchange. J. Horton. Iron Tr R 65:298-9 Jl 31 '19  
 British foundries are now preparing for peace. H. C. Estep. Il Foundry 47:53-7 F '19  
 British iron and steel trades in 1917. L. H. Quin. Iron Age 101:140-1 Ja 10 '18  
 British see great peace trade boom. Iron Tr R 63:1183 N 21 '18  
 British steel at high mark. Iron Tr R 62:1811 My 23 '18  
 Iron, steel, and engineering industries in 1917. Engineer 125:2-4 Ja 4 '18  
 Two years of state control in British iron and steel industry. J. Horton. Il Iron Tr R 62:261-7 Ja 24 '18  
 Wake up is new slogan of British. J. Horton. Il Iron Tr R 64:19-24 Ja 2 '19

**Italy**

Italian iron and steel imports in 1917. Iron Age 102:669 S 12 '18

**Luxemburg**

Iron and steel production in Luxemburg. map Iron Tr R 65:1050-1 O 16 '19  
 Luxemburg industry far behind. Iron Tr R 65:1050 O 16 '19  
 Luxemburg iron-ore industry. Iron Age 102:1265 N 21 '18

**Russia**

Iron industry of southern Russia. Iron Age 102:757 S 26 '18  
 Pre-war Russian iron and steel plants. A. Gouvy. Il Iron Age 102:1501-6 D 19 '18  
 Russia's decline in iron output. Iron Age 101:384 F 7 '18

**Spain**

Iron and steel works at Sagunto. plan Iron Age 101:48-9 Ja 3 '18  
 Spanish iron ore industry. Iron Age 101:1413 My 30 '18

**Sweden**

Swedish iron-ore trade. Eng & Min J 105:789 Ap 27 '18  
 Swedish ore output grows. Iron Tr R 63:1465 D 26 '18

**United States**

Consumers called upon to devote supplies only to essential requirements. Iron Tr R 63:771 O 3 '18  
 Earnings of iron companies in war time. Iron Age 103:757-8 Mr 20 '19  
 Eastern Pennsylvania rich in romance of iron. R. Peters, Jr. Il Iron Tr R 65:sup111-20 S 25 '19  
 Economic factors in the iron industry. M. Kelr. Iron Age 101:927-9, 994-5, 1094-5, 1216-17, 1278-9, 1342-3 Ap 11-25, My 9-23 '18  
 Eventful times in iron trade history. G. Smart. Iron Age 103:4-8 Ja 2 '19  
 Fight out ore disputes in seventies; proceedings of historic convention held in Pittsburgh. Iron Tr R 63:614-16 S 12 '18  
 Foundryman's iron problem. C. J. Stark. Iron Tr R 63:895-8 O 17 '18; Same. Foundry 46:526-9+ N '18

**Iron industry and trade—United States—Cont.**

14th general meeting of the American iron and steel institute in New York, May 31. *Met & Chem Eng* 18:628-9 Je 15 '18

Full text of the pig iron and steel agreement. *Automotive Ind* 38:1116-17 Je 13 '18; Same. *Iron Tr R* 62:1477 Je 13 '18

Great machine distributes steel. M. L. Felser. *Il Iron Tr R* 64:34-40 Ja 2 '19

How ore districts meet war demand. R. V. Sawhill. *Il diags Iron Tr R* 62:84-94+ Ja 3 '18

Imports and exports of iron ore. *Iron Age* 101:805 Mr 28 '18

Iron and steel are millions short; heavy losses of production in recent months. *Il Iron Tr R* 62:530-1 F 28 '18

Iron and steel exports show increase. *Iron Age* 103:886-7, 1520-1 Ap 3, Je 5 '19

Iron and steel in 1917. *Met & Chem Eng* 18:6-7 Ja 1 '18

Iron and steel in the South. *Met & Chem Eng* 18:436 My 1 '18

Iron and steel-producing capacity. *Met & Chem Eng* 17:679 D 15 '17

Iron and steel statistics in 1917. *Eng & Min J* 105:72 Ja 12 '18

Iron ore in 1917. *Iron Age* 101:258 Ja 24 '18

Iron ore in 1918. *Eng & Min J* 107:399 Mr 1 '19

Iron ore mined and shipped in the United States in 1916 with estimates for 1917; tabulation. *Iron Tr R* 62:279 Ja 24 '18

Iron ore, pig iron and steel in 1917. E. F. Burchard. *J Ind & Eng Chem* 11:609-10 Je '19

Iron ore production for 1918 decreased. *Iron Tr R* 64:514 F 20 '19

Iron ore trade status unparalleled. *Iron Tr R* 64:1240-2 My 8 '19

Lake Superior iron ore shipments in 1917. *Iron Age* 101:817 Mr 28 '18

Metals prove backbone of warfare; plan for concerted export trade effort under Webb bill. E. A. S. Clarke. *Iron Tr R* 62:1064-5 Ap 25 '18

Milwaukee historic in iron trade. *Il Iron Tr R* 63:sup118-22 O 3 '18

Notable features of lake iron ore trade. D. E. Woodbridge. *Iron Age* 103:50-2 Ja 2 '19

Old Philadelphia, a city of achievement. C. Lundberg. *Il map Iron Age* 104:833-7 S 25 '19

Pig iron rapidly reaching war footing. *Iron Tr R* 62:1254-7 My 16 '18

Production of ingots and rolled products. *Iron Age* 103:497-500 F 20 '19; Same cond. *Iron Tr R* 64:520 F 20 '19

Production of ingots and rolled products in 1918. *Iron Age* 104:310-13 Ji 31 '19

Profits of iron business discussed. *Iron Age* 104:28-9 Ji 3 '19

Record breaking exports of iron and steel in 1917. *Iron Age* 101:390-1 F 7 '18

Sales of steel products and replacement of stock to be reported. *Metal Work* 90:44-9 Ji 13 '18

Sixty years of iron trading; Matthew Addy co. celebrates anniversary of its founding. *Iron Tr R* 64:390-1 F 6 '19

Slight increase of iron and steel exports. *Iron Age* 103:628-9 Mr 6 '19

Uncle Sam's slow pay a factor of business. G. F. Creveling. *Il Iron Tr R* 62:1037-42 Ap 25 '18

Value of iron and steel exports declines. *Iron Age* 103:186-7 Ja 16 '19

Virginia iron activity running high. *Iron Tr R* 62:674-5 Mr 14 '18

Wages and hours of labor in the iron and steel industry; 1907-1915; with a glossary of occupations. U S Bur Labor Statistics *Bul* 218:1-526 '17

War writes steel's brightest page. E. C. Kreutzberg. *Iron Tr R* 64:42-51 Ja 2 '19

A year of war and of marshaling the industry to supply the needs of the United States and its allies. *Iron Age* 101:55-8 Ja 3 '18

See also Iron—Prices; Iron mines and mining—United States

**Iron metallurgy**

Automatic puddler in operation; Lebanon valley iron and steel co. *Iron Tr R* 65:781 S 18 '19

Commercial feasibility of the electric smelting of iron ores in British Columbia. A. Stansfield. *Chem & Met Eng* 20:630-6 Je 15 '19; Abstracts. *Eng & Min J* 107:224 F 1 '19; *Elec R* 74:805 My 17 '19

Conversion of white iron into foundry. C. T. Huang. *Iron Age* 103:231-2 Ja 23 '19; Abstract. *Eng & Min J* 107:475-6 Mr 15 '19

Desulphurizing in the pig-iron mixer. *Iron Age* 104:99-100 Ji 10 '19

Developments in electric iron and steel furnaces. J. Bibby. *diags Engineer* 127:513-15 My 23 '19

Electric pig iron after the war. R. Turnbull. *Chem & Met Eng* 20:178-9 F 15 '19

Electric pig iron from steel scrap. R. Turnbull. *Iron Age* 102:1026-7 O 24 '18

Electrolytic iron and nickel-iron. *Sci Am S* 86:298 N 9 '18

Electrolytic iron manufacture in France by the Burgess process. *Eng & Min J* 106:333 Ag 24 '18

Elementary discussion of foundry metallurgy. W. W. Cox. *Foundry* 47:225-6 Ap 15 '19

Ferrous metallurgy in Canada; abstract. A. Stansfield. *Met & Chem Eng* 18:481 My 1 '18

High sulphur is not so bad as it is painted. T. Mauland. *Foundry* 46:84 F 18 '18

Iron and steel technology—1917. R. J. Anderson. *Iron Tr R* 62:156-60 Ja 10 '18

Iron-ore concentration on the Mesabi range. F. A. Kennedy. flow sheets *Il diag Eng & Min J* 107:683-8 Ap 19 '19

Manganiferous iron ores of the Cuyuna district, Minnesota. E. Newton. *Minn U Sch Mines Bul* 5:75-83 '18

Manufacture of ferro-alloys in the electric furnace. R. M. Keeney. *Am Inst Min E Bul* 140:1321-73 Ag '18; Excerpts. *Iron Age* 102:624-5, 747, 786-7 S 12, 26 '18; Excerpts. *Eng & Min J* 106:405-9 Ag 31 '18; Abstract. *Chem & Met Eng* 19:281-2 S 15 '18; Discussion. *Am Inst Min E Bul* 143:1651-4 N '18

Modern puddling mill makes debut; Ulster iron works, Dover, N.J. *Il Iron Tr R* 64:699-701 Mr 13 '19

Oxygen for frozen iron notches. R. Bolling. *Iron Age* 104:33 Ji 3 '19

Phases of iron and steel metallurgy in 1917. J. E. Johnson, Jr. *Iron Age* 101:77-82+ Ja 3 '18

Phases of iron and steel metallurgy in 1918. J. H. Hall. *Iron Age* 103:27-8 Ja 2 '19

Pig iron, ferros and sponge iron at Heroult. *Chem & Met Eng* 20:613-15 Je 15 '19

Pig iron from scrap steel. *Am Soc M E J* 40:191-2 F '18

Potash content of blast furnace charges. N. H. Gellert. *Iron Age* 103:356-6 F 6 '19

Titaniferous iron sands of New Zealand. V. W. Aubel. *Il diags map Am Inst Min Bul* 153:2081-95 S '19; Same cond. *Iron Tr R* 65:1388-91 N 20 '19; Discussion. *Am Inst Min Bul* 155:3009-17 N '19

See also Blast furnaces; Case hardening; Cast iron; Foundry practice; Galvanizing; Iron alloys; Iron mines and mining; Iron works; Pig iron; Slag; Steel metallurgy; Tantalum; Wrought iron

**Iron mines and mining**

English practice in overburden stripping in mining iron ore. *diags Eng & Contr* 50:402-3 O 30 '18

See also Iron ores

**Brazil**

Development of Brazilian iron-ore deposits. *Eng & Min J* 106:485 S 14 '18; Same cond. *Iron Age* 102:582 S 5 '18

**Chile**

Bridging the gap to bring Chilean hills of iron to northern furnaces. *Il Iron Tr R* 63:258-9 Ag 1 '18

Iron mines and mining—*Continued*

## China

Coal and iron deposits of the Pen-hsi-hu district, Manchuria. C. F. Wang. 11 diagms maps plan Am Inst Min E Bul 134:223-50 F '18; Same cond. Iron Tr R 62:433-5 F 14 '18; Excerpts. Iron Age 101:386-8 F 7 '18; Discussion. Am Inst Min E Bul 136:818-19 Ap '18

## France

Germany still covets French iron mines. Iron Tr R 63:612-13 S 12 '18  
Growth of the mining and metal industries in France. Eng & Min J 106:364 Ag 24 '18  
La guerre pour la mineral de fer. Sci Am S 86:279 N 2 '18

*See also* Iron industry and trade—France; Iron mines and mining—Lorraine

## Germany

Germany still covets French iron mines. Iron Tr R 63:612-13 S 12 '18  
Iron mines which allies may capture. map Iron Age 102:699-701 S 19 '18  
Kaiser must yield mineral spoils. F. Miltoun. map Iron Tr R 63:148-9 J1 18 '18

## Italy

Iron making in Italy. Engineer 126:545 D 27 '18

## Lorraine

Germany and the French ore deposits. Sci Am 119:246 S 28 '18  
Germany and the Lorraine iron ore fields. Iron Age 101:453 F 14 '18  
Germany wants Lorraine ore. M. Knecht. Iron Tr R 63:169 J1 18 '18  
Germany wants to keep Briey mines. Iron Tr R 62:1043-4 Ap 25 '18  
Germany's designs on French iron ore; abstracts. Sci Am S 85:123 F 23 '18; Iron Tr R 62:1044 Ap 25 '18  
Iron mines which allies may capture. map Iron Age 102:699-701 S 19 '18  
Iron-ore supplies of Alsace-Lorraine. S. Paige. Iron Age 102:1149-50 N 7 '18  
Key to peace in iron of Lorraine. S. Paige. map Iron Tr R 63:673-5 S 19 '18

*See also* Iron industry and trade—France

## Minnesota

Iron ore district wins war honors. 11 Iron Tr R 64:201-6 Ja 16 '19  
Iron-ore super-taxation. D. E. Woodbridge. Eng & Min J 107:791-4 My 3 '19  
Manganiferous iron mining in the Cuyuna district, Minnesota. F. M. Ostrand. 11 Eng & Min J 105:269-73 F 9 '18  
Mesabi iron range. F. B. Walker. 11 map chart Boston Soc C E J 5:105-20 Mr '18  
Method of administering leases of iron-ore deposits belonging to the state of Minnesota. J. R. Finlay. U S Bur Mines Tech Pa 222:1-38 '19  
Minnesota state-owned iron mines. 11 Eng & Min J 108:388-9 S 6 '19  
Steam-shovel mining on the Mesabi range. L. D. Davenport. 11 diagms plan Eng & Min J 105:403-6, 493-8, 579-83 Mr 2, 16, 30 '18; Excerpts. Eng & Contr 49:388-9, 487, 489; 50: 66 Ap 17, My 15, J1 17 '18

## New Zealand

Titaniferous iron sands of New Zealand. V. W. Aubel. 11 diagms map Am Inst Min Bul 153:2081-95 S '19; Same cond. Iron Tr R 65:1388-91 N 20 '19; Discussion. Am Inst Min Bul 155:3009-17 N '19

## Russia

New iron sources opened to the Teutonic powers. Dom Eng 82:497 Mr 30 '18

## Spitzbergen

Coal and iron from the Arctic. H. J. Shepstone. 11 map Sci Am 121:362-3+ O 11 '19  
Seize German iron mines. map Iron Tr R 63: 1187-8 N 21 '18

## United States

Iron mining in the United States. Eng & Min J 105:74 Ja 12 '18  
Iron mining in the United States in 1918. Eng & Min J 107:62-4 Ja 11 '19  
Iron ore mined in the United States in 1917. Iron Age 102:1014 O 24 '18

## Virginia

Early iron ore production. M. Haney. Iron Tr R 64:505 F 20 '19

## Iron ores

Iron ore report of (British) Advisory council, Department of scientific and industrial research. map Eng & Min J 105:1117-26 Je 22 '18  
Iron ores formed by bacteria. Sci Am 121:303 S 27 '19  
Microstructure of certain titanite iron ores. C. H. Warren. 11 Econ Geol 13:419-46 S '18  
Notes on certain iron-ore resources of the world. E. C. Harder and others. Am Inst Min E Bul 141:1471-96 S '18  
Reports on world's ore resources. Iron Tr R 63:1115-17 N 14 '18  
Shortage of the supply of non-phosphoric iron ore in Europe. W. G. Fearnside. Sci Am S 86:358-9 D 7 '18  
World's iron-ore reserves. Iron Age 101:1413 My 30 '18

*See also* Iron industry and trade; Iron metallurgy; Iron mines and mining; Limonite; Lodestone; Magnetite; Pyrite

## Alabama

Concentration experiments with the siliceous red hematite of the Birmingham district, Alabama. J. T. Singewald, jr. map U S Bur Mines Bul 110:1-91 '17

## Arizona

Magmatic iron ore in Arizona. S. H. Ball and T. M. Broderick. diagms Eng & Min J 107:353-4 F 22 '19

## Brazil

Iron ore deposits of Brazil. Iron Age 101:1143 My 2 '18  
Iron ore of Brazil. E. J. Monteiro. Eng & Min J 106:765 O 26 '18  
Notes on certain iron-ore resources of the world. E. C. Harder. Am Inst Min E Bul 141:1471-5 S '18; Abstracts. Eng & Min J 105:1002 Je 1 '18; Met & Chem Eng 18:571-2 Je 1 '18

## Canada

Native ore fields below Canada's needs. Iron Tr R 64:958-9 Ap 10 '19

## China

Iron ore of China. Engineer 125:315-16 Ap 12 '18  
Notes on certain iron-ore resources of the world. H. F. Bain. Am Inst Min E Bul 141:1487-90 S '18

## Cuba

Notes on certain iron-ore resources of the world. C. M. Weld. Am Inst Min E Bul 141:1479-85 S '18

## Europe

Notes on certain iron-ore resources of the world; southern Europe. A. C. Spencer. Am Inst Min E Bul 141:1485-7 S '18

## Germany

German iron-ore supplies. Am Ind 18:44 Ap '18  
Notes on certain iron-ore resources of the world; Alsace-Lorraine. S. Paige. Am Inst Min E Bul 141:1490-6 S '18

## Great Britain

British iron ore supplies. Engineer 125:322 Ap 12 '18  
Iron ore in England. H. Louis. Engineer 124: 493 D 7 '17  
Jurassic ironstones of the United Kingdom; with discussion. F. H. Hatch. Engineer 125: 421-2 My 17 '18

## Iron ores—Continued

## Michigan

Correlation of formations of Huronian group in Michigan. R. C. Allen. *diags Am Inst Min Bul* 153:sup2679-94 S '19; Discussion. 156:3113-15 D '19  
Geology of the Gogebic range and its relation to recent mining developments. W. O. Hotchkiss. *il diags map Eng & Min J* 108: 443-52, 501-7, 537-41, 577-82 S 13-O 4 '19

## Minnesota

Detail stratigraphy of the Biwabik iron-bearing formation, east Mesabi district, Minnesota. T. M. Broderick. *il Econ Geol* 14:441-51 S '19  
Iron-ore super-taxation in Minnesota. D. E. Woodbridge. *Eng & Min J* 107:791-4 My 3 '19  
Manganiferous iron ores of the Cuyuna district. E. Newton. *map Minn U Sch Mines Bul* 5:1-126 '18  
Manganiferous iron ores of the Cuyuna district, Minnesota. E. C. Harder. *diags maps Am Inst Min E Bul* 123:1313-44 S '17; Discussion. 133:103-4 Ja '18  
Nature and origin of the Biwabik iron-bearing formation of the Mesabi range. F. F. Grout. *il Econ Geol* 14:452-64 S '19  
Recent geologic developments on the Mesabi iron range. J. F. Wolff. *il maps Am Inst Min E Bul* 118:1763-87 O '16; Discussion. 123:376-9; 141:1523-5 Mr '17, S '18

## New York

Magnetic iron ores of Clinton county, New York. W. J. Miller. *map Econ Geol* 14:509-35, pl 23-4 N '19

## Scandinavia

Notes on certain iron-ore resources of the world. W. Lindgren. *Am Inst Min E Bul* 141:1475-9 S '18; Abstracts. *Eng & Min J* 105:1002 Je 1 '18; *Met & Chem Eng* 18:572 Je 1 '18

## United States

Graphic record of shipments by ranges for the past 28 years; chart. *Iron Tr R* 62:730 Mr 21 '18  
1918 Lake Superior ore shipments. R. V. Sawhill. *Iron Tr R* 64:646-9 Mr 6 '19

## Wisconsin

Geology of the Gogebic range and its relation to recent mining developments. W. O. Hotchkiss. *il diags map Eng & Min J* 108: 443-52, 501-7, 537-41, 577-82 S 13-O 4 '19

## Iron oxide

Action of iron oxide on silica bricks. *Sci Am* S 86:368 D 7 '18  
Electrical and thermal properties of iron oxide; abstract. D. C. Bidwell. *Elec W* 71:470 Mr 2 '18  
Electrometric titrations, with special reference to the determination of ferrous and ferric iron. J. C. Hostetter and H. S. Roberts. *diags Am Chem Soc J* 41:1337-57 S '19  
Iron oxide—its effect on molding sand. W. R. Bean. *Foundry* 46:5+ Ja '18  
Spent oxide as a weed eradicator. M. G. Hall. *Gas Age* 41:273 Mr 15 '18

See also Limonite

Iron rust. See Corrosion and anti-corrosives

## Iron sulfide

Production of iron sulphide; patent. *Met & Chem Eng* 18:209 F 15 '18

Iron trade. See Iron industry and trade

Iron work. See Ironwork

## Iron works

Belgians spurn German offers; Cockerill company needs \$13,000,000 worth of equipment, but declares it will never make purchases from the despoiler. F. Miltoun. *il Iron Tr R* 65:1252-4 N 6 '19  
Electric trucks and tractors in the iron and steel industry. B. J. Dillon. *il Elec R* 75: 1518-20 S 27 '19

German iron practice analyzed. *il diags Iron Tr R* 65:1105-9 O 23 '19

Iron and steel plants near Chicago. E. E. Thum. *Chem & Met Eng* 21:319 S 15 '19

Iron and steel works at Sagunto, Spain. *plan Iron Age* 101:48-9 Ja 3 '18

Making bar iron mechanically. J. F. Froggett. *il plans Iron Tr R* 65:929-33 O 2 '19

Mid-Continent iron company, Kansas City, builds charcoal furnace in Mid-West. *il Iron Tr R* 65:99-102 JI 10 '19

New iron and steel works construction. *Iron Age* 101:86-97, 116 Ja 3 '18

Pre-war Russian iron and steel plants. A. Gouvy. *il Iron Age* 102:1501-6 D 19 '18

Recounts damage to Belgian works. L. Greiner. *Iron Tr R* 64:1484-7 Je 5 '19; Same cond. *Iron Age* 103:1514-16 Je 5 '19

Schneider's—an industrial pillar. F. Miltoun. *Iron Tr R* 65:1178-9 O 30 '19

Use of electricity in the iron and steel trades; Newcastle local section; chairman's address. A. H. W. Marshall. *Inst E E J* 56:23-9 D '17

War taxes plate shop facilities. *il Iron Tr R* 62:787-90 Mr 28 '18

See also Foundries; Steel works

Irons, Electric. See Electric irons

Irons, Gas. See Gas irons

## Ironwork

Old-time iron treasure chest. E. A. Outerbridge, Jr. *il Iron Age* 101:309-13 Ja 31 '18; Same. *Sci Am* S 85:260-2 Ap 27 '18

See also Blacksmithing; Forging; Iron industry and trade; Metal work; Tin plate; Welding; Wrought iron

## Ironwork, Architectural

Ironwork. C. H. Walker. *il Am Arch* 112:401-8; 113:77-82 D 5 '17, Ja 23 '18

Ironwork designed by Cross & Cross, architects; views. *Arch Rec* 44:69-74 JI '18

See also Sheet metal work, Architectural

## Irrigation

Border method of irrigation for porous soils. R. W. Allen. *Eng & Contr* 50:170-1 Ag 14 '18

Composition of the waters of the Intermountain region. J. E. Greaves and C. T. Hirst. *J Ind & Eng Chem* 10:1001-4 D '18

Doing without rain on the modern farm. *il Sci Am* 118:363 Ap 20 '18

Duty of water for deciduous orchards. *Eng & Contr* 51:270 Mr 12 '19

Electrically driven high-lift centrifugal pumps supply water for irrigation. B. P. Fleming. *il diags plan map Eng N* 82:74-9 Ja 9 '19; Same cond. *Power* 49:133-6 Ja 28 '19

Electricity makes rice industry possible. W. E. Camp. *il J Elec* 43:102-4 Ag 1 '19

Electricity raises rice to save wheat. *Elec W* 72:449-50 S 7 '18

Factors affecting economical use of water in irrigation. W. L. Powers. *Eng & Contr* 48: 493-4 D 12 '17

Factors determining the duty of water in irrigation. H. F. Robinson. *diag Eng N* 83:355 Ag 21 '19

Features of overhead irrigation systems in small gardens within reach of city water works plants. W. H. Coles. *Munic Eng* 54: 111-12 Mr '18

Irrigation of alfalfa. S. Fortier. *il diags plan U S Agric Farmers' Bul* 865:1-40 '17

Irrigation of grain. W. W. McLaughlin. *il diags plan U S Agric Farmers' Bul* 863:1-22 '17

Irrigation of orchards. S. Fortier. *il diags plan U S Agric Farmers' Bul* 882:1-40 '17

Masterpieces of primitive engineering. *il Sci Am* 118:225+ Mr 16 '18

Measuring and recording deliveries of irrigation water to farms. J. S. Longwell. *Eng & Contr* 51:169-70; Discussion. D. C. Henny. 170 F 12 '19

Methods and costs of land leveling with tractors. F. N. Cronholm. *Eng & Contr* 49:590-1 Je 12 '18; Same cond. *Eng N* 81: 438-9 S 5 '18

Methods of measuring irrigation water deliveries to farms. J. S. Longwell. *Eng & Contr* 50:463-4 N 13 '18

**Irrigation—Continued**

Most recent developments in the methods of measuring irrigation water to farms and irrigators. F. E. Trask. *Il Munic Eng* 57: 142-3 S '19

Phosphorus, potassium, and nitrogen content of the waters of the inter-mountain region. J. E. Greaves and C. T. Hirst. *J Ind & Eng Chem* 11:451-4 My '19

Practical information for beginners in irrigation. S. Fortier. *Il diags plan U S Agric Farmers' Bul* 864:1-38 '17

Preparing six hundred acres of land for irrigation. F. W. Herron. *Il Eng N* 82:337-9 F 13 '19

Pumping water for irrigation makes important power load. W. A. Scott. *Elec R* 75:517 S 27 '19

Rates for irrigation water and quantity used for various crops. H. L. Miller. *Eng & Contr* 49:451-2 My 8 '18

Some financial, agricultural and engineering aspects of irrigation. C. K. Fox. *Munic Eng* 56:30-1 Ja '19

Suggestions on care and irrigation of gardens and lawns. *Eng & Contr* 49:464 My 8 '18

See also Alkali soils; Dams; Drainage; Irrigation canals; Reclamation of land; Sewage irrigation; Water rights

**Cost**

Cost of engineering work for maintenance and operation of large irrigation project. H. M. Chadwick. *Eng & Contr* 52:418-19 O 8 '19

**Arizona**

Irrigating with sewage at Tucson, Arizona. W. C. Lefebvre. *Munic J* 44:395 My 11 '18

**Australia**

Irrigation scheme on the River Murray, South Australia. *Il Engineer* 125:15-16 Ja 4 '18

Making the desert bloom in Australia. O. Johnson. *Il Sci Am* 121:285+ S 20 '19

**California**

Construction details of the Lindsay-Strathmore irrigation district, California. E. C. Eaton. *Il Eng N* 83:348-51 Ag 21 '19

Cutting power bills on the irrigated farm. *Il Sci Am* 119:471 D 14 '18

Emergency irrigation rate for garden farming at Alhambra, Cal. *Eng & Contr* 49:459 My 8 '18

Engineering and construction features of West Side irrigation district. *Eng & Contr* 50:178-80 Ag 14 '18

Irrigation district plan favored. *Eng N* 81:850-1 N 7 '18

Irrigation project in the Victor valley, Cal., is based on economic use of water. *Eng N* 80:178-80 Ja 24 '18

Keeping down cost and head loss on siphon outlets. *diags plan Eng N* 80:1169 Je 20 '18

\$1,500,000 California irrigation project has well supply and 98 miles of steel pipe line. *Eng & Contr* 50:41-3 Jl 10 '18

Operation methods and results on the Lindsay-Strathmore irrigation district. E. C. Eaton. *Eng N* 83:474-8 S 4 '19

Southern California electrically operated irrigation pumping plant. *Il Eng & Contr* 49: 172 F 13 '18

Terra Bella irrigation project obtains supply from wells and delivers water under pressure through steel pipe lines. S. E. Kieffer. *Eng & Contr* 49:360-2 Ap 10 '18

Use of city water for irrigation in Pasadena, Cal. *Eng & Contr* 49:353 Ap 10 '18

Using Los Angeles aqueduct water for irrigation purposes. C. W. Geiger. *Il Munic Eng* 55:24-6 Jl '18

Water company wins Imperial Valley seepage case. *Eng N* 81:237-8 Ag 1 '18

**Egypt**

Irrigation schemes in Egypt and the Sudan. *diags plan maps Engineer* 127:497-9, 536, 566-8 My 23-Je 6 '19

**Florida**

Irrigating Florida fruit grove by the air lift system. J. Oliphant. *Il Eng & Contr* 49:164 F 13 '18

**Kansas**

Kansas encourages land drainage and irrigation. *Eng N* 80:88-9 Ja 10 '18

Methods and costs of pumping for irrigation in Arkansas river valley. *Eng & Contr* 50: 29-30 Jl 10 '18

Pumping underground water for irrigation. J. B. Marcellus. *Eng N* 80:570 Mr 21 '18

**Mesopotamia**

Irrigation in Mesopotamia. *Sci Am S* 86:21 Jl 13 '18

Regeneration of Mesopotamia. H. Brown. *Engineer* 128:373-4 O 17 '19

**Montana**

Cost of engineering work for maintenance and operation of large irrigation project. H. M. Chadwick. *Eng & Contr* 52:418-19 O 8 '19

**Nebraska**

Cost of pumping for irrigation in western Nebraska. *Eng & Contr* 49:180-1 F 13 '18

**New Mexico**

Drainage works of the Rio Grande irrigation project. J. L. Burkholder. *Il map Eng N* 83:543-9 S 18 '19

**New Zealand**

Ingenious irrigation scheme. *Il Sci Am* 120: 47 Ja 18 '19

**Russia**

Irrigation opportunities in Russia are great. V. V. Tchikoff. *map Eng N* 82:190-2 Ja 23 '19

**Texas**

Drainage works of the Rio Grande irrigation project. J. L. Burkholder. *Il map Eng N* 83: 543-9 S 18 '19

**United States**

Actual quantities of water used on irrigation projects of U.S. Reclamation service. E. A. Moritz. *Eng & Contr* 51:29-31 Ja 8 '19

Cost of U.S. irrigation projects and crop values. *Eng & Contr* 52:314 S 10 '19

Irrigation under the provisions of the Carey act. G. Ervin. *U S Agric Circ* 124:1-14 '19

Preliminary work on great federal irrigation program needed now. *Eng N* 80:392 F 28 '18

Results of the irrigation work of the U.S. Reclamation service. *Munic Eng* 55:75 Ag '18

Surface irrigation for eastern farms. F. W. Stanley. *Il diags U S Agric Farmers' Bul* 899:1-35 '17

Unprecedentedly good outlook for irrigation in 1918. F. W. Park. *Il Munic Eng* 54:29-32 Ja '18

Use of windmills in irrigation in the semi-arid West. P. E. Fuller. *Il diags U S Agric Farmers' Bul* 866:1-37 '17; Abstract. *J Fr Inst* 185:135-6 Ja '18

**Washington**

Columbia basin irrigation project report nearly completed. *Eng N* 83:800 O 30 '19

Irrigation in Quincy valley. *J Fr Inst* 185:507-8 Ap '18

Reconstruction of the Naches-Selah irrigation canal. E. M. Chandler. *Il diag Eng N* 83:276-9 Ag 7 '19

**Irrigation canals**

Algae growths increase value of  $\pi$  in Kutter's formula. P. Taylor. *Il Eng N* 81:179-81 Jl 25 '18; Discussion. R. K. Tiffany. 81:462-3 S 5 '18

Canal seepage losses are affected by temperature. L. Crandall. *Eng N* 82:323-4 F 13 '19

Canal system used alternately to irrigate and drain. *Il Eng N* 82:928-9 My 8 '19

Concrete canal becomes a driveway. *Il Sci Am* 121:313 S 27 '19

**Irrigation canals—Continued**

- Drainage works of the Rio Grande irrigation project. J. L. Burkholder. *Il map Eng N* 83:543-9 S 18 '19
- Electrically operated wasteways of the Tieton canal. C. F. Gleason. *Il J Elec* 43: 464-5 N 15 '19
- Enlargement of the Yakima-Tieton main canal. G. C. Finley. *Il diags Eng N* 82:1255-8 Je 26 '19
- Graduated slope gage and movable stilling box for canal measurements. W. G. Steward. *Il diags plan Eng & Contr* 50:543-4 D 11 '18
- Hydraulic sluicing for blanketing porous canal banks; abstracts. R. B. Stevens. *Eng & Contr* 49:298-9 Mr 20 '18; *Eng N* 81:911 N 14 '18
- Methods of stopping leaks in irrigation canals. *Eng & Contr* 49:169 F 13 '18
- Reconstruction of the Naches-Selah irrigation canal. E. M. Chandler. *Il diag Eng N* 83:276-9 Ap 7 '19
- Removing algae from a California irrigation canal. E. C. Eaton. *Il Eng N* 82:382-3 F 20 '19
- Submarine saw removes weeds in streams and lakes. *Il Eng N* 80:305-6 F 14 '18
- Templet used in clearing sand from irrigation canals. *Eng N* 83:800-1 O 30 '19
- Turnout in high velocity canal gives good service. J. L. Lytel. *diags plan Eng N* 81: 545-6 S 19 '18
- Why some irrigation canals and reservoirs leak. A. P. Davis. *Il Eng N* 80:663-5 Ap 4 '18

**See also Flumes**

- Irving, John Duer. 1874-1918
- Sketch. J. F. Kemp. *por Eng & Min J* 106: 260-3 Ag 10 '18; *Am Inst Min E Bul* 141: sup46-52 S 18 '18
- Sketch. W. Lindgren. *por Eng & Min J* 106: 263-4 Ag 10 '18; *Econ Geol* 13:413-18 S '18

**Isinglass**

- Fish isinglass and fish glue; sources and methods of manufacture. G. F. White. *Sci Am S* 86:38-9 Ji 20 '18

**Islands**

- Islands of the Pacific. E. Im Thurn. *Sci Am S* 87:98-9 F 15 '19

**See also Coral reefs and islands****Isoaminocamphonic acid**

- Molecular rearrangements in the camphor series; the decomposition products of the methyl ester of isoaminocamphonic acid; a new reaction involving the formation of the methyl ether of a hydroxy acid. W. A. Noyes and G. S. Skinner. *Am Chem Soc J* 39:2692-718 D '17

**Isocyanic acid**

- Four-membered cyclic-ureas; the condensation of isocyanic acid with a Schiff base. W. J. Hale and N. A. Lange. *Am Chem Soc J* 41:379-83 Mr '19

**Isomerism**

- Analogues of atropine and homatropine. L. F. Werner. *Am Chem Soc J* 40:669-74 Ap '18
- Chemistry of flavoring matters. F. Barral and A. Ranc. *Sci Am S* 87:114-15 F 22 '19
- Configurations of organic compounds and their relation to chemical and physical properties. A. Michael. *Am Chem Soc J* 40:704-23, 1674-1707 Ap. N '18

- Isomeric tetracetates of *l*-arabinose and beta-triacetyl-methyl-*l*-arabinoxide. C. S. Hudson and J. K. Dale. *Am Chem Soc J* 40:992-7 Je '18

- Limits of accuracy of Holleman's method of determining the composition of a mixture of two or three isomers. J. B. Nichols. *Am Chem Soc J* 40:400-3 F '18

- Space representation of organic nitrogen compounds. P. Neogi. *diags Am Chem Soc J* 41:622-39 Ap '19

**Isomorphism**

- Isomorphism, isosterism and covalence. I. Langmuir. *Am Chem Soc J* 41:1543-59 O '19

**Isosterism**

- Isomorphism, isosterism and covalence. I. Langmuir. *Am Chem Soc J* 41:1543-59 O '19

**Isothiocyanates**

- Researches on thiocyanates and isothiocyanates; the polyketide isothiocyanate—ethyl isothiocyananpropionate. T. B. Johnson and A. A. Ticknor. *Am Chem Soc J* 40:636-46 Ap '18

**Isotopes**

- Refractive index and solubilities of the nitrates of lead isotopes. T. W. Richards and W. C. Schumb. *Am Chem Soc J* 40:1403-9 S '18
- Variable atomic weights with some reference to geologic time. H. S. Shelton. *Sci Am S* 86:66-7 Ag 3 '18

**Italy****Aeronautics, Military**

- Air progress in Italy. *Il Motor Age* 34:22-5 Ag 15 '18; Same cond. *Automotive Ind* 39:272-6 Ag 15 '18
- Comparative chart of airplanes in the Italian service; tabulation. *Automotive Ind* 40:141 Ja 16 '19

**Commerce**

- Finance will determine trade with Italy. L. W. Williams. *Iron Age* 104:369-70 Ag 7 '19
- Italy's war buying of American steel. E. D'Amico. *Iron Age* 103:1075-7 Ap 24 '19
- Prospects for American machine tools. E. Vaghi. *Mach* 25:807-9 My '19
- Trade with Italy and Spain after the war; article issued by Guaranty trust co. *Am Mach* 48:945-7 Je 6 '18

**Economic conditions**

- Devastation wrought by the great war in Belgium, Serbia and Italy. D. T. Pierce. *Eng N* 82:630-1 Mr 27 '19

**Industries and resources**

- Germany aims to rob Italy of steel. *Il Iron Tr R* 62:1614-17 Je 27 '18
- Industrial and scientific research. *Engineer* 125:178-9 Mr 1 '18
- Italian industry in the war; the manufacture of artillery by the Ansaldo, the Genoesse Krupps, A. Benington. *Il Sci Am* 118:548-9 Je 15 '18
- Italian leucitic lavas as a source of potash. H. S. Washington. *Met & Chem Eng* 18:65-71 Ja 15 '18
- Italy strives for industrial power. F. Mil-toun. *Iron Tr R* 64:1679-80 Je 26 '19

- See also** Mines and mineral resources—Italy; Steel industry and trade—Italy

**Navy**

- Italian battle fleet. *Il Engineer* 125:245-6, 254 Mr 22 '18

**Railroads****See Railroads—Italy****Ivory**

- Vanishing art of ivory carving. *Sci Am S* 86: 409 Je 29 '18

- Ivy. *See* Virginia creeper

**J****Jackhamers**

- Jackhammer drill mounting. *Il Eng & Min J* 107:758 Ap 26 '19

**Jacks**

- Double worm drive lifting jack. *Il Ry Mech Eng* 93:447 Ji '19
- Duff car jack. *Il Ry Mech Eng* 92:531-2 S '18
- Duff high speed ball bearing screw jacks. *Il Ry Mech Eng* 93:343 Je '19
- Indoor jack for heavy work. *Il diag Sci Am* 120:693 Je 28 '19
- Jack for removing the pulleys of axle generators. *diags Ry R* 62:625 Ap 27 '18
- Jack that will always take hold. *Il Sci Am* 119:112 Ag 10 '18
- Machinists' jacks with non-revolving screws. *Il Ry Mech Eng* 91:709-10 D '17
- New jacks for handling railway equipment. *Il Elec Ry J* 54:586 S 20 '19

**Jacks—Continued**

Quick acting garage jack. *diags* Motor Age 34:35 Ag 1 '18  
 Worm drive applied to jacks. *II* Iron Tr R 62:323 Ja 31 '18

*See also* Hydraulic jacks; Pneumatic jacks

**Testing**

Machine for testing jacks under pressure. E. R. Pike. *diag* Elec Ry J 53:587 Mr 22 '19  
 Jacks, Pneumatic. *See* Pneumatic jacks

**Jackson lake, Wyoming**

Jackson Hole country of Wyoming. *II* Sci Am 118:272 Mr 30 '18

**Jacksonville, Florida**

New methods in bulkhead construction. *II* Sci Am 118:183+ Mr 2 '18

**Jacobs, Arthur Irving, 1858-1918**

Sketch. *por* Am Mach 48:517 Mr 21 '18

**Jade**

Jade specimen from Jordansmühl. Eng & Min J 103:369 Mr 3 '17

Jade fence; Pan American buildings at Washington, D.C. G. N. Rosé. *II* Arch Rec 46:153-8 Ag '19

**Janitors**

Cleaner shops at lower cost. J. Heywood. *II* plan Factory 22:930-1 My '19

**Japan**

Japanese bugaboo. Sci Am 119:146 Ag 24 '18  
 New restrictions on aliens in Japan. Am Ind 18:30 My '18

Oriental hospitality to Americans; E. W. Rice, Jr., and Gerard Swope in Japan and China. *II* Gen Elec R 21:269-76 Ap '18

**Commerce**

American machinery in Japan. A. Kinnosuke. *II* Sci Am 118:258 Mr 23 '18

Electrical goods in China, Japan, and Vladivostok. R. A. Lundquist. *II* U S Bur For & Dom Com 172:111-76 '18

Far Eastern markets for railway materials, equipment, and supplies. F. Rhea. *II* U S Bur For & Dom Com 180:141-73 '19

Japan wants small chassis. H. Sibley. *II* Automotive Ind 37:1138-40 D 27 '17

Japan's growing industries and foreign trade. Sci Am 119:34 Jl 13 '18

Japan's heavy imports of American steel and machinery. Iron Age 101:393 F 7 '18

**Industries and resources**

Japan to provide her own iron and steel needs. Am Ind 18:29-30 Ap '18

Japan's attitude on the ship question. M. Togo. Iron Age 101:822 Mr 28 '18

Japan's manufacturing industries. Sci Am 118:58 Ja 12 '18

Manufacturing in Japan. H. Sibley. *II* Am Mach 48:897-901 My 30 '18

Shipbuilding and shipping in Japan. Engineer 125:292 Ap 5 '18

*See also* Automobile industry and trade—Japan; Chemical industries—Japan; Electric industries—Japan; Petroleum—Japan; Shipping—Japan; Steel industry and trade—Japan; Water power—Japan

**Navy**

Japanese naval expansion. Engineer 125:206 Mr 8 '18

**Railroads**

*See* Electric roads—Japan; Railroads—Japan

**Roads**

*See* Roads—Japan

Japanese art. *See* Art, Japanese

**Japanning**

Electric heat for drying and baking. G. J. Kirkgasser. *II* *diag* Ind Management 56:489-95 D '18

Electric japanning. C. D. Carlson. Iron Age 99:1252-3 My 24 '17; Same. Iron Tr R 61:541-2 S 13 '17; Same. Mach 24:131-2 O '17; Same cond. Automobile 37:727 O 25 '17

Electric japanning gives extreme satisfaction. *II* chart Elec W 74:876-9 O 25 '19

Simple tests for painting material. Bldg Age 40:236 My '18

Water japan. W. P. Davey. Gen Elec R 22:634-5 Ag '19; Same. Metal Ind 17:509-10 D '19; Abstract. Elec Ry J 54:443-4 Ag 30 '19; Abstract. Elec W 74:517 S 6 '19

*See also* Varnish and varnishing

**Jelly**

Cider apple jelly. B. T. P. Barker. Sci Am S 86:282-3 N 2 '18

**Jelutong**

Rubber and jelutong; a review of the evidence in the recent customs house dispute as to classification of gums. F. Dannerth. Met & Chem Eng 18:296-8 Mr 15 '18

**Jersey City****Railroads**

Proposed port terminal of the Jersey Central and Lehigh Valley railroads at New York harbor. *II* Ry R 65:9-11 Jl 5 '19

**Water supply**

Large concrete-cased steel pipe laid in one piece. *II* Eng N 83:176-7 Jl 24 '19

**Jetties**

Skeleton steel jetties for bank protection. *II* Ry R 64:724-5 My 17 '19; Ry Age 66:1279 My 23 '19; Eng & Contr 51:653 Je 18 '19

*See also* Breakwaters

**Jewelry**

*See also* Brooches; Precious stones

**Manufacture**

Manufacturing operations on jewelry settings. J. V. Hunter. *II* *diags* Am Mach 49:47-52 Jl 11 '18

Polychromatic finishes for jewelry. O. A. Hillman. *II* Metal Ind 16:75-6 F '18

**Jewish centre, New York City**

Jewish centre, West 86th street, New York city; views. Arch & Bldg 50:pl 71-3 Ap '18

**Jigs**

Adjustable drilling jig for cotter-pin holes. H. C. Card. *II* Am Mach 48:172 Ja 24 '18

Adjustable jig for drilling round pieces. J. A. Lucas. *II* Am Mach 49:574 S 26 '18

Crank case trunnion jig. *II* Am Mach 48:482-4 Mr 21 '18

Cylinder boring jig. M. E. Hoag. *II* Am Mach 48:464-5 Mr 14 '18

Drill jig for bars and similar long pieces. C. F. Meyer. *diags* Am Mach 48:819-20 My 16 '18

Drill jigs for irregular castings. C. F. Meyer. *diags* Am Mach 49:729-30 O 17 '18

Drilling jig for machining a light cast-iron lever. C. F. Meyer. *diags* Am Mach 49:358 Ag 22 '18

Drilling jig for rocker-arm of airplane motor. J. J. Woffington. *diags* Am Mach 48:77 Ja 10 '18

Drilling jigs used in the manufacture of hoisting machines. R. Mawson. *II* Am Mach 49:563-5 S 26 '18

Hill drilling jig. *II* Am Mach 49:452 S 5 '18; Mach 25:77 S '18

How two conveyors keep jigs in use. P. F. O'Shea. *II* Factory 23:1045 N '19

Indexing drill jig. P. W. Hirsch. *diag* Mach 25:695 Ap '19

Interesting drill jig. C. F. Meyer. *diags* Mach 25:249-50 N '18

Interesting shop devices at Transecona. S. Lewis. *diags* Ry Mech Eng 93:150-1 Mr '19

Jig for drilling a nozzle. T. I. Krauska. *diags* Mach 25:346-7 D '18

Jig for drilling steel disks. H. P. Boettcher. *diag* Am Mach 49:402 Ag 29 '18

Jig for drilling steering arms. *II* *diags* Mach 25:39 S '18

Jig for machining brass ells. M. Jacker. *diags* Mach 25:1079 Jl '19

Jig for machining nuts. J. Lee. *diags* Ry Mech Eng 92:524 S '18

Jig for straight and angular drilling. J. W. Boyce. *diags* Mach 24:441 Ja '18

Jig to mill cam slots. C. F. Meyer. *diags* Am Mach 49:820-1 O 31 '18

Jigs and fixture details; drawings. W. Roberts. Am Mach 48:16 Ja 3 '18



**Jigs—Continued**

- Jigs for drilling cast-iron blocks. D. A. Hampson. *diags Mach* 25:460 Ja '19
- Jigs for machining a roller shifter. C. F. Meyer. *diags Mach* 25:344 D '18
- Lafayette tool-grinding jig. *diags Am Mach* 49:91 JI 11 '18
- Machining adjusting collars. W. G. Grocock. *Am Mach* 48:671-2 Ap 18 '18
- Making a drill jig for accurate work. *II diags Mach* 25:743-4 Ap '19
- Manufacturing a safety belt shifter. R. Mawson. *II Am Mach* 50:743-5 Ap 17 '19
- Points on jig and fixture design. A. F. Owen. *Mach* 25:1023 JI '19
- Relation of jigs to machine tools. G. H. Hey. *Iron Tr R* 64:883 Ap 3 '19
- Rubber jig. *diag Mach* 25:69 S '18
- Schmidt co.'s piston boring jig. *II Ind Management* 55:76 Ja '18
- Simple drilling jig. W. Philip. *diags Am Mach* 49:1047-8 D 5 '18
- Special jigs for milling. C. F. Meyer. *diags Am Mach* 49:682-3 O 10 '18
- Tooling a foreign car in America. T. Orchard. *diags Mach* 24:410-12, 534-5 Ja-F '18
- Universal drill jig for multiple-spindle work. W. B. Bennett. *diags Am Mach* 48:122 Ja 17 '18
- Universal drilling and reaming jig. E. L. Robenolt. *diag Mach* 24:1134-5 Ag '18
- Use of box jigs. *II diags Mach* 24:1132 Ag '18
- Jigs (mining)**
- Hancock jig in the concentration of lead ores. H. Rabling. *diags Am Inst Min E Bul* 128:1161-72 Ag '17; Same cond. *Eng & Min J* 104:636-8 O 13 '17; Discussion. *Am Inst Min E Bul* 133:13-14 Ja '18
- Neill jig tests for tin dredging. L. H. Eddy. *Eng & Min J* 106:78-9 JI 13 '18
- Preparation of bituminous coal. E. Prochaska. *flow sheets II diags plan Coal Age* 15:1080-5, 1118-22 Je 12-19 '19
- Jitney buses**
- Competition between safety car and jitney. M. B. Lambert. *Elec Ry J* 52:375-6 Ag 31 '18
- Growth and decline of jitney business in Los Angeles. *Eng & Contr* 52:213 Ag 20 '19
- Jitneys waste man-power. W. V. Hill. *Elec Ry J* 51:1199 Je 22 '18
- Manila jitneys. J. M. Bury. *II Elec Ry J* 52:749-50 O 26 '18

**Regulation**

- Dallas jitneys lose. *Elec Ry J* 50:1179 D 29 '17
- How one company cured jitneyitis. J. M. Campbell. *Elec Ry J* 51:233 F 2 '18
- Jitneys in Los Angeles, Cal., losing. *Elec Ry J* 51:467-8 Mr 9 '18
- Motor vehicles operating as common carriers are licensed in Maryland. M. Schuyler. *Eng N* 80:827-8 Ap 25 '18
- Non-essential jitneys must go. *Elec Ry J* 52:745-6 O 26 '18
- Railway service must be preserved; report of special investigator says jitneys in British Columbia territory must go. *Elec Ry J* 50:1159-61 D 29 '17
- War board raises jitney question again. *Elec Ry J* 52:620 O 5 '18
- Winnipeg abolishes the jitneys. *Elec Ry J* 51:989 My 18 '18
- Job printing costs.** See **Printing, Practical—Costs**
- Job work.** See **Typesetting—Job work**
- Jobbers**
- Committee settles priority doubts of jobbers. *Iron Tr R* 63:740-1 S 26 '18
- Jobber is essential to business. F. K. Chew. *Metal Work* 89:24-5 Ja 4 '18; Discussion. 78 Ja 11 '18
- Jobber of sheet metal; is he a necessary spoke in the wheel of business? *Metal Work* 89:259 F 22 '18
- Jobbers' association of dress fabric buyers**
- Annual meeting, New York, Jan. 15. *Textile World* 53:3362+ Ja 19 '18
- Mid-year meeting, New York. *Textile World* 56:355-6 JI 19 '19

Semi-annual meeting, New York city, July 16. *Textile World* 54:292-3 JI 20 '18

**Jobbing work**

- California jobbing shop. F. A. Stanley. *II diags Am Mach* 49:121-3 JI 18 '18
- How to keep your job trade growing. *II Metal Work* 89:257-9, 328-9 F 22, Mr 8 '18
- Jobbing-shop production. C. A. Carpenter. *Mach* 24:569-70 F '18
- Jobs, Standardization of**
- Standardizing the job. M. R. Lott. *chart Factory* 23:1290-2 D '19
- Johansson, Carl Edward, 1864-  
Johansson, apostle of mechanical accuracy, in America. *II por Automotive Ind* 41:608-10 S 25 '19
- John Fritz medal**
- J. Waldo Smith is recipient of medal. *Eng N* 80:834 Ap 25 '18; *Am Inst Min E Bul* 139:sup7-9 JI '18
- Johns Hopkins university**
- Mechanical equipment at Johns Hopkins university. J. C. Smallwood. *II Power* 49:811-14 My 27 '19
- Johnson, Joseph Esrey, Jr., 1870-1919  
Sketch. *por Eng & Min J* 107:668-9 Ap 12 '19
- Sketch. B. Stoughton. *por Chem & Met Eng* 20:376-7 Ap 15 '19
- Johnson, Samuel, 1709-1784  
Dr Johnson on aeronautics. W. H. Thorpe. *Sci Am* S 85:99 F 16 '18
- Johnson, Treat B., 1875-  
William H. Nichols medal awarded to Dr Treat B. Johnson. *por J Ind & Eng Chem* 10:305-12 Ap '18; Excerpt. *Met & Chem Eng* 18:287-8 Mr 15 '18
- Joint council of engineering societies of California**
- California state council of engineers in process of formation. *Eng N* 83:284 Ag 7 '19
- Joint sales agencies**
- Legality of joint sales agencies. A. L. H. Street. *Coal Age* 15:404-5 F 27 '19
- Joint wiping**
- Making a lead grease trap. R. J. Gordon. *diags Dom Eng* 85:121-3+, 280-2 O 26, N 23 '18
- Joints**
- Country house details. A. B. Greenberg. *diags Bldg Age* 40:538-9 N '18
- Framing joints in wooden members to withstand compressive, tensile, and transverse stresses. E. Draht. *diags Bldg Age* 40:278-9 Je '18
- Gas welding of thin plates. J. F. Springer. *diags Ry Mech Eng* 93:207-9, 268-71 Ap-May '19
- Hints on making glue joints. C. A. King. *diags Bldg Age* 40:188-9 Ap '18
- Joints and jointing materials. *Engineer* 125:212-13 Mr 8 '18
- New Seelye tension joint for wood truss. *diags Eng N* 82:556, 1028 Mr 20, My 22 '19
- Oil- and water-tight joints in ships' hulls. E. Burtner. *diags Int Marine Eng* 23:404-6 JI '18
- Strength of nail joints in Douglas fir and western hemlock. H. E. Plummer. *diags Eng & Contr* 48:327-8 O 24 '17; Same cond. *Eng N* 79:871-2 N 8 '17; Discussion, with bibliography. H. D. Dewell. *Eng N* 79:1211-12 D 27 '17
- See also **Boilers—Joints; Couplings; Pipe joints; Rail joints**
- Joints, Riveted.** See **Riveted joints**
- Joints, Universal**
- Big steel balls in universal joints. *II Sci Am* 120:60 Ja 18 '19
- Cooper universal joint. *II Mach* 24:653 Mr '18
- Culbertson universal joint. *diags Automotive Ind* 39:1044 D 19 '18
- Flexible fabric universal joints. C. A. Schell. *Mach* 25:575 F '19
- Flexible universals gaining favor. C. A. Schell. *II diag Automobile* 37:626-8 O 11 '17
- Layout for flexible universal joints. *diags Automotive Ind* 40:1221 Je 5 '19

**Joints, Universal—Continued**

- New M. & E. universal joints. *Il diag* Automotive Ind 40:1023 My 8 '19  
 New standard universal joints. *diags* Automotive Ind 40:1058 My 15 '19  
 Universal joints as shock reducers. C. A. Schell. *diag plan* Automotive Ind 39:1015 D 12 '18

**Joists**

- Torsional resistance of rolled joists. A. Föppl. *Am Soc M E J* 40:199 F '18

Jordan scientific society. See Bates college—Jordan scientific society

**Journalism****Study and teaching**

- Journalism week at the University of Missouri. *Il Inland Ptr* 63:409-10 JI '19

**Journals. See Bearings; Cars—Bearings****Jovian order**

- Important changes suggested for Jovian order. *Elec R* 74:186-8 F 1 '19  
 16th annual convention, Dallas, Tex., Oct. 24-25. *Elec R* 73:695-6 N 2 '18

**Juglone**

- Halogenation of juglone: a new type of naphthalene dyes. A. S. Wheeler and J. W. Scott. *Am Chem Soc J* 41:833-41 My '19

**Jumel mansion**

- Wall paper in the Jumel mansion. W. H. Shelton. *Arch Rec* 43:189-90 F '18

**Junk. See Scrap material****Jute**

- Jute counts. *Textile World* 53:4041 Mr 2 '18  
 Jute culture and industry in British India. *Am Ind* 18:31 Ap '18  
 Jute supplies. *Textile World* 54:213 JI 13 '18  
 Jute yarn calculations. *Textile World* 56:1367+ S 6 '19  
 Strength of jute yarns. *Textile World* 54:1329 S 21 '18

**Jute, Substitutes for**

- Land of the ersatz; textilt. *Sci Am* 119:368 N 2 '18

**Jutland, Battle of**

- Jellicoe at Jutland. *Sci Am* 120:452 My 3 '19

**K****Kafir corn**

- Physical and chemical study of the kafir kernel. G. L. Bidwell. *diags U S Agric Bul* 634:1-5 '18

**Kahn, Otto H.**

- Residence of Otto H. Kahn, esq., New York. L. V. Solon. *Il plan Arch Rec* 46:98-114 Ag '19

**Kamerun**

- Some native industries of German Cameroon. *Il Sci Am S* 37:344-5 My 31 '19

**Kanawha and Michigan railway**

- Kanawha & West Virginia builds a new line. *Il map Ry Age* 67:297-9 Ag 15 '19

**Kansas**

- Writers who have helped make a state famous. *Am Lumberman* 2259:44-5 Ag 31 '18

**See also Irrigation—Kansas****Kansas City, Missouri****Bridges**

- Chicago, Burlington and Quincy railway bridge at Kansas City. G. A. Haggander. *W Soc E J* 24:102-9; Discussion. 109-15 F '19

**Railroads**

- Elevated terminal connection at Kansas City. *Il diags map Ry Age* 64:493-7 Mr 8 '18  
 High-line viaduct and bridge improve rail entrance. F. W. Epps. *Il diags plan map Eng N* 80:393-8 F 23 '18

**Rapid transit**

- Commission to study Kansas City situation. *Elec Ry J* 51:205 Ja 26 '18  
 Strike settled. *Elec Ry J* 51:674 Ap 6 '18

**Kansas City Southern railway**

- Constructive rehabilitation pays. J. E. Muhlfeld. *Ry Age* 64:1162 My 10 '18  
 Hearings on valuation. H. C. Phillips. *Ry E* 62:659-61 My 4 '18

**Kansas state agricultural college**

- Modifications in engineering at Kansas state agricultural college. A. A. Potter. *Eng N* 83:186-7 JI 24 '19  
 School foundry makes dummy hand grenades. E. Grant. *Il Foundry* 46:65 F '18

**Karafuto**

- Industrial Karafuto. *Am Ind* 18:31-2 My '18

**Katanga railway**

- Katanga railway. *Il (supp) maps Engineer* 126:501-4 D 13 '18  
 Katanga railway. *Sci Am S* 86:151 S 7 '18

**Kauri gum**

- Gathering Kauri gum in New Zealand. H. J. Shepstone. *Il Sci Am S* 85:860-1 Je 8 '18

**Keep, William John, 1842-1918**

- Sketch. *por Iron Age* 102:932 O 10 '18; *Iron Tr R* 63:857 O 10 '18; *Am Soc M E J* 40:980 N '18; *Foundry* 46:522 N '18

**Kelp**

- California kelp operations of the Hercules powder company. *Il Met & Chem Eng* 18:576-80 Je 1 '18

- Extraction of potash from kelp. C. A. Higgins. *diag Chem & Met Eng* 19:432-3 S 26 '18; Same. *J Ind & Eng Chem* 10:832-3 O '18; Same. *Sci Am S* 86:336 N 23 '18

- Growth of the kelp organism. J. W. Turrentine. *Chem & Met Eng* 21:202-3 Ag 15 '19

- Kelp-potash plant of the Lorned manufacturing company. L. H. Thompson. *Il diags Chem & Met Eng* 19:450-2 S 26 '18

- Potash from kelp: the experimental plant of the United States department of agriculture; preliminary paper. J. W. Turrentine and P. S. Shoaff. *flow sheet Il chart J Ind & Eng Chem* 11:864-74 S '19

- Preparation of an active decolorizing carbon from kelp. F. W. Zerban and E. C. Freeland. *J Ind & Eng Chem* 10:812-14 O '18

- Sea-weed for war. E. C. Crossman. *Il Sci Am* 119:231+ S 21 '18

- Solvents from kelp. C. A. Higgins. *J Ind & Eng Chem* 10:858-9 O '18; Same. *Am Ind* 19:17-18 O '18

**Kelvin, William Thomson, 1st baron, 1824-1907**

- Ninth Kelvin lecture: Kelvin as a teacher. M. Maclean. *diags Inst E E J* 56:169-92 Mr '18

**Kennecott copper corporation**

- 3d annual report, 1917. *Eng & Min J* 106:167 JI 27 '18

**Kenney, William P., 1870-**

- Elected president of Great Northern. *por Ry Age* 64:365 F 15 '18

**Kenotron**

- Measurement of the crest values of alternating voltage by the kenotron, condenser, and voltmeter. J. R. Craighead. *Il diags Gen Elec R* 22:104-9 F '19

**Kent, William, 1851-1918**

- Sketch. *por Iron Age* 102:753 S 26 '18; *Iron Tr R* 63:739 S 26 '18; *Am Mach* 49:604 O 3 '18; *Power* 48:510 O 1 '18; *Stevens Ind* 35:261-3 O '18; *Am Soc M E J* 40:978 N '18

**Kentucky**

- Mammoth and Great Onyx caves; unpublished features of Kentucky's great natural curiosity. L. Jeffers. *Il Sci Am* 119:155+ Ag 24 '18

**See also Petroleum—Kentucky; Roads—Kentucky****Kentucky mining institute**

- Meeting, Lexington, Ky., June 6-7. *Coal Age* 15:1115-17 Je 19 '19  
 Midwinter meeting, Louisville, Dec. 14. *Coal Age* 12:1050 D 23 '17

**Kentucky, University**

- Practical miners' course of the University of Kentucky. *Il Coal Age* 15:624 Ap 3 '19

**Kerguelen island**

- Kerguelen island as an Antarctic reserve. *Sci Am S* 85:191 Mr 23 '18

- Kermes**  
Use of organic dyestuffs for lake manufacture. B. DePuyster. Color Tr J 4:98-100 Ap '19
- Kerosene**  
Bellem wins French kerosene tests. W. F. Bradley. *Il Automotive Ind* 39:792-4 N 7 '18  
Carburetion temperature of oil mixtures. C. A. Norman. *Automotive Ind* 40:490-1 F 27 '19  
Flash and burning points of gasoline-kerosene mixtures. J. T. Robson and J. R. Withrow. *bibliog diag Chem & Met Eng* 21:244-52 S 1 '19  
House heating with kerosene. Heat & Ven 15:69 S '18  
Kerosene as boiler-scale remover. Power 47:451 Mr 26 '18  
Kerosene burning problem discussed by Minneapolis section of the S. A. E. *Automotive Ind* 38:380 F 14 '18  
Kerosene carburetion. *Automotive Ind* 38:377 F 14 '18  
Kerosene for cooling. Motor Age 35:33 Ja 9 '19  
Kerosene gasifier may solve motor fuel problem. Eng & Min J 104:1134 D 29 '17  
Kerosene vaporization. L. E. French. *diag Automotive Ind* 39:845 N 14 '18  
Kerosene vs. coal as a fuel. Heat & Ven 16:52-3 Ja '19  
Methods of kerosene carburetion. *Automotive Ind* 38:558 Mr 14 '18  
Treating boiler scale with kerosene. L. Linnell. *Elec R* 71:985 D 8 '17  
*See also* Carbureters; Gas and oil engines; Liberty fuel; Petroleum; Vaporizers
- Kerosene engines**  
France stages kerosene contest. W. F. Bradley. *Il Motor Age* 34:30-1 O 24 '18  
Kerosene as a fuel in high-speed engines. L. F. Seaton. *Il Mech Eng* 41:881-2 N '19  
McElroy kerosene engine. *Il diag Automotive Ind* 39:371 Ag 29 '18  
New farm tractor burning kerosene. *diag Sci Am* 118:76 Ja 19 '18  
Oil-cooled kerosene engine. *Sci Am* 119:396 N 16 '18  
Prerequisites for using kerosene as motor fuel. W. L. Dempsey. *Automotive Ind* 38:596 Mr 21 '18  
Suggested formula for rating kerosene engines. D. L. Arnold. *Mech Eng* 41:672-3 Ag '19; Same. Power 50:199-200 Jl 29 '19; Abstract. *Automotive Ind* 40:1381 Je 19 '19; Discussion. *Mech Eng* 41:681 Ag '19
- Kersey**  
Manufacture of high grade kersey. Textile World 56:1989+ O 4 '19
- Ketones**  
Action of phosphorus trichloride on unsaturated ketones. J. B. Conant. *Am Chem Soc J* 39:2679-84 D '17  
Relations between the chemical structures of carbonyl derivatives and their reactivities toward salts of semicarbazide. A. Michael. *Am Chem Soc J* 41:393-424 Mr '19
- Kettledrums**  
Manufacture of metal tympani. *Il Metal Ind* 16:417-18 S '18
- Keys and keyways (machinery)**  
Cutting a keyway on a large pulley. A. J. Lacul. *diags Am Mach* 49:588 S 26 '18  
Device for cutting keyways in locomotive piston rods. E. J. McKernan. *diag Am Mach* 51:634 S 25 '19  
Device for milling keyways for eccentric arms in crank pins. *diags Ry Mech Eng* 92:112 F '18  
Emergency method of cutting keyways in the lathe. C. R. Crawford. *diag Am Mach* 49:128 Jl 18 '18  
Figuring keyways on shafts. J. Havekost. *diags Mach* 25:152 O '18  
Improved key-seating and mortising machine. *Il diag Engineer* 128:416-17 O 24 '19  
Key extractor. A. P. M. Wilking. *diags Am Mach* 48:846 My 16 '18  
Machines for milling piston rod keyways. *Il diags Ry Mech Eng* 92:37 Ja '18
- Making keyway gages. D. A. Baker. *diags Mach* 25:858 My '19  
Manufacture of gib keys. *Il Mach* 24:633 Mr '18  
Tool for cutting keyways in small bushings. S. H. Drake. *diags Am Mach* 48:803 My 9 '18
- Khaki**  
Color effects on khaki uniform cloths. C. M. Whittaker. Color Tr J 4:110-11 My '19  
Dyeing of cotton khaki; with special reference to the iron and chrome process. L. J. Matos. Textile World 54:403 Jl 27 '18  
Dyeing of khaki in the United States; historical and theoretical. J. C. Hebden. *J Ind & Eng Chem* 10:640-4 Ag '18
- Kiaochow, China**  
Kiaochow-Tsingtao. J. K. Goodrich. *Am Ind* 20:29-30 Ag '19
- Kiln drying of lumber.** *See* Lumber drying
- Kilns**  
Gas producers for kilns. *Am Gas Eng J* 111:468 N 15 '19  
Nodulizing flotation concentrates in a rotary kiln with powdered coal. R. M. Draper. *Chem & Met Eng* 20:621 Je 15 '19  
Successful homemade dry kiln. *diag Am Lumberman* 2287:35 Mr 15 '19  
*See also* Cement kilns; Lime kilns  
Kilowatt hours per barrel of oil; what does it mean? S. J. Lisberger. *J Elec* 42:363-5 Ap 15 '19  
Kinetic theory of gases. *See* Gases, Kinetic theory of
- King, William Roberts, 1864-1918**  
Sketch. por Stevens *Ind* 35:264-6 O '18
- Kingsport, Tennessee**  
Kingsport and its chemical industries. *Il diag Chem & Met Eng* 20:565-70, 639-44 Je 1-15 '19
- Kinite**  
Kinite—a tungstenless high-speed tool steel. *Il Automotive Ind* 40:742 Ap 3 '19  
Making of kinite dies. *Il diag Mach* 25:1030-1 Jl '19
- Kirchhoff's law**  
Practical application of Kirchhoff's law. V. J. Kubanyl. *diags Power* 48:878-9 D 17 '18; Abstract. *Sci Am S* 87:415 Je 28 '19
- Kitchen utensils**  
Cooking utensils of pure nickel. *Sci Am* 118:435 My 11 '18
- Kitchens**  
Bringing efficiency to the kitchen. A. Weindorf. *diags Bldg Age* 41:217-18, 273-4 Jl-Ag '19  
Planning kitchens for small houses. O. V. Vate. plans Arch Forum 31:46-50 Ag '19  
Planning the efficient kitchen. E. H. Klaber. *diags plans Bldg Age* 41:336-7 O '19  
Ventilation, hot water supply and steam cooking equipment for large kitchens. C. L. Hubbard. *diags plan Dom Eng* 83:160-2, 205-6 My 4-11 '18  
Ventilation of restaurant kitchens. E. V. Hill. *Il Dom Eng* 88:52-5, 246-8+ Jl 12, Ag 9 '19  
War time installations in English plants. J. Y. Dunlop. *Il diags plan Metal Work* 88:679-81 D 7 '17
- Kitchens, Portable**  
Army kitchens. *Il Sci Am S* 85:300 Mr 30 '18  
Automobile electric kitchen. *Il Elec R* 72:816 My 11 '18  
Motor kitchen; Ford touring car and Smith Form-a-truck attachment. *Il Motor Age* 33:42 Je 20 '18  
Steam army kitchen. *Il Automobile* 37:498 S 20 '17; Same. *Sci Am* 117:273 O 13 '17
- Kitchens, Public**  
Communal kitchens for English workers. J. Y. Dunlop. *Il diags plans Metal Work* 90:189-90 Ag 16 '18  
Public electric kitchen in London. *Elec R* 72:1094 Je 29 '18  
St Louis company's bread cast upon the waters is returned many fold. L. Resnick. *Il Am Gas Eng J* 108:617-19+ Je 29 '18

**Kitchin, Claude**

Zone postal system and Mr Kitchin. *Sci Am* 118:542 Je 15 '18

**Kite balloons. See Balloons****Kites**

How to make kites of many designs. *diags* Am Lumberman 2311:46 Ag 30 '19

**Kites (meteorology)**

Benjamin Franklin took this risk. *Sci Am* 121:128 Ag 9 '19

Notes on kite flying. V. E. Jakl. *Sci Am* S 87: 110-12 F 15 '19

Planeurs captifs for meteorological work. *Sci Am* S 88:43 Jl 19 '19

**Kiting**

Piece of paper upheld by nothing more substantial than wind. S. Walton and H. A. Finney. *J Account* 27:466-77 Je '19

**Knights of Pythias temple**

Pythian temple, Bronx, New York. *Arch & Bldg* 51:52, pl 93-5 Je '19

**Kniskern, Albert D., 1861-**

Printer-soldier. C: S. Brown. *por Inland Ptr* 62:195 N '18

**Knit goods**

Calculations for the knitting mill. E. Tompkins. *Textile World* 55:1173+ F 15 '19

Experiences with knit goods defects. *Textile World* 56:1057 Ag 23 '19

Export trade in knit goods. R. S. MacElwee. *Textile World* 55:3499+ Je 7 '19

Government important factor in knit goods trade. *Textile World* 55:455+ Ja 11 '19

Industry and the war. L. Cromwell. *Textile World* 53:5733+ My 25 '18

Knit goods affected by war conditions. *Textile World* 53:3155 Ja 12 '18

Knit goods exhibit for export buyers to be held in Philadelphia. *Textile World* 55: 1788 Mr 22 '19

Knit goods packing. *Textile World* 54:1722 O 12 '18

Knit goods' part in the war. L. Cromwell. *Textile World* 55:569 Ja 11 '19

Knitted narrow fabric; patent. *il Textile World* 54:1731+ O 12 '18

Knitting arts exhibition at Philadelphia. *il Textile World* 55:3663+ Je 14 '19

Knitting arts exhibition in Philadelphia. *il Textile World* 53:5751-66 My 25 '18

Manufacture of Orenburg knitted lace shawls. *il Textile World* 53:4803 Ap 20 '18

New channels for knit goods exports. *Textile World* 54:2147+ N 2 '18

Novel knitted fabric. E. D. Wales. *il Textile World* 56:1057+ Ag 23 '19

Packing conservation in knit goods. R. L. Hall. *Textile World* 55:651-2 Ja 18 '19

Price tendency on knit goods. A. M. Stewart. *Textile World* 55:652 Ja 18 '19

Puttee cloth coming too narrow. *Textile World* 54:747 Ag 17 '18

Simple analysis of knit fabric. E. Tompkins. *Textile World* 53:3371 Ja 19 '18

Specifications for knitted spiral woolen puttees. *Textile World* 54:405 Jl 27 '18

Spots on knit goods. *Textile World* 54:1327 S 21 '18

War service association of outer knitted apparel manufacturers of the Middle West and West. *Textile World* 54:736+ Ag 17 '18

World supply and market. J. P. Quinlan. *Textile World* 55:652-3 Ja 18 '19

See also Hosiery; Sweaters

**Knit goods manufacturers of America**

Semi-annual meeting, Utica, N.Y., Nov. 1. *Textile World* 54:2375+ N 9 '18

**Knitting**

Calculations for the knitting mill. E. Tompkins. *Textile World* 54:297+, 845+, 1323+, 1729+, 2571+, 3099+; 55:659, 1173+, 1795+ Jl 20, Ag 24, S 21, O 12, N 23, D 21 '18, Ja 18, F 15, Mr 22 '19

Kinks for knitters. *Textile World* 54:981+ Ag 31 '18

Method of widening and narrowing knit fabric; patent. *diags Textile World* 53:4335 Mr 23 '18

Plating on latch needle rib machines. *il Textile World* 54:1731 O 12 '18

Properties of shoddy knitting yarn. W: Davis. *il Textile World* 56:1649+ S 20 '19

Uneven lengths. *Textile World* 56:1653+ S 20 '19

See also Knit goods

**Knitting machines**

Assembling the banner knitting machine. R. Mawson. *il Am Mach* 49:310-11 Ag 15 '18

Care of leaded needle cylinders. E. Tompkins. *plan Textile World* 53:3159+ Ja 12 '18

Exactly replaceable ribber cross bar; a suggestion for cylinder-and-dial knitting machines. *diags Textile World* 54:299 Jl 20 '18

New oil switch used to start and stop full fashioned knitting machines. *il Textile World* 55:35+ Ja 4 '19

Points on fixing knitters. *Textile World* 54: 3103 D 21 '18

Stop motion attachment. *il Textile World* 55: 1181 F 15 '19

What a knitter should know about burs. E. Tompkins. *diags Textile World* 53:4332a Mr 23 '18

What knitters should know about bur blades. E. Tompkins. *diag Textile World* 53:6215+ Je 22 '18

See also Hosiery machines

**Knitting mills**

Costs in a new mill. *Textile World* 56:1059 Ag 23 '19

Experiences with motor drive in Wayne knitting mills. *Elec R* 72:249 F 9 '18

Modern lighting and power installation for Canadian knitting mill. *il Elec R* 74:127-30 Ja 25 '19

New mills for Holeproof hosiery company. *il Textile World* 53:3245+ Ja 12 '18

Systematic inventory for a knitting mill. *Textile World* 54:3101 D 21 '18

Visit Berkshire knitting mills; Pennsylvania knitters see full fashioned hose made. *Textile World* 54:394+ Jl 27 '18

See also Hosiery mills

**Knitting needles**

Jap needle competition. *Textile World* 53: 4725+, 4795 Ap 13-20 '18

Latch needle supply; manufacturers' association takes action to guarantee government priority. *Textile World* 54:1722-3 O 12 '18

Latch needles. *Textile World* 53:4051 Mr 2 '18

**Knives**

Plating steel knives. *Metal Ind* 16:360 Ag '18

Press tools for knife parts. A. C. Lindholm. *diags Am Mach* 48:75-7 Ja 10 '18

**Knots and splices**

Substitute for a rope splice. L. V. Louthier. *il Coal Age* 13:724 Ap 20 '18

**Knurling**

Adjustable knurling fixture. R: A. Damon. *diags Mach* 26:74 S '19

**Kodak Park library**

Kodak Park library. G: Reissman. *J Ind & Eng Chem* 11:583-4 Je '19

**Kongo, Belgian**

Belgian Congo—a new field. E: V. Lepiae. *Am Ind* 19:21-2 F '19

See also Mines and mineral resources—Kongo, Belgian

**Korea**

Commerce

American mining machinery for Chosen. *il Sci Am* 119:414 N 23 '18

Industries and resources

Machinery for Korea. *J Ind & Eng Chem* 10: 230 Mr '18

Railroads

See Railroads—Korea

**Krypton**

Measurements of wave lengths in the spectra of Krypton and Xenon. P. W. Merrill. *il U S Bur Stand Sci Pa* 345:251-7 '19

**Kultur**

Kultur. Sci Am 119:350 N 2 '18

Kuntz, Peter, 1838-1918

Sketch. por Am Lumberman 2234:57+ Mr 9 '18

**Kutter's formula**Algae growths increase value of  $n$  in Kutter's formula. P. Taylor. Il Eng N 81:179-81 J1 25 '18**L****Labelle Iron works, Steubenville, Ohio**

Annual report for the year ended Dec 31, 1917. Iron Age 101:746-7 Mr 21 '18

**Labor and capital**

Address of president to local A. I. M. E. sections. S. J. Jennings. Am Inst Min E Bul 137:sup11-13 My '18

Agreement vs. bargaining. H. Tipper. Automotive Ind 39:784-5 N 7 '18

American industry lays the golden eggs. Senator Cartwright. Am Ind 19:14-16 D '18

Bringing capital and labor together. J. P. Brophy. Ind Management 55:40-1 Ja '18

Capital there must be—and capitalists; else there can be no work for labor to perform. W. L. Hichens. Am Gas Eng J 110:332-4, 339-40 Ap 19 '19

Cooperation of employers and employed in Great Britain. Sci Am 118:511+ Je 1 '18

Co-operation the national ideal; series of posters issued by the National industrial conservation movement. Am Ind 18:26-7 My '18

Efficiency; stop! look! listen! W: H. Smyth. Ind Management 57:233 Mr '19

Elements of the labor problem; with discussion. M. W. Alexander. Textile World 53:5143-4a My 4 '18

Important developments relating to labor and capital. Met &amp; Chem Eng 18:393-5 Ap 15 '18

Important phases of the labor problem. M. W. Alexander. Iron Age 102:1258-61, 1322-5 N 21-28 '18

Indifferentism: the present danger in manufacturing. J. J. Gillespie. Ind Management 57:38-9 Ja '19

Industrial cooperation. C: P. Steinmetz. Eng &amp; Min J 107:748-9 Ap 26 '19; Same. Automotive Ind 40:831-3 Ap 17 '19; Same. Am Mach 50:893-4 My 8 '19; Same. Coal Age 15:904-6 My 15 '19; Excerpt. Elec R 74:678 Ap 26 '19

Industrial unrest. R. Allen. Power 49:296 F 25 '19

Inspiring harmony between capital and labor; Y. M. C. A. conference at Lake Geneva, Wis. Am Lumberman 2252:41-2 J1 13 '18

Labor feasts and famines; the results of observations of business conditions for the past twenty-five years. W: F. Hirschmann. Metal Ind 16:541-2 D '18

Labor representatives lack sufficient power. H. Tipper. Automotive Ind 39:835-6 N 14 '18

Man power. J. P. Channing. Am Inst Min E Bul 137:963-9 My '18; Same. Iron Tr R 62:1611-13 Je 27 '18; Same cond. Am Soc M E J 40:464-5 Je '18

New industrial dispensation must be made labor insurance. Eng &amp; Min J 106:318-19 Ag 17 '18

Of what use is the millionaire? Eng &amp; Min J 105:470 Mr 9 '18

Place of democracy in business. C. Fraboni. Iron Age 101:1402-4 My 30 '18

Relation of capital to labor. J: D. Rockefeller, Jr. Am Arch 114:262 Ag 28 '18

Relations between capital and labor in India. Am Ind 18:44 Mr '18

Significant changes in business management. Am Mach 49:191-3 Ag 1 '18

Small industry in a democracy; abstracts. G: H. Haynes. Am Soc M E J 40:pt 1, 538-8 J1 '18; Iron Tr R 62:1607-10 Je 27 '18; Excerpts. Iron Age 102:77 J1 11 '18

**Wages and profits in British industry. E. T.**

Good. Engineer 125:47-8 Ja 18 '18

What does labor want? F. Crane. Ind Management 58:176 S '19

What of the labor situation? E. J. Mehren. Eng N 80:241-2 F 7 '18; Same. Power 47:298 F 26 '18; Discussion. Eng N 80:472-3 Mr 7 '18

Which side are you on? H. Tipper. Automotive Ind 39:669-71 O 17 '18

Whom are we fighting? Am Mach 49:211 Ag 1 '18

*See also* Arbitration, Industrial; Bolshevism; Cooperation; Employees; Industrial betterment; Industrial relations; Labor and laboring classes; Profit sharing; Strikes; Trade unions; Wages; Welfare work in industry; Workmen's compensation**Labor and laboring classes**

Address. W. F. Shove. Textile World 55:2525-6 Ap 26 '19

Construction labor's instability. W. J. Morrissey. Eng N 83:759-60 O 23 '19

Construction labor's instability. W. P. Schmuck. Eng N 83:813-14 O 30 '19

How to check the radical in the labor circles. H. Tipper. Automotive Ind 41:736-7 O 9 '19

Industrial problems. Am Mach 48:952-3 Je 6 '18

International labor convention analyzed. H. Tipper. Automotive Ind 40:1017-18 My 8 '19

Labor ideals versus facts. G: W. Bowie. Ind Management 57:329-30 Ap '19

Labor readjustment in the electrical industry. Il Elec R 73:802-4 N 23 '18

Loyalty of labor—the keynote of victory. B. M. W. Hanson. Il Mach 25:20-1 S '18

Organizing the nation for peace. L. W. Alwyn-Schmidt. Ind Management 57:45-8 Ja '19

Under new management—harmonizing. C: M. Horton. Ind Management 55:312-14 Ap '18

*See also* Accidents, Industrial; Apprentices; Arbitration, Industrial; Bonus system; Child labor; Coal miners; Convict labor; Cooperation; Cost of living; Day labor; Diseases, Industrial; Efficiency, Industrial; Employees; Employers' liability; Employment agencies; Employment management; Employment systems; Factory inspection; Factory sanitation; Guild socialism; Good will in business; Government employees; Hours of labor; Housing problem; Hygiene, Industrial; Industrial betterment; Industrial education; Industrial management; Industrial relations; Industry; Insurance, Industrial; Labor and capital; Labor contracts; Labor laws and legislation; Machinery in industry; Miners; Motion study; Night work; Occupations; Dangerous; Open and closed shops; Pensions; Piece work; Profit sharing; Railroads—Employees; Safety devices and measures; Socialism; Street railroads—Employees; Strikes; Time study; Trade agreements; Trade unions; Unemployment; United States—Employment service; United States—Labor, Department of; United States—National war labor board; Wages; War labor conference board; Welfare work in industry; Woman—Employment; Workmen's compensation; also European war—Labor problems**Great Britain**

American report on British labor conditions; findings of the Employers' industrial commission of the U. S. Department of labor. Automotive Ind 40:881-7 Ap 24 '19; Excerpt. Am Ind 19:31 My '19

Britain fettered by labor rule. A. O. Backert. Iron Tr R 65:111-14 J1 10 '19

British solve war labor problem. J. Horton. Iron Tr R 63:212-14 J1 25 '18

Compulsory arbitration is opposed by investigators of British industrial unrest. J. Horton. Iron Tr R 63:255-7 Ag 1 '18

Foundations of reconstruction. Engineer 125:165-6 F 22 '18

Humanity becomes important factor in British labor settlements. H. Tipper. Automotive Ind 40:1336-41 Je 12 '19

Industrial peace—first essential in winning war. S. Kent. Automotive Ind 37:907-9 N 22 '17

**Labor and laboring classes—Great Britain***—Continued*

Joint industrial councils in Great Britain. U S Bur Labor Statistics Bul 255:1-207 '19  
 Just what is the Whitley report? S: Crowther. plan Factory 23:269-73 Ag '19  
 Labour unrest. Engineer 127:132 F 7 '19  
 Part-time schooling; the effect of proposed legislation upon textile labor in England. Textile World 54:237 JI 13 '18  
 Present status of labor in the English chemical industry. A. E. Marshall. Chem & Met Eng 21:16 JI 1 '19  
 Reconstruction in Europe. C. H. Claudy. Sci Am 120:284+ Mr 22 '19  
 Review of English labor conditions. H. Tipper. Automotive Ind 40:850-1 Ap 17 '19  
 Social reconstruction bound to follow victory. C. G. Lang. Eng N 80:566-7 Mr 21 '18  
 What I found the British employer thinking about. S: Crowther. Factory 23:57-61 JI '19  
 Works committees. Engineer 125:473-4 My 31 '18

**Italy**

Italian textile industry. Textile World 55:3657 Je 14 '19

**Russia**

Russian industrial nightmare. H. Klein. Eng & Min J 106:875-6 N 16 '18

**United States**

Discussion on labor and employment problems. Am Inst Min E Bul 139:sup13-22 JI '18  
 Enforcement in U.S. of international labor standards. G. W. Wickersham. Am Ind 19:11-16+ JI '19  
 Getting the foreign workman's viewpoint. S. L. E. Lazarovich-Hreblianovich. Am Inst Min E Bul 138:905-12 Ap '18; Same cond. Am Arch 113:765-7 Je 5 '18; Excerpts. Iron Tr R 63:721-2 S 28 '18; Abstract. Iron Age 101:559 F 28 '18  
 Government may assume control of labor. Automotive Ind 38:1120 Je 13 '18  
 Government war-labor policy. Am Mach 48:489-90 Mr 21 '18  
 Government's labor policy. Am Mach 49:92 JI 11 '18  
 Government's plan for controlling labor. Automotive Ind 38:1238 Je 20 '18  
 How to study labor unrest. O. Tead. Ind Management 55:133-4 F '18  
 Humanity and tolerance will solve U.S. labor problems. H. Tipper. Automotive Ind 40:1394-8 Je 19 '19  
 Important decisions in labor cases. Iron Age 102:158-9 JI 18 '18  
 Importation of Mexican labor. Am Ind 19:14-15 Ag '18  
 Industrial unrest. W: M. Lelerson. Mech Eng 41:884-5 N '19  
 Labor Americanization. F. A. Kellor. Textile World 53:3450+ Ja 26 '18  
 Labor is encouraged to organize; War labor board outlines program for electing shop representatives. Iron Tr R 63:516 Ag 29 '18  
 Labor problems worry the administration. Iron Age 103:1587-8 Je 12 '19  
 Labor readjustment activities. Mach 25:553-4 F '19  
 Labor unrest and some remedies. C: Piez. Eng & Contr 52:337-9 S 17 '19  
 Shipping situation. Sci Am 118:142 F 16 '18  
 War labor problems. Sci Am 119:122 Ag 17 '18  
 Who shall do the work? R. D. La Guardia. II Sci Am 121:108 Ag 2 '19  
*See also* Industrial relations

**Labor boards**

Bi-partisan labor boards. W. N. Doak. Ry Age 67:212-14 Ag 1 '19

**Labor camps**

Boarding camp for track laborers of Baltimore & Ohio R. R. E. Stimson. Eng & Contr 49:392 Ap 17 '18  
 Cost of constructing and moving portable camp buildings. diag Eng & Contr 49:614-15 Je 19 '18  
 Cost of feeding men at company operated boarding camps. W. J. Backes. Eng & Contr 49:393 Ap 17 '18

Feeding and housing railway maintenance of way and construction employees. Eng & Contr 49:383-6 Ap 17 '18

Fresh air and heat for labor cantonment. diag plans Metal Work 90:581-2 N 23 '18

Home attractions keep Mexican track laborers satisfied. C. A. Elliott. II diag plan Elec Ry J 52:150-2 JI 27 '18

House-boats with steel bunks used for dredge crews on ditch work. II diag Eng N 79:1216-17 D 27 '17

Labor camp of the Minnesota steel co. plans Eng & Min J 106:911 N 23 '18

Remarkable record made by Southern railway at Sheffield. II diag plans Ry Age 65:306-8 Ag 2 '18

Report on experimental convict road camp. Fulton county, Ga. H. S. Fairbank, R. H. Eastham and W. F. Draper. II diag plans U S Agric Bul 583:1-64 '18; Excerpts. Good Roads n s 15:221-3 Ap 27 '18

*See also* Construction camps; Lumber camps

**Labor contracts**  
 Employer's right to discharge employees between pay days, when they are hired by week or month. Dom Eng 87:9+ Ap 5 '19

**Labor cost**  
 Labor efficiency good on percentage contracts. H: C. Turner. Eng N 82:815-18 Ap 24 '19

Report on estimating labor costs compiled by the Electrical estimators' association of Chicago. diag plans Elec R 73:125-31 JI 27 '18

Unit costs lowered without cutting wages. J. B. Lippincott. Eng N 82:605 Mr 27 '19

War and the water works. Munic J 46:472-3 Je 28 '19

**Labor department.** *See* United States—Labor, Department of

**Labor disputes**  
 German labor disputes in 1916. Iron Age 101:675 Mr 14 '18

How I would settle labor troubles. V. Caillard, P. H. Lockhart and W. A. Appleton. Factory 22:938-9 My '19

How to study labor unrest. O. Tead. Ind Management 55:133-4 F '18

League to enforce industrial peace. L. K. Comstock. Elec W 73:1164-7 My 31 '19

Organization in the settlement of industrial disputes. V. E. Macy. II Eng & Min J 107:825-8 My 10 '19

Plans proposed for settlement of labor disputes. Iron Tr R 65:1062-3 O 16 '19

*See also* Industrial relations; Strikes

**Labor laws and legislation**  
 Illegal employment of minors. C. C. Sherlock. Inland Ptr 61:710-11 S '18

International labor legislation and the society of nations. S. Bauer. U S Bur Labor Statistics Bul 254:1-135 '19

Labor legislation of 1917. U S Bur Labor Statistics Bul 244:1-430 '18

Labor legislation of 1918. U S Bur Labor Statistics Bul 257:1-169 '19

*See also* Child labor; Employers' liability; Hours of labor; Minimum wage; Mining law; Workmen's compensation

**Labor party (Great Britain)**  
 British labor party program. E. Constantine. Am Ind 18:15-18 Ap '18

**Labor representation in industry.** *See* Industrial management—Employee representation

**Labor saving devices**  
 Concerning labor-saving devices. Ry R 64:253 F 15 '19

Labor saving at limestone quarries. O. Bowles. U S Bur Mines Tech Pa 203:1-23 '19; Same. Concrete 13:sup61-5, sup61-3 N-D '18; Excerpts. Eng & Contr 50:478-9 N 20 '18

Labor saving devices. J. B. Baker. II Ry Age 67:576-7 S 19 '19

Labor saving devices in railroad offices. II Ry R 64:215-18, 245-8, 347-50 F 8-15, Mr 8 '19

**Labor saving devices—Continued**

Labor saving equipment employed in track maintenance by E. & O. R.R. E. Stimson. Eng & Contr 51:53-5 Ja 15 '19

Machine system of interline freight accounts. Il Ry R 64:825-7 Je 7 '19

30 labor saving devices or kinks for railway maintenance of way work. Eng & Contr 51:288-90 Mr 19 '19

*See also* Calculating machines

**Labor shortage. See Labor supply****Labor supply**

Be not deluded into the thought that an over-supply of labor will follow demobilization. Am Gas Eng J 110:27-8 Ja 11 '19

Common labor becoming scarcer. A. W. Welch. Eng N 82:943 My 8 '19

I'll fix 'em when the war is over. A. F. Payne. Ind Management 57:326-8 Ap '19

Labor dilution as a national necessity. C. E. Fouhy. Mech Eng 41:387-8 Ap '19

Labor dilution as a national necessity; abstracts. F. A. Waldron. Am Soc M E J 40:1033-5 D '18; Iron Age 102:1576-7 D 26 '18; Am Gas Eng J 110:3-5 Ja 4 '19; Iron Tr R 64:323-4 Ja 30 '19

Labor recruiting conference at Chicago. Ry Age 66:243-4 Ja 24 '19

Part-time women—a new source of labor supply. Il Factory 21:831-2 N '18

Principles of employing labor. E. H. Fish. Ind Management 57:203-7 Mr '19

Probable wages and supply of construction labor during coming season. C. E. Baldwin. Eng & Contr 51:284-6 Mr 19 '19

Sources of supply of unskilled labor for highway work. P. D. Sargent. Good Roads n s 17:111, 114-15 Mr 8 '19; Same. Munic J 46:209, 224-5 Mr 15-22 '19; Excerpts. Eng N 82:466-7 Mr 6 '19

Wanted—same handling. H. Tipper. Automotive Ind 40:253-5 Ja 30 '19

*See also* Employment systems; Labor turnover

**Labor turnover**

Actual account of what we have done to reduce our labor turnover. J. M. Williams. U S Bur Labor Statistics Bul 227:173-90; Discussion. 191-2 '17

Analyses of reasons for leaving and their use. J. T. Gilman. U S Bur Labor Statistics Bul 227:134-8 '17

Computing labor turnover. C. W. Doten. Ind Management 56:339 O '18

Computing labor turnover; a questionnaire. Ind Management 56:239-45 S '18

Cost of labor turnover. M. W. Alexander. U S Bur Labor Statistics Bul 227:13-27 '17

Cost of labor turnover; symposium. Ind Management 57:239-45 Mr '19

Cotton manufacturers' association of South Carolina adopts rules on labor. Textile World 54:197 Jl 13 '18

Determining cost of turnover of labor. B. Fisher. U S Bur Labor Statistics Bul 227:60-6 '17

Effects of proper housing on labor turnover. J. C. Chase. Automotive Ind 38:1126-7 Je 13 '18

Employment management; O! hell or hello. J. W. Wardrop. Ind Management 55:147-9 F '18

Employment manager and the reduction of labor turnover. T. T. Read. chart Am Inst Min E Bul 134:295-307 F '18; Excerpts. Iron Tr R 62:381-2 F 7 '18; Discussion. Am Inst Min E Bul 136:881-7 Ap '18

Employment of mine labor. H. M. Wilson. Am Inst Min E Bul 145:83-5 Ja '19; Discussion. 147:608-10; 148:667-70 Mr-Apr '19

Endless shifting of industrial workers. Am Mach 49:161-2 Jl 25 '18

Finding amount of turnover. Factory 21:756 O '18; Same abr. Am Arch 114:521 O 30 '18

Formula for figuring labor turnover; Rochester standard method. Am Ind 18:8-9 Mr '18

Getting the workmen to remember to work. R. W. Budd. Iron Age 103:253-4 Ja 23 '19

How to reduce labor turnover. B. Fisher. U S Bur Labor Statistics Bul 227:29-47 '17

How to reduce the turnover of labor. E. C. Gould. Iron Age 101:874-5 Ap 4 '18

Interpreting labor turnover. L. D. Burlingame. Am Mach 49:855-8 N 7 '18

Is it wise to hire the repeater? L. Blakey. diags Ind Management 57:390-9 My '19

Keeping track of labor turnover. E. H. Fish. Automotive Ind 39:445-6 S 12 '18

Labor maintenance and its indices. W. Talbot. chart Ind Management 57:127-30 F '19

Labor turnover. P. Brasher. Am Mach 48:693-6 Ap 25 '18

Labor turnover and a remedy. W. H. Wein-gar. Am Mach 50:497-9 Mr 13 '19

Labor turnover and employment policies of a large motor vehicle manufacturing establishment. B. Emmet. Monthly Labor R 7:837-54 O '18

Labor turnover and industrial training. Ry R 64:848-9 Je 7 '19; Same. Eng & Contr 52:205 Ag 13 '19

Labor turnover—discussion. E. Goldberger. Ind Management 56:425-6 N '18

Labor turnover high on two war-time contract jobs. S. G. Koon. Eng N 82:1159-60 Je 12 '19

Labor-turnover records and the labor problem. R. E. Gregg. Am Soc M E J 39:913-14 N '17; Same. Iron Tr R 61:1102-3 N 22 '17; Same. Automotive Ind 37:1052-3+ D 13 '17; Same. Factory 20:174+ Ja '18; Same cond. Mach 24:519 F '18; Excerpts. Am Mach 47:1101-2 D 20 '17; Excerpts. Iron Age 100:1419 D 13 '17; Discussion. Am Soc M E J 40:152-4 F '18

Labor turnover; symposium. Am Soc M E J 40:766-8 S '18

Length of service of hobo labor. Eng & Contr 49:398 Ap 17 '18

Methods of arriving at labor turnover. J. M. Van Harlingen and T. J. Dwyer. Ind Management 55:319-21 Ap '18

Modern industrial plants. G. C. Nimmons. Il Arch Rec 45:343-55 Ap '19

One way to get men to stay. Factory 21:836-8 N '18

Preventing excessive labor turnover. A. H. Williams. Foundry 46:358 Ag '18

Principles of labor turnover. A. Muhlhauser. Ind Management 57:158 F '19

Problem of labor turnover. M. C. Hobart. Am Mach 48:821-2 My 16 '18

Proper systems reduce labor turnover. Automotive Ind 40:619-21+ Mr 20 '19

Reasons for excessive labor turnover. Ry Mech Eng 93:551-2 S '19

Reducing labor turnover. Iron Age 102:1463 D 12 '18

Reducing labor turnover. G. O. Swartz. charts Ind Management 58:159-60 Ag '19

Reducing labor turnover in our shops. F. H. Colvin. Am Mach 48:27-9 Ja 3 '18

Reduction of labor turnover in the Plimpton press. J. C. Williams. U S Bur Labor Statistics Bul 227:82-91 '17

Some reasons for labor turnover. H. W. Kimball. Ind Management 57:324-6 Ap '19

Standard definition of labor turnover and method of computing the percentage of labor turnover. Ind Management 56:246 S '18

Standardization of the causes of leaving jobs. J. D. Hackett. Ind Management 55:233-4 Mr '18

Standardizing labor turnover. H. W. Kimball. Ind Management 56:506-7 D '18

Tabulating of labor turnover. E. H. Fish. U S Bur Labor Statistics Bul 227:50-5; Discussion. 56-9 '17

Trained nurse and field hospital reduce labor turnover. Eng N 81:54 Jl 4 '18

We can't get men to stay. M. M. Taylor. Factory 20:231-2 F '18

What is labor turnover? Am Mach 49:297-8 Ag 15 '18

Why do valuable men leave? R. Waldo. Ind Management 56:337 O '18

Why men leave their jobs. H. P. Dutton. Ind Management 56:147-8 Ag '18

Women workers and labor turnover. I. M. Wilson. Ind Management 57:67-8 Ja '19

Worker's viewpoint of labor turnover. Ind Management 57:326 Ap '19

*See also* Employment systems

## Labor turnover—Continued

## Bibliography

List of references on labor turnover. K. Warren. Special Libraries 10:198-203 O '19

Labor unions. See Trade unions

## Laboratories

Aims, organization and work of Nela research laboratory. E. P. Hyde. *Il Sibley J* 32:123-6 My '18

Alloy foundry run under scientific direction. *Il diags chart Foundry* 47:381-4 Je 15 '19

Altitude engine test laboratory. P. M. Heldt. *Il diags plan Automotive Ind* 40:535-9 Mr 6 '19

Armour's special testing equipment. *Il diag Power* 49:670-4 My 6 '19

Bureau of mines' new laboratories. *Il Power* 49:384-8 Mr 18 '19

Bureau of standards research laboratories. E. D. Walen. *Il Textile World* 55:1563+ Mr 8 '19

Coöperative research laboratories; abstract. C. E. K. Mees. *Chem & Met Eng* 19:614 O 15 '18

Equipping a shop laboratory. *Il plan Mach* 24:1087-90 Ag '18

Gas appliance testing laboratory. H. M. Riley and L. B. Wilson, jr. *diags plans Am Gas Eng J* 107:369-75, 425-7, 430-3, 489-94; 108:1-6, 77-82, 169-72, 176-9, 341-9, 561-7; 109:217-23, 481-5; 110:117-21 O 27, N 10, D 1 '17, Ja 5, 26, F 23, Ap 13, Je 15, S 7, N 23 '18, F 8 '19

Gilman hall; the research unit of the chemistry group at the University of California. M. Randall. *Il plans J Ind & Eng Chem* 10:634-40 Ag '18

Hydraulic laboratory of the Massachusetts institute of technology. G. E. Russell. *Il Boston Soc C E J* 5:121-30 Mr '18

Industrial research laboratory organization. K. C. Mees. *Il diags Mech Eng* 41:667-8 Ag '19

Laboratory control a cheap insurance for success of road construction. H. E. Breed. *Eng & Contr* 49:432 My 1 '18

Laying out a mill laboratory. *Textile World* 56:1783+ S 27 '19

Mining and metallurgical industries to help dedicate Bureau of mines laboratories. *Il Coal Age* 16:392-5 S 4 '19

Money saved by testing laboratory. H. R. Simonds. *Il plan Foundry* 47:556-9 Ag 15 '19

New Pittsburgh station of the Bureau of mines. G. W. Harris. *Il plans Coal Age* 15:707-11, 749-51, 852-5, 907-11 Ap 17-24, My 8-15 '19

Organization of an industrial laboratory. A. D. Little and H. E. Howe. *Il plans Textile World* 56:665+ Ag 2 '19; Same cond. *Mech Eng* 41:663-6 Ag '19; Excerpts. *Iron Tr R* 65:572-3 Ag 28 '19; Excerpt. *Eng & Contr* 52:365-7 S 24 '19

Pittsburgh Bureau of mines experiment station. *Il Eng & Min J* 107:899-902 My 24 '19

Planning a research laboratory for an industry. C. E. K. Mees. *diag J Ind & Eng Chem* 10:476-80 Je '18

Planning a works research organization. A. P. M. Fleming. *diags plans Inst E E J* 57:153-70 F '19; Abstract. *Elec R* 74:251 F 15 '19; Abstract. *Illum Engr* 12:9-12 Ja '19; Discussion. *Inst E E J* 57:170-92, 386-406 F, My '19

Radium laboratory, the Memorial hospital, New York. *Il plans Am Arch* 114:227-8, pl 64-5 Ag 21 '18

Relations of laboratory research to mill practice. *Il Metal Ind* 17:174-6 Ap '19

Research laboratories for coal and by-products. F. W. Sperr, jr. *Il Gas Age* 44:281-8 O 1 '19

Steel research laboratory planned for the Carnegie institute of technology. T. S. Barker. *plan Mech Eng* 41:466-8 My '19; Excerpt. *Iron Age* 103:954-5 Ap 10 '19; Same. *Iron Tr R* 64:891+ Ap 3 '19

Wallace Clement Sabine laboratory of acoustics, Geneva, Ill. P. E. Sabine. *Il diags plans Am Arch* 116:133-8 Jl 30 '19

Work of the Harriman research laboratory, Roosevelt hospital, New York city, in affiliation with the Division of food and nutrition, Medical department, U.S. army. K. G. Falk. *J Ind & Eng Chem* 11:1062-3 N '19

See also Aerodynamic laboratories; Brass works—Laboratories; Chemical laboratories; Electric laboratories; Metallurgical laboratories; Railroads—Laboratories; Underwriters' laboratories; United States—Forest products laboratory; Waterworks—Laboratories

## Electric equipment

Electrically equipped laboratories. C. B. Merrick. *Il J Elec* 42:153-4 F 15 '19

## Lighting

Some special problems in the lighting of laboratories and technical institutions. *Illum Engr* 12:13-16 Ja '19

Laboratories, Aerodynamic. See Aerodynamic laboratories

Laboratories, Electric. See Electric laboratories

Laboratories, Engineering. See Engineering laboratories

Laboratories, Metallurgical. See Metallurgical laboratories

Laboratories, Municipal

Organization of a standard municipal testing laboratory. J. O. Preston. *Eng & Contr* 51:592-4 Je 4 '19

Laboratories, Underwriters'. See Underwriters' laboratories

Labouisse, Samuel Stanhope

Sketch. *Am Inst Arch J* 7:17 Ja '19

## Lace

Weaver's art in architectural design. W. L. Harris. *Il Am Arch* 114:127-36 Jl 31 '18

## Lacquer and lacquering

Burmese black varnish or lacquer. *Sci Am S* 84:375 D 15 '17

Lacquering brass castings. *Metal Ind* 15:432 O '17

Quick drying lacquer coatings. H. A. Gardner. *Am Arch* 116:131 Jl 23 '19

See also Japanning

## Lactic acid

Acetic acid and acetone from beets. *Sci Am* 118:223 Mr 9 '18

Lactic acid from vegetable ivory; patent. *Met & Chem Eng* 18:99 Ja 15 '18

## Ladders

Inclination of ladders and stairways. *diag Eng & Min J* 107:1081 Je 21 '19

Rules for prevention of ladder accidents. *Elec W* 73:131-2 Ja 18 '19

Safety base for ladders. W. H. MacMahon. *diags plan Eng & Min J* 106:881 N 16 '18; Same. *Power* 48:781 N 26 '18

Safety ladder for smokestacks. W. Conott. *diag Power* 46:877 D 25 '17

Safety non-slip shoe for ladders. A. G. Johnson. *diag Ry Mech Eng* 93:540 S '19

Standard safety ladder for tall chimneys. G. M. Douglass. *diags plans Eng & Min J* 106:496 S 14 '18

## Ladies

Simple pouring ladle for mine use. *diag Eng & Min J* 106:1087 D 21 '18

See also Foundry ladies

## Lady birds

Mobilizing a lady bug army to fight the aphids. H. E. Thomas. *Il Sci Am* 120:507+ My 17 '19

Lady bugs. See Lady birds

## Lake carriers' association

Employment system of the Lake carriers' association. P. F. Brissenden. *U S Bur Labor Statistics Bul* 235:1-58 '18

## Lake Erie and Ohio River canal

Will the proposed canal if built be an economic success? W. G. Wilkins. *maps Eng Soc W Pa* 34:133-71; Discussion. 172-90 Mr '18



- Lakes**  
Cleaning lakes of weeds with the submarine saw. *Il Sci Am* 118:269 Mr 30 '18
- Lamme, Benjamin G.**  
Achievements of Benjamin G. Lamme. B. A. Behrend. *por Elec J* 16:235-8 Je '19  
Edison medal presented to Benjamin G. Lamme. *por Elec R* 74:751-2, 863-4 My 10, 24 '19; *Elec W* 73:958, 1123-4 My 10, 24 '19; *Power* 49:823, 831-2 My 27 '19
- Lampblack**  
Emulsification of water and of ammonium chloride solutions by means of lamp black. W. C. Moore. *Am Chem Soc J* 41:940-6 Je '19
- Lamps.** See Acetylene lamps; Automobiles—Lighting; Electric lamps; Gas lamps; Reflectors; Safety lamps; Searchlights
- Lamps, Electric.** See Electric lamps
- Lamps, Gas.** See Gas lamps
- Lamps, Mine.** See Safety lamps
- Lamps, Tungsten.** See Electric lamps, Tungsten
- Lancaster, Pennsylvania**  
Water supply  
Electrification of Lancaster water works. J. T. Brainard. *Il Munic J* 44:219-20 Mr 16 '18; Same cond. *Elec R* 72:382-3 Mr 2 '18  
Lancaster electrifies city water works. *Elec R* 72:382-3 Mr 2 '18
- Land.** See Mineral lands; Reclamation of land
- Land, Railroad.** See Railroad land
- Land clearing.** See Clearing of land
- Land drainage.** See Drainage
- Land laws**  
Land platting in Michigan. H. L. Brightman. *Eng & Contr* 52:276-7 S 3 '19
- Land leveling with tractors—methods and costs.** F. N. Cronholm. *Eng & Contr* 49:590-1 Je 12 '18; Same cond. *Eng N* 81:438-9 S 5 '18
- Land leveller for irrigated lands.** A. R. Williams. *diags plan Eng & Contr* 49:169 F 13 '18
- Land settlement.** See Agricultural colonization
- Land slides.** See Landslides
- Land tenure**  
Land and the returning soldier. *Am Inst Arch J* 6:503-5 N '18  
See also Agricultural colonization; Coal lands; Land titles; Landlord and tenant; Mineral lands; Oil lands; Single tax
- Land titles**  
City recording system for real estate titles. *Eng & Contr* 51:478 My 7 '19
- Landlord and tenant**  
Roof in master plumber's shop leaks—what are his rights against landlord? Can he claim damages for injury to stock? *Dom Eng* 86:301-2 F 15 '19  
See also Housing problem; Rent
- Landreth process of sewage disposal.** See Sewage disposal—Electrolytic treatment
- Landscape architecture.** See Landscape gardening
- Landscape gardening**  
Relation of the house to the landscape. H. D. Smith. *Il Am Arch* 113:397-404, pl 116-24 Ap 3 '18  
Work of Olmsted brothers. J. T. Boyd, jr. *Il plans Arch Rec* 44:456-64, 502-21 N-D '18  
See also Electric railroads—Landscape gardening; Gardens; Parks; Parkways; Pergolas; Sunken gardens; Trees
- Landslides**  
Earth slides: their cause and cure. G. L. Dillman. *Eng & Contr* 49:201 F 20 '18  
Sliding hillside at Cleveland. *Il diag Eng N* 83:164 Jl 24 '19
- Langley, Samuel Pierpont, 1834-1906**  
Pioneer in practical aviation. H. Leffmann. *Il J Fr Inst* 187:49-63 Ja '19  
What Langley did for the science of aviation. *por Automotive Ind* 39:660-2, 714-18+, 761-5, 798-800 O 17-N 7 '18
- Langmuir, Irving**  
Langmuir postulates. E. Hendrick. *diags Chem & Met Eng* 21:73-81 Jl 15 '19; Same. *Sci Am S* 88:210-11, 246-7+ O 11, 25 '19
- Language**  
Modern languages report. *Sci Am S* 86:75 Ag 3 '18  
See also English language
- Language, Universal**  
International language. E. E. Porter. *Sci Am* 121:341 O 4 '19  
World language. H. E. Palmer. *Sci Am S* 87:99 F 15 '19  
Would use French as international language for engineers. W. A. Callaway. *Eng N* 82:635-6 Mr 27 '19  
See also Esperanto
- Lantern projection**  
Optical projection for screw-thread inspection. J. Hartness. *chart diags Am Soc M E J* 41:127-35 F '19; Same. *Am Mach* 50:453-6, 485-90 Mr 6-13 '19; Same cond. *Iron Age* 103:357-8 F 6 '19; Same cond. *Iron Tr R* 64:333-6 F 6 '19  
Position of the illuminant in enlarging and projection. A. Lockett. *Sci Am S* 87:351-2 My 31 '19  
Projection lantern for thread measurement. H. L. Van Keuren and E. C. Criesa. *Il diags Am Mach* 49:805-11 O 31 '18
- Lantern slides**  
Lantern slides by reduction. *Sci Am S* 86:409 D 28 '18
- Lanterns**  
Lantern that burns gasoline. *Il Sci Am* 120:232 Mr 8 '19
- Lanterns (architecture)**  
Construction of a lantern and fleche, Hennepin avenue church, Minneapolis, Minn. *Il diags plans Am Arch* 114:469-75 O 16 '18
- Lapping.** See Grinding and polishing
- La Rose mines, Ltd.**  
11th annual report for 1917. *Eng & Min J* 106:824 N 9 '18
- Latch needle manufacturers' association**  
Organization meeting, Boston, June 25. *Textile World* 53:6385 Je 29 '18
- Latent heat**  
Latent heat of pressure variation of liquid ammonia. N. S. Osborne and M. S. Van Deusen. *U S Bur Stand Bul* 14:433-8 Je 24 '18  
Latent heat of vaporization of ammonia. N. S. Osborne and M. S. Van Deusen. *U S Bur Stand Bul* 14:439-72 Je 24 '18; Same cond. *Am Chem Soc J* 40:14-25 Ja '18; *Excerpta. Power* 47:632-3 Ap 30 '18  
Regnault's latent heat of steam investigations. F. B. Aspinall. *diag Engineer* 125:525-7 Je 21 '18  
Specific and latent heat. W. Scott. *Metal Work* 90:505-6 N 1 '18
- Lathes**  
Adams short-cut lathe. *Il Mach* 24:957-8 Je '18; *Am Mach* 49:408 Ag 29 '18  
Air driven engine lathe. T. E. Grace. *diags Ry R* 65:644 N 1 '19  
Air feed on turret lathes. *Il diag Mach* 25:49 S '18  
Alignment chart for feeds, speeds and power of lathe tools. A. L. Jenkins. *Am Mach* 48:456-7 Mr 14 '18  
Amalgamated gun-boring machines. *Il Am Mach* 48:430-2 Mr 7 '18  
Amalgamated shell-turning attachment. *Il Am Mach* 48:851 My 16 '18  
Amalgamated shell-turning lathe. *Il Am Mach* 49:869 N 7 '18; *Mach* 25:261-6 N '18  
American 36-in. high duty lathe. *Il Ry Mech Eng* 92:362-3 Je '18  
Asquith rough turning shell lathe. *Il Engineer* 125:236 Mr 15 '18  
Bradford geared-head lathes. *Il diags Mach* 25:1090-1 Jl '19  
Bryant lathes for turning operations on 9.5-in. shells. *Il Am Mach* 49:914 N 14 '18  
Bryant shell lathes. *Il Am Mach* 49:407-8 Ag 29 '18

**Lathes—Continued**

- Cincinnati Acme universal turret lathe. *Il* Am Mach 48:203-6 Ja 31 '18; Ry Mech Eng 92:633-4 N '18
- Cisco geared head lathes. *Il* diag Iron Age 104:244 JI 24 '19
- Clearance angles on lathe tools. J. T. Kilbride. Am Mach 48:252 F 7 '18; Discussion. A. Starr. 48:568 Ap 4 '18
- Combination axle and journal turning lathe. *Il* Ry Mech Eng 92:365-6 Je '18
- Converting motor army truck into lathe for turning wooden shells. *Il* Mach 24:1122 Ag '18
- Correcting errors in precision screw-cutting lathe. J. E. Lindgren. diag Mach 24:831-2 My '18
- Craig & Coffman turret toolpost. *Il* Am Mach 48:883 Ap 18 '18
- Crank pin turning machine. *Il* diag Engineer 125:50-2 Ja 18 '18
- Dalton six manufacturing lathe. *Il* Mach 26:187-8 O '19
- Daniels automatic lathe. *Il* Am Mach 51:182 JI 24 '19; Mach 25:1185-6 Ag '19
- Davis engine lathe. *Il* Mach 24:757 Ap '18
- DeMant precision bench lathe. *Il* Am Mach 48:512 Mr 21 '18
- Depth of cut for wheel lathe. J. E. Osmer. Ry Mech Eng 93:484 Ag '19
- Double-barrelled lathe. *Il* Sci Am 119:193 S 7 '18
- Duff heavy-duty turret lathe. *Il* Am Mach 48:1120-1 Je 27 '18; Mach 24:1048-9 JI '18
- Duff Hindman shell lathes. *Il* Am Mach 49:178-9 JI 25 '18; Iron Age 102:437 Ag 22 '18; Mach 24:1153-4 Ag '18
- Eccles & Smith milling and dividing head for lathes. *Il* Am Mach 49:362-3 Ag 22 '18
- Elyria heavy-duty lathe. *Il* Mach 24:1158-9 Ag '18
- Factors affecting application of motors to lathes. C. E. Clewell. *Il* Elec W 70:1238-42 D 29 '17
- Feed-screw attachment for automatic lathes. R. Mawson. *Il* diag Am Mach 49:172-3 JI 25 '18
- Fifield engine lathes. *Il* Am Mach 48:473 Mr 14 '18; Mach 24:752-3 Ap '18; Elec R 72:851 My 18 '18
- Fifield 96-inch engine lathe. *Il* Iron Age 103:1697 Je 26 '19; Iron Tr R 65:33 JI 3 '19; Am Mach 51:45 JI 3 '19; Ry Mech Eng 93:497-8 Ag '19
- 15-inch Crawford lathe. *Il* Ind Management 55:241-2 Mr '18
- 50-in. gun and propeller shaft lathe manufactured by Pittsburgh machine tool co. *Il* Iron Age 102:541 Ag 29 '18
- Filsmith quick-change lathes. *Il* Mach 24:462-3 Ja '18; Am Mach 47:1105; 48:302, 304 D 20 '17, E 14 '18
- Flather manufacturing lathe. *Il* diag Mach 25:1189-90 Ag '19; Iron Age 104:298 JI 31 '19
- Fleming combination-lathe, boring and milling machine. *Il* Am Mach 48:597 Ap 4 '18; Mach 24:751-2 Ap '18; Ind Management 55:421 My '18
- Foster turret lathe. *Il* Am Mach 48:1028-30 Je 13 '18; Mach 24:954-5 Je '18; Ry Mech Eng 92:366-7 Je '18
- Franco Tosi shell lathe. *Il* Mach 24:948-9 Je '18
- Fulton shell lathe. *Il* Am Mach 48:1075 Je 20 '18
- Fulton type B munition lathe. *Il* Am Mach 49:1006-7 N 28 '18
- Galloway shell-boring lathe. *Il* Am Mach 49:544-5 S 19 '18
- General thread cutting practice in the lathe. F. D. Jones. *Il* diag Mach 24:634-9 Mr '18
- Gisholt heavy-shell lathe. *Il* Am Mach 48:557 Mr 28 '18; Iron Age 101:807 Mr 28 '18; Mach 24:748-9 Ap '18; Ind Management 55:507-8 Je '18
- Gisholt twenty-inch automatic turret lathe. *Il* Ry Mech Eng 93:368-70 Je '19
- Greaves-Klueman geared-head single-lever-control lathes. *Il* Am Mach 49:91-2 JI 11 '18
- Greaves 24-in. geared head lathe. *Il* Iron Age 104:570-1 Ag 28 '19; Am Mach 51:487-8 S 4 '19; Mach 26:85-6 S '19
- Gun boring lathe with concrete bed. *Il* Iron Age 102:1029 O 24 '18
- Hamilton 16-in. engine lathe. *Il* Am Mach 48:766 My 2 '18; Mach 24:848-9 My '18
- Hercules 12-inch lathe. *Il* Ind Management 55:329 Ap '18
- Increasing the swing of an engine lathe. V. T. Kropidowski. diag Ry R 62:558-9 Ap 13 '18
- Inspection and adjustment of lathes. J. Forrest. diag Mach 25:1039-43 JI '19
- Japan to have massive roll lathe. *Il* Iron Tr R 64:451-2 F 13 '19; Same. Iron Age 103:425 F 13 '19
- Jones superior turret tallstock. *Il* Am Mach 49:269-70 Ag 8 '18
- Large lathes for machining turbine spindles. *Il* diag Mach 25:439-42 Ja '19
- Lathe for two sizes of work. *Il* Iron Age 101:1079 Ap 25 '18
- Lathe gears for cutting metric screws. E. J. Rantsch. Am Mach 48:442 Mr 14 '18
- Lathes for the present gun program. A. L. De Leeuw. *Il* Am Mach 49:491-3 S 12 '18; Discussion. W. Gates. 49:647 O 10 '18
- Le Blond gun boring lathe. *Il* Mach 24:558-9 F '18; Am Mach 48:265-6 F 7 '18
- Le Blond multi-cut semi-automatic lathes. *Il* diag Am Mach 51:545-50 S 18 '19; Iron Age 104:866-7 S 25 '19; Mach 26:175-8 O '19
- Liberty lathe. J. H. Van Deventer. *Il* Am Mach 50:1115-17 Je 12 '19
- McCabe double-purpose geared-head lathe. *Il* Mach 26:83-4 S '19
- Machining 3-inch cartridge cases on the engine lathe. J. Limbrunner. diag Am Mach 49:401-2 Ag 29 '18
- Managing non-repetitive work; how to set times on lathe work in tool making. N. Howard. diag Ind Management 56:94-6 Ag '18
- Massive shell lathes for Neville Island. *Il* diag Iron Age 102:1071-4 O 31 '18
- Master 13-inch lathe. *Il* Ind Management 55:159 F '18
- Mattison airplane strut turning machine. *Il* Mach 24:856-7 My '18; Am Mach 48:978-9 Je 6 '18
- Multi-cut service lathe. *Il* Ry Mech Eng 93:618-20 O '19
- National cone-head lathe. *Il* Am Mach 48:82 Ja 10 '18
- National geared-head lathe. *Il* Am Mach 48:80-1 Ja 10 '18
- National heavy-duty rolling mill lathe. *Il* Iron Tr R 63:24 JI 4 '18
- Needham double-purpose lathe. *Il* Mach 24:745-6 Ap '18
- Needham 40-in. heavy-duty lathe. *Il* Am Mach 48:557-8 Mr 28 '18
- New Britain automatic multiple-spindle chucking machine. *Il* Am Mach 48:258-9 F 7 '18
- New form of lathe and some of its products. *Il* diag Automotive Ind 41:624-6 S 25 '19
- New lathe will handle masts 100 ft. in length. Eng & Contr 50:384 O 23 '18
- Nielsen & Winther lathe. *Il* Mach 25:81-2 S '18
- Niles-Bement-Pond combination journal and axle lathe. *Il* Iron Age 101:1467 Je 6 '18; Am Mach 48:1078 Je 20 '18
- Niles-Bement-Pond no. 3 axle lathe. *Il* Am Mach 48:595-6 Ap 4 '18; Mach 24:754-5 Ap '18; Iron Tr R 62:794-5 Mr 28 '18; Iron Age 101:863-4 Ap 4 '18; Ry Mech Eng 92:229-30 Ap '18
- Oliver no. 51 alternating-current, motor-headstock lathe. *Il* Am Mach 49:175-6 JI 25 '18; Iron Age 102:277 Ag 1 '18; Mach 24:1148-9 Ag '18; Ry Mech Eng 92:475 Ag '18
- Oliver no. 52-A motor-head facing lathe. *Il* Am Mach 49:40-1 JI 4 '18; Iron Age 102:151 JI 18 '18; Mach 24:1055 JI '18
- Operating the Gridley automatic turret lathe. D. T. Hamilton. *Il* diag Mach 24:926-31, 1016-18 Je-JI '18
- Paschall lathe attachment. *Il* Mach 25:78 S '18

**Lathes—Continued**

- Pneumatically operated tool post clamp and tail stock traverse. V. T. Kropidowski. *diags* Ry R 61:773 D 22 '17
- Precision screw-cutting lathe. *II diags* Engineer 126:558-60 D 27 '18
- Putnam 54-inch geared-head engine lathe for heavy-duty work. *II Am Mach* 50:1053-4 My 29 '19
- Quick change engine lathe. *II Iron Age* 103:833 Mr 27 '19
- Record-smashing crankshaft lathe. E. Viall. *II diags* Am Mach 51:395-9 Ag 28 '19; Abstract. Mech Eng 41:838-9 O '19
- Reed-Prentice center drive lathe. *II Iron Tr R* 62:978 Ap 18 '18; Mach 24:861 My '18
- Ricon gun-boring lathe. *II Am Mach* 49:406 Ag 29 '18
- Schmidt-Norgren duplex-spindle plain turning lathe. *II Am Mach* 50:713-14 Ap 10 '19
- Sebastian 10-in. lathe. *II Am Mach* 49:593 S 26 '18
- Shepard motor-driven 12-in. engine lathe. *II Iron Age* 101:1667 Je 27 '18; Mach 24:1051-2 JI '18; Am Mach 49:90 JI 11 '18; Iron Tr R 63:23 JI 4 '18; Ind Management 56:156-7 Ag '18
- Shepard 12-in. cone-head lathe. *II Am Mach* 49:136 JI 18 '18
- Short taper attachment for engine lathes. M. H. Ball. *diags* Am Mach 48:293-4 F 14 '18
- Sidney light pattern engine lathe. *II Am Mach* 51:191-2 JI 24 '19
- Sidney 25-in. high-duty lathe. *II Mach* 24:758 Ap '18; Am Mach 48:723 Ap 25 '18
- Simplified lathe adapted to shell work. *II Iron Age* 102:945-8 O 17 '18
- Springfield 18-in. geared-head lathe. *II Am Mach* 48:514 Mr 21 '18; Ry Mech Eng 92:357-8 Je '18
- Springfield gun-boring lathe. *II Am Mach* 48:721-2 Ap 25 '18; Iron Age 102:695 S 19 '18
- Sundstrand manufacturing lathe. *II Mach* 24:859-60 My '18; Am Mach 48:1028 Je 13 '18
- Sundstrand 16-in. toolroom lathe. *II Am Mach* 48:79-80 Ja 10 '18; Iron Age 101:147 Ja 10 '18; Iron Tr R 62:161 Ja 10 '18; Ry Mech Eng 92:173-4 Mr '18
- Sundt type A. S. lathe. *II Am Mach* 51:291 Ag 7 '19
- Tools of the automobile repair shop. D. A. Hampson. *diags* Horseless Age 44:40-1 Ap 15; 36-74 My 1; 36-74 My 15 '18
- Turret attachment for lathe made by Newman mfg. co. *II Mach* 24:987 JI '18
- Turret lathe practice. E. Oberg. *II diags* plans Mach 26:99-109, 227-35 O-N '19
- Turret-lathe pulley-crowning attachment. E. A. Thanton. *II Am Mach* 49:1034 D 5 '18
- Universal flat turret lathe. *II Ry Mech Eng* 92:363-4 Je '18
- Using an old engine lathe to boost shell production. H. A. Wilson. *diag* Am Mach 49:218 Ag 1 '18
- Victor engine lathe. *II Mach* 24:563-4 F '18
- Willard geared-head lathe. *II Am Mach* 49:1055-6 D 5 '18
- Willard improved tool-room lathe. *II Am Mach* 48:765 My 2 '18; Mach 24:856 My '18
- Williams turret lathe for munitions plants. *II Iron Tr R* 63:85 JI 11 '18
- Wolff three-operation shell lathe. *II Am Mach* 49:179-80 JI 25 '18
- Wright engine lathe. *II Mach* 24:557 F '18
- Wright geared-head lathe of massive design. *II Iron Age* 101:1548 Je 13 '18

*See also* Faceplates; Machine shop practice; Machine tools; Screw machines; Turning

**Manufacture**

- Combination boring and recessing bar for turret lathe work. *diags* Mach 25:715 Ap '19
- Engine lathes for precision work. *II Iron Tr R* 64:633-7 Mr 6 '19
- How iron castings for big gun lathes are made. H. C. Estep. *II Foundry* 46:147-53 Ap '18; Same. Iron Tr R 62:1045-51 Ap 25 '18
- Making castings for giant lathes. *II diags* Foundry 47:772-7 N 1 '19

- Sliding-head drop-rail lathe by the J. J. McCabe lathe & machinery corporation. *II Iron Age* 104:720-2 S 11 '19
- Tooling a Fay automatic lathe for a cone pulley. A. L. Eddy. *diag* Am Mach 49:676 O 10 '18

**Laths**

- Production of lumber, lath and shingles in 1916. F. H. Smith and A. H. Pierson. U S Agric Bul 673:1-43 '18
- Production of lumber, lath, and shingles in 1917. F. H. Smith and A. H. Pierson. U S Agric Bul 768:1-44 '19

**Latin America**

- Weights and measures of Latin America. F. A. Halsey. Am Soc M E J 40:947-52 N '18
- See also* South America

**Commerce**

- Our stake in Latin America. E. B. Filsinger. Textile World 53:5199+ My 4 '18
- Studying the atmosphere. M. Gonzales. Am Ind 20:26-7 Ag '18
- Trade opportunities in Latin America. G. W. Fishback. *II J Elec* 43:407-8 N 1 '19

**Industries and resources**

- Investments in Latin America and the British West Indies. F. M. Halsey. *II map* U S Bur For & Dom Com 169:1-544 '18
- Tanning materials of Latin America. T. H. Norton. *II map* U S Bur For & Dom Com 165:1-32 '18

**Latitude**

- Determination of latitude and the meridian. A. C. Callen. *diags* Coal Age 14:168-70 JI 25 '18

**Latrobe, Benjamin**

- Bank of Pennsylvania, 1799; an unknown masterpiece of American classicism. F. Kimball. *II plans* Arch Rec 44:132-9 Ag '18

**Launching**

- Berth construction and side-launching practice in Great Lakes shipyards. *II diags* plan Eng N 82:7-13 Ja 2 '19
- End-launching of vessel in narrow stream. M. Hausen. *II Int Marine Eng* 23:469-70 Ag '18
- French concrete tugs launched by swinging from cranes. *II Eng N* 81:621-2 O 3 '18
- Hog Island yard launches its first ship. *II Int Marine Eng* 23:502-4 S '18
- Launch stone ship by new method. F. B. Jacobs. *diags* Marine R 49:127 Mr '19
- Launches boat complete. *diags* Marine R 49:394-5 Ag '19
- Launching a ship. E. A. Dixie. *II Am Mach* 50:120-1 Ja 16 '19
- New quick-release keelblock. *diags* Eng N 82:881-2 My 1 '19
- Notes on launching. W. Gatewood. *II diags* Int Marine Eng 24:83-7 F '19
- Observations on side launchings. J. A. McAleer. *II diags* Int Marine Eng 24:746-9 N '19
- Side-launching of concrete barges at the Aberthaw yard. *II Int Marine Eng* 24:104-5 F '19; Eng N 82:555-6 Mr 20 '19
- Side-launching of ships on the Great Lakes. E. Hopkins. *Int Marine Eng* 23:709-10 D '18
- Sideways launching of ship with steam up. *II Sci Am* 121:233 S 6 '19
- Speed and list in side launching of Ohio river boat. *diag* Eng N 82:1017 My 22 '19
- Trigger apparatus as safety factor at launchings. *diag* Int Marine Eng 23:642 N '18

*See also* Shipways

**Launching ways. See Shipways****Launders**

- Concrete launder linings. F. Wartenweiler. Eng & Min J 107:880-1 My 17 '19

**Laundry**

- Bin for soiled laundry. H. Simon. *diags* Bldg Age 40:555-6 D '18
- Chemistry of laundering. I. N. Kugelmass. Sci Am S 87:392+ Je 21 '19
- Mill-village laundry. *II Textile World* 55:263-4 Ja 11 '19
- Mobile laundry built like a sectional bookcase. *II Sci Am* 119:253 S 28 '18

**Laundry—Continued**

Safety in laundries. diags Am Ind 18:supl-4 F '18

Strong background for community work is formed by bathhouses and laundries. D. J. Baker. *il* Coal Age 16:634-7 O 16 '19

Taking in a factory's washing. *il* Factory 21:1064-5 D '18

**Water supply**

Collecting, filtering and pumping rain water for laundry supply. diags plan Dom Eng 87:201-3 My 3 '19

**Laundry apparatus**

Engineering equipment in a New Zealand hospital. *il* Engineer 127:40 Ja 10 '19

Heating, cooking and laundry equipment of the national army cantonments. A. C. Willard. *W Soc E J* 22:699-700 D '17; *Same*. Metal Work 89:635-6 My 17 '18

Steam laundry machinery. *il* plan Engineer 125:265-6 Mr 29 '18

*See also* Washing machines

**Lava**

Italian leucitic lavas as a source of potash. H. S. Washington. *Met & Chem Eng* 18:65-71 Ja 15 '18

Lava fluctuations at Halemaumau. *Sci Am S* 85:263 Ap 27 '18

Porous rock makes good concrete of light weight. C. E. Barglebaugh. *Eng N* 80:402 F 28 '18

Potash from the lavas of Vesuvius. *Sci Am* 119:262 S 28 '18

**Lavatories**

Can't you sell more lavatories? *Metal Work* 89:805-6+ Je 21 '18

**Law. See Automobile laws and regulations;**

Building laws and regulations; Commercial law; Contracts; Gas companies—Law; Government regulation of industry; Highway law; Labor laws and legislation; Master and servant; Mechanics' liens; Mining law; Patent laws and legislation; Patents; Public utilities—Law; Sales; Trade marks; Water laws; Waterworks—Laws and regulations

**Lawn rollers**

Concrete lawn rollers. *diag Concrete* 12:208 Je '18

**Lawns**

Suggestions on care and irrigation of gardens and lawns. *Eng & Contr* 49:464 My 8 '18

**Lawrence, Kansas****Water supply**

Coal pre-filter prevents sand accretion in final rapid water filters. *il* diags plans *Eng N* 80:912-14 My 9 '18

**Leaching. See Hydrometallurgy****Lead**

Lead-coated copper work. *il* Am Arch 113:423-4 Ap 3 '18

Lead electrode. F. H. Getman. *bibliog Am Chem Soc J* 40:611-19 Ap '18

Lead in pharmaceutical zinc oxide. W. D. Collins and W. F. Clarke. *J Ind & Eng Chem* 11:138-9 F '19

Lead standard cell and a determination of the potential of the lead electrode. W. E. Henderson and G. Stegeman. *Am Chem Soc J* 40:84-9 Ja '18

Radioactive lead latest white metal discovery. T. W. Richards. *Dom Eng* 81:402 D 8 '17

Rapid estimation of lead in brass and alloys. *Sci Am S* 87:331 My 24 '19

Use of substitutes for copper and tin as roofing metals. E. Stern. *Metal Work* 91:551-2 My 2 '19

*See also* Lead burning; Lead metallurgy; Lead mines and mining; Lead poisoning; Linotype metal; Plumbing; Red lead; Ulco hard metal; White lead

**Lead alloys**

Magnesium lead alloys. E. A. Ashcroft. *Chem & Met Eng* 19:776-7 D 1 '18

Metallography applied to nonferrous metals. E. J. Davis. *il* diags *Foundry* 47:344-9 Je 1 '19

**Lead burning**

Lead burning with acetylene. *Metal Work* 90:413-14 O 11 '18

Solder, soldering and lead burning. A. Bateman. *diags Dom Eng* 85:244-5+ N 16 '18

**Lead chloride**

Vapor pressure of lead chloride. E. D. Eastman and L. H. Duschak. *il* diags *U S Bur Mines Tech P* 225:1-14 '19

**Lead compounds**

Hydrocarbo bases and a study of organic derivatives of mercury and of lead. L. W. Jones and L. Werner. *Am Chem Soc J* 40:1257-75 Ag '18

Method of producing lead salts. R. M. Harrington. *diag Chem & Met Eng* 21:255-6 S 1 '19

**Lead dioxide**

Colorimetric determination of lead dioxide in litharge. W. V. Morgan. *J Ind & Eng Chem* 11:1055 N '19

**Lead foil**

Manufacture of tin and lead foil. L. J. Krom. *il* *Metal Ind* 16:352-4 Ag '18

**Lead industry and trade**

Canadian lead situation. *Met & Chem Eng* 18:283 Mr 15 '18

Foreign trade in lead and zinc, 1917. *Eng & Min J* 105:424 Mr 2 '18

Great Britain prohibits dealings in lead. *Eng & Min J* 103:382 Mr 3 '17

Large lead exports to Great Britain. *Iron Age* 101:1273 My 16 '18

Lead and zinc in 1918. C. E. Siebenthal. *Iron Age* 103:130 Ja 9 '19

Lead and zinc in the Joplin district. J. A. Zook. *Eng & Min J* 105:70-1 Ja 12 '18

Lead market in 1918. *Eng & Min J* 107:52-3 Ja 11 '19

Lead products other than white lead. J. R. Wettstein. *Eng & Min J* 105:63-4 Ja 12 '18

Lead statistics in 1917. *Eng & Min J* 105:61-2 Ja 12 '18

Marketing of lead by the smelter. E. Brush. *Eng & Min J* 104:1123-4 D 29 '17

Report of smelter and ore-sales investigation committee, state of Colorado, 1917. *Met & Chem Eng* 18:365-70 Ap 1 '18

Silver-lead smelting works of North America. *Eng & Min J* 107:53-4 Ja 11 '19

Smelting and ore-sales investigations in Colorado. O. R. Whitaker. *Eng & Min J* 105:538-43 Mr 23 '18

Speaking of lead, who pays the freight? *Chem & Met Eng* 19:2-3 Jl 1 '18

White lead and oxides in 1917. *Eng & Min J* 105:62-3 Ja 12 '18

**Lead metallurgy**

Baghouse of the St Joseph lead co. S. P. Lindau. *il* diags plans *Eng & Min J* 108:291-4 F 17 '17; *Discussion*. P. C. Choate. 103:383 Mr 3 '17

Concentration practice in southeast Missouri. A. P. Watt. *flow sheets il* diags maps *Am Inst Min E Bul* 130:1475-1563 O '17; *Discussion*. 133:1-8 Ja '18

Economics of concentration. R. S. Handy. *flow sheet Eng & Min J* 107:1146-8 Je 28 '19

Economics of concentration. A. P. Watt. *il* *Eng & Min J* 107:775-9 My 3 '19

Effect of addition agents in flotation; chlorides. M. H. Thornberry and H. T. Mann. *charts Met & Chem Eng* 18:249-52 Mr 1 '18

Effect of addition agents in flotation; part 1, sulphates, hydroxides and nitrates. M. H. Thornberry and H. T. Mann. *il* *diag charts Mo U Sch Mines & Met Bul tech ser* 4:1-48 N '17; *Same* without tables and references. *Met & Chem Eng* 17:709-13; 18:71-7 D 15 '17

Ja 15 '18; *Abstract* (Sulphates and alums). *Eng & Min J* 105:915-16 My 18 '18

Flotation of oxidized ores of lead. G. L. Allen. *flow sheet Chem & Met Eng* 20:169-75 F 15 '19

Hancock jig in the concentration of lead ores. H. Rabling. *diags Am Inst Min E Bul* 128:1161-72 Ag '17; *Same* cond. *Eng & Min J* 104:636-8 O 13 '17; *Discussion*. *Am Inst Min E Bul* 133:13-14 Ja '18

**Lead metallurgy—Continued**

- Innovations in the metallurgy of lead. D. A. Lyon and O. C. Ralston. 4 flow sheets il diag plans U S Bur Mines Bul 157:1-169 '18
- Lead refining at the Bunker Hill plant. C. T. Rice. il Eng & Min J 106:771-7 N 2 '18
- Metallurgy of lead, 1917. H. O. Hofman. Eng & Min J 105:93-4 Ja 12 '18
- Metallurgy of lead, 1918. H. O. Hofman. Eng & Min J 107:88-90 Ja 11 '19
- Milling practice of the St Joseph lead co. L. A. Delano. flow sheets il Am Inst Min E Bul 129:1267-86 S '17; Discussion. 133:9-10 Ja '18
- New South Wales lead smeltery. flow sheet Eng & Min J 108:394-5 S 6 '19
- Ore-dressing practice in the Joplin district; with mining and milling costs of a representative mine. C. A. Wright. Am Inst Min E Bul 130:1565-91 O '17; Discussion. 133:10-13 Ja '18
- Proposed metallurgical process for the treatment of vanadinite for the recovery of lead and vanadium. J. E. Conley. diag Chem & Met Eng 20:514-18 My 15 '19
- Salt in the metallurgy of lead. O. C. Ralston and others. Am Inst Min E Bul 128:1205-16 Ag '17; Summary. Met & Chem Eng 17:437 O 1 '17; Discussion. Am Inst Min E Bul 133:30-41 Ja '18
- Silver-lead smelting works of North America. Eng & Min J 105:63 Ja 12 '18
- Smelting and lead refining at the Bunker Hill plant. C. T. Rice. il Eng & Min J 106:743-9 O 26 '18
- Use of pulverized coal at the Bunker Hill and Sullivan smelting and refining plant. C. T. Rice. il Eng & Min J 106:91-4 JI 20 '18
- Lead mines and mining**

**Arkansas**

- North Arkansas zinc and lead field. T. Shiras. il Eng & Min J 105:313-15 F 16 '18

**Colorado**

- Whitepine section of the Tomichi district. J. E. Dick. il map Eng & Min J 106:331-3 Ag 24 '18

**Idaho**

- Coeur d'Alene district. S. A. Easton. Eng & Min J 105:64 Ja 12 '18
- Coeur d'Alene mines in 1917. Eng & Min J 106:57 JI 13 '18

**Missouri**

- Mining districts of Joplin and southeast Missouri. H. W. Kitson. il maps Eng & Min J 104:1067-73; 105:359-64, 411-15, 1153-62 D 22 '17, F 23, Mr 2, Je 29 '18
- Southeastern Missouri lead district, 1917. H. A. Wheeler. Eng & Min J 105:65-7 Ja 12 '18
- Southeastern Missouri lead district, 1918. H. A. Wheeler. Eng & Min J 107:132-3 Ja 11 '19

**Missouri-Kansas-Oklahoma district**

- Mining and milling of lead and zinc ores in the Missouri-Kansas-Oklahoma zinc district. C. A. Wright. flow sheet il diag map plan U S Bur Mines Bul 154:1-126 '18

**Lead nitrate**

- Refractive index and solubilities of the nitrates of lead isotopes. T. W. Richards and W. C. Schumb. Am Chem Soc J 40:1403-9 S '18

**Lead ores**

- Uncertainties of geological evidence. H. A. Wheeler. Eng & Min J 106:878-9 N 16 '18
- Zinc ores of the Joplin district; their composition, character and variation. W. G. Waring. Am Inst Min E Bul 129:1257-66 S '17; Discussion. 133:48-51 Ja '18

*See also Lead metallurgy; Lead mines and mining*

**Lead plating**

- Lead plating. Metal Ind 16:410-11, 468 S-O '18
- Lead plating. A. G. Reeves and others. Chem & Met Eng 20:388-9 Ap 15 '19
- Lead plating using lead fluosilicate electrolyte. W. Thum. Metal Ind 17:220 My '19
- New lead plating solution. J. Haas, Jr. Metal Ind 17:12 Ja '19

**Lead poisoning**

- Lead poisoning in the paint shop. Automotive Ind 37:954-5 N 29 '17
- Women in the lead industries. U S Bur Labor Statistics Bul 253:1-38 '19; Abstract. Chem & Met Eng 20:477 My 1 '19

**Lead products**

- Lead products other than white lead. J. R. Wettstein. Eng & Min J 107:51-5 Ja 11 '19

**Lead sulfate. See White lead****Lead sulfide**

- Specific heats at low temperatures of sodium, potassium, magnesium and calcium metals, and of lead sulfide. E. D. Eastman and W. H. Rodebush. Am Chem Soc J 40:489-500 Mr '18

**Lead tetrafluoride**

- Critical study of the potassium and sodium double salts of lead tetrafluoride as sources of fluorine. G. L. Clark. Am Chem Soc J 41:1477-91 O '19

**Lead wool**

- Lead wool as a material for calking joints in cast iron pipes. R. J. Thomas. Am Water Works Assn J 5:10-14 Mr '18

**Leadite**

- Experience with leadite joints at Windsor, Conn. Munic Eng 53:238 D '17

**Least squares**

- Calculation of the constants of Planck's radiation equation: an extension of the theory of least squares. H. M. Roeser. diag U S Bur Stand Bul 14:237-53 Je 17 '18
- Method of least squares applied to estimating errors in coal analysis. J. D. Davis and J. G. Fairchild. il U S Bur Mines Tech Pa 171:1-34 '18

**Leather**

- Dyeing and tanning of leather. J. Helfrich. il Color Tr J 5:134-7 N '19
- How leather is prepared from hides. il Sci Am S 88:56-7 JI 26 '19
- Leather conservation and substitutes. A. Rogers. Met & Chem Eng 18:97-8 Ja 15 '18
- Leather dyeing. L. G. Hayes. Color Tr J 5:108-15 O '19
- Leather from the sea. R. G. Skerrett. il Sci Am 121:182-3 Ag 23 '19
- Machine for splitting hide. D. A. Hampson. diag Mach 24:1037-8 JI '18
- Materials for the household. U S Bur Stand Circ 70:145-51 '17
- Robert H. Foerder and the manufacture of vicl kid. il Chem & Met Eng 21:489 O 15 '19
- Utilizing the skins of sharks and other aquatic animals. Sci Am S 84:403 D 29 '17
- Volumenometer. J. S. Rogers and R. W. Frey. il J Ind & Eng Chem 10:554-5 JI '18
- See also Belting; Dyes and dyeing—Leather; Hides and skins; Tanning*

**Leather, Substitutes for**

- Details of narrow webbings for leather substitutes. Textile World 53:4239 Mr 16 '18
- Leather conservation and substitutes. A. Rogers. Met & Chem Eng 18:97-8 Ja 15 '18
- Narrow fabrics as leather substitutes. S. Brown. il Textile World 53:3701+ F 9 '18
- New substitutes for leather. Sci Am 119:275 O 5 '18

**Leather-goods factories**

- Need for improved lighting in the leather industry. F. H. Bernhard. il Elec R 73:759-65 N 16 '18

**Leather trade**

- Boots and shoes, leather and supplies in Argentina, Uruguay, and Paraguay. H. G. Brock. il U S Bur For & Dom Com 177:1-182 '19
- Report of the Federal trade commission on leather and shoe industries. U S Fed Tr Comm 180p Ag 21 '19
- Shoe and leather trade in Australia. C. E. Bosworth. U S Bur For & Dom Com 159:1-39 '18
- Shoe and leather trade in the Philippine Islands. C. E. Bosworth. il U S Bur For & Dom Com 161:1-23 '18

**Leather trade—Continued**

Shoe and leather trade of China and Japan.  
C. E. Bosworth. U. S. Bur. For. & Dom. Com.  
173:1-37 '18

See also American hide & leather company

**Leather waste**

Utilization of condemned army boots. M. C.  
Lamb. Sci. Am. S. 85:122 F. 23 '18

Utilization of waste boots. J. Ind. & Eng. Chem.  
10:230 Mr. '18

**Leavenworth, Kansas****Sanitary affairs**

Improving sanitary conditions. J. G. Willson  
and H. B. Hommon. Munic. J. 44:69-72 Ja. 26  
'18

**Leaves**

Autumnal coloration of leaves and leaf-fall.  
Sci. Am. 119:359 N. 2 '18

Green leaf; its scientific and economic exploitation. Sci. Am. S. 86:34 JI. 20 '18

**Leavitt, Erasmus Darwin, 1836-1916**

Account of the engineering work of E. D.  
Leavitt. F. W. Dean. por. II. diags. Am. Soc.  
M. E. J. 39:821-30 O. '17; Excerpts. Ry. R. 62:  
98-9 Ja. 19 '18

**LeBlond machine tool company**

Planning a machine tool shop for systematized manufacture. E. Oberg. II. plan. Mach.  
25:905-13 Je. '19

**Ledoux, Albert R., 1852-**

Officers of mining engineering societies. por.  
Eng. & Min. J. 107:487-8 Mr. 15 '19

**Leeds, England****Rapid transit**

Zone fare in practice. W. Jackson. II. map  
plans. Elec. Ry. J. 54:7-12, 56-61 JI. 5-12 '19

**Left- and right-handedness**

Problem of left-handedness. Sci. Am. 118:83  
Ja. 26 '18

Left-handedness. See Left- and right-handedness

**Legal advertising**

Size of a square. R. L. Telfer. Inland. Ptr. 62:  
176 N. '18

**Leggett, Samuel**

Not for one second in 96 years have New  
York companies gas coals burned out. Am.  
Gas. Eng. J. 110:231-2 Mr. 15 '19

Legs, Artificial. See Artificial limbs

**Lehigh Valley railroad**

Buffalo division engine terminals. II. diags.  
plans. Ry. R. 62:895-903 Je. 22 '18

Example of modern coaling station construction. II. diag. plan. Ry. Age. 64:1273-5 My. 24 '18

Report for 1917. map. Ry. Age. 64:961-2 Ap. 12  
'18

Results of federal operation of the Lehigh  
Valley. map. Ry. Age. 66:1239-40 My. 23 '19

**Leland Stanford junior university**

Aerodynamic laboratory of the university;  
abstract. W. F. Durand. Am. Soc. M. E. J. 40:  
435-6 My. '18

Stanford university aerodynamic laboratory.  
E. J. Baughman. II. plan. Aviation. 7:183-4 S.  
15 '19

**Lemons**

Antiscorbutic principles in limes and lemons.  
Sci. Am. S. 87:57 Ja. 25 '19

**Lenses**

Apos. versus achros. Sci. Am. S. 86:183 S. 21  
'18

Axial aberrations of lenses. E. D. Tillyer and  
H. I. Shultz. diags. U. S. Bur. Stand. Bul. 14:  
341-69 Je. 24 '18

Lens grinding in a training factory. E. Oberg.  
II. diag. Mach. 25:330-2 D. '18

**Lenses, Photographic**

Choice of a lens. Sci. Am. S. 86:330+ N. 23 '18

Covering power and illuminating power of  
lenses: tests and performance. C. W.  
Piper. Sci. Am. S. 87:351 My. 31 '19

Covering power of lenses and stray light in  
the camera. G. M. Nicol. chart. Sci. Am. S. 85:  
333 My. 25 '18

**Leominster, Massachusetts****Sewerage**

Sewerage of Leominster. II. diags. plans. Munic.  
J. 46:232-4 Mr. 29 '19

Letter writing. See Commercial correspondence;  
Sales letters

**Letterheads**

Common error in setting letter-head designs.  
J. L. Frazier. Inland. Ptr. 61:729-32 S. '18

Letter-head contest. Inland. Ptr. 62:656a-656b  
Mr. '19

**Lettering**

How the government unconsciously adopted a  
trade-mark style of lettering. W. L. Larned.  
Inland. Ptr. 61:725-6 S. '18

**Lettuce**

Comparison of percentages of nitrogen in tops  
and roots of head lettuce plants. H. A.  
Noyes. J. Ind. & Eng. Chem. 10:621-4 Ag. '18

**Leucite****Bibliography**

Extraction of potash from complex mineral  
silicates, such as feldspar, leucite and glauconite (greensand marl). E. C. Buck. Met. & Chem. Eng. 18:33-7, 90-5 Ja. 1-15 '18

**Levees**

Levee construction for drainage districts.  
C. W. Okey. Eng. & Contr. 50:352-3 O. 9 '18

Levee construction in north Texas with draglines. O. W. Finley. II. Eng. & Contr. 50:65-6  
JI. 17 '18

Levee settlement: cause and remedy; abstracts of report of Board of state engineers of Louisiana. Eng. & Contr. 50:193 Ag. 21 '18; Eng. N. 81:280-1 Ag. 8 '18

Widened channel reduces flood hazard at Columbus, O. diags. Eng. N. 83:512-13 S. 11 '19

See also Flood control; Rivers—Regulation

**Leveling**

Correction of level notes for personal equation and other errors. R. A. Trufant. Eng. N. 82:539 Mr. 13 '19

See also Surveying

**Levine, Louis**

Professor and the Anaconda. W. R. Ingalls.  
Eng. & Min. J. 107:578 Mr. 29 '19

**Levy, Louis Edward, 1846-1919**

Sketch. L. M. Haupt; R. Ringwalt. por. J.  
Fr. Inst. 187:644-8 My. '19

**Lewis, Camp**

Cantonment road building at Camp Lewis.  
U. S. Marshall. II. maps. Good Roads. n. s. 18:  
116-19+, 127-30 S. 3-10 '19

**Lewis formula**

Table for facilitating application of Lewis  
formula. J. O'Hara. Mach. 25:121 O. '18

Liability, Manufacturers'. See Manufacturers' liability

Liability insurance. See Insurance, Employers' liability

**Libel and slander**

Newspaper printing untrue statement about  
firm engaged in war work, damaging firm's  
business, is liable in damages. Dom. Eng.  
84:472-3 S. 28 '18

When not to give a bad opinion of a former  
employee. E. J. Buckley. Metal Work. 91:  
557 My. 2 '19

Liberty bonds, Taxation of. See Taxation of bonds, mortgages, etc.

Liberty engines. See Airplane engines

**Liberty fuel**

Liberty fuel. Sci. Am. 120:119 F. 8 '19

Liberty fuel analyzed; report of Fuel administration. Motor. Age. 35:15 Ja. 23 '19; Same.

Power. 49:111 Ja. 21 '19

New Liberty fuel. Power. 48:885-6 D. 17 '18

Properties of Liberty fuel and results of economy tests. Power. 49:9 Ja. 7 '19

Properties of the Liberty aeronautic fuel.  
charts. Aviation. 5:748-9 Ja. 15 '19

Substitute for gasoline tested. Motor. Age.  
34:15 D. 5 '18

**Liberty loans.** See War finance; War loans  
**Liberty motor.** See Airplane engines

#### Librarians

**Essential qualifications of the business librarian.** L. B. Krause. *J Elec* 43:268-71 S 15 '19

#### Bibliography

**Library work as a vocation for women.** E. M. Johnson. *Special Libraries* 9:99-102 Ap '18

#### Libraries

**Library that worked much good;** James Anderson, iron founder and Andrew Carnegie. *Inland Ptr* 61:192 My '18

**Seditious publications in the public library.** *Sci Am S* 85:112 F 16 '18

**Unchaining the books.** *Sci Am* 118:66 Ja 19 '18

See also Agricultural libraries; Business libraries; Classification; Engineering libraries; Library architecture; Library service

**Libraries, Business.** See Business libraries

**Libraries, Engineering.** See Engineering libraries

#### Libraries, Special

**Some axioms of service in the use and abuse of special libraries.** H. R. Hosmer. *J Ind & Eng Chem* 11:582-3 Je '19

See also Agricultural libraries; Business libraries; Engineering libraries

#### Library architecture

**Beverly Farms library, Beverly Farms, Mass.** M. R. Rogers. *Il diag* plans Arch Rec 42:528-39 D '17

**Beverly Farms library, Beverly Farms, Mass.; views and plans.** *Am Arch* 113:pl 38-8 Ja 16 '18

**Central public library, Indianapolis, Ind.; views.** Arch & Bldg 50:pl 51-4 Mr '18

**Converse memorial library, Amherst college, Amherst, Mass.** *Am Arch* 113:92, pl 39-46 Ja 23 '18

**Duffield branch library, Detroit, Mich.** *Am Arch* 116:pl 111-12 S 17 '19

**Noe Valley branch library, San Francisco, Cal.** *Il plans* *Am Arch* 112:429-30, pl 281-3 D 12 '17

**Public library building located at the Civic centre, San Francisco, Cal.; views.** Arch & Bldg 50:front, pl 67-70 Ap '18

**Public library, Littleton, Colo., and branch library for Detroit; views and plans.** *Am Arch* 114:pl 98-100 S 25 '18

**Sacramento state buildings competition; library building; views and plans.** *Am Arch* 115:pls 27-9, 31-4 Ja 22 '19

**Two New England libraries.** C. O. Cornelius. *Il plans* *Arch Rec* 44:225-36 S '18

#### Library decoration

**Library decorations in Blake school, Minneapolis, Minn.** C. J. Connick. *Il Am Arch* 114:607-10 N 20 '18

#### Library fittings and supplies

**Business library.** L. B. Krause. *Il diag* *J Elec* 43:115-17 Ag 1 '19

#### Library service

**Co-ordination of scientific publication.** *Engineer* 125:404 My 10 '18

**Industrial bureaux of information.** *Engineer* 125:170 F 22 '18; Same cond. *Automotive Ind* 33:626 Mr 28 '18

**International technical information service.** K. C. Walker. *Eng N* 80:966-7 My 16 '18; Same. *Met & Chem Eng* 18:564 Je 1 '18

**Public library for the business man.** *Il J Elec* 43:457-9 N 15 '19

**Symposium on library service in industrial laboratories.** *J Ind & Eng Chem* 11:578-89 Je '19

#### Lice

**Louse that annoys armies abroad and people at home.** *Il Sci Am S* 87:229 Ap 12 '19

#### Licenses for architects. See Architects—Licenses

#### Licenses

**Verbal agreement for right of way over land not of much value in most cases.** *Dom Eng* 85:13-14+ O 5 '18

#### Licenses for engineers. See Engineers—Licenses

#### Licensing plan (dye industry)

**Explanation of licensing plan.** J. H. Choate, Jr. *Textile World* 55:3830+ Je 21 '19

#### Lie, Jonas

**As an artist sees Utah copper; reproductions of paintings by Jonas Lie.** *Eng & Min J* 105:18-19 Ja 5 '18

#### Liège, Belgium

**Engineering schools of Liège.** C: Clifton. *Engineer* 127:497 My 23 '19

#### Liens

**Law in your business; the lien.** W. Gustin. *Motor Age* 36:30-1 Ag 7; 28-9 Ag 21 '19

**Liens, Mechanics'. See Mechanics' liens**

#### Life

**Organic matter and life.** J. Nageotte. *Sci Am S* 87:362-3 Je 7 '19

**Life boats. See Lifeboats**

#### Life preservers

**Life preservers which inflate only when needed.** *Il Sci Am* 117:480 D 22 '17

**Life saving. See First aid in illness and injury; Life preservers; Lifeboats; Lighthouses; Lightning conductors; Mine rescue work; Safety at sea; Safety devices and measures**

#### Lifeboats

**Boat lowering appliances.** J. R. Hodge. *diag* plan *Int Marine Eng* 23:532-3 S '18

**Brude combined lifeboat and life raft.** *Il diag* *Int Marine Eng* 24:568-9 Ag '19

**Lifesaving equipment for Uncle Sam's fleet.** A. P. Lundin. *Int Marine Eng* 23:127-8 Mr '18

**Manufacturing standardized lifeboats.** M. M. Whitaker. *Il Int Marine Eng* 24:157-9 Mr '19

**Lift bridges. See Bridges, Lift**

**Lifting jacks. See Elevators; Hoisting machinery; Jacks**

#### Lifting magnets

**Handling machine parts with a magnet.** *Il Iron Age* 102:1017 O 24 '18

**Lifting magnet helps recover sunken iron treasure.** *Il Elec R* 72:130-1 Ja 19 '18

**New lifting magnets are rectangular.** *Il Iron Tr R* 65:1261 N 6 '19

**Ohio 50-in. lifting magnet.** *Il Am Mach* 49:136 J1 18 '18; *Elec R* 73:72 J1 13 '18; *Iron Age* 102:209 J1 25 '18; *Mach* 24:1149 Ag '18

**Lifts. See Canal lifts; Elevators; Hoisting machinery**

#### Light

**Blue of the sky.** C: Fabry. *Sci Am S* 86:174-6 S 14 '18

**Color from the physical point of view.** H. C. Richards. *bibliog Illum Eng Soc* 13:7-13 no 1 '18; *Abstracts. Gas Age* 40:484 N 15 '17; *J Fr Inst* 185:441-2 Mr '18

**Covering power of lenses and stray light in the camera.** G. M. Nicol. *chart Sci Am S* 85:333 My 25 '18

**Diffused reflexion and transmission of light.** A. P. Trotter. *diag* *Illum Engr* 12:243-67 S '19

**Doppler principle.** *Sci Am S* 86:269 O 26 '18

**Fundamentals of illumination design.** W. Harrison. *Il diag* *Gen Elec R* 21:419-29 Je '18

**General notes on the protection of eyesight.** W. S. Andrews. *Il Gen Elec R* 20:903-5 N '17; Same. *Sci Am S* 85:397 Je 22 '18

**Light: fine art the sixth; abstract.** M. Hall-ock-Greenewalt. *Illum Eng Soc* 13:380 no 7 '18

**Light scattered by dust-free air.** *Sci Am S* 86:267 O 26 '18

**Luminous radiation from a black body and the mechanical equivalent of light.** W. W. Coblentz and W. B. Emerson. *bibliog U S Bur Stand Bul* 14:255-66 Je 17 '18

**Measurement of transmission factor.** M. Luck-lesh and L. L. Mellor. *J Fr Inst* 185:551-2 Ap '18

**Minimum energy visible to the eye as light.** *Illum Engr* 11:217-18 S '18

**Psychology of color in relation to illumination.** L. T. Troland. *Illum Eng Soc* 13:21-37 no 1 '18; Same. *Sci Am S* 86:114-15, 134-5 Ag 24-31 '18

**Light—Continued**

Relative sensibility of the average eye to light of different colors and some practical applications to radiation problems. W. W. Co-blentz and W. B. Emerson. *bibliog* *il diags* U S Bur Stand Bul 14:187-236 Je 17 '18; Excerpts. *Sci Am S* 86:83, 96 Ag 10 '18; Summary. *Sci Am S* 86:301 N 9 '18

Scattering of light by dust-free air. *Sci Am S* 87:186 Mr 22 '19

Separating visible from invisible light. W. S. Andrews. *diag Sci Am S* 88:126 Ag 23 '19

Survey of methods of directing and concentrating light; abstract. H. T. Harrison. *Elec W* 71:834 Ap 20 '18

Transmission of light through water. *Gas Age* 42:286 S 16 '18

Transmission of light through water. S. L. E. Rose. *diag Gen Elec R* 21:577-8 Ag '18; Abstract. *Illum Engr* 11:182 JI '18

Where do we stand in optics? J. P. C. Southall. *Sci Am* 117:455 D 15 '17

*See also* Absorption of light; Color; Daylight; Daylight, Artificial; Eye; Fluorescence; Glare; Interference (light); Light filters; Light projection; Light signals; Lighthouses; Lighting; Optics; Phosphorescence; Photography; Photometry; Plants, Effect of light on; Polarization (light); Radiation; Radioactivity; Reflection (light); Reflectors; Sight; Spectra; Spectrum analysis; Sunlight; Ultra-violet rays; X rays

**Standards**

Proposals for a new standard of light. E. Warburg. *Illum Engr* 11:195 Ag '18

**Wave length**

Measurements on the index of refraction of air for wave lengths from 2218 Å to 9000 Å. W. F. Meggers and C. G. Peters. *il diags* U S Bur Stand Bul 14:697-740 JI 12 '19

**Light, Absorption of.** *See* Absorption of light

**Light, Colored**

Linking science and art in lighting. M. Luckiesh. *Elec R* 74:14-15 Ja 4 '19

Transmission of colored light through fog. C. L. Utterback. *diag Illum Eng Soc* 14:133-40 no 3 '19; Abstract. *Illum Engr* 12:269-70 S '19; Discussion. *Illum Eng Soc* 14:140-5 no 3 '19; Same. *Sci Am S* 88:124+ Ag 23 '19

**Light, Electric.** *See* Electric light

**Light, Physiological effect of**

Effect of light on living organism. F. Schanz. *Sci Am S* 88:179 S 20 '19

Relation of light to health. C. E. D. Sajous. *Illum Eng Soc* 13:370-2 no 7 '18; Same. *Sci Am S* 87:4 Ja 4 '19

*See also* Light, Colored; Plants, Effect of light on

**Light filters**

Eye protection and light filters. *Sci Am S* 85:9 Ja 5 '18

New yellow dye and light filters made from it. C. E. K. Mees and H. T. Clarke. *J Ind & Eng Chem* 11:454-5 My '19

Optical properties of light-filters. C. E. K. Mees. *Sci Am S* 85:219 Ap 6 '18

Testing a light filter. *Sci Am S* 86:275 N 2 '18

**Light projection**

B.T.H. floodlight projectors. *il Illum Engr* 11:163 Je '18

Central station and illumination. H. E. Mahan. *Gen Elec R* 21:445-6 Je '18

Compensator outfit for projection lamps. *il Elec W* 70:1128 D 8 '17

Cutter flood-lighting projector. *il Elec R* 72:486 Mr 16 '18; *Elec W* 71:594 Mr 16 '18

Developments in Grouse-Hinds flood-light projectors. *il Elec R* 74:820-1 My 17 '19

Electric headlights and flood-lighting units. *Illum Engr* 10:259-62 O '17

Evolution of light projection. C. A. B. Halverson and R. B. Hussey. *il Illum Eng Soc* 12:245-55 no 6 '17; Same. *Sci Am S* 85:254-5 Ap 20 '18; Discussion. *Illum Eng Soc* 12:255-9 no 6 '17

Flood lighting for storage battery rooms. *Elec R* 73:867 N 30 '18

Flood lighting of Canadian falls at Niagara. *il map Elec R* 75:948-50 D 6 '19

Floodlighting requires special kind of treatment. F. H. Murphy. *il Elec W* 73:1377-8 Je 28 '19

Flood-lighting unit, type FL-1419. *il Elec W* 70:1272 D 29 '17

G. E. series type a.-c. to d.-c. compensarc. *il Elec W* 71:386 F 16 '18

Glow-lamps for projection purposes. O. Kruh. *Illum Engr* 11:158 Je '18

High candle-power projection incandescent lamps; abstract. *Elec W* 71:1094 My 25 '18

Illumination of Toledo & Ohio Central engine terminal at West Columbus, O. R. E. Rice. *il plan Ry R* 64:815-16 Je 7 '19

Light projection with gas-filled lamps. R. P. Burrows and J. T. Caldwell. *il diags Elec W* 71:766-9 Ap 13 '18; Abstract. *Sci Am* 118:235 Mr 16 '18; Abstract. *Chem & Met Eng* 19:336 S 15 '18

Lighting methods for war-time protection; illustrations. *Factory* 19:192-3 Ag '17

Motion picture projection with tungsten filament lamps. J. T. Caldwell and others. *il diags Illum Eng Soc* 13:232-48; Discussion. 248-55 no 4 '18

Report of the Illuminating engineering society committee on progress. *Illum Eng Soc* 12:365-72 no 8 '17

Report of the Illuminating engineering society committee on progress. *Illum Eng Soc* 13:462-7 no 9 '18; Abstract. *Illum Engr* 11:235-6 O '18; Abstract. *Gen Elec R* 22:54-5 Ja '19

Shop protective lighting. C. E. Clewell. *il diags Am Mach* 51:785-8 O 30 '19

Simple methods for solving floodlighting problems. H. E. Butler. *il Gen Elec R* 21:633-9 S '18; Abstract. *Illum Engr* 11:193-4 Ag '18

Terminal shop and classification yard lighting. *il diag plan Ry R* 63:625-7 N 2 '18

**Light sense.** *See* Sight

**Light ships**

Recent developments in marine lighting. *il diags plan Engineer* 125:155-1, 225-6 F 22, Mr 15 '18; Same. *Sci Am S* 87:359+; 88:40 Je 7, JI 19 '19

**Light signals**

Aga highway signal. *il Munic J* 45:258 S 28 '18

Position-light signals for railroad service. A. H. Rudd. *Sci Am S* 86:139 Ag 31 '18

Position-light signals on Pennsylvania railroad. A. H. Rudd. *diags Ry Age* 65:177-8 JI 26 '18

Wireless signal lamp for war work. *Elec W* 71:1031 My 18 '18

*See also* Searchlights

**Lighters**

Building concrete lighters; construction methods used by the Aberthaw co., at Fields Point, R.I. *il diags plan Concrete* 13:114-16 O '18

Crane lighter no. 4. *il diags (supp) Engineer* 128:225-6 S 5 '19

Design and construction of producer gas power lighter. F. S. Nock. *il diags plan Int Marine Eng* 24:36-7 Ja '19

**Lighthouse service (United States)**

Annual report for year ended June 30, 1917. *Int Marine Eng* 23:2 Ja '18

**Lighthouses**

Automatic lighthouses. *Sci Am S* 86:117 Ag 24 '18

Caissons and cribs for lighthouse foundations. *il diags plans Eng N* 80:84-6 Ja 10 '18

Foundation construction for range lights on Delaware river. T. J. Rout. *diags plan Eng & Contr* 49:618-19 Je 19 '18

Recent developments in marine lighting. *Engineer* 125:155-1, F 22 '18; Same. *Sci Am S* 87:359+ Je 7 '19

*See also* Beacons; Light ships; Radiophore

**Lighting**

Address before Illuminating engineering society. A. P. Trotter. *Illum Engr* 10:309-20 D '17



**Lighting—Continued**

- Better lighting of iron and steel mills and fabricating plants. F. H. Bernhard. *Il Elec R* 73:841-5 N 30 '18
- Color in illumination; with discussion. B. Irwin. *diag Illum Eng Soc* 13:14-20 no 1 '18
- Committee on war service of illuminating engineering society prepares guide conserving lighting. *Am Gas Eng J* 109:367-71 O 19 '18
- Daylighting and artificial lighting of buildings. B. Jones. *Am Inst Arch J* 7:183-4 Ap '19; Same. *Eng & Contr* 51:691-2 Je 25 '19
- Economy in lighting and fuel saving. *Illum Engr* 11:43-4 F '18
- Effect of prohibition on lighting revenue. *Elec W* 73:736-9 Ap 12 '19
- Experiments on the eye with different illuminants. C. E. Ferree and G. Rand. *Il chart Illum Eng Soc* 13:50-60; 14:107-16 no 1 '18, no 3 '19; Discussion. 14:117-32 no 3 '19
- Expressiveness of light. M. Luckiesh. *Arch Rec* 44:470-3 N '18
- Fundamentals of illumination design. W. Harrison. *Il diags Gen Elec R* 21:353-62, 419-29, 484-90, 535-41 My-Ag '18
- Gas-filled lamp and its effect on illuminating engineering. F. W. Willcox. *Il diags Illum Engr* 12:142-61 Je '19; Discussion. 12:161-71, 179-81 Je-Jl '19
- General principles of industrial lighting. *Eng & Contr* 51:684-5 Je 25 '19
- Good lighting and business prosperity. W. D. Fennimore. *Il J Elec* 42:416-16 My 1 '19
- Good lighting as an essential element in public health. *Illum Engr* 11:265-6 D '18
- Illuminating engineering as a commercial force; with discussion. O. R. Hogue, C. L. Law and E. E. Whitehorne. *Illum Eng Soc* 13:357-67 no 7 '18
- Illuminating engineering in peace and war. L. Gaster. *Illum Engr* 11:172-3 Jl '18
- Illuminating engineering publicity. G. H. Stickney. *Illum Eng Soc* 12:319-26; Discussion. 327-43 no 8 '17
- Illuminating engineering society 13th annual convention, Chicago. *Elec R* 75:698-704 O 25 '19
- Illumination during the reconstruction period. S. E. Doane. *Illum Eng Soc* 14:209-14 no 4 '19
- Illumination tests. G. M. Pearsall. *diag Sibley J* 32:40 D '17
- Industrial lighting. C. E. Clewell. *Il diags plan J Fr Inst* 188:51-90 Jl '19
- Light and progress; part played by artificial illuminants in the development of the human race. M. Luckiesh. *Sci Am* 120:509 My 17 '19
- Light as an aid to the transportation of material. A. L. Powell and R. E. Harrington. *Il diags plans Illum Eng Soc* 14:1-17 no 1 '19; Same. *Gen Elec R* 22:61-71 Ja '19; Discussion. *Illum Eng Soc* 14:17-23 no 1 '19
- Lighting art; its practice and possibilities in interiors. M. Luckiesh. *Illum Eng Soc* 13:354 no 6 '18
- Lighting curtainment. P. S. Millar. *bibliog Illum Eng Soc* 13:111-35 no 2 '18; Abstracts. *Elec R* 72:343-4 F 23 '18; *Elec W* 71:370-1 F 16 '18; *Am Arch* 113:395-6 Mr 27 '18; *Power* 47:452-3 Mr 28 '18; Discussion. *Elec W* 71:426-7 F 23 '18; *Illum Eng Soc* 13:135-69 no 2 '18
- Lighting for production effectively demonstrated. W. A. Durgin. *Elec R* 74:348-9 Mr 1 '19
- Lighting in wartime; abstract. P. S. Millar. *Illum Eng Soc* 14:146-8; Discussion. 148-50 no 3 '19
- Lighting of buildings. *Am Inst Arch J* 7:227-34 My '19; Same. *Eng & Contr* 51:568-73 My 28 '19
- Lighting of buildings. *Il diags Am Inst Arch J* 7:290-4 Je '19
- Lighting, past and present. F. L. Godinez. *Il Am Arch* 112:433-6 D 12 '17
- Lighting without hanging ceiling fixtures. J. L. Stair. *Il diags Elec J* 16:183-7 My '19
- Linking science and art in lighting. M. Luckiesh. *Il Elec R* 73:532-4, 690-2, 884-5; 74:14-15, 171-3, 338-40 O 5, N 2, D 7 '18, Ja 4, F 1, Mr 1 '19
- Maintenance of lighting installations and economy in lighting. *Illum Engr* 11:149 Je '18
- Notes on events during the vacation. L. Gaster. *Illum Engr* 11:251-2 N '18
- Notes on railway lighting and its maintenance. A. Cunningham. *Il diags Illum Engr* 12:59-76; Discussion. 76-88 Mr '19
- Philosophy of physiologic lighting. F. L. Godinez. *Il Am Arch* 113:23-7 Ja 2 '18
- Potentiality of color in lighting; with discussion. M. Luckiesh. *Illum Eng Soc* 13:1-6 no 1 '18
- Preferred proportions in combining general and localized lighting. F. C. Caldwell and W. M. Holmes. *Il Illum Eng Soc* 13:303-12 no 6 '18; Summary. *Elec W* 70:1156 D 15 '17; Discussion. *Illum Eng Soc* 13:313-22 no 6 '18
- Productive intensities. W. A. Durgin. *Il Illum Eng Soc* 13:417-24 no 8 '18; Same. *Elec R* 73:686-9 N 2 '18; Excerpts. *Elec W* 72:1073-4 D 7 '18; Abstract. *Illum Engr* 11:229-31 O '18; Discussion. *Illum Eng Soc* 13:124-8 no 8 '18
- Productive lighting intensities; results of industrial lighting survey. W. A. Durgin. *Il Elec R* 73:686-9 N 2 '18
- Protective lighting. E. Leigh. *Illum Eng Soc* 13:411-16 no 8 '18
- Recommendations on economy in lighting. *Illum Engr* 11:131-3 My '18
- Reflection factors. *Gas Age* 44:230 S 1 '19
- Report of the illuminating engineering society committee on progress. *Illum Eng Soc* 12:344-408 no 8 '17; Excerpts. *Illum Engr* 10:285-9 N '17
- Report of the illuminating engineering society committee on progress. *Illum Eng Soc* 13:450-511 no 9 '18; Abstract. *Illum Engr* 11:235-6 O '18; Abstract. *Gen Elec R* 22:47-60 Ja '19
- Report on standard illumination of Snellen's types used in testing the vision of candidates for public services. *diags Illum Engr* 12:5-7 Ja '19
- Scientific lighting and industrial efficiency. L. Gaster. *Illum Engr* 12:188-90 Jl '19
- Some factors in illuminating engineering; the production of visual sensations. F. K. Richtmyer. *diags Sci Am* 85:28-9 Ja 12 '18
- Some special problems in the lighting of laboratories and technical institutions. *Illum Engr* 12:13-16 Ja '19
- Survey of methods of directing and concentrating light. H. T. Harrison. *diags Illum Engr* 11:72-9; Discussion. 79-91 Mr '18
- Ten years of illuminating engineering: its lessons and future prospects. L. Gaster. *Illum Engr* 11:6-19; Discussion. 19-22 Ja '18
- Terminal shop and classification yard lighting. *Il diag plan Ry R* 63:625-7 N 2 '18
- Value of illuminating engineering. O. R. Hogue, C. L. Law and E. E. Whitehorne. *Gas Age* 40:586 D 15 '17
- Wartime lighting economies. *Illum Eng Soc* 13:387-400 no 8 '18; Same cond. *Elec W* 72:885-7 N 9 '18; Discussion. *Illum Eng Soc* 13:400-10 no 8 '18
- Wartime lighting in Denmark. *Sci Am* 119:263 S 28 '18
- See also* Acetylene; Automobiles—Lighting; Car lighting; Church lighting; Daylight; Artificial; Electric light fixtures; Electric lighting; Electricity on the farm; Factories—Lighting; Foundries—Lighting; Gas; Gas lighting; Glare; Hospitals—Lighting; Light, Colored; Light projection; Lighthouses; Locomotive headlights; Military lighting; Mine lighting; Office lighting; Parks—Lighting; Photometry; Piers—Lighting; Printing offices—Lighting; Railroads—Lighting; Reflectors; Schoolhouses—Lighting; Street lighting; Subways—Lighting; Textile mills—Lighting; Theaters—Lighting

**Bibliography**

Illumination index; published in each number of illuminating engineering society transactions

**Cost**

Data showing reduction in cost of lighting. W. Clark. *Elec R* 74:391-2 Mr 8 '19

**Lighting—Cost—Continued**

One necessity that annually costs each family no more than it did a century ago, yet of which twenty fold is used. *Eng & Contr* 50: 376-7 O 23 '18

See also Electric lighting—Cost

**Laws and regulations**

Changing aspects of factory lighting legislation. C. E. Clewell. *Il Elec W* 71:607-10, 665-8 Mr 23-30 '18

Control of lighting in England; abstract. *Elec W* 71:209 Ja 26 '18

Factory lighting codes and rules; a review of progress, and the regulations of Wisconsin, New York, Pennsylvania and New Jersey. C. E. Clewell. *Il Ind Management* 55:117-21 F '18

Fuel administration's new light-restricting order now in effect. *Elec R* 73:136-7 JI 27 '18; Same. *Elec W* 72:176 JI 27 '18; Same. *Munic J* 45:97-8 Ag 3 '18; Excerpt. *Gas Age* 42:240 S 2 '18

General lighting safety orders. *J Elec* 43: 173-4 Ag 15 '19

Instruction for inspectors in lighting practice. C. E. Clewell. *Il diag plans Am Mach* 49:1117-22 D 19 '18

Lighting, heating and power order (1918) and the best methods of making economies. *Ilum Engr* 11:134-8, 151-2 My-Je '18

Lighting legislation. H. E. Mahan. *Gen Elec R* 22:110-13 F '19

Lighting restrictions in Ireland. *Ilum Engr* 11:218 S '18

Lightless night order of fuel administration. *Elec W* 70:1209-10 D 22 '17

Lightless nights decreed twice a week. *Elec R* 71:1062 D 22 '17

Minimum intensities for detailed operations. *Elec W* 73:676-7 Ap 5 '19

New English household fuel and lighting order (1918). *Ilum Engr* 11:139-41, 153-6 My-Je '18

New Wisconsin lighting code for Wisconsin. J. A. Hoeveler. *Il Elec W* 72:391-3 Ag 31 '18; Abstract. *Ilum Engr* 11:213 S '18

Present status of industrial lighting codes. G. H. Stickney. *Am Inst E E Pro* 38:611-27 Ap '19; Same. *Am Arch* 115:694-8, 771-2, 835-6 My 14, 28, Je 11 '19; Same. *Ilum Eng Soc* 14:153-70 no 4 '19; Abstract. *Elec W* 73:806 Ap 19 '19; Bibliography. *Am Inst E E Pro* 38:627-8 Ap '19; Same. *Ilum Eng Soc* 14:171 no 4 '19; Same. *Am Arch* 115:836 Je 11 '19; Discussion. *Ilum Eng Soc* 14:172-208 no 4 '19

Present status of industrial lighting codes discussed. *Elec R* 74:635-6, 679 Ap 19-26 '19

Report of the Illuminating engineering society committee on lighting legislation. L. B. Marks. *Ilum Eng Soc* 13:524-7 no 9 '18

Restricted lighting. *Am Gas Eng J* 109:389 O 26 '18

**Tables, calculations, etc.**

Chart to facilitate the design of lighting system. *chart Elec W* 73:778-9 Ap 19 '19; Abstract. *Ilum Engr* 12:192-4 JI '19

Experiments on the eye with pendant opaque reflectors differing in lining, dimensions and design. C. E. Ferree and G. Rand. *Il diag plan Ilum Eng Soc* 12:464-87 no 9 '17

Practical daylight measurements in modern factory buildings. E. G. Perrot and F. C. Vogan. *diag Ilum Eng Soc* 14:257-77 no 6 '19

**Terminology**

1917 report of the committee on nomenclature and standards of the Illuminating engineering society. *Ilum Eng Soc* 12:438-48 no 9 '17; 13:sup4-5 no 1 '18

Report of the committee on nomenclature and standards of the Illuminating engineering society for the year 1918. *Ilum Eng Soc* 13:512-23 no 9 '18

Lighting, Bridge. See Bridge lighting

Lighting, Industrial. See Factories—Lighting

Lighting, Military. See Military lighting

Lighting fixture manufacturers, National council of. See National council of lighting fixture manufacturers

**Lighting fixtures**

Economy in lighting and fixture design. *Ilum Engr* 11:227 O '18

Reflector globes for vapor-proof lighting fixtures. *Il Ry Age* 67:634 S 26 '19

Report of the Illuminating engineering society committee on progress. *Ilum Eng Soc* 13:489-96 no 9 '18; Abstract. *Gen Elec R* 22: 56-8 Ja '19

Suspension type of overhead lighting fixture. *diag Elec W* 74:659 S 20 '19

See also Electric light fixtures; Street lighting fixtures

Lighting of churches. See Church lighting

Lighting of factories. See Factories—Lighting

Lighting of farms. See Electricity on the farm

Lighting of streets. See Street lighting

Lighting plants, Municipal. See Electric plants, Municipal

**Lightning**

Lightning pushes sidewalk off concrete bridge. *Il diag Eng N* 83:68-9 JI 10 '19

Physics of the air. W. J. Humphreys. *Il J Fr Inst* 186:73-5, 211-32, 341-70 JI-S '18

Safety for the household. *diag U S Bur Stand Circ* 75:45-53 '18

**Lightning arresters**

Arresters on 150,000-volt energy-transmission line. H. H. Cox. *Elec W* 71:48 Ja 5 '18

Burke series horn-gap lightning arrester. *Il Elec R* 72:694-5 Ap 20 '18

Caring for d.c. aluminum car arresters during the winter. R. T. Wagner. *Elec Ry J* 52: 886-7 N 16 '18

Earthing power-station equipment. P. H. Adams. *Il Power* 48:451-2 S 24 '18

Effect of transient voltages on dielectrics. F. W. Peek, Jr. *diag Am Inst E E Pro* 38:717-44 Je '19; Excerpt. *Elec W* 74:181 JI 26 '19

Experiences with electrolytic arresters. *Il Elec W* 73:1269-72 Je 14 '19

G. E. compression-chamber arrester for 10,000 and 13,200-volt circuits. *Il Elec R* 72: 695 Ap 20 '18

Housing; life and fire hazards, unreliability and short life make corrugated-iron structures objectionable. R. L. Evans. *Il Elec R* 72:959-60 Je 8 '18

Impulse-gap lightning arresters. Q. A. Brackett. *Il diag Elec J* 16:52-4 F '19

Impulse gaps for lightning arresters. *diag Elec R* 73:948-50 D 14 '18; Abstract. *Elec Ry J* 53:283 F 8 '19

Influence of ground connections on lightning-arrester performance. E. M. Cohen. *Elec R* 72:959 Je 8 '18

Lightning arrester spark gaps; their relation to the problem of protecting against impulse voltages. C. T. Allcutt. *Il diag Am Inst E E Pro* 37:519-40 My '18; Abstract. *Elec Ry J* 52:241 Ag 10 '18

Mounting that makes arresters convenient. *Il Elec W* 71:778 Ap 13 '18

New principle for lightning arresters; electro-thermal valve. E. O. Schweitzer. *Il diag Elec W* 72:52-4 JI 13 '18

Oxide film lightning arrester. C. Field. *Il diag Am Inst E E Pro* 37:541-50 Je '18; Same. *Gen Elec R* 21:597-601 S '18; Abstract. *Elec W* 71:1368-9 Je 29 '18; Abstract. *Elec Ry J* 52:101-2 JI 20 '18

Oxide film lightning arrester. C. P. Steinmetz. *Il Am Inst E E Pro* 37:551-60 Je '18; Same. *Gen Elec R* 21:590-6 S '18; Abstract. *Elec W* 71:1369-70 Je 29 '18; Abstract. *Elec Ry J* 52:102 JI 20 '18

Protecting car equipment effectively against lightning. R. T. Wagner. *Il diag Elec Ry J* 51:758-61 Ap 20 '18

Protection of apparatus from lightning storms. V. E. Goodwin. *Elec W* 71:984 My 11 '18

Records and maintenance of aluminum-cell lightning arresters. F. S. Piper. *Il diag Gen Elec R* 22:475-8 Je '19

**Lightning arresters—Continued**

- Rules governing operation of lightning arresters. Elec W 72:1228 D 28 '18
- S & C high-speed sphere-gap graded-resistance lightning arresters. II Elec R 72:534-5 Mr 23 '18; Elec W 71:648 Mr 23 '18
- Selecting lightning arrester types to suit requirements. Q. A. Brackett. II diag Elec Ry J 51:1145-7 Je 15 '18
- Self-restoring properties of lightning arresters. H. G. Brinton. II diag Gen Elec R 21:494-8 Jl '18
- Sphere-gap lightning arrester. II Elec R 72:1015 Je 15 '18
- Storing direct-current aluminum arresters for the winter. F. T. Forster. Gen Elec R 21:820-1 N '18
- Use of lamp cord in lightning arrester circuit. G. M. Milner. Elec R 73:22 Jl 6 '18

**Lightning conductors**

- General equations of the electric circuit; lightning conductors. C. P. Steinmetz. Am Inst E E Pro 38:258-72 Mr '19
- Lightning rods for farms. Elec R 72:883-9 My 25 '18
- So-called improvement of lightning rods. L. Weber. Sci Am S 88:231-2 O 11 '19
- Tubular earthen for lightning conductors; abstract. K. Hedges. Elec W 72:120 Jl 20 '18
- Value of lightning rods. Elec R 72:961 Je 8 '18

**Lightning protection**

See also Lightning arresters; Lightning conductors

**Bibliography**

- Structural service department; lightning protection. Am Inst Arch J 6:271-2 My '18
- Lightning rods. See Lightning conductors
- Lightships. See Light ships
- Lignin**
- Lignin from sulphite waste liquors. R. W. Strahlenert. Chem & Met Eng 19:213 Ag 15 '18
- Lignite**
- Anthracite coal from lignite. C. P. Norton. Power 47:398 Mr 19 '18
- Combustion experiments with North Dakota lignite. H. Kreisinger, C. E. Augustine and W. C. Harpster. diag U S Bur Mines Tech Pa 207:1-41 '19
- Combustion of lignites and high-moisture fuels. T. A. Marsh. diag map Elec W 73:265-7 F 8 '19; Same. Power 49:525-7 Ap 8 '19
- Combustion of North Dakota lignites with suggestions for design of furnaces. H. Kreisinger. diag Power 47:608-12 Ap 30 '18; Abstract. Engineer 127:639 Je 27 '19; Discussion. C. P. Larsen. Power 47:809-10 Je 4 '18
- House of representatives passes lignite bill after much debate. Coal Age 15:191-2 Ja 23 '19
- Lignite becomes of importance as a fuel resource. S. M. Darling. Am Gas Eng J 109:415-18 N 2 '18
- Lignite deposits in Ireland. Coal Age 16:362-3 Ag 28 '19
- Lignite gas under favorable conditions promises to satisfy reasonable requirements at a much lower cost provided calorific standard is suitable. R. O. Wynne-Roberts. Am Gas Eng J 111:166-4 Ag 23 '19
- Lignites and high-moisture fuels. C. E. Cope. Power 50:73 Jl 8 '19
- Lignitic coal, its characteristics and utilization. map Gas Age 42:421-5 N 15 '18
- Notes on lignite; its characteristics and utilization. S. M. Darling. U S Bur Mines Tech Pa 178:1-16 '19
- Prospects of a chemical industry in southern California. J. Koebig. Chem & Met Eng 19:27-30 Jl 1 '18
- Report of the Advisory committee on brown coal (state of Victoria); abstract. Elec W 71:262 F 2 '18
- Retorting under pressure promises a means of utilizing lignite for gas making. F. Schoch. Am Gas Eng J 109:102-3 Ag 3 '18

Texas lignite industry. B. Gentry. map Coal Age 16:59-61 Jl 10 '19

Use of lignite, bagasse and wood waste for power generation and other purposes. J. B. C. Kershaw. II diag Engineer 126:121-2, 133-4 Ag 9-16 '18; Same. Coal Age 15:432-8 Mr 6 '19

Using the nation's lignite supply. Power 47:626-6 Ap 30 '18

See also Coal

**Lignum-vitae**

- Character and uses of lignum vitae. C. D. Mell. Am Lumberman 2269:56-7 N 9 '18
- Definition of guayacan. Am Lumberman 2270:60 N 16 '18
- Lignum-vitae, the vital wood. S. J. Record. II diag Sci Am S 88:4-5+ Jl 5 '19
- Supply of lignum-vitae in Latin America. Am Lumberman 2250:44 Je 29 '18

Limbs, Artificial. See Artificial limbs

**Lime**

- Air-tight containers for lime. Concrete 15:sup14 Jl '19
- Burning lime in a gas-fired continuous kiln. W. D. Mount. II Chem & Met Eng 20:428-30 Ap 15 '19; Same abr. Concrete 14:sup 63-4 Je '19
- Cedar Hollow, Pa., plant of Charles Warner co. II plan Concrete 13:sup13-15 Ag '18
- Determination of the value of agricultural lime. S. D. Conner. II J Ind & Eng Chem 10:996-9 D '18
- Efficiency of lime for correcting acidity in sludge. C. E. Albright. Eng & Contr 50:462 N 13 '18
- Formation of quicklime in roasting ores from Manhattan, Nev. W. S. Palmer. Eng & Min J 104:525-6 S 22 '17; Discussion. 104:883-4, 1087 N 17, D 22 '17
- How lime affects strength of cement mortar. M. O. Fuller. Concrete 13:83 S '18; Same. Am Arch 115:152-3 Ja 22 '19
- Hydrated lime for ship concrete. R. J. Wig. Concrete 14:109-10 Mr '19
- Hydrated lime in concrete. C. F. Lambert. Concrete 12:224-5 Je '18
- Hydrated lime in concrete roads; abstracts. G. W. Hutchinson. Munic J 45:230 S 21 '18; Am Arch 114:414-15 O 2 '18; Concrete 13:133 O '18; Eng & Contr 50:329-30 O 2 '18
- Influence of lime on acid open-hearth slags. B. Yaneske. Foundry 47:373-6+ Je 15 '19; Abstract. Chem & Met Eng 21:43-4 Jl 1 '19; Abstract. Iron Age 104:230 Jl 24 '19
- Lime as a protection for steel. M. Meigs. Power 47:483 Ap 2 '18
- Lime as a settling agent. P. T. Bruhl. Eng & Min J 107:1089-90 Je 21 '19
- Lime in 1916. G. F. Loughlin. J Ind & Eng Chem 10:862 Ag '18
- Lime industry in 1918. Concrete 14:sup46-7 Ap '19
- Lime production. Concrete 15:sup46-7 S '19
- Lime softening of water and the use of sludge as an aid. W. A. Sperry. Am Water Works Assn J 6:215-27 Je '19; Same abr. Eng & Contr 51:364-5 Ap 9 '19; Discussion. Am Water Works Assn J 6:228-9 Je '19
- New fields for lime developed by war. F. A. Jones. Concrete 13:sup3-4 Jl '18
- New plant of the Kelley Island lime & transport co., Buffalo, N.Y. II diag plans Concrete 14:sup49-54 My '19
- Power requirements for driving lime plants. Elec W 72:1026 N 30 '18
- Production of lime in 1917. Concrete 13:sup 56 N '18
- Quicklime for removing foundations. G. Nelson. Elec R 73:626-7 O 19 '18
- Random notes on lime. Am Arch 116:292 Ag 27 '19
- Reconstruction and peace time problems of lime industry. C. Warner. Concrete 14:sup 7-9 Ja '19
- Record year in lime production—1916. Concrete 11:sup52-3 D '17
- Standard terms for lime materials. Concrete 15:sup75 N '19
- Use of hydrated lime in concrete. Ry R 62:100-1 Ja 19 '18

**Lime—Continued**

Valuation of lime for various purposes. R. K. Meade. *diag J Ind & Eng Chem* 10:214-19 Mr '18

*See also* Cement; Concrete

**Bibliography**

Structural service department; lime and hydrated lime. *Am Inst Arch J* 6:97-8 F '18

**Testing**

Determination of available CaO in lime. C. A. Meiklejohn. *Eng & Min J* 107:739-40 Ap 26 '19

Lime arsenate. *See* Calcium arsenate

Lime association, National. *See* National lime association

**Lime kilns**

Burning lime in a gas-fired continuous kiln. W. D. Mount. *il Chem & Met Eng* 20:428-30 Ap 15 '19; *Same abstr. Concrete* 14:sup 63-4 Je '19

Cedar Hollow limekilns. *il Chem & Met Eng* 21:491-3 O 15 '19

Lime manufacturers' association, National. *See* National lime manufacturers' association

**Lime-sulfur solutions****Analysis**

Contribution to the composition of lime-sulfur solutions. O. B. Winter. *J Ind & Eng Chem* 10:539-45 Jl '18

**Limes**

Antiscorbutic principles in limes and lemons. *Sci Am S* 87:57 Ja 25 '19

**Limestone**

Blasting costs in American quarries. O. Bowles. *Eng & Contr* 51:56-7 Ja 15 '19

Cost of quarrying and crushing limestone for a road improvement. *Eng & Contr* 51:154 F 5 '19

Decarbonation of dolomite limestone in the rotary kiln. E. E. Eakins. *J Ind & Eng Chem* 11:340 Ap '19; *Same. Concrete* 14:sup 69-70 Je '19

Labor saving at limestone quarries. O. Bowles. *U S Bur Mines Tech Pa* 203:1-23 '19; *Same. Concrete* 13:sup 51-5, sup 61-3 N-D '18; *Excerpts. Eng & Contr* 50:478-9 N 20 '18

Limestone and sandstone for highway work. *Good Roads n s* 16:253 D 28 '18

Limestone production shows value increase. *Concrete* 14:sup 37 Mr '19

Limestone quarry methods and quarry costs. O. Bowles. *Concrete* 14:sup 55-6 My '19

Limestone quarry practice. J. Van Lear and H. G. Ireland. *Concrete* 13:sup 20 Ag '18

New record in furnace flux production. *Iron Tr R* 63:1469 D 26 '18

Problems in limestone quarry practice; discussion. O. Bowles and I. Warner. *Concrete* 12:sup 17-19 F '18

Saving labor in limestone quarries. O. Bowles. *Concrete* 13:sup 51-5 N '18; *Excerpts. Eng & Contr* 50:478-9 N 20 '18

Sell limestone to cement mills: the plant of the Industrial limestone co., Bethlehem, Pa. *il diag Concrete* 13:sup 9-10 Jl '18

Superficial dip of marine limestone strata, a factor in petroleum geology. K. F. Mather. *il diags Econ Geol* 13:198-206 My '18

*See also* Marble

**Limonite**

Limonite deposits of Mayaguez mesa, Porto Rico. C. R. Fetteke and B. Hubbard. *il map Am Inst Min E Bul* 135:661-76 Mr '18; *Same cond. Iron Tr R* 63:210-11 Jl 25 '18

**Lincoln, Abraham, 1809-1865**

Barnard Lincoln. *Am Arch* 113:188 F 13 '18

**Lincoln highway**

Army officers confer on Lincoln highway. *Munic J* 44:209 Mr 9 '18

Construction methods employed in building Lincoln highway cut-off across the desert at Gold Hill, Utah. R. E. Dillree. *il Munic Eng* 55:195-7 D '18

Lincoln highway breaking down under heavy traffic; bill to provide for government maintenance of military roads. *Am Arch* 113:443 Ap 10 '18

Machines take the place of men on 20-mile concrete road. *il diags Eng N* 83:664-6 O 2 '19

Types of pavement on Lincoln highway. *Munic J* 44:246 Mr 23 '18

Lincoln motor company, Detroit, Michigan  
Vestibule school of Lincoln motor co. J. M. Eaton. *il Ind Management* 56:452-5 D '18

**Linen**

Airplane linen sale. *Textile World* 56:356 Jl 19 '19

Review of linen year. *Textile World* 53:3902 F 23 '18

Tests for cotton and linen. *Textile World* 53:4703 Ap 13 '18

Weaves used in linen fabrics. T. Woodhouse. *il diags Textile World* 55:1049- F 8 '19

*See also* Dyes and dyeing—Linen; Flax; Hemp; Textile fabrics

Linen dyeing. *See* Dyes and dyeing—Linen

**Links**

Rounding the ends of steel links. F. H. Bogert. *Am Mach* 48:1006 Je 13 '18

**Linotype**

Handling a mixed linotype job. J. Edwards. *Inland Ptr* 63:561 Ag '19

Machine composition. E. M. Keating. *See* monthly numbers of the Inland printer

Machine stops and how to recognize them. E. M. Keating. *Inland Ptr* 64:215-16 N '19

Measuring linotype matter. E. M. Keating. *Inland Ptr* 62:79 O '18

More about the electrically heated metal-pot. *Inland Ptr* 60:664 F '18

*See also* Typesetting machines

**Linotype metal**

Type metals—their care and treatment. L. D. Staplin. *Inland Ptr* 62:436-7 Ja '19

**Linseed oil**

Effect of exposure on raw linseed oil. E. J. Sheppard. *J Ind & Eng Chem* 11:637-9 Jl '19

Simple tests for painting material. *Bldg Age* 40:236 My '18

Standard specifications for purity of boiled linseed oil from North American seed; English and Spanish. *U S Bur For & Dom Com Ind Stand* 58:1-11 '19

Standard specifications for purity of raw linseed oil from North American seed; English and Spanish. *U S Bur For & Dom Com Ind Stand* 57:1-11 '19

**Liquefaction of gases**

Commercial production of helium. F. G. Cottrell. *il diags Chem & Met Eng* 20:104-14 F 1 '19; *Excerpt. J Ind & Eng Chem* 11:148-53 F '19; *Abstract. Am Soc M E J* 41:155-8- F '19

Liquid ammonia-sodium method for halogens. C. W. Clifford. *Am Chem Soc J* 41:1051-60 Jl '19

Liquid chlorine. *See* Chlorine, Liquid

**Liquid crystals**

Justification for speaking of liquid crystals. *Sci Am S* 86:379 D 14 '18

**Liquid fire**

Gas attack and liquid fire in modern warfare. *Sci Am S* 85:189 Mr 23 '18

**Liquid fuel**

Burning of pitch and creosote mixtures. *diag Engineer* 125:332-3 Ap 19 '18; *Abstract. Am Soc M E J* 40:503 Je '18

Burning oil or tar in combination with coal. *diags Power* 47:261-2 F 19 '18

Mixtures of alcohol with various other liquid fuels. *Sci Am S* 85:339 Je 1 '18

Motor fuel problem. W. R. Ormandy. *Sci Am S* 87:311 My 17 '19

*See also* Alcohol as fuel; Automobile engines—Fuel; Benzol; Fuel; Gasoline; Kerosene; Liberty fuel; Naphthalene; Oil as fuel; Oil burners

Liquid fuel injectors. *See* Injectors (liquid fuel)

Liquid oxygen. See Oxygen, Liquid

## Liquids

- Instability of electrified liquid surfaces. Sci Am S 84:414 D 29 '17
- Magnetic susceptibility of mixtures of liquids. Alpheus W. Smith and Alva W. Smith. diags Am Chem Soc J 40:1218-24 Ag '18
- Nozzle characteristics; abstract. G. Flügel. Am Soc M E J 40:111 Ja '18
- Observations on dropping and on the measurement of the superficial tension of liquids by means of drops. F. L. Perrot. diags Sci Am S 85:268-70 Ap 27 '18
- Removing liquids from barrels or other containers. N. McLeod. diags Ry Mech Eng 93:600 O '19
- See also Boiling points; Brownian movements; Capillarity; Drops; Emulsions; Fluids; Hydraulics; Hydrodynamics; Liquid fuel; Soap bubbles and films; Solution (chemistry); Viscosity

## Gaging

See Gaging

## Liquor problem

- Alcohol and loss of time at a New York blast furnace. Iron Age 101:1000 Ap 18 '18
- Intemperance hampers production. Coal Age 14:463-4 S 5 '18
- Intemperate men cause tonnage loss. Coal Age 14:302 Ag 15 '18
- Saloon evil in the mining industry. Coal Age 12:1008-9 D 15 '17

See also Prohibition

## Liquors

- Attorney general interprets laws bearing on importation of distilled spirits. Met & Chem Eng 18:11-12 Ja 1 '18

## Lithium chloride

- Electromotive force and free energy of dilution of lithium chloride in aqueous and alcoholic solutions. J. N. Pearce and F. S. Mortimer. Am Chem Soc J 40:509-23 Mr '18

## Lithography

- Lithography in architectural illustration. Am Inst Arch J 6:329-30 Jl '18
- Suggestions and models for architectural rendering; the lithographic work of David Roberts. L. V. Solon. Il Arch Rec 46:211-19 S '19
- Use of gas in lithographing and tin plating. G. C. Shadwell. Il Am Gas Eng J 110:403-4 My 10 '19

See also Engraving

## Little, Arthur D., Inc., Cambridge, Massachusetts

- Laboratory and office. Il plans Am Arch 114: 577-8, pl 145-6 N 13 '18
- Modern laboratory for industrial research. Il Chem & Met Eng 19:100-1 Jl 15 '18

## Library

- Functions of the industrial library. E. D. Greenman. J Ind & Eng Chem 11:584 Je '19

## Live stock

See also Animals, Predatory; Feeding and feeding stuffs

## Transportation

- Reducing live stock losses in transportation. W. J. Embree. Ry Age 67:76 Jl 11 seo 1 '19
- Status of carriers liability of live stock shipments. J. W. Farrar. Ry R 64:802 Ap 19 '19
- 28-hour law regulating the interstate transportation of live stock: its purpose, requirements, and enforcement. H. Goding and A. J. Raub. Il diags plans U S Agric Bul 589:1-19 '18

## Livermore, Thomas L., 1844-1918

- Sketch. por Eng & Min J 105:234 F 2 '18

## Liverpool, England

## Sanitary affairs

- Utilizing waste in Liverpool. J. J. Beckett. Munic J 44:6 Ja 5 '18

## Llama

- Camelids of the new world. E. Albes. Il Sci Am S 87:120-2 F 22 '19

## Load (mechanics)

- Critical loading of struts and structures; abstract. W. L. Cowley and H. Levy. diags Am Soc M E J 40:779-80 S '18
- Cross relations of deformations in different kinds of loading; tension-compression-torsion-transverse. G. B. Upton. diags Sibley J 32:142-5 Je '18
- Eccentric loading tests result contrary to theory; with concrete blocks under compression adding material off center of load does not decrease strength. J. C. Prior. diag Eng N 80:803-4 Ap 25 '18; Discussion. 80: 1241-2 Je 27 '18
- Equivalent uniform loads for indeterminate structures. D. B. Steinman. diags Eng N 81:231-3 Ag 1 '18
- Equivalent uniform loads for reinforced concrete beams. A. J. Becker. diags Eng & Contr 49:633-5 Je 26 '18
- When shear controls load distribution on a concrete slab. S. M. Cotten. Eng N 80:925 My 9 '18

See also Bridges—Load; Strains and stresses

## Load curves. See Electric plants—Load curves

## Load dispatching. See Electric plants (central stations)—Management

## Load factor. See Electric plants—Load factor

## Load line

- American load line. C. A. McAllister. Int Marine Eng 24:765-6 N '19
- Saving steel in ships. Sci Am S 85:7 Ja 5 '18

## Loading and unloading

- Attachment that loads logs mechanically. Il Am Lumberman 2250:61 Je 29 '18
- Austin mixer loader. Munic Eng 57:30 Jl '19
- Austin self feeding loader eliminates stone shoveling for concrete base. Il Eng N 81: 1197 D 26 '18; Eng & Contr 51:125 Ja 29 '19; Munic Eng 56:72 F '19
- Automatic car loader and unloader. Il Munic Eng 54:211 My '18
- Automatic iron-ore unloader. Il Eng & Min J 108:305-7 Ag 23 '19; Same. Coal Age 16: 188-90 Jl 31 '19; Same. Elec R 75:56-9 Jl 12 '19; Abstract. J Elec 43:235-6 S 1 '19
- Barber-Greene sectional portable belt conveyor. Il Iron Age 101:261 Ja 24 '18
- Barber-Greene self-feeding bucket loader. Il Munic Eng 53:253 D '17; Eng & Contr 49:120-1 Ja 30 '18; Eng & Min J 105:473 Mr 9 '18
- Box-car loader in the present emergency. E. B. Usher. Il Coal Age 14:102-3 Jl 20 '18
- Brownhoist power scraper on wheels. Il Eng & Contr 49:109 Ja 30 '18
- Car-loader that automatically weighs the load. Sci Am 120:495 My 10 '19
- Device for handling heavy materials on Mack truck. Munic J 45:159 Ag 24 '18
- Expeditious car unloader. Il Coal Age 13: 668 Ap 13 '18
- Handling sand, gravel and broken stone by portable conveyors. Il Eng & Contr 48:510-11 D 19 '17
- How to prevent freight car demurrage. D. T. Farnham. Il charts Ind Management 55: 391-4 My '18
- Jackson shovel, a new digging and loading machine. Il Eng & Contr 49:301-2 Mr 20 '18
- Labor saving machine for loading concrete mixers. Il Eng & Contr 49:350 Ap 3 '18; Eng N 80:741 Ap 11 '18
- Labor saving machine for loading concrete mixers. Il Eng & Contr 51:101 Ja 29 '19
- Link-Belt car-loading machine. Il Elec W 71: 178 Ja 19 '18
- Loading the truck quickly. Il Factory 20:458+ Mr '18
- Log loading device for motor trucks. Il diags Am Lumberman 2288:62 Mr 23 '19
- Mechanical loading at concreting plant eliminates laborers. diags Eng N 79:1112-13 D 13 '17

**Loading and unloading—Continued**

- Methods of loading lumber in open top cars. *Il* diags Ry Age 64:163-6 Ja 18 '18; Same. Ry Mech Eng 92:16-17 Ja '18
- Motor-driven portable scoop conveyor. *Il* Iron Age 100:1295 N 29 '17; Eng N 79:1039 N 29 '17; Ry R 61:770 D 22 '17; Power 47:226 F 12 '18
- Motor trucks loaded by steam shovel do well on hotel excavation. O. L. Davis. Eng N 79:1077 D 6 '17
- New methods of loading freight cars. C. J. Shower. *Il* Automotive Ind 39:50-2 Jl 11 '18
- Novel system of vessel unloading; B. & O. installs automatic car loading machine in Baltimore harbor. *Il* Ry Age 63:1033-4 D 7 '17
- Portable conveyor equipment. *Il* diags Concrete 13:138 O '18
- Proposed coal-loading machine. H. R. Kirkbride. *diag* Coal Age 15:620-1 Ap 3 '19
- Quick truck loading on road work. Concrete 12:222 Je '18
- Radical departure in loading ocean freighters. *Il* diag Ry Age 66:981-4 Ap 18 '19
- Reducing the cost of handling scrap. *Il* Iron Age 101:379 F 7 '18
- Rotary paddle wheel box car loader. *Il* Munic Eng 54:212 My '18
- Saving money in loading scrap. Factory 20: 452+ Mr '18
- Self powered machine for shallow excavating and loading. *diag* Eng & Contr 49:106 Ja 30 '18
- Self propelled wagon loader with 10-ft. belt conveyor. *diag* Eng & Contr 51:116 Ja 29 '19
- Serviceable unloading box for highway work cost ten dollars complete. E. E. Glass. *Il* diag Eng N 79:1216 D 27 '17
- Spare tower hopper serves as car unloader. G. H. Thompson. *diags* Concrete 12:140 Ap '18; Same. Eng & Contr 50:6 Jl 3 '18
- Speeding up deliveries by quick loading and unloading. *Il* Sci Am 118:152 F 16 '18
- Tailing excavator at the plant of the New Cornelia copper co., Ajo, Ariz. F. Moeller. *Il* Am Inst Min E Bul 140:1229-34 Ag '18; Discussion. 143:1670-2 N '18
- Tower whirler locomotive crane on stilts. *diag* Eng & Contr 49:118-19 Ja 30 '18
- Track-pit and bucket elevator for handling stone on road job. W. Halvembergh. *Il* Eng N 79:1173 D 20 '17
- Truck loading devices reduce lost time. J. E. Schipper. *Il* Automotive Ind 40:1346-50 Je 12 '19
- Underground coal-loading machinery. E. N. Zern. *Il* diag Coal Age 15:784-91 My 1 '19
- Unloader empties a 22-cu. yd. car in fifteen minutes. W. D. Chamberlin. *Il* Elec Ry J 53:324-5 F 15 '19
- Use of loading devices adds greatly to motor truck operating efficiency and economy. *Il* Munic Eng 57:sup24+ O '19
- Wagon and truck loader. *Il* Power 46:861 D 25 '17

*See also* Conveying machinery; Dumping appliances; Freight handling; Lighters; Mechanical handling

**Loading of cars.** *See* Freight car service—Car load

**Loadstone.** *See* Lodestone

**Loan sharks**

How I freed our men from loan sharks. Factory 22:459-61 Mr '19

**Loans**

Equal payments to liquidate a debt with interest. R. B. Shepard, Jr. Eng N 80:871-2 My 2 '18; Discussion. 81:143-4, 372-3 Jl 18, Ag 22 '18

Interest on bank loans. J. E. Brady. Am Arch 114:137 Jl 31 '18

*See also* Building loans; Debts, Public; Interest; Investments; War loans

**Lock-up.** *See* Printing, Practical—Imposition

**Lockers**

Choosing employees' lockers. W. M. Fitch. Factory 21:304+ Ag '18

Hart & Hutchinson steel lockers. Am Arch 113:222 F 20 '18

How lockers were remodeled to comply with fire regulations. O. B. Maginnis. *diags* Bldg Age 40:333 Jl '18

Wash and locker rooms. H. L. Krum. *Il* diags plans Am Arch 114:493-6 O 23 '18; Same. Metal Work 90:601-4 N 29 '18

**Locks**

Cylinder lock. E. Sheldon. *Il* diags Am Mach 51:446-8, 563-6, 979-83 S 4, 18, D 11 '19

Handy gate lock. *diags* Power 47:90 Ja 15 '18

**Locks (canals and rivers)**

American canal between Lakes Erie and Ontario. J. A. L. Waddell. *Il* map Sci Am 118:256-7+ Mr 23 '18

Compressed air tunnel driven around lock to check leak in wall. S. S. Hammel. *Il* diags plan Eng N 80:699-701 Ap 11 '18

Dam supported by bascule bridge closes canal lock. *Il* diags plan Eng N 83:116-18 Jl 17 '19

Large Canadian lift locks. *Il* Sci Am 119:389 N 16 '18

Line hooks, ladders and friction fenders' strips at Government lock, Troy, N.Y. W. Y. Stamper. *diags* plan Eng & Contr 50: 491 N 20 '18

Locking the locks. *Il* Sci Am 119:256 S 28 '18

Mechanical lifts—past and present. J. F. Robbins. *Il* diags plan Mech Eng 41:507-12 Je '19

Protecting the Panama lock valves against electrolysis. R. H. Whitehead. *diag* Eng N 80:1219-21 Je 27 '18; Abstract. Chem & Met Eng 19:684 N 1 '18

System of dry lock. plan Marine R 49:484-5 O '19

**Locomotive bells**

Unique bell on English locomotives. *Il* Sci Am 119:277 O 5 '18

**Locomotive boilers**

Account of the engineering work of E. D. Leavitt. F. W. Dean. Am Soc M E J 39:822, 828-9 O '17; Same. Ry R 62:98-9 Ja 19 '18

Boiler brace coupling. *diags* Ry Mech Eng 92: 231 Ap '18

Calculation of boiler stresses. G. E. Parks. Ry Mech Eng 92:139-43 Mr '18

Combustion chamber and boiler efficiency. J. T. Anthony. *diags* Ry R 62:709-10 My 18 '18; Abstract. Elec W 71:1146-7 Je 1 '18

Design and maintenance of locomotive boilers. Ry R 64:997 Je 28 '19

Design and maintenance of locomotive boilers; report of Master mechanics' association committee. Ry R 62:948-51 Je 29 '18; Same cond. Ry Age 64:1522-3 Je 21 '18

Federal locomotive inspection 6th annual report; abstracts. Ry Mech Eng 91:680-2 D '17; Ry Age 63:1077-9 D 14 '17; Ry R 62:8-10 Ja 5 '18

Harter circulating plate. plans Ry R 64:951-2 Ja 21 '19

Horsepower of locomotive boiler. Power 48:359 D 10 '18

Improvements in locomotive boilers. W. H. Wood. Mech Eng 41:387 Ap '19

Locomotive boiler economy. L. F. Wilson. Ry R 62:874-5 Je 15 '18

Locomotive feed water heating. H. S. Vincent. *diags* Ry Mech Eng 92:645-9; 93:44-7 D '18-Ja '19; Abstract. Am Soc M E J 41: 177-80 F '19

Locomotive type stationary boilers. *diags* Ry R 63:668-9 N 9 '18

Open type locomotive feed-water heater. *Il* diags Ry Mech Eng 93:495-6 Ag '19

Protecting boiler drums from over heating. Locomotive 32:226-9 O '19

Radiant heat and firebox design. J. T. Anthony. *diags* Ry Mech Eng 92:658-60 D '18

7th annual report of chief inspector of locomotive boilers. F. McManamy. chart Ry Age 65:1126-8 D 20 '18; Same. Ry R 63:907-9 D 28 '18; Same. Ry Mech Eng 93:135-6 Mr '19

Standard specifications for lap-welded and seamless steel boiler tubes for locomotives; English and Spanish. *diags* U S Bur For & Dom Com Ind Stand 18:1-19 '19

Standard specifications for lap-welded charcoal-iron boiler tubes for locomotives; English and Spanish. U S Bur For & Dom Com Ind Stand 23:1-15 '19

**Locomotive boilers—Continued**

Tube spacing to suit bad water conditions. C. E. Brooks. Ry Mech Eng 93:243-4 My '19

See also Feed water heaters; Locomotive fireboxes; Locomotive grates; Locomotives

**Electric heating**

Electric boiler heating for steam locomotives. W. Kummer. Am Soc M E J 40:252-3 Ap '18; Same. Sci Am S 85:331 My 25 '18

**Repair**

Locomotive firebox and boiler maintenance and repairs; abstracts. G. Austin. Ry R 62:294-8 Mr 2 '18; Ry Age 64:467-9 Mr 1 '18; Ry Mech Eng 92:161-3 Mr '18

Practical notes on the repair of locomotive boilers. E. W. Fell. diags Engineer 126:541-2 D 20 '18

**Locomotive cabs**

Locomotive cab and cab fittings; abstracts of committee report of Traveling engineers' association. Ry Age 65:504-5 S 13 '18; Ry R 63:405-6 S 14 '18; Ry Mech Eng 92:596 N '18

Proper location of locomotive cab fittings. H. G. Boutell. Ry Mech Eng 92:606-7 N '18

Locomotive coaling stations. See Coaling stations

**Locomotive engineers**

Duties and responsibilities of engineers and firemen. V. S. Clark. Ry Age 64:373-4 F 16 '18

Effect of improved mechanical contrivances on the conservation of men. Ry R 62:231-3 F 16 '18

Engineers' call board. Ry R 63:23 JI 6 '18

How can the traveling engineer aid the Railroad administration in the maintenance of locomotives? F. P. Roesch. Ry R 63:399-400 S 14 '18

Railroad man and the war. F. McManamy. Ry R 63:383-4 S 14 '18

Traveling engineers' association 26th annual convention, Chicago. Ry Age 65:494-508 S 13 '18; Ry R 63:399-406, 429-32 S 14-21 '18; Ry Mech Eng 92:547-56 O '18

Locomotive engineers, Brotherhood of. See Brotherhood of locomotive engineers

Locomotive feed water heaters. See Feed water heaters

**Locomotive fireboxes**

Air supply to the locomotive fire box. J. T. Anthony. Ry Mech Eng 92:260 My '18

Application of brick arches to fireboxes. Ry Age 66:1328-9 My 30 '19; Same. Ry Mech Eng 93:439-40 JI '19

Boiler efficiency increased by new type of firebox. diags Ry Age 66:151-3 Ja 10 '19

Firebox conditions and heat distribution. diags Coal Age 15:902-3 My 15 '19

Firebox repairs. G. Austin. diags Ry Mech Eng 92:217-18 Ap '18

Gaines wall and firebox efficiency. J. D. Rogers. Ry Age 64:518 Mr 8 '18

Jacobs-Shupert firebox repairs. H. L. Hahn. II diags Ry Mech Eng 93:485-7 Ag '19

Locomotive firebox and boiler maintenance and repairs; abstracts. G. Austin. Ry R 62:294-8 Mr 2 '18; Ry Age 64:467-9 Mr 1 '18; Ry Mech Eng 92:161-3 Mr '18

New departure in firebox construction. diags Ry R 64:47-51 Ja 11 '19; Same cond. Ry Mech Eng 93:71-3 F '19; Abstract. Mech Eng 41:284-5 Mr '19

Radiant heat and firebox design. J. T. Anthony. diags Ry Mech Eng 92:658-60 D '18

Renewable stay heads for locomotive fireboxes. II diags Engineer 126:176-7 Ag 30 '18; Abstract. Am Soc M E J 40:964 N '18

Test covering comparison between proper and improper firebox, grate and ash pan condition. Ry R 64:721-2 My 17 '19

Welding firebox patches and cracks. E. D. Johnson. II Ry Mech Eng 92:520 S '18

**Locomotive firemen**

Conservation of men on our railroads. Sci Am S 87:109 F 15 '19

Effect of improved mechanical contrivances on the conservation of men. Ry R 62:231-3 F 16 '18

See also Railroads—Employees

**Locomotive grates**

Dimensions of air passages in locomotive grates; abstract. Am Soc M E J 41:60 Ja '19

**Locomotive headlights**

Automobile headlight proves serviceable for use on mine locomotives. J. J. Nolan. II Coal Age 15:174-5 Ja 23 '19

Electric headlights; committee report. diags Ry R 63:630-1 N 2 '18

Locomotive electric headlight wiring. diags Ry Mech Eng 93:100-3 F '19

New mine headlight for haulage locomotive use. II Coal Age 15:59 Ja 9 '19

Report by a committee of American railroad association. Ry R 64:997-8 Je 28 '19

Use and abuse of electric headlights on mining locomotives. K. W. Mackall. II diags Coal Age 14:1060-7 + D 12 '18; Excerpt. Eng & Min J 107:741 Ap 26 '19

**Locomotive industry**

Locomotive exports from a British point of view. Ry Age 67:511-12 S 12 '19

Locomotive performance. See Locomotives—Performance

Locomotive resistance. See Train resistance

**Locomotive shops**

Accuracy in locomotive repairs. M. H. Williams. diags Ry Mech Eng 92:673-7 D '18

Boiling tanks in locomotive workshops; abstract. Mech Eng 41:280 Mr '19

British army locomotive repairs. H. L. Cole. II Ry Mech Eng 93:548-50 S '19

C. P. R. shop production methods. E. T. Spidy. II Ry Mech Eng 93:320-6 Je '19

Caring for locomotives at terminals. T. F. Howley. II diags plans Ry R 65:483-90 O 4 '19; Same. Ry Mech Eng 93:574-6 O '19; Excerpts. Ry Age 67:640-3 S 26 '19

Co-ordination in the mechanical department. W. U. Appleton. Ry R 63:773-4 N 30 '18

Design of modern locomotive repair shops. G. E. Lemmrich. II diags plan Ry Age 67:261-5 Ag 8 '19

Ebenzer shops and engine terminal. P.R.R. II diags plans Ry R 65:323-30 S 6 '19

Economics of the shop power house. V. T. Kropidowski. Ry Mech Eng 91:243-4, 373-5, 675-8 My, JI, D '17

E. J. & E. has efficient flue shop. II plan Ry Mech Eng 93:261-3 My '19

Expedite locomotive repairs. G. W. Armstrong. II Ry Mech Eng 92:341-3 Je '18

Glenwood shop improvements, Baltimore & Ohio R. R. II plans Ry R 64:747-52 My 24 '19

Grinding in locomotive shops. M. H. Williams. II Ry Mech Eng 92:629-32 N '18

Heavy shop framing for 250-ton traveling crane. II diags Eng N 82:1172-3 Je 12 '19

Locomotive maintenance problems; information contributed by railway officials. diags Ry Mech Eng 92:33-7 Ja '18

Locomotive repair shop output schedule. H. L. Burrhus. Ry Mech Eng 93:414-16 JI '19

Locomotive repair shop situation. Ry Age 64:863-5 Ap 5 sec 1 '18

Locomotive shops of the British war office in France. II Ry R 63:43-4 JI 13 '18

Locomotive shops of the Midland railway, Derby. II Engineer 128:326-7, 334 O 3 '19

New B. & O. shops at Glenwood. II plans Ry Mech Eng 93:288-96 Je '19

New locomotive maintenance program, Pennsylvania lines west. II diags plans Ry R 64:913-22 Je 21 '19

New locomotive repair shop built for the B. & O. II diags plan Ry Age 66:1401-4 Je 13 '19

New railroad shops in Chile. V. A. Clarke. II Am Mach 49:724 O 17 '18

Pennsylvania lines improved locomotive facilities; shop at Logansport, Ind. II diags plans Ry Age 67:863-9 O 31 '19

Some interesting boiler shop equipment. F. W. Seelert. II Ry Mech Eng 92:167-9 Mr '18

**Locomotive shops—Continued**

- Tire lifting devices. diags Ry Mech Eng 93: 319 Je '19  
 Transition from steam to electricity at Deer Lodge, Mont., shops. E. Sears. Ry R 62:61-3 Ja 12 '18  
 Unified mechanical department. W. U. Appleton. Ry Mech Eng 93:130-3 Mr '19  
 Unified shop record and management conditions. Ry Age 68:1014-15 Ap 18 '19; Same. Ry Mech Eng 93:263-4 My '19  
 West Burlington shops of the C. B. & Q. il plans Ry Mech Eng 93:12-16 Ja '19

See also Locomotives—Repair

**Locomotive stokers. See Stokers, Mechanical****Locomotive tenders**

- Bracing locomotive tenders. diag Ry Age 66: 1330-1 My 30 '19; Same. Ry R 64:901-2 Je 14 '19; Same. Ry Mech Eng 93:441-2 Jl '19  
 Brakemen's cab on rear of tender. diags Ry R 65:452 S 27 '19  
 Coal gate holders. J. H. Nagle. diags Ry Mech Eng 92:450 Ag '18  
 Innovation in tender design. il diags Ry Mech Eng 91:673-4 D '17  
 New tender for Canadian Pacific locomotives. diags plan Ry R 63:525-6 O 12 '18  
 Novel tender and a feed-water tank. E. E. Lucy. il diags Engineer 126:356-7 O 25 '18  
 Sturrock's steam tender. diag Engineer 127: 66-8 Ja 17 '19  
 Tenders of U. S. standard freight locomotives. Ry Age 65:372-3 Ag 30 '18

**Locomotive terminals**

- Analysis of the locomotive terminal problem. G. E. Lemmerich. plans Ry Age 66: 538-41 Mr 7 '19  
 Buffalo division engine terminals. Lehigh Valley R. R. il diags plans Ry R 62:895-903 Je 22 '18  
 Caring for locomotives at terminals. T. F. Howley. il diags plans Ry R 65:483-90 O 4 '19; Excerpta. Ry Age 67:640-3 S 26 '19  
 Complete modern engine terminal installation. il diags plan Ry Age 66:994-7 Ap 18 '19  
 Decreasing engine terminal delay: prize essays. O. T. Dickens; T. S. Grant; K. R. Mitchell. il Ry Mech Eng 91:697-701 D '17  
 Ebenezer shops and engine terminal. P.R.R. il diags plans Ry R 65:323-30 S 6 '19  
 Engine terminal improvements: Pennsylvania lines west. diags plan Eng N 83:24-8 Jl 3 '19  
 Erie Avenue engine terminal. Philadelphia & Reading Ry. il diags plans Ry R 64:859-65 Je 14 '19  
 Handling locomotives at railway terminals: abstracts. F. C. Pickard. Ry R 62:351-2 Mr 9 '18; Ry Age 64:713-14 Mr 22 '18; Ry Mech Eng 92:275-6 My '18  
 Increase engine terminal output. E. P. Roesch and others. Ry Mech Eng 92:50-2 Ja '18  
 Locomotive fire kindler. diags Ry Mech Eng 92:276-7 My '18  
 Locomotive fuel losses at terminals. J. M. Nicholson. Ry R 64:752-4 My 24 '19; Same cond. Ry Mech Eng 93:524-5 S '19  
 Modern tendencies in the design of roundhouses. G. E. Lemmerich. il diags Ry Age 66:587-90 Mr 14 '19  
 New design for engine coaling facilities. diag plan Ry Age 65:615-16 O 4 '18  
 New engine terminal outside city avoids congestion at Gallon, Ohio. il diags Eng N 82:519-21 Mr 13 '19  
 New locomotive maintenance program. Pennsylvania lines west. il diags plans Ry R 64:913-22 Je 21 '19  
 New shops and engine terminals. Buffalo, Rochester & Pittsburgh Ry. diags plans Ry R 62:907-11 Je 22 '18  
 New terminal for the Michigan Central. il diag plan Ry R 64:373-6 Mr 15 '19  
 New York Central R. R. engine terminal. Gardenville, New York. il diags plan Ry R 64:677-81 My 10 '19  
 Pennsylvania lines improved locomotive facilities; shop at Logansport, Ind. il diags plans Ry Age 67:863-9 O 31 '19

- Portable engine house facilities. diags Ry R 62:521-2 Ap 6 '18  
 Reducing the time to turn locomotives. T. T. Ryan. Ry Mech Eng 92:114-15 F '18; Discussion. C. E. Brooks. 92:490 S '18  
 Terminal time saving. Ry Mech Eng 92:110-11 F '18  
 Toledo & Ohio Central engine terminal. il diag plans Ry R 64:343-5 Mr 8 '19  
 See also Roundhouses

**Cost**

- Engine terminals and roundhouse cost. E. M. Haas. Eng N 82:1059-60 My 29 '19

**Lighting**

- Illumination of Toledo & Ohio Central engine terminal at West Columbus, O. R. E. Rice. il plan Ry R 64:815-16 Je 7 '19  
 Locomotive tires. See Tires, Locomotive  
 Locomotive turntables. See Turntables  
 Locomotive whistle  
 Abatement of the whistle nuisance. Ry Age 66:1812 Je 27 '19

**Locomotives**

- American locomotives for the American forces in France. il Engineer 124:453 N 23 '17  
 American locomotives for the Far East. il Engineer 128:216 Ag 29 '19  
 American locomotives needed for Chinese railways. C: Denby. il Ry Age 66:252 Ja 24 '19  
 Baldwin-Westinghouse passenger locomotives for the Chicago Milwaukee & St Paul Ry. F. H. Shepard. il diag plan Ry R 62:603-5 Ap 27 '18  
 British locomotives of 1917. il diags Engineer 125:28-30, 32 Ja 11 '18  
 Carolina, Clinchfield & Ohio freight locomotives. il diags Ry Age 67:317-19 Ag 15 '19  
 Compounding and fuel economy. Ry R 62:643-9 My 4 '18; Discussion. H. Rogers. 62:725-6 My 18 '18  
 Consolidation type locomotive for coal traffic into London. F: C. Coleman. Ry R 62:556-7 Ap 13 '18  
 Consolidation vs. Mikado locomotives. E. F. Glavin. Ry Age 64:1110 My 3 '18  
 Conversion of compound engines on the Great Northern railway. il diags Engineer 124: 542, 547 D 21 '17  
 Conversion of single-expansion to compound engines on French railways. il diags (supp) Engineer 124:511-12 D 14 '17  
 Development of express locomotives in France. diags Engineer 127:270-2 Mr 21 '19  
 Difficulties in handling French equipment. J. N. McVey. Ry R 63:581-4 O 19 '18  
 Distribution of standard locomotives to the railroads. Ry Mech Eng 92:386 Jl '18  
 Economics of locomotive assignment. O. O. Carr. Ry R 62:906-7 Je 22 '18  
 Economy in maintenance and operation of locomotives. G. Greenough. Ry R 62:625-8 Ap 27 '18; Excerpt. Ry Age 64:1045-6 Ap 19 '18; Excerpt. Ry Mech Eng 92:248 My '18  
 Effect of reducing exhaust nozzles to overcome front end air leaks. F. P. Roesch. Ry Age 66:1816-17 My 30 '19; Same. Ry R 64:795-6 My 31 '19  
 Engine calibration adjunct to efficient operation. B. B. Milner. Ry R 64:1000-4 Je 28 '19  
 First Mountain type locomotives for the Santa Fe. il Ry Age 65:957-9 N 29 '18; Same cond. Ry R 63:696-8 N 16 '18  
 Further observations on French equipment. W: R. Harlan. Ry R 64:480-1 Mr 29 '19  
 Garratt type locomotive for the Sao Paulo Ry., Brazil. F. C. Coleman. il Ry R 62:187-8 F 9 '18  
 Government car and locomotive orders. Ry Age 64:1169-71 My 10 '18  
 Grand trunk 0-6-0 type switching locomotives. Ry Age 67:7-8 Jl 4 '19  
 Handling locomotives to secure efficiency and fuel economy. J. B. Hurley. Ry Age 67: 639-40 S 26 '19; Same. Ry R 65:531-2 O 11 '19; Same. Ry Mech Eng 93:572-4 O '19



**Locomotives—Continued**

- Heavy Mikado and Mallet type locomotives. *Il Ry R 65:122-3 J1 26 '19*  
 How to improve the power situation. *Ry Age 64:391-2 F 22 '18*  
 Increase locomotive operating efficiency. C. F. Street. *Il Ry Mech Eng 92:5-7 Ja '18*  
 Intensive locomotive development. O. S. Beyer, Jr. *Ry Mech Eng 92:131-3, 187-8 Mr-Apr '18*  
 Lame engines and their effect on fuel consumption. J. W. Hardy. *Ry Age 66:1309-11 My 30 '19; Excerpt. Ry R 64:791 My 31 '19*  
 Light Mikado type of locomotive for the United States government. *Il Ry R 63:87-8, 158-60 J1 20, Ag 3 '18*  
 Locomotive cost as related to service. *Ry Age 64:1162 My 10 '18*  
 Locomotive development. *Ry R 62:722-3 My 13 '18*  
 Locomotive orders in 1917 from companies in the United States and Canada; tabulation. *Ry Age 64:61-4 Ja 4 '18*  
 Locomotive side play. *Ry Mech Eng 92:278-9 My '18*  
 Locomotive situation. *Ry Age 64:11-12 Ja 4 '18*  
 Locomotives for French railways. *Il diag Ry Mech Eng 92:136-9 Mr '18; Same cond. Ry Age 64:504-5 Mr 8 '18; Same cond. Ry R 62:293-4 Mr 2 '18*  
 Locomotives of the year. *Engineer 127:5-6, 12 Ja 3 '19*  
 Mallet simple locomotive. *Engineer 128:467 N 7 '19*  
 Mallet type locomotive for Utah railway. *Il Ry R 64:85-6 Ja 18 '19*  
 Mechanical stoking of locomotives; abstracts. W. S. Bartholomew. *Ry R 65:2-5 J1 5 '19; Ry Age 67:163-7 J1 25 '19; Ry Mech Eng 93:465-9 Ag '19*  
 Metamorphosis of the locomotive. H. Holcroft. *diag Engineer 128:78-80, 103-4, 126-9, 153-4 J1 25-Ag 15 '19*  
 Most powerful locomotive in the world. *Il Sci Am 119:294-5 O 12 '18*  
 Motive power and rolling stock situation. *Ry Age 66:68-70 Ja 3 '19*  
 Motive power under government control. G. N. De Guire. *Ry Age 67:349-52 Ag 22 '19*  
 New British-built locomotives for the Anglo-French express service. F. C. Coleman. *Il Ry R 62:81-2 Ja 19 '18*  
 New Consolidation locomotives and excursion cars on the Victorian railways. *Il diag Engineer 126:15-16 J1 5 '18*  
 New locomotives for the Texas & Pacific railway. *Il Ry R 65:203-4 Ag 9 '19*  
 Oil-burning steam locomotive. *Il Munic Eng 54:38 Ja '18*  
 1,025 locomotives and 95,000 cars ordered by government. *Ry Age 64:1145-6 My 3 '18*  
 Pacific tank locomotive for the Caledonian Ry. F. C. Coleman. *Il Ry R 62:439-40 Mr 23 '18*  
 Pacific type locomotive, Lehigh Valley R. R. *Il Ry R 64:785-6 My 31 '19*  
 Pacific type locomotives for the Central of New Jersey. *Il Ry Age 65:769-70 N 1 '18*  
 Passenger locomotive, Caledonian railway. (supp) *Engineer 125:248 Mr 22 '18*  
 Powerful British-built express passenger locomotive for Great Central railway co. of England. F. C. Coleman. *Il Ry R 62:261-2 F 23 '18*  
 Railroad administration's motive power problems. A. B. Johnson. *Ry Age 64:965-8 Ap 12 '18; Same. Ry R 62:536-9 Ap 13 '18; Excerpts. Ry Mech Eng 92:246-8 My '18; Abstract. Coal Age 13:931 My 18 '18; Discussion. Ry Age 64:1018 Ap 19 '18*  
 Recent American express locomotives. E. C. Poultney. *Engineer 127:523-4, 550-2, 574-5 My 30-Je 13 '19*  
 Recent American freight locomotives. *Il Engineer 126:222, 232-3 S 13 '18*  
 Recent Australian and New Zealand locomotives. *Il Engineer 128:180 Ag 22 '19*  
 Recent locomotive development and its effect on capacity and fuel economy. *Ry R 62:610-11 Ap 27 '18*  
 Recent locomotives for the French state railways. F. C. Coleman. *Il Ry Age 65:861-3 N 15 sec 1 '18*  
 Relative economy of the locomotive of 1900 and today. J. E. Muhlfeld. *Am Soc M E J 40:pt 2, 655-6 J1 '18; Same. Ry Age 65:305-6 Ag 16 '18; Same. Ry R 63:166-7 Ag 3 '18; Discussion. Ry Age 65:306-7 Ag 16 '18*  
 Rolling stock of 1919. H. T. Walker. *Il diag Sci Am 121:250-1+ S 13 '19*  
 Santa Fe locomotive for the belt railway of Chicago. *Il Ry R 62:611-12 Ap 27 '18*  
 Santa Fe 2-8-2 type locomotive. *Il diag Ry Mech Eng 92:33-5 F '18*  
 Santa Fe type locomotives. *Ry R 62:160-1 F 2 '18*  
 Santa Fe type locomotives for light track. *Il Ry Mech Eng 93:583 O '19*  
 Scientific development of the steam locomotive. J. E. Muhlfeld. *Ry Age 67:1139-43, 1197-1202 D 12-19 '19; Same cond. Mech Eng 41:864-9 N '19*  
 Shifting of motive power from road to road. *Ry Age 64:899-900 Ap 5 sec 1 '18*  
 Side rod straps. *Il Ry Mech Eng 92:287 My '18*  
 Sixty year old locomotive. *Il diag Engineer 125:432 My 17 '18*  
 Tank engines. *Ry Age 65:116, 158, 373 J1 19-26, Ag 30 '18*  
 Ten-wheel and Mikado type locomotives for the Paris-Orleans Ry. F. C. Coleman. *Il Ry R 63:267-8 Ag 24 '18*  
 Traveling engineers' association 27th annual meeting, Chicago. *Ry R 65:422-6, 450-1 S 20-27 '19*  
 Typical British locomotive. *Il Sci Am S 85:252 Ap 20 '18*  
 Universities and railroad equipment development. *Ry Mech Eng 92:47-9 Ja '18*  
 Yankee's idea of French engines. *Il Ry Mech Eng 92:249-50 My '18*  
 See also Electric locomotives; Locomotive boilers, and other headings beginning Locomotive; Railroads; Roundhouses; Steam engines; Stokers, Mechanical; Tractors; also American locomotive company
- Axles**
- Forged tires and axles. L. Genze. *Iron Age 103:240 Ja 23 '19*  
 Heat treatment of axles. D. D. Miller. *Il Ry Mech Eng 92:419-21 J1 '18*  
 Hollow steel axles and safety first. J. Pollak. *Il Iron Age 101:1129-31 My 2 '18*
- Cleaning**
- Cleaning locomotives. *diag Ry R 62:514-15 Ap 6 '18*  
 D. & M. process of cleaning locomotives. *Il diag Ry R 63:724-5 N 16 '18*
- Counterbalancing**
- Reduce dynamic augment for heavy locomotives; abstracts. E. W. Strong. *Ry Age 64:415-17 F 22 '18; Ry R 62:341-5 Mr 9 '18; Ry Mech Eng 92:257-60 My '18*
- Crosshead pins**
- Crosshead pin on Russian built locomotives. J. Grant. *Il diag Ry Mech Eng 93:416 J1 '19*
- Design**
- Administration standard light mountain type. *Il diag Ry Age 66:1193-6 My 16 '19; Same. Ry Mech Eng 93:431-5 J1 '19*  
 A. T. & S. F. 4-8-2 type locomotives. *Il diag Ry Mech Eng 92:649-52 D '18*  
 C. C. C. & St L. 0-8-0 switchers. R. W. Retterer. *Il diag Ry Mech Eng 93:411-14 J1 '19*  
 Drafting modern locomotives. H. W. Codrington. *diag Ry Mech Eng 92:387-92, 439-44 J1-Ag '18*  
 First of the U.S. standard locomotives completed; light Mikado type. *Il diag Ry Age 65:131-3 J1 19 '18; Same. Ry Mech Eng 92:436-8 Ag '18*  
 First standard 0-8-0 type switching locomotive. *diag Ry Age 65:542-4 S 20 '18; Same. Ry Mech Eng 92:543-5 O '18*  
 Government standard switching locomotives. *diag Ry R 63:513-15 O 5 '18*

**Locomotives—Design—Continued**

Heaviest 2-10-2 type built for Pennsylvania lines. *Il* diags Ry Age 66:249-51 Ja 24 '19; Same. Ry Mech Eng 93:63-6 F '19; Same *abr.* Engineer 125:82 Ja 25 '18

Heavy Mallet compound for Virginian railway. *Il* Ry R 63:497-8 O 5 '18; Same *cond.* Ry Age 65:688-91 O 18 '18

Heavy Mikado type locomotive for A. T. & S. F. Ry. *Il* diags Ry R 61:761-2 D 22 '17; Same. Ry Age 64:209-11 Ja 26 '18

Heavy standard Mikado locomotive, United States railroad administration. *Il* diags Ry Mech Eng 92:491-4 S '18; Ry Age 65:374-6 Ag 30 '18; Ry R 63:331-4 S 7 '18

Light and heavy standard Pacific type locomotives. *Il* diags Ry Age 66:950-4 Ap 11 '19

Locomotive design from a maintenance standpoint. W. H. Winterrowd. Ry Mech Eng 91:678-80 D '17

London and South-western railway—six coupled passenger locomotive. *Il* diags *supp* Engineer 126:383 N 1 '18

Longitudinal disturbing forces in locomotives. E. L. Coster. *diag* Ry Mech Eng 93:420-2 JI '19

Mallet compound locomotives for Wheeling & Lake Erie Ry. *Il* diags Ry R 62:5-6 Ja 5 '18

Mikado type locomotives of the C. P. R. *Il* diags Ry R 65:523-4 O 11 '19

Modern tendencies in locomotive design. L. E. Endsley. Ry R 62:148-50 F 2 '18

New York Central 4-8-2 type locomotives. *Il* diags Ry Age 63:1167-70 D 28 '17; Same. Ry Mech Eng 92:77-80 F '18

Norfolk & Western 267-ton Mallet locomotive. H. W. Reynolds. *Il* diags *plan* Ry Age 65:59-63 JI 12 '18; Same. Ry Mech Eng 92:445-50 Ag '18

Pacific and Mikado type locomotives, C. B. & Q. R. R. *Il* diags Ry R 63:1-5 JI 6 '18; Same *cond.* Ry Age 65:224-5 Ag 2 '18

Penn. lines Mallet locomotive. *Il* diags Ry Mech Eng 93:613-15 S '19; Same *cond.* Ry R 65:157-9 Ag 2 '19

Philadelphia & Reading 2-8-0 type locomotive. *Il* Ry R 64:318-19 Mr 1 '19; Ry Age 66:760-2 Mr 21 '19; Ry Mech Eng 93:175-7 Ap '19

Pulverised fuel locomotive. *Il* diags (*supp*) *plan* Engineer 127:400-2 Ap 25 '19

Recent advantages in locomotive efficiency. Paris, Lyons & Mediterranean Ry. C. R. King. *Il* diags Ry R 62:851-5 Je 15 '18; Discussion. 63:132 JI 27 '18

Reduce dynamic augment for heavy locomotives; abstracts. E. W. Strong. Ry Age 64:415-17 F 22 '18; Ry R 62:341-5 Mr 9 '18; Ry Mech Eng 92:257-60 My '18

Rock Island 2-10-2 locomotive. *Il* diags Ry Mech Eng 93:41-3 Ja '19

Santa Fe locomotive, Pennsylvania lines west. *Il* diags Ry R 64:313-14 Mr 1 '19

Should standard locomotives be considered as a war measure? Ry Age 64:436-7 Mr 1 '18

Small locomotives of special types. *Il* diags *plan* Engineer 125:419-21, 442-3, 448, 464-5, 472, 507-10; 126:111-12, 118 My 17-31, Je 14, Ag 9 '18

Standard 4-6-2 type locomotives. *Il* charts *diags* Ry Mech Eng 93:230-5 My '19

Standard heavy 4-8-2 and light 2-10-2 locomotives. *Il* charts *diags* *plan* Ry Age 65:1066-73 D 13 '18; Same. Ry Mech Eng 93:25-30 Ja '19

Standard heavy Santa Fe 2-10-2 type locomotive. chart *diags* Ry Age 66:388-92 F 14 '19; Same. Ry Mech Eng 93:119-23 Mr '19

Standard six-wheel switcher. *Il* diags Ry Mech Eng 92:593-6 N '18

Standard 2-8-8-2 type locomotives. *Il* diags Ry Mech Eng 93:187-90 Ap '19; Same. Ry Age 66:575-8 Mr 14 '19

Standard 2-10-2 and 4-8-2 type locomotives. *Il* diags Ry R 64:7-12 Ja 4 '19

Three-cylinder locomotive. A. McBeth. Engineer 127:56 Ja 17 '19

Three-cylinder locomotive for Constantinople; abstract. Mech Eng 41:285 Mr '19

Three-cylinder locomotives. H. Holcroft. *diags* Engineer 127:485-9 My 16 '19

Three-cylinder locomotives. H. S. Vincent. *diags* Engineer 127:326-7 Ap 4 '19

2-8-8-0 simple Mallet locomotive Pennsylvania R. R. *Il* diags Ry R 65:81-8 JI 19 '19

2-10-2 type locomotives for the U. P. *Il* diags Ry Mech Eng 92:321-4 Je '18; Same *cond.* Ry Age 64:1572-4 Je 28 '18

U.S.R.A. standard six-wheel switching locomotive; the first of the smallest government engines to be built. *Il* chart *diags* Ry Age 65:654-7 O 11 '18

U.S. standard light Mallet 2-6-6-2 type locomotive. *Il* diags Ry Age 66:290-2 Ja 31 '19; Same. Ry Mech Eng 93:74-7 F '19

Virginian 2-10-10-2 locomotives. *Il* diags Ry Mech Eng 92:600-4 N '18

Wabash 2-10-2 type locomotive. *Il* diags Ry Mech Eng 91:667-70 D '17; Same. Ry Age 63:1025-8 D 7 '17

Work of the supply engineer. W. E. Woodard. Ry R 64:518-19 Ap 5 '19

*See also* Locomotives—Front ends; Locomotives—Standards

**Driving boxes**

Gages for driving box work. J. H. Hahn. *diags* Ry Mech Eng 92:164 Mr '18

Inadequate main boxes. Ry Mech Eng 93:118, 174, 410, 512, 568 Mr-Apr, JI, S-O '19

Machining locomotive driving boxes. F. A. Stanley. *Il* diags Ry Mech Eng 92:573-5 O '18

Machining locomotive driving boxes. M. H. Williams. *Il* diags Ry Mech Eng 93:155-9 Mr '19

**Driving wheels**

Drilling holes for hub plate studs. *diags* Ry Mech Eng 93:259-60 My '19

Testing driving wheels for quarter. E. R. Breaker. *diag* Ry R 63:69 JI 13 '18

Trying a pair of driving wheels for quarter. V. T. Kropidowski. *diag* Ry R 62:807-8 Je 1 '18

**Equipment and supplies**

Air consumption on locomotive auxiliary devices; abstracts. C. H. Weaver. Ry R 64:632-5 My 10 '19; Ry Age 66:1165-8 My 9 '19; Ry Mech Eng 93:423-6 JI '19

Car and locomotive specialties ordered. Ry R 62:885-6 Je 15 '18

Conservation in use of locomotive supplies. W. J. Tollerton. Ry Age 64:1316 My 31 '18

Fire-lighters for locomotives. *Il* diags Engineer 125:412 My 10 '18

Loco-recorder. *Il* Ry R 65:670 N 1 '19

Locomotive front end spark arrester. *Il* diags Ry Mech Eng 92:118-19 F '18; Same. Ry Age 64:372-3 F 15 '18

Locomotive pulverized fuel equipment. *Il* *diag* Ry Mech Eng 93:498-500 Ag '19

Parasite reservoir governor. *Il* *diag* Ry Mech Eng 93:107 F '19

Specialties for standard cars and locomotives. Ry Age 66:91-2 Ja 3 '19

Throttle safety appliance. *diags* Ry Mech Eng 92:228 Ap '18

*See also* Feed water heaters; Locomotive bells; Locomotive boilers; Locomotive fire-boxes; Locomotive headlights; Locomotives—Gearing; Locomotives—Superheaters; Stokers, Mechanical

**Failures**

Engine failures, causes and remedies: abstracts of committee report of Traveling engineers' association. Ry Age 65:505-6 S 13 '18; Ry R 63:429-32 S 21 '18; Ry Mech Eng 93:77-8 F '19

Personal injuries due to locomotive failures. J. L. Mohun. Ry Age 67:113-18 JI 18 '19; Same. Ry Mech Eng 93:458-63 Ag '19

**Front ends**

Design of ash pan and draft appliances. Ry Age 66:1329-30 My 30 '19; Same. Ry Mech Eng 93:440-1 JI '19

Economy locomotive front end. *Il* diags Ry R 64:319-21 Mr 1 '19

Front ends, grates and ash pans. Ry Age 66:1315-16 My 30 '19; Same. Ry Mech Eng 93:576-7 O '19

*See also* Locomotives—Piping

## Locomotives—Continued

## Fuel

- Anthracite silt as a locomotive fuel. *Il* Ry R 62:857-60 Je 15 '18
- Burning anthracite coal on Lehigh Valley locomotives. Ry R 62:45-6 Ja 5 '18
- Certain essentials of fuel economy. E. McAuliffe. Ry Age 66:1254-5 My 23 '19; Same. Ry R 64:762-3 My 24 '19; Same. Ry Mech Eng 93:584 O '19
- Circular of fuel conservation section of Railroad administration. Ry Age 65:339-40 Ag 23 '18
- Co-operative research and the fuel problem. O. S. Beyer, jr. Ry Mech Eng 93:443-4 Jl '19
- Cost of locomotive fuel in 1917. Ry Age 65:728 O 25 '18; Same. Ry R 63:707 N 16 '18
- Economical use of coal in railway locomotives. *Il* diags *Ill* U Eng Exp Sta Circ 8:1-71 '15
- Effective methods of reducing the coal bill. H. C. Woodbridge. Ry Age 67:833-5 O 24 '19
- Equated tonnage and fuel consumption. R. N. Beglen. Ry Mech Eng 93:464 Ag 19 '19
- Fuel conservation on the Northern Pacific. M. A. Daly. *Il* Ry Age 66:1037-9 Ap 25 '19; Same. Ry Mech Eng 93:237-9 My '19; Same *abr.* Ry R 64:868-9 Je 14 '19; Discussion. Ry Age 66:1039-40 Ap 25 '19; Same. Ry Mech Eng 93:239-40 My '19
- Fuel conservation on the Santa Fe. C. E. Parks. Ry R 63:124-7 Jl 27 '18
- Fuel economy—abstracts of committee report of Traveling engineers' association. Ry Age 65:501-3 S 13 '18; Ry R 63:402-3 S 14 '18
- How can coal be saved on the engine? Ry Age 65:136-7 Jl 19 '18
- Important phases of the fuel conservation problem; suggestions to railway men. H. C. Woodbridge. Ry Age 65:335-6 Ag 23 '18
- Important points in fuel conservation. R. Collett. Ry Age 65:1121-3 D 20 '18; Same cond. Ry Mech Eng 93:66-7 F '19
- Individual fuel performance records, Baltimore & Ohio R.R. W. L. Robinson. Ry R 62:205-9 F 9 '18; Same cond. Ry Age 63:1131-6 D 21 '17
- International railway fuel association 11th annual convention, Chicago. Ry Age 66:1248-56, 1309-17 My 23-30 '19; Ry R 64:755-9, 791-6 My 24-31 '19
- Lame engines and their effect on fuel consumption. J. W. Hardy. Ry Mech Eng 93:515-16 S '19
- Locomotive fuel economy. Ry R 65:27-9 Jl 5 '19
- Locomotive fuel losses at terminals. J. M. Nicholson. Ry R 64:752-4 My 24 '19; Same cond. Ry Mech Eng 93:524-5 S '19
- Lopulco mixer and feeder for powdered coal. *diag* Ry R 63:29 Jl 6 '18
- Methods employed to aid fuel conservation. Ry R 62:718-20 My 13 '18
- Motive power department and fuel economy. R. Quayle. Ry R 62:750-2 My 25 '18; Same cond. Ry Age 64:1290-1 My 24 '18; Same cond. Ry Mech Eng 92:352-3 Je '18
- New Haven saves a million dollars in fuel. Ry Age 64:207-8 Ja 25 '18; Same. Ry R 62:178-80 F 2 '18
- Powdered fuel burning apparatus for an Australian railway. *Il* diags Ry R 64:457-9 Mr 22 '19
- Progress in locomotive fuel economy. H. B. Oatley. Ry R 63:160-1+ Ag 3 '18
- Pulverised coal on American locomotives. *Il* diags Engineer 126:156-7, 174-6 Ag 23-30 '18
- Pulverized fuel equipment for locomotives. *Il* *diag* Ry Age 67:519-20 S 12 '19
- Pulverized fuel for the railways. W. D. Wood. Power 50:516-17 S 23 '19
- Pulverized fuel in locomotive and marine service. J. E. Muhlfeld. Mech Eng 41:752-4 S '19; Same *abr.* Ry R 65:513-14 O 4 '19
- Pulverised fuel locomotive. *Il* diags (*supp*) plan Engineer 127:400-2 Ap 25 '19
- Railroad fuel conservation campaign quickened. E. McAuliffe. Ry R 63:278-9 Ag 24 '18

- Relation of locomotive maintenance to fuel economy. F. McManamy. Ry R 62:752-4 My 25 '18; Same. Sci Am S 86:11 Jl 6 '18; Same cond. Ry Age 64:1289-90 My 24 '18
- Report of Master mechanics' association committee on fuel economy and smoke prevention. Ry Age 64:1516-19 Je 21 '18
- Saving coal. G. M. Basford. Ry R 64:625 Ap 26 '19
- Suggestions for fuel saving. B. J. Feeny. Ry Mech Eng 93:67-9 F '19
- Teamwork of enginemen. M. A. Daly. Ry R 64:845-6 Je 7 '19; Same cond. Ry Mech Eng 93:422 Jl '19
- Transportation department and fuel economy. E. H. DeGroot, jr. Ry Age 64:1291-2 My 24 '18; Same. Ry R 62:754-5 My 25 '18
- Use of pulverized fuel for locomotive operation. V. Z. Caracristi. *Il* diags Gen Elec R 20:853-9 N '17; Same. Ry R 61:785-7 D 29 '17
- Use of pulverized fuel on locomotives. J. E. Muhlfeld. Am Soc M E J 39:760-1 S '17; Same. Locomotive 31:240-2 O '17; Same cond. Mach 24:133 O '17
- Use of wood in logging locomotives. Am Lumberman 2252:53 Jl 13 '18; Same cond. Ry R 63:105-6 Jl 20 '18
- Utilization of anthracite culm. M. S. Hachita. *Il* Coal Age 13:446-9 Mr 9 '18
- Who wastes the fuel? Ry Age 64:305-6 F 8 '18; Discussion. 64:442, 696 Mr 1, 22 '18

## Testing

- Comparative tests of six sizes of Illinois coal on a Mikado locomotive. E. C. Schmidt, J. M. Snodgrass and O. S. Beyer, jr. *Il* diags *Ill* U Eng Exp Sta Bul 101:1-97 '17; Same cond. Ry Age 63:51-6 Jl 13 '17; Same cond. Ry Mech Eng 92:80-2 F '18

## Gearing

- Lewis power reverse gear. *Il* *diag* Ry Age 63:1184-5 D 28 '17; Same. Ry Mech Eng 91:707-8 D '17

## Inspection

- Federal locomotive inspection 6th annual report; abstracts. Ry Mech Eng 91:680-2 D '17; Ry Age 63:1077-9 D 14 '17; Ry R 62:8-10 Ja 5 '18
- I. C. C. revises locomotive inspection rules. Ry Mech Eng 93:235-6 My '19
- 7th annual report of chief inspector of locomotive boilers. F. McManamy. chart Ry Age 65:1125-6 D 20 '18; Same. Ry R 63:907-9 D 28 '18; Same. Ry Mech Eng 93:135-6 Mr '19

See also Locomotive boilers

## Lubrication

- Carbonizing in valve chambers and cylinders. F. P. Roesch. diags Ry R 65:30-3 Jl 5 '19
- Difficulties of locomotive lubrication; report of committee of Traveling engineers' association. Ry R 62:478-80 Mr 30 '18
- Grease lubrication of locomotive driving wheel hubs. *Il* *diag* Ry Mech Eng 93:446 Jl '19
- Locomotive force feed lubricator. diags Ry R 64:943-4 Je 21 '19
- Locomotive lubrication. W. J. Schlacks. Ry R 63:914-15 D 28 '18; Same cond. Ry Age 65:1040 D 18 '18
- Rod lubrication. diags Ry Mech Eng 92:288-9 My '18
- Schlacks system of forced feed lubrication for locomotives. *Il* Ry R 63:364-5 S 7 '18
- Truck box lubricator. diags Ry Mech Eng 92:425-6 Jl '18

## Manufacture

- Milling practice in locomotive shops. E. K. Hammond. *Il* diags Mach 25:1122-5 Ag '19
- Molding a superheater locomotive cylinder. R. H. Palmer. *Il* diags Foundry 46:205-9 My '18
- Rushing new locomotives at Baldwin and American plants. Iron Age 101:333 Ja 31 '18
- Tools for locomotive-valve parts. F. A. Stanley. *Il* diags Am Mach 50:1119-22 Je 12 '19

**Locomotives—Continued****Painting**

Painters must protect equipment. *Ry Mech Eng* 92:38-40 Ja '18

**Performance**

Arithmetic of railroad operation. W. J. Cunningham. *Ry R* 64:358-7 Mr 8 '19  
Combining statistics of fuel performance and locomotive loading. *Ry Age* 66:1423-4 Je 13 '19  
Graphical representation of locomotive performance. H. Holcroft. *Engineer* 125:353-5, 376-9 Ap 26-May 3 '18  
Performance of decapod locomotives, Pennsylvania railroad. *Ry R* 64:91-2 Ja 18 '19  
Winter temperatures and locomotive capacity. W. L. Bean. *Ry Age* 64:539-41 Mr 15 '18

**Piping**

Location of train pipes on the front of the locomotive. H. Sneek. *diags Ry Mech Eng* 93:236 My '19  
Method of applying outside steam pipes. *Il Ry Mech Eng* 92:119 F '18  
Reducing exhaust nozzles to overcome front end air leaks. F. P. Roesch. *Ry Mech Eng* 93:430 Jl '19  
Steam pipe-smoke arch seals. *diags Ry R* 65:565 O 18 '19

**Rating**

Steam vs. electric locomotives. A. J. Manson. *Ry Mech Eng* 93:133-5 Mr '19  
Tonnage rating chart for the standard light mountain type locomotive. *Ry Age* 66:1195 My 16 '19  
Tonnage rating charts for standard Pacific type locomotives. *diags Ry Age* 66:1216-18 My 16 '19  
Tonnage rating of the standard locomotives. H. S. Vincent. *charts Ry Age* 65:627-31 O 4 '18  
Tractive effort and horse-power of locomotives. *Sci Am S* 85:44-5 Ja 19 '18  
Tractive effort of Mallet locomotives. *Ry Age* 65:764 N 1 '18

**Repair**

Accuracy in locomotive repairs. M. H. Williams. *diags Ry Mech Eng* 92:673-7 D '18  
Arc welding in railroad shops. B. C. Tracy. *Il diags Gen Elec R* 21:887-98 D '18  
Autogenous welding at Albuquerque. H. L. Hahn. *diags Ry Mech Eng* 93:271-2 My '19  
Autogenous welding at Sayre shops. Lehigh Valley R. R. *Ry R* 62:855-6 Je 15 '18  
Breakdown of our railway transportation; neglect of motive power maintenance the key to the situation. *Il Sci Am S* 85:344-5 Je 1 '18  
Efficient machine for finishing crown stays. *Il diags Ry Mech Eng* 92:519-20 S '18  
Electric welding. H. A. Currie. *Il Ry Age* 67:926-8 N 7 '19  
Firebox repairs. G. Austin. *diags Ry Mech Eng* 92:217-18 Ap '18  
How can the Traveling engineers best aid in the maintenance of locomotives. F. P. Roesch. *Ry Age* 65:497-8 S 13 '18; Same. *Ry Mech Eng* 92:552-3 O '18  
Locomotive firebox and boiler maintenance and repairs; abstracts. G. Austin. *Ry R* 62:294-8 Mr 2 '18; *Ry Age* 64:467-9 Mr 1 '18; *Ry Mech Eng* 92:161-3 Mr '18  
Locomotive maintenance problems; information contributed by railway officials. *diag Ry Mech Eng* 92:33-7 Ja '18  
Locomotive repair shop output. H. Gardner. *Ry Mech Eng* 93:335-7 Je '19  
Locomotive repairs; methods employed on the Grand Trunk Ry. E. R. Battley. *Ry R* 62:513-14 Ap 6 '18  
Most pressing need; locomotive repair facilities. *Ry R* 62:243-4 F 16 '18  
Oxy-acetylene and electric welding and cutting processes in locomotive works. A. F. Dyer. *Eng & Contr* 49:93-4 Ja 23 '18; Same. *Ry R* 62:197-9 F 9 '18; Same cond. *Ry Mech Eng* 92:571-2 O '18

Oxy-acetylene welding problems. W. L. Bean. *Il diag Ry Mech Eng* 93:97-100 F '19; Same cond. *Ry R* 64:513-15 Ap 5 '19  
Renewable stay heads for locomotive fireboxes. *Il diags Engineer* 126:176-7 Ag 30 '18  
Repairing foreign locomotives. *Ry Mech Eng* 92:348-9 Je '18  
Repairing locomotive fittings. F. A. Stanley. *Il diags Am Mach* 49:663-5 O 10 '18  
Repairs to locomotives frames. P. T. Lavinder. *Ry Mech Eng* 93:542 S '19  
System for handling roundhouse repairs. *Ry R* 64:432-3 Mr 22 '19  
Wedge block for jacking locomotives. J. Grant. *diags Ry Mech Eng* 92:680-1 D '18  
Welding cast iron with the electric arc. *Il diags Ry Age* 64:1247-9 My 17 '18  
Welding firebox patches and cracks. E. D. Johnson. *Il Ry Mech Eng* 92:520 S '18  
*See also Locomotive shops*

**Rods**

Main and side rods. F. G. Lister. *diags Ry Mech Eng* 92:463-4 Ag '18  
Newton duplex locomotive connecting-rod boring machine. *Il Am Mach* 50:912-13 My 8 '19; *Iron Age* 103:1222 My 8 '19; *Iron Tr R* 64:1226-7 My 8 '19; *Ry Mech Eng* 93:342-3 Je '19

**Sand boxes**

Locomotive sand box screen. A. P. Jander. *diag Ry Mech Eng* 93:525 S '19

**Smoke problem**

Locomotive stokers and smoke prevention; abstracts. W. S. Bartholomew. *Ry Age* 65:451-3 S 6 '18; *Ry R* 63:339-41 S 7 '18  
Tests to free under side of railroad viaducts from smoke. R. H. Moulton. *Il Eng N* 82:1162-4 Je 12 '19

**Specifications**

Standard specifications for boiler and firebox steel for locomotives; English and Spanish. *diag U S Bur For & Dom Com Ind Stand* 21:1-19 '19  
Standard specifications for carbon steel forgings for locomotives; English and Spanish. *U S Bur For & Dom Com Ind Stand* 13:1-19 '18  
Standard specifications for cast-iron locomotive cylinders; English and Spanish. *diags U S Bur For & Dom Com Ind Stand* 29:1-15 '19  
Standard specifications for structural steel for locomotives; English and Spanish. *diags U S Bur For & Dom Com Ind Stand* 9:1-19 '18  
Tentative specifications for standard locomotives. *diags Ry Age* 64:1039-41 Ap 19 '18  
United States government standard locomotives. *Ry R* 62:575-6 Ap 20 '18

**Springs**

Semi-elliptic springs—manufacture and repair; report of Master mechanics' association committee. *diags Ry Age* 64:1528-31 Je 21 '18; *Ry R* 62:943-7 Je 29 '18  
Spring banding machine. J. H. Chancy. *diags Ry Mech Eng* 92:163-4 Mr '18  
Spring making and repairing. J. W. Russell. *Ry Mech Eng* 93:543-4 S '19

**Standards**

Clearance and weight diagrams for standard locomotives. *diags Ry Age* 65:745-6 O 25 '18  
Data for standard locomotives. *charts diags Ry Mech Eng* 92:607-10 N '18  
Government standard locomotives as a war measure. *Ry Age* 64:342-3 F 15 '18  
Has locomotive standardization been justified? *Ry Age* 66:50-2 Ja 3 '19  
Latest developments in locomotive standardization. *Ry Age* 64:1085-6 Ap 26 '18  
Modern versus standardized railway equipment. J. E. Muhlfeld. *Ry Age* 64:1065-7 Ap 26 '18  
Own standards vs. United States standards for locomotives. *Ry R* 64:727-8 My 17 '19  
Progress toward standardization. *Ry Age* 64:509-10 Mr 8 '18

**Locomotives—Standards—Continued**

- Question of standard locomotives. Ry Mech Eng 92:186 Ap '18  
 Report on standard locomotives. Ry Mech Eng 93:2-3 Ja '19  
 Standard equipment specialties. Ry Mech Eng 93:137-8 Mr '19  
 Standard locomotives. Engineer 126:11 Jl 5 '18; Discussion. 126:30, 61, 135, 166, 200 Jl 12-19, Ag 16-23, S 6 '18  
 Standard locomotives for China. Ry R 63:511 O 5 '18  
 Standardization of American locomotives. Engineer 128:415 O 24 '19  
 Standardization of Indian railways' locomotives. E. C. Poultney. diags Ry Age 64:1425-30 Je 14 '18  
 Standardization of locomotives. Ry Mech Eng 92:129-30 Mr '18  
 Standardization of railway equipment. F. McManamy. Ry R 65:7-9 Jl 5 '19  
 Status of standard locomotives. diags Ry Mech Eng 92:251-4 My '18  
 Why locomotives should not be standardized. Ry Age 64:843-6 Ap 5 sec 1 '18  
*See also Locomotives—Design; Locomotives—Specifications*

**Statistics**

- Car and locomotive orders in 1918. Ry Mech Eng 93:34-7 Ja '19  
 Cars and locomotives ordered in 1917. Ry R 62:36-8 Ja 5 '18  
 Equipment built and retired for past nine years. Ry R 64:89 Ja 18 '19  
 Government locomotive orders predominate in 1918. Ry Age 66:82-5 Ja 3 '19  
 Locomotive orders in 1917. Ry Mech Eng 92:58-60 Ja '18; Same. Ry Age 64:59-61 Ja 4 '18  
 Locomotive orders in 1917 from companies in the United States and Canada; tabulation. Ry Age 64:61-4 Ja 4 '18  
 Present conditions of locomotives and cars. Ry Mech Eng 93:17-18 Ja '19

**Stokers**

*See Stokers, Mechanical*

**Superheaters**

- Eastleigh superheater. (supp) diags Engineer 125:162 F 22 '18  
 History of the locomotive superheater. D. Wood. Ry R 63:926-8 D 23 '18  
 Importance of the superheater damper. Ry R 62:480-1 Mr 30 '18  
 Installation and maintenance of superheater dampers. diags Ry R 62:886-9 Je 15 '18  
 Locomotive superheater maintenance. diags Ry Mech Eng 92:621-3 N '18  
 Shop treatment of superheater locomotives. A. D. Williams. Ry R 64:195-7 F 1 '19  
 Superheater fuel losses. Ry R 64:722 My 17 '19  
 Superheater locomotive performance. C. M. Darden. Ry Mech Eng 92:652-5 D '18  
 Superheater locomotive performance; abstracts of committee report of Traveling engineers' association. Ry Age 65:498-500 S 13 '18; Ry R 63:400-1 S 14 '18  
 Superheater locomotives. W. J. Tollerton. Ry R 64:998 Je 28 '19  
 Superheater unit maintenance. diags Ry R 63:479-82 S 28 '18

**Testing**

- Drafting modern locomotives. H. W. Coddington. diags Ry Mech Eng 92:331-3, 387-92, 439-44 Je-Ag '18  
 Elvin locomotive stoker tested out on Erie. diags Ry Age 66:202-4 Ja 17 '19; Ry R 64:133-4 Ja 25 '19; Ry Mech Eng 93:103-6 F '19  
 New departure in firebox construction. diags Ry R 64:47-51 Ja 11 '19; Same cond. Ry Mech Eng 93:71-3 F '19  
 Results of road tests of N. & W. Mallet locomotive. H. W. Reynolds. Ry Mech Eng 92:502-3 S '18  
 Tests of locomotives on Russian railways. Ry R 64:792-3 My 31 '19

**Transportation**

- Radical departure in loading ocean freighters. diags Ry Age 66:981-4 Ap 18 '19

**Valves and valve gear**

- Casting a slide valve locomotive cylinder. R. H. Palmer. diags Foundry 46:276-9 Je '18  
 Inside admission piston valve chest for slide valve cylinders. diags Ry Mech Eng 92:684-5 D '18  
 Lame engines and their effect on fuel consumption. J. W. Hardy. Ry Mech Eng 93:515-16 S '19  
 Sandy automatic drifting valve. diags Ry R 65:137-8 Jl 26 '19  
 Setting eccentrics before engines are wheeled. F. J. Schenck. diags Ry Mech Eng 92:580 O '18  
 Three-cylinder locomotive. diags Engineer 126:70-2, sup Jl 26 '18; Discussion. 126:96, 200 Ag 2, S 6 '18  
 Types of valve gear on French locomotives. W. G. Landon. diags Ry Mech Eng 93:523 S '19

**Water supply**

- Effect of cinder fill on locomotive water supply. W. M. Barr. diags Ry Age 66:1215-16 My 16 '19

**Wheels**

*See Locomotives—Driving wheels*

- Locomotives, Electric. *See Electric locomotives*  
 Locomotives, Gas and oil  
 Exhaust of gasoline locomotives. Coal Age 14:375 Ag 22 '18  
 Petrol shunting engine. diags Engineer 128:16-17 Jl 4 '19  
 Small locomotives of special types. diags plan Engineer 125:419-21, 442-3, 448, 464-5, 472, 507-10; 126:111-12, 118 My 17-31, Je 14, Ag 9 '18; Abstract. Am Soc M E J 40:725-6 Ag '18  
 U. S. A. gasoline locomotives. diags Automotive Ind 38:686-7+ Ap 4 '18

*See also Locomotives, Mine*

**Locomotives, Industrial**

- Auto-locomotives used on railway construction. diags Ry R 63:105 Jl 20 '18  
 Economically constructed locomotive for handling coal. diags Elec Ry J 53:1234 Je 21 '19  
 Geared locomotive in lumbering. diags Am Lumberman 2281:51 F 1 '19  
 Geared locomotives for log roads. diags Am Lumberman 2241:58 Ap 27 '18  
 Storing contractor's plant. Eng & Contr 49:481-2 My 15 '18

**Locomotives, Military**

- British narrow gauge military locomotives. F. C. Coleman. diags Ry R 63:905 D 23 '18

**Locomotives, Mine**

- Advantages of storage-battery locomotives. C. W. Chappelle. Coal Age 14:437-8; Discussion. 439-42 S 5 '18  
 Determination of the proper size of storage-battery locomotive. D. C. Ashmead. Coal Age 14:548-52 S 19 '18  
 Electric locomotives and trucks. Coal Age 14:387 Ag 29 '18  
 Electric mine locomotive establishes record at Scalp Level coal mining co. diags Elec R 73:335 Ag 31 '18  
 Exhaust of gasoline locomotives. Coal Age 14:375 Ag 22 '18  
 Ford handles mine cars. diags Coal Age 14:386-7 Ag 29 '18; Same. Eng & Min J 106:223 Ag 3 '18  
 Gasoline locomotive underground. P. Teas. diags Coal Age 15:806 My 1 '19  
 Gasoline motors in mines. Coal Age 13:805 Ap 27 '18  
 Gathering motors. Coal Age 13:800-1, 940-1, 1023, 1123-4 Ap 27, My 18, Je 1, 15 '18  
 Haulage capacity of locomotives. E. Steck. Coal Age 15:999 My 29 '19  
 Hauling capacity of storage-battery locomotives. Coal Age 14:660 O 3 '18; Discussion. H. K. Porter. 14:958-9 N 21 '18  
 Heat-treated gearing for mine locomotives. Coal Age 16:535 S 25 '19  
 Increasing coal mine efficiency. C. E. Stuart. Coal Age 14:726-7 O 17 '18

**Locomotives, Mine—Continued**

- Locomotive bumpers. R. Z. Virgin. diags Coal Age 13:1085 D 29 '17  
 New methods of handling coal electrically. C. L. Packard. *il* Coal Age 13:922-4 My 18 '18  
 New type of mine locomotive controller. L. W. Webb. *il* diags Gen Elec R 21:620-2 S '18  
 New type of mine motor. D. I. Wheeler. *il* Coal Age 14:1167 D 26 '18  
 Removing worn locomotive tires. B. Shell. Coal Age 13:845-6 My 4 '18  
 Repairing locomotives underground. *il* Coal Age 13:60 Ja 12 '18  
 Retiring mine locomotive trucks. J. L. Ball. diags Coal Age 13:530-1 Mr 23 '18  
 Steel tires vs. chilled-iron wheels. W. H. Noone. Coal Age 14:833-4 O 31 '18  
 Storage battery locomotive from manufacturer's standpoint. R. L. Heberling. Coal Age 13:588 Mr 30 '18  
 Storage-battery locomotives. Coal Age 13:513-14, 844-5, 890-1 Mr 16, My 4-11 '18  
 Work of gathering locomotives. Coal Age 16:416-17, 500-1 S 4, 18 '19

**Locusts**

- Turning a pest to profit in Uruguay. *il* Sci Am 118:232-3 Mr 16 '18

*See also* Cicadas

**Lodestone**

- Galileo and magnetism: a study in lodestones. J. J. Fahle. *il* Inst E E J 56:246-9 Ap '18; Discussion. 56:sup22 My '18

**Lodge & Shipley machine tool company, Cincinnati**

- Improvements in industrial plant operation. E. E. George. *il* diags plan Elec W 73:1167-70, 1207-9 My 31-Je 7 '19  
 Lodge and Shipley control system. D. M. Perill. *il* Ind Management 54:208-14, 343-52; 55:24-30 N 17-Ja '18

**Lodging houses**

- Lodging house for thirty men costs \$11,000. *il* diags plans Elec Ry J 52:615-16 O 5 '18

*See also* Housing problem

**Log sheets**

- Keeping the engine room log. W. E. Davis. supp Int Marine Eng 24:558-9 Ag '19

**Loganberries**

- Chemical analyses of Logan blackberry (Loganberry) juices. R. S. Hollingshead. J Fr Inst 188:135-6 JI '19  
 Loganberry and the acid content of its juice. M. R. Daughters. J Ind & Eng Chem 10:30 Ja '18

**Logarithms**

- Graphic use of logarithms. G. G. Stevenson. *il* Mach 24:966 Je '18  
 Why don't more people use logarithms? G. H. Gardner. diags Mach 26:269 N '19

*See also* Slide rule; Trigonometry

**Logging. See** Lumbering**Logwood**

- Analysis of logwood extracts. G. Savini. Color Tr J 4:71, 81 Mr-Apr '19  
 Dyeing silk with logwood. E. Lesser and D. Wallace. Color Tr J 5:142-3 N '19  
 Logwood grays on cotton cloth. Textile World 56:1785 S 27 '19

**London, England**

- Charing Cross improvement scheme and national war memorial. *il* plans Am Arch 116:261-3 Ag 27 '19  
 Cleaning London slums. Am Arch 114:372 S 25 '18

**Lighting**

- Lighting of London: past, present and future. Illum Engr 11:225-6 O '18  
 Street-lighting problems of London. Elec R 75:59 JI 12 '19

**Rapid transit**

- London's tubes and buses. W. Jackson. *il* diags map Elec Ry J 54:708-14, 816-23 O 11, N 1 '19  
 Report on London transport. Engineer 128:106-7, 129-30 Ag 1-8 '19  
 Why London riders don't go astray underground. maps Elec Ry J 53:1104-5 Je 7 '19

- Zone fare in practice; London County Council. W. Jackson. *il* map Elec Ry J 54:310-15, 270-5 Ag 2-9 '19  
 Zone fare in practice; West Ham. W. Jackson. *il* map Elec Ry J 53:1163-9 Je 14 '19

**Sewerage**

- Proposed flooding-relief works for London. Engineer 128:78 JI 25 '19

**Water supply**

- 13th annual report on London water. A. C. Houston. Engineer 128:4-5 JI 4 '19; Same. Eng & Contr 52:120-2 JI 30 '19

**Long Branch, New Jersey**

- 200,000-year-old summer playground. Sci Am S 88:160 S 6 '19

**Longwall mining. See** Coal mines and mining**Looms**

- Automatic looms in wool industry. J. A. Hunter. Textile World 55:659-+ Ja 18 '19  
 Heavy tire fabric automatic loom. *il* Textile World 53:3273 Ja 12 '18  
 Improved shuttles. diags Textile World 53:4577 Ap 6 '18  
 Mason heavy duck loom. *il* Textile World 53:3278 Ja 12 '18  
 Mounting loom-motor switches in pairs. *il* Elec W 71:517-18 Mr 9 '18  
 Shuttle motion for label looms. *il* Textile World 53:3275 Ja 12 '18  
 Specifications for dogwood shuttle blocks. Am Lumberman 2239:27 Ap 13 '18  
 Thread cutting temple. diags Textile World 53:2368 D 8 '17  
 Weave room kinks. T. H. Donnelly. *il* Textile World 55:1565-+, 3695 Mr 8, Je 14 '19

**Lord, Charles Edward, 1875-1919**

- Sketch. por Mech Eng 41:913 N '19

**Lorraine****Industries and resources**

- French operating German plants. F. Miltoun. *il* Iron Tr R 65:501-3 Ag 21 '19  
 Germany and the French ore deposits. Sci Am 119:246 S 28 '18  
 Iron wealth of Lorraine. F. Miltoun. Iron Tr R 63:208 JI 25 '18  
 Lorraine ore insures future for French iron and steel. map Iron Tr R 65:296-7 JI 31 '19

**Lorraine-Dietrich engine**

- Status of Lorraine-Dietrich aircraft engine when examined by U.S. engineers. M. Barbarou. Automotive Ind 40:1403 Je 19 '19

**Lorries. See** Motor trucks**Los Angeles, California**

- Produce terminal for Los Angeles. L. A. Waterbury. *il* diags plan Eng N 80:167-8 Ja 24 '18

**Architecture**

- Southwest museum. R. F. Bach. diags plan Arch Rec 43:94-6 Ja '18

**Electricity supply**

- Distributing system sale in Los Angeles. Elec W 73:1181-2 My 31 '19

**Sanitary affairs**

- Experience of Los Angeles with Cobwell method of garbage disposal. Munic Eng 54:28 Ja '18

**Sewerage**

- Features of new outfall sewer of city. Munic Eng 55:19-20 JI '18  
 Los Angeles new outfall sewer. *il* Munic J 45:1-2 JI 6 '18  
 Los Angeles sewerage. W. T. Knowlton. Munic J 46:246-7 Ap 5 '19  
 Sewage collection and disposal proposed at Los Angeles harbor. W. T. Knowlton. map Munic Eng 55:130-1 O '18

**Water supply**

- Assessment for water main extensions in Los Angeles, California. Eng N 83:644 O 2 '19  
 Los Angeles water department appliances. C. W. Geiger. *il* Munic J 44:159-61 F 23 '18  
 Water-works. Eng N 80:992 My 23 '18

**Lotteries**

Biggest wheel of fortune. *Il Sci Am* 121:61 J1 19 '19

**Louisiana**

Wet lands of southern Louisiana and their drainage. C: W. Okey. *Il diags plan maps U S Agric Bul* 652:1-67 '18

**Louisville, Kentucky****Bridges**

Design of new superstructure of Louisville bridge with 644-foot riveted span. *Il diags plan Eng N* 82:1007-11 My 22 '19  
Maintaining traffic during erection of Louisville bridge. *Il diags Eng N* 82:1061-4 My 29 '19

**Sanitary affairs**

Recommended methods for the collection and disposal of refuse. S: A. Greeley. *Il Munic Eng* 53:246-9 D '17

**Love, Edward G., 1840-1919**

Sketch. E. Hendrick; C: L. Parsons. *por J Ind & Eng Chem* 11:992-3 O '19

**Loveland farms, Youngstown, Ohio**

Community planning for peace-time industries. *plans Am Arch* 113:635-8 My 15 '18

**Lovett, Robert S., 1860-**

Director of betterments and additions. *por Ry Age* 64:521 Mr 8 '18

**Lowell, Massachusetts**

Housing by the commonwealth of Massachusetts; homesteads built at Lowell. W. H. Kilham. *Il plans Am Inst Arch J* 6:131-4 Mr '18

**Water supply**

Decarbonation and removal of iron and manganese from ground waters. F. A. Barbour. *Il 4 pls Am Water Works Assn J* 4:129-64 Je '17; Discussion. 5:185-9 Je '18

**Lowell, Michigan**

Solving hydro-electric problems of a small town. *Il diags Eng N* 83:650-1 O 2 '19

**Lowell textile school**

Lowell textile in supporting trenches. C: H. Eames. *Il Textile World* 55:235-4 Ja 11 '19  
Textile engineers of tomorrow. *Il Sci Am* 119:232-3 S 21 '18

**Loyal legion of loggers and lumbermen**

Development of the aircraft spruce industry. L. K. Hodges. *Il Automotive Ind* 39:1037-40 D 19 '18

1st semiannual report. *map Am Lumberman* 2258:42+ Ag 24 '18

Loyal legion has permanent organization. *Am Lumberman* 2274:45 D 14 '18

Meeting, Spokane, Wash., Aug. 12. *Am Lumberman* 2258:42 Ag 24 '18

Real status of the Loyal legion. J. Donovan. *Am Lumberman* 2287:41 Mr 15 '19

**Lubricants. See Lubrication and lubricants****Lubrication and lubricants**

Air-cylinder lubrication. *Coal Age* 14:522, 836, 1132-3 S 12, O 31, D 19 '18

Catching a coal pile thief; oils and greases that lessen friction. R. Trautschold. *Il Factory* 22:1169-71 Je '19

Coal production and lubrication. R. Trautschold. *Coal Age* 14:175-6 J1 25 '18

Combined lubricating oil tank and feeder. L. V. Lauther. *Il Eng & Min J* 106:1063 D 21 '18

Dawson grease cup. *Il diag Am Mach* 48:980 Je 6 '18

Device for oiling hoisting cables in place. *diags Eng & Contr* 51:667 Je 18 '19

Economical lubrication of steam engines. K. Schmid. *Mech Eng* 41:700 Ag '19

Economy in oils as practiced in Germany. *Elec W* 71:256 F 2 '18

Effect of circulating-water temperature on the lubricating oil; abstract. *Am Soc M E J* 40:717-18 Ag '18

Engine-oiling system. J. J. Brewer. *diag Power* 47:847 Je 11 '18

Engine oiling system. E. S. Morrison. *diag Power* 47:60 Ja 8 '18

Faulty lubricating methods. C: W. Oakley. *diags Power* 47:158 Ja 29 '18

Flota mica—a lubricant to be mixed with oil or grease. *Elec R* 72:353 F 23 '18

Forced lubrication for marine turbines. *Marine R* 49:187 Ap '19

Forced lubrication on a thrust block. A. F. Menzies. *Int Marine Eng* 23:136 Mr '18

Good way to empty oil barrels. *diags Horseless Age* 44:50 My 1 '18

Home-made oiling system. J: C. Kahl. *diags Power* 50:502-3 S 23 '19

Intermittent-oil-feed investigation. *Il diag Mech Eng* 41:392-4 Ap '19

Keeping power plant oil in good condition. H. L. Smith. *Elec Ry J* 51:1131-3 Je 15 '18;

Discussion. E. M. May. 52:122 J1 20 '18

Keeping the grease supply clean. J. A. Lucas. *diags Am Mach* 49:587 S 26 '18

Large saving by re-use of oil. J. F. Potts. *diag Power* 48:431-2 S 17 '18

Lubricating bearings. *diags Iron Age* 103:631 Mr 6 '19

Lubricating marine machinery. W. D. Forbes. *Int Marine Eng* 24:152-3 Mr '19

Lubricating mine cars. J. S. Gelston. *Coal Age* 15:768 Ap 24 '19

Lubricating oil program of the Bureau of standards. *Automotive Ind* 40:1230-2 Je 5 '19

Lubricating problem. R. F. Yates. *diag Am Mach* 48:1039-40 Je 20 '18

Lubrication and care of journal boxes. M. J. O'Connor. *Ry R* 64:620-1 Ap 26 '19; Same. *Ry Mech Eng* 93:253-5 My '19

Lubrication and manufacturing efficiency. E. E. Grignard. *Textile World* 53:5901 Je 1 '18

Lubrication as an aid in stimulating coal production. R. Trautschold. *Coal Age* 13:1112-13 Je 15 '18

Lubrication in the power plant. J. D. Roberts. *Power* 50:134-5 J1 22 '19

Lubrication in the textile mill. R. Trautschold. *Textile World* 54:1079+ S 7 '18

Lubrication of air-compressor cylinders. *Power* 47:417 Mr 19 '18

Lubrication of air compressors. *Ry Mech Eng* 91:704-6 D '17

Lubrication of air compressors. W. H. Callan. *Coal Age* 14:211-13 Ag 1 '18; Same. *Am Mach* 49:575-7 S 26 '18; Same cond. *Power* 48:229-30 Ag 13 '18; Abstract. *Eng & Min J* 106:1032 D 14 '18

Lubrication of air compressors. H. V. Conrad. *diag Eng & Min J* 107:392-4 Mr 1 '19; Same. *Iron Age* 103:753-4 Mr 20 '19; Same. *Power* 49:378-9 Mr 11 '19; Same. *Textile World* 55:1447+ Mr 1 '19; Same. *Coal Age* 15:704-6 Ap 17 '19; Same. *Am Mach* 51:168-70 J1 24 '19; Same abr. *Eng & Contr* 51:291-3 Mr 19 '19; Same cond. *Elec Ry J* 53:424 Mr 1 '19; Excerpts. *Mech Eng* 41:384-6 Ap '19; Abstract. *Foundry* 47:214+ Ap 15 '19

Lubrication of ball bearings. O. Bruenauer. *diags Am Mach* 48:316-22 F 21 '18

Lubrication of control apparatus. H. R. Meyer. *Elec J* 16:468 O '19

Lubrication of electric generators and motors. R. Trautschold. *Elec R* 74:629-30 Ap 19 '19

Lubrication of Michell blocks; abstract. *Am Soc M E J* 40:777-8 S '18

Lubrication of steam turbines; papers by members of Lubrication engineers' association of the Texas co. *diags Power* 47:198-201 F 5 '18

Lubrication of wire rope. *Power* 48:286 Ag 20 '18; Same. *Eng & Contr* 50:285 S 18 '18

Management of the power plant. R. June. *Textile World* 56:1379+, 2005+ S 6, O 4 '19

Merits of oil and grease lubrication. W. J. Fouhy. *Elec R* 71:1052-3 D 22 '17

New Standard Duplex grease cup. *diag Power* 50:455 S 16 '19

New uses for industrial fuel gas. C. H. Kallstedt. *Am Gas Eng J* 108:243-4, 259-62 Mr 16 '18

Oil consumption in steam-engine lubrication; abstract. *Am Soc M E J* 41:53-5 Ja '19

Oiling and lubricating devices. O: Abdt. *diags Mach* 25:1146-7 Ag '19

Peacemakers between shaft and bearing. E: G. Acheson. *Il Factory* 23:507-9 S '19

**Lubrication and lubricants—Continued**

- Proper lubrication of roll neck bearings. M. Meridith. Iron Tr R 63:257 Ag 1 '18
- Properties of oils and their relation to lubrication. G. B. Upton. Sci Am S 85:348-50 Je 1 '18
- Pump for handling lubricants. W. Thomas. diags Am Mach 48:872 My 23 '18
- Report of sub-committee on lubrication. Mech Eng 41:637 Je '19
- Report on the lubrication of sliding metallic surfaces. H. G. Hiebele. bibliog Stevens Ind 36:126-39 Ap '19
- Roller bearings for machine shop equipment. E. K. Hammond. II diags Mach 26:243-4 N '18
- Railway lubricant pump. II Am Mach 51: 239-40 JI 31 '19
- Shop lubricating problem. R. F. Yates. II Sci Am 121:484+ N 15 '19
- 66 oils and oiling pointers. Eng & Contr 52:51-3 JI 9 '19
- Talks on Diesel engines. L. H. Morrison. II diags Power 49:640-3 Ap 29 '19
- Telescopic-oil discussion. W. W. Nugent. diags Power 47:522 Ap 9 '18
- Too much oil causes heating. C. H. Woodhouse. diags Power 48:134 JI 23 '18
- Viscosity and constitution of lubricating oils. Sci Am S 86:240 O 12 '18
- Waste in lubrication. Coal Age 13:123 Je 15 '18
- Waterproof plunger grease. L. W. Brooks. Coal Age 14:261 Ag 8 '18
- Wick oiling journal bearings. H. K. Porter. Am Mach 49:1171-2 D 26 '18
- See also* Automobile engines—Lubrication; Automobiles—Lubrication; Bearings; Castor oil; Gas and oil engines—Lubrication; Graphite; Locomotives—Lubrication; Lubricators; Oil filters; Steam engines—Lubrication; Turbines—Lubrication

**Specifications**

- Pumping in the Metropolitan water district of Massachusetts. A. O. Doane. Am Water Works Assn J 4:516; Discussion. 513-16 D '17
- Specifications for government oil. Automotive Ind 39:1127-8 D 26 '18

**Testing**

- Emulsification of mineral lubricating oils. P. H. Conradson. II Power 48:649-50 O 29 '18
- Lubricating oil density; the term Baumé. W. F. Schaphorst. Coal Age 12:1007 D 15 '17; Abstract. Ry Mech Eng 92:286-7 My '18
- Lubrication of ball-bearings. H. R. Trotter. diags Mech Eng 41:811-15 O '19
- Method of testing lubricating oils. Sci Am 118:381 Ap 27 '18
- Methods of testing lubricants. C. H. Garlich. Power 48:891 D 17 '18
- Testing of lubricants. R. F. Yates. diags Am Mach 49:289-91 Ag 15 '18
- Lubrication and lubricants (cutting and grinding)**
- Cooling lubricant for screw machine work. M. C. Hobart. Mach 25:60 S '18
- Cutting lubricants. Sci Am S 87:350 My 31 '19
- Cutting lubricants for machine tools. R. Trautschold. II Mach 26:45-7 S '19
- Cutting tool lubrication. R. B. Huyett. Ry Mech Eng 92:282-3 My '18
- Emulsion lubrication of cutting tools. J. A. De Cew. Am Mach 49:433-4 S 5 '18; Abstracts. Am Soc M E J 40:865 O '18; Automotive Ind 40:59 Ja 9 '19
- Guard for deflecting compound. H. D. Parker. diags Am Mach 47:1118 D 27 '17
- Investigation of twist drills. B. W. Benedict and W. P. Lukens. III U Eng Exp Sta Bul 103:121-4 '17
- Proper care of grinding lubricants. H. W. Dunbar. Iron Tr R 64:375 F 6 '19; Same. Textile World 55:2093 Ap 5 '19
- Skin diseases from certain lubricants. Sci Am 119:519 D 28 '18; Same cond. Am Soc M E J 41:170 F '19

**Lubricator glasses**

- Reclaiming bull's-eye lubricator glasses. II Ry Mech Eng 93:92 F '19

**Lubricators**

- Attachment and care of lubricators to insure efficient engine operation. J. L. Ball. diags Coal Age 15:260 F 6 '19
- Handy lubricator kinks. B. E. Eckard. diags Power 48:927-8 D 24 '18
- Handy lubricator kinks. S. B. Richey. diags Power 48:502 O 1 '18
- Hydrostatic lubricator regulation. A. L. Noe. diags Power 48:430 S 17 '18
- Johnson graphite lubricator. diags Power 48: 91 JI 16 '18; Ind Management 57:249 Mr '19
- Locomotive force feed lubricator. diags Ry R 64:943-4 Je 21 '19
- Lubricator on air compressor. P. A. Gett. diags Power 49:373 Mr 11 '19
- McCoy graphite lubricator. diags Ry Mech Eng 91:710-11 D '17
- Manufacturing a mechanical lubricator. M. E. Hoag. II diags Am Mach 49:1183-5; 50:23-6, 71-4 D 26 '18-Ja 9 '19
- Meyerlingh proportional lubricator. diags Power 50:95 JI 15 '19
- Michell's automatic lubricating gear. diags Am Soc M E J 40:195-6 F '18
- Repairing lubricator choke plugs. diags Ry Mech Eng 93:484 Ag '19

*See also* Lubrication and lubricants

**Lucia (freight ship)**

- Naval board rejects buoyancy box device. Int Marine Eng 23:368 Je '18
- Problem of the unsinkable ship. II diags plans Sci Am 118:206, 215 Mr 9 '18

**Lukens steel company**

- Lukens steel co.'s announcement. Iron Age 102:763 S 26 '18

**Lumber**

- Chat on wood grades. C. E. Davidson. Bldg Age 40:223-4 Ap '18
- Development in heavy timber construction. C. E. Paul. Am Lumberman 2293:56-7 Ap 26 '19
- Distinction between hardwood and softwood. Am Lumberman 2230:29 F 9 '18
- Effect of time of cutting timber on its durability. Sci Am 121:92 JI 26 '19
- Fabricated lumber and the housing problem. R. G. Skerrett. II diags Sci Am 121:107+ Ag 2 '19
- Forestry and lumber. A. C. Klumph. Am Lumberman 2311:50-1 Ag 30 '19
- Good and poor manufacture of lumber. Am Lumberman 2251:56-7 JI 6 '18
- Lumber for car construction. H. von Schrenk. II Ry Mech Eng 93:85-7 F '19; Abstract. Ry R 63:880 D 21 '18; Discussion. Ry Mech Eng 93:87-8 F '19
- Mill scale study of red and white oak. D. G. White. II Am Lumberman 2266:48-9 O 19 '18
- Moisture content of dry lumber. Eng N 83: 391 Ag 21 '19
- Production of lumber, lath and shingles in 1916. F. H. Smith and A. H. Pierson. U S Agric Bul 673:1-43 '18
- Production of lumber, lath, and shingles in 1917. F. H. Smith and A. H. Pierson. U S Agric Bul 768:1-44 '19
- Southern yellow pine mills have made good in supplying lumber for shipbuilding. F. L. Sanford. Am Lumberman 2225:42 Ja 5 '18
- Using second-hand lumber to reduce building costs. G. E. Walsh. II Bldg Age 40:380-1 Ag '18
- Wastes of lumber manufacture. Am Lumberman 2229:32 F 2 '18
- See also* Forests and forestry; Hard woods; Lumber trade; Lumbering; Sawmills; Timber; Wood; Woodlots; Woodworking machinery; also names of different kinds of lumber, e.g. Cedar, Cypress, Douglas fir, Fir, Pine, Spruce

**Bibliography**

- Structural service department; timber, lumber, wood construction, and finish. Am Inst Arch J 6:201-9 Ap '18



## Lumber—Continued

## Prices

Douglas fir and southern pine prices fixed. Am Lumberman 2238:46 Ap 6 '18  
 Factors affecting the fluctuations of lumber prices. H. Hoyt. Am Lumberman 2286:46 Mr 8 '19  
 Government establishes new fir lumber prices. Am Lumberman 2240:29 Ap 20 '18  
 Government fixes North Carolina pine prices. Am Lumberman 2261:43 Jl 6 '18  
 Home building and lumber prices from the retailer's standpoint. J. R. Moorehead. Am Lumberman 2320:52-3 N 1 '19  
 Inequalities in fixed car lumber prices. Am Lumberman 2259:61 Ag 31 '18  
 New West coast price list. Am Lumberman 2284:41 F 22 '19  
 Price fixing plan is coldly received. Am Lumberman 2284:40-1 F 22 '19  
 Southern pine base price unchanged; price fixing committee denies application for advance. Am Lumberman 2263:37+ S 28 '18  
 Southern pine committee argues for price lift. Am Lumberman 2253:36-7 Jl 20 '18  
 Wholesalers' bureau clarifies price misunderstanding. Am Lumberman 2259:33 Ag 31 '18

## Specifications

Commissioners of the District of Columbia about to prepare specifications. Am Lumberman 2230:29 F 9 '18  
 Fir and spruce airplane specifications revised. Am Lumberman 2239:38 Ap 13 '18  
 West coast millmen adopt density rules. Am Lumberman 2312:58-9 S 6 '19

## Standards

Lumbermen discuss standardization. Am Lumberman 2303:57 Jl 5 '19

## Transportation

Bulkheading tests conclude unsatisfactorily. Il Am Lumberman 2261:37 S 14 '18  
 Eastbound rate changes are imminent. Am Lumberman 2276:58 D 23 '18  
 Methods of loading lumber in open top cars. Il diags Ry Age 64:163-5 Ja 18 '18; Same. Ry Mech Eng 92:15-17 Ja '18  
 Shipping green vehicle stock to prevent loss. diags Am Lumberman 2248:38 Je 15 '18  
 See also Motor trucks in lumber handling; Rafts

## Lumber associations

Arkansas association of lumber dealers annual convention, Hot Springs, Ark., June 7. Am Lumberman 2248:47-8 Je 15 '18  
 Canadian lumbermen's association 11th annual convention. Am Lumberman 2282:56-7 F 8 '19  
 Georgia-Florida saw mill association 19th annual meeting, Jacksonville, Fla., May 25. Am Lumberman 2246:57 Je 1 '18  
 Hardwood associations to unite as one. Am Lumberman 2267:35+ O 26 '18  
 Hardwood manufacturers' association 16th annual convention, Cincinnati. Am Lumberman 2230:44-7 F 9 '18  
 Illinois lumber and builders' supply dealers' association 28th annual convention. Am Lumberman 2231:51-2+ F 16 '18  
 Illinois lumber and builders' supply dealers' association 29th annual convention, Chicago. Am Lumberman 2283:52-4+ F 15 '19  
 Indiana-Michigan retailers hold annual meeting. Am Lumberman 2234:52 Mr 9 '18  
 Kentucky retail lumber dealers' association annual meeting. Am Lumberman 2283:60-1 F 15 '19  
 Lumber dealers' association of Connecticut holds 26th annual meeting. Am Lumberman 2232:63; 2233:47 F 23-Mr 2 '18  
 Lumber dealers' association of Connecticut 27th annual convention. Am Lumberman 2286:53-5 Mr 8 '19  
 Lumbermen's association of Chicago 50th annual meeting. Am Lumberman 2280:48-9 Ja 25 '19

Michigan hardwood manufacturers' association holds 11th annual meeting. Am Lumberman 2254:51+ Jl 27 '18  
 Michigan hardwood manufacturers' association midwinter meeting. Am Lumberman 2281:70-1 F 1 '19  
 Michigan hardwood manufacturers deliberate. Am Lumberman 2229:60 F 2 '18  
 Michigan retail lumber dealers' association annual convention. Am Lumberman 2282:53-60 F 8 '19  
 Michigan retailers annual meeting. Am Lumberman 2230:50-1 F 9 '18  
 Millwork men to form national body. Am Lumberman 2293:60-1 Ap 26 '19  
 Montana manufacturers hold annual meeting. Am Lumberman 2229:59 F 2 '18  
 Mountain states lumber dealers' association 16th annual convention. Am Lumberman 2280:56-7 Ja 25 '19  
 Mountain states lumbermen hold annual meeting. Am Lumberman 2229:69 F 2 '18  
 National bureau of wholesale lumber distributors convention, Chicago, Nov. 22-23. Am Lumberman 2272:41-3 N 30 '18  
 National wholesale lumber dealers' association in 27th annual. Am Lumberman 2288:46-50+ Mr 22 '19  
 Nebraska lumber dealers' association meeting, Lincoln, Jan. 9-10. Am Lumberman 2226:48-9 Ja 12 '18  
 Nebraska lumber dealers' association 29th annual convention. Am Lumberman 2283:55-6 F 15 '19  
 North Carolina pine association holds 29th annual meeting. Am Lumberman 2236:38b-38c Mr 23 '18  
 North Dakota retail lumbermen's association holds 11th annual convention. Am Lumberman 2232:61-2 F 23 '18  
 Northern hardwood manufacturers in joint meeting. Am Lumberman 2306:55 Jl 26 '19  
 Northern hemlock & hardwood manufacturers' association holds spring meeting. Am Lumberman 2242:54 My 4 '18  
 Northern pine manufacturers' association annual meeting. Am Lumberman 2281:72 F 1 '19  
 Northern white cedar association holds annual convention at Minneapolis, Minn. Elec R 72:197 F 2 '18; Elec W 71:267 F 2 '18  
 Northern white cedar association 23d annual convention. Am Lumberman 2280:62-3 Ja 25 '19  
 Northern wholesale hardwood lumber association annual meeting. Am Lumberman 2284:60 F 22 '19  
 Northwestern hardwood lumbermen's association 30th annual meeting. Am Lumberman 2273:46c-46d D 7 '18  
 Northwestern Iowa retailers meet. Am Lumberman 2234:52-3 Mr 9 '18  
 Northwestern lumbermen's association 29th annual convention. Am Lumberman 2279:50-3 Ja 18 '19  
 Ohio association of retail lumber dealers and the Union association of sash & door salesmen hold joint meeting. Am Lumberman 2257:44 Ag 17 '18  
 Ohio association of retail lumber dealers 36th annual meeting. Am Lumberman 2229:62-3 F 2 '18  
 Ohio association of retail lumber dealers 38th annual convention. Am Lumberman 2280:53-5 Ja 25 '19  
 Ontario retail lumber dealers meeting, Toronto, Sept. 3. Am Lumberman 2260:48-50 S 7 '18  
 Pacific logging congress in 10th annual session, Portland, Ore., Oct. 10. Il Am Lumberman 2318:59-65 O 18 '19  
 Pennsylvania lumberman's association 27th annual meeting. Am Lumberman 2280:52 Ja 25 '19  
 Purpose and value of associated effort. C. S. Keith. Am Lumberman 2245:40-2 My 25 '18  
 Retail lumber dealers' association of Indiana meeting. Am Lumberman 2280:50-1 Ja 25 '19  
 Retail lumber dealers' association of Pennsylvania holds annual meeting. Am Lumberman 2231:53-4; 2232:49 F 16-23 '18

**Lumber associations—Continued**

- Retail lumber dealers' association of Pennsylvania 12th annual convention. Am Lumberman 2283:58-9; 2284:52-3 F 15-22 '19
- Retail lumber dealers' association of the state of New York 24th annual convention. Am Lumberman 2229:68-9; 2230:54-5 F 2-9 '18
- Retail lumber dealers' association of the state of New York 25th annual convention. Am Lumberman 2250:58-9 Ja 25 '19
- Southeast Missouri lumbermen's association holds yearly conference. Am Lumberman 2233:47 Mr 2 '18
- Southeastern Iowa retail lumbermen's association 23d annual meeting. Am Lumberman 2282:55 F 8 '19
- Southern hardwood traffic association 6th annual session, Memphis, Tenn. Am Lumberman 2278:44-5 Ja 11 '19
- Southern Illinois retail lumbermen's association 22nd annual convention. Am Lumberman 2280:55 Ja 25 '19
- Southern logging congress holds 8th annual convention. Am Lumberman 2270:46-8 N 16 '18
- Southern pine association district meeting. Laurel, Miss., Jan. 9. Am Lumberman 2279:46-7 Ja 18 '19
- Southern pine association 4th annual meeting. Am Lumberman 2285:48-57+ Mr 1 '19
- Southern piners in great patriotic rally. Am Lumberman 2238:58+ Ap 6 '18
- Southwestern lumbermen's association 31st annual convention. Am Lumberman 2281:63-5+; 2282:47-8 F 1-8 '19
- 32d annual convention of the Lumbermen's association of Texas. Am Lumberman 2239:47+ Ap 13 '18
- Trade organization in American industry. W. Compton. Am Lumberman 2262:49+ S 21 '18
- Value of a national retail association. C. S. Keith. Am Lumberman 2262:46b S 21 '18
- Value of association attendance. C. E. Davidson. Bldg Age 40:49-50 Ja '18
- West Coast and Western Pine meetings. Am Lumberman 2308:50-2 Ag 9 '19
- West Coast lumbermen hold historic annual meeting. Am Lumberman 2229:55-8 F 2 '18
- West Coast lumbermen's association annual meeting. Am Lumberman 2282:52-3 F 8 '19
- West Virginia lumber & builders' supply dealers' association holds 5th annual convention. Clarksburg, W. Va., Feb. 15-16. Am Lumberman 2232:60 F 23 '18
- Western Illinois lumbermen hold annual meeting. Am Lumberman 2241:57 Ap 27 '18
- Western pine manufacturers' association 13th annual meeting. Am Lumberman 2283:49-51 F 15 '19
- Western red cedar association holds 13th annual meeting. Am Lumberman 2237:42 Mr 30 '18
- Western retail lumbermen's association convention. Am Lumberman 2281:66-7 F 1 '19
- Western retail lumbermen's association 27th annual convention. Am Lumberman 2229:66-7 F 2 '18
- Wisconsin lumbermen and agriculturists in revolutionizing conference. Am Lumberman 2273:46a-46b D 7 '18
- Wisconsin retail lumbermen's association holds 28th annual meeting. Am Lumberman 2232:57-9 F 23 '18
- Wisconsin retail lumbermen's association 29th annual convention. Am Lumberman 2284:55-8 F 22 '19
- Yellow pine wholesalers 2d annual convention. Am Lumberman 2279:56-7 Ja 18 '19
- See also Northern hemlock and hardwood association; Southeastern cross tie manufacturers' association

**Lumber camps**

- Are we getting proper returns on the money spent for labor? B. A. Chandler. Am Lumberman 2299:42 Je 7 '19
- Balanced rations and good cooks cut cost of camp messes. T. Tharaldsen. Eng N 82:146-7 Ja 16 '19
- Camp beds and bedding service lower labor turnover. W. C. Ruegnitz. Eng N 83:213-14 Jl 31 '19
- Carrying cheer to the logging camps. D. K. Laurie. Am Lumberman 2261:49 S 14 '18

Comfortable quarters for woodsmen. Il Am Lumberman 2274:43 D 14 '18

Conservation of food in logging camps. W. C. Ruegnitz. Am Lumberman 2225:44 Ja 5 '18

Feeding men in lumber camps. N. M. Langdon. Am Lumberman 2231:64-5 F 16 '18

How soldiers were quartered and fed in the spruce production camps. plan Eng N 82:105 Ja 9 '19

12 car camp train used for housing 150 men.

Il Eng & Contr 48:513 D 19 '17

Lumber congress, American. See American lumber congress

**Lumber drying**

Discussion of the effects of kiln drying on the strength value of Douglas fir. C. A. Plaskett. Am Lumberman 2303:50-1 Jl 5 '19

Effects of kiln-drying on commercial white ash. H. J. Rosenthal. diag Automotive Ind 41:774-9 O 16 '19

Emergency seasoning of Sitka spruce. L. A. Welo. diag Sci Am S 87:404-5 Je 28 '19

Installing management methods in the wood-working industry. C. M. Bigelow. diag Ind Management 58:127-30 Ag '19

Kiln drying in relation to the selling of hardwoods. D. R. Brewster. Am Lumberman 2317:50D-1 O 11 '19

Kiln drying specifications for airplane lumber. Am Lumberman 2227:39 Ja 19 '18

Kiln-drying specifications for airplane lumber. H. D. Tiemann. Il Sci Am S 88:104 Ag 16 '19

Phenomena of drying wood. H. D. Tiemann. Il diag J Fr Inst 188:27-50 Jl '19

Prevention of end checking in seasoning lumber. Automotive Ind 41:610 S 25 '19

Relation of moisture content and drying rate of wood to humidity of atmosphere. A. Koehler. Am Lumberman 2304:54-5 Jl 12 '19

Rules for piling lumber. H. S. Betts. Eng & Contr 51:696 Je 25 '19

Seasoning of lumber. B. L. Grondal. Sci Am S 87:158-60 Mr 8 '19

Testing lumber for humidity. C. Cloukey. Am Lumberman 2295:46 My 10 '19

**Lumber handling**

Economical timber-handling plant at an anthracite mine. R. A. Smith. Il plan Coal Age 15:350-1 F 20 '19

Installing management methods in the wood-working industry. C. M. Bigelow. Il diag plan Ind Management 58:124-7 Ag '19

New conveyor system for lumbermen. Il Am Lumberman 2305:51 Jl 19 '19

Simple device for stacking lumber. R. C. Leibe. diag Am Lumberman 2303:65 Jl 5 '19

Time study of variable operations in piling lumber; production increased 86, labor cost dropped 28, wages increased 32 per cent. C. M. Bigelow. Il diag Ind Management 56:109-12 Ag '18

See also Motor trucks in lumber handling

**Lumber inspection**

Establish one set of hardwood rules for all. Am Lumberman 2308:1 Ag 9 '19

Grading rules and an inspection bureau. Am Lumberman 2275:40-1 D 21 '18

**Lumber mills. See Sawmills****Lumber piling. See Lumber drying****Lumber storage**

Hints on storing timber to prevent decay. Sci Am 120:359-4 Ap 5 '19

Lumber decay means wasted money—how to prevent it. Bldg Age 41:134 Ap '19

Model lumber shed built by St Louis retailer combines efficiency and architectural beauty. Il Am Lumberman 2321:45 N 8 '19

**Lumber trade**

Address. C. S. Keith. Am Lumberman 2285:48-51 Mr 1 '19

Address. J. D. P. Kennedy. Am Lumberman 2283:58-9 F 15 '19

Annoying practices of the retail trade. L. E. Davidson. Bldg Age 40:170-1, 318-19, 412-13 Mr, Je, Ag '18

Annual review of lumber trade conditions. Am Lumberman 2229:43-54 F 2 '18

**Lumber trade—Continued**

Baltic and White sea lumber stocks. Am Lumberman 2274:55+ D 14 '18  
 Closer coordination of all branches of the lumber industry needed. A. L. Osborn. Am Lumberman 2313:47-8 S 13 '19  
 Conditions in lumber trade. Bldg Age 41: 224-5 JI '19  
 Co-operation and competition. A. L. Osborn. Am Lumberman 2241:1 Ap 27 '18  
 Creating the demand. G. C. Robson. Am Lumberman 2284:46-46a F 23 '19  
 Ease with which a successful lumber business can be built up. G. F. Blackiston. Am Lumberman 2319:51 O 25 '19  
 Farmers' boys and girls as yard assets. B. Ball. Am Lumberman 2233:46 Mr 2 '18  
 Future of the lumber industry. C. S. Keith. Am Lumberman 2272:39-40 N 30 '18  
 Graphical presentation of 1917 lumber market. Am Lumberman 2227:31 Ja 19 '18  
 How a successful country lumber dealer handled one of the most vexing problems of the retailer. F. Kneisley. Bldg Age 40: 174-6 Mr '18  
 How an experienced dealer handles the commission practice. Bldg Age 40:466-7 S '18  
 How the lumber dealer can profitably handle small-lot sales. Bldg Age 40:462-3 S '18  
 Important reports on foreign markets. Am Lumberman 2293:63-9 Ap 26 '19  
 Impressions of a Building age traveler; how the successful dealer operates. Bldg Age 39: 722-4; 40:59-62 D '17-Ja '18  
 Lumber and paint; two indicators of business conditions. A. W. Douglas. Factory 19:190-1 Ag '17  
 Lumber and the war. J. J. Donovan. Am Lumberman 2240:36-7 Ap 20 '18  
 Lumber export outlook shown in detail. Am Lumberman 2290:42-3 Ap 5 '19  
 Lumber graders are your last line of defense. J. B. Woods. Am Lumberman 2249:47 Je 22 '18  
 Lumber industry and the income tax. R. B. Goodman. Am Lumberman 2306:50-1 JI 26 '19  
 Lumber needs will exceed supply. C. S. Keith. Am Lumberman 2271:39 N 23 '18  
 Lumber used in the manufacture of wooden products. J. C. Nellis. maps U S Agric Bul 605:1-17 '18  
 Lumbermen's opportunities in foreign trade. A. Walker. Am Lumberman 2285:53 Mr 1 '19  
 Measurement of Spanish cedar logs. C. D. Mell. Am Lumberman 2274:55 D 14 '18  
 Merchandising on the open-price cost-plus basis. J. Seidel. Am Lumberman 2241:39 Ap 27 '18  
 Methods of promoting trade extension in the lumber industry. Il Dom Eng 84:242-4 Ag 17 '18  
 No decrease of lumber needs expected. Am Lumberman 2263:36+ S 28 '18  
 Position of the wholesaler in the lumber business. L. L. Shertzer. Am Lumberman 2235:33 Mr 16 '18  
 Post-war lumber prospects. F. V. Dunham. Am Lumberman 2242:40 My 4 '18  
 Present and future problems of the lumber industry. L. C. Boyle. Am Lumberman 2256: 38-9 Ag 10 '18  
 Profits on timber speculation. I. Skeels. Am Lumberman 2314:40 S 20 '19  
 Reconsignment and the retailer. J. E. Davies. Am Lumberman 2310:44 Ag 23 '19  
 Relation between the organization of operation and efficient competition in the lumber industry. W. Compton. Am Lumberman 2232:1+ F 23 '18  
 Revenue measure examined; significance to lumber industry of two methods of determining invested capital. Am Lumberman 2270:43 N 16 '18  
 Science on the farm enlarges lumber uses; field for the retailer. Am Lumberman 2251: 56+ JI 6 '18  
 Selling lumber by real salesmanship. F. Kneisley. Il Bldg Age 40:410-12 Ag '18  
 Side lines and trade builders for the dealer. F. Kneisley. Bldg Age 40:268-9 My '18

Some common lumber terms. Am Lumberman 2249:31 Je 22 '18  
 Successful farming and the lumber dealer. R. E. Wagers. Am Lumberman 2287:51-2 Mr 15 '19  
 To prove lumber industry essential. Am Lumberman 2263:54-5 S 23 '18  
 What is meant by keeping store. E. E. Bell. Bldg Age 40:119 F '18  
 Why some inquiries go to mail order houses. Am Lumberman 2233:56-7 Mr 2 '18  
 Women and lumber retailing. Am Lumberman 2290:47; 2291:50-1 Ap 5-12 '19  
*See also* Architectural plan service; Cedar; Lumber—Prices; Lumber yards; Lumbering; Timber; Timber stumpage—Taxation

**Accounting**

Accounting and statistics. R. M. Rickey. Am Lumberman 2285:55-6 Mr 1 '19  
 Californians adopt accounting system; phases of depreciation, stumpage values, labor and other costs. Am Lumberman 2264:41 O 5 '18  
 Card record tracing system. Am Lumberman 2236:31 Mr 23 '18  
 Cost accounting system ready. Am Lumberman 2287:57-9 Mr 15 '19  
 Cost survey plan; report of National retail lumber dealers' association committee. Am Lumberman 2262:47-8 S 21 '18  
 Drudgery taken out of lumber figuring. H. R. Asman. Am Lumberman 2314:51 S 20 '19  
 Hardwood men get standard cost system. Am Lumberman 2269:38-9 N 9 '18  
 How one sawmill handles its costs. W. S. Hope. Am Lumberman 2278:40 Ja 11 '19  
 How to determine production costs of southern pine. C. S. Keith. Am Lumberman 2236: 44-5 Mr 23 '18  
 Methods of handling depreciation and investment in lumber accounting. W. Compton. diag Am Lumberman 2254:48-9 JI 27 '18  
 Necessity for uniform cost accounting system. Am Lumberman 2260:47 S 7 '18  
 Practical accounting system for retail lumbermen. Am Lumberman 2298:1, 44-6 My 31 '19  
 Stumpage cost as a present factor in lumber price. Am Lumberman 2246:32 Je 1 '18  
 Uniform accounting. G. N. Glass. Am Lumberman 2284:53 F 22 '19  
 What is cost? W. Compton. Am Lumberman 2235:32-3 Mr 16 '18  
 What will your profits be for 1919? R. B. Goodman. Am Lumberman 2274:44 D 14 '18

**Advertising**

Realm of the retailer. J. Dower. Am Lumberman 2283:42-3 Mr 22 '19  
 This way of pricing lumber doesn't scare customers. Am Lumberman 2316:44 O 4 '19

**Records**

Purchase record system. Am Lumberman 2233:31 Mr 2 '18  
 Stock sheet that has proved its practical value. Am Lumberman 2262:46-46a S 21 '18

**Brazil**

Sawmilling in southern Brazil. E. F. Horn. Am Lumberman 2246:45 Je 1 '18

**China**

China an important lumber market. Am Lumberman 2266:59 O 19 '18

**Germany**

Lumber situation in Germany. Am Lumberman 2261:54 S 14 '18

**Great Britain**

British market for hardwoods. Am Lumberman 2305:67-8; 2306:60-1; 2307:60-1; 2308: 63; 2309:62; 2310:54 JI 19-Ag 23 '19  
 British timber trade during 1918. Am Lumberman 2282:71+ F 8 '19  
 British trade has grave problems. Am Lumberman 2272:64 N 30 '18  
 Controller fixes British lumber prices. Am Lumberman 2256:55-6 Ag 10 '18

**Lumber trade—Great Britain—Continued**

Prospects for trade in forest products between England and Ontario reviewed. A. C. Manbert. *Am Lumberman* 2315:44 S 27 '19

**Italy**

Lumber requirements of Italy. *Am Lumberman* 2271:56-7 N 23 '18

**Norway**

Scandinavian lumber production. A. H. Oxholm. *Am Lumberman* 2302:48-9 Je 28 '19

**Russia**

Lumber conditions. R. E. Simmons. *Am Lumberman* 2292:44-6 Ap 19 '19

Russian lumber industry is demoralized. R. E. Simmons. *Am Lumberman* 2281:53 F 1 '19

**South Africa**

South African imports of lumber. G. H. Murphy. *Am Lumberman* 2257:48-9 Ag 17 '18

**South America**

Opportunity in South America, but hard work is its demand. *Am Lumberman* 2314:60-1 S 20 '19

**Sweden**

Scandinavian lumber production. A. H. Oxholm. *Am Lumberman* 2302:48-9 Je 28 '19

**United States**

Adjusting lumber trade to the embargo order. *Am Lumberman* 2263:51 S 28 '18

Adopt plans to dispose of surplus lumber. *Am Lumberman* 2278:31; 2279:42b Ja 11-18 '19

American lumber congress considers the industry's problems. *Am Lumberman* 2292:56-64 Ap 19 '19

Business readjustment and relocation of labor. W. E. Tuttle, Jr. *Am Lumberman* 2286:52 Mr 8 '19

California concern aids in promoting egg-laying contest by building model poultry plant. *Am Lumberman* 2278:36-7 Ja 11 '19

Chicago lumber market sets new record in 1917. *Am Lumberman* 2226:35 Ja 12 '18

Coast men discuss spruce and fir output. *Am Lumberman* 2260:51 S 7 '18

Demurrage and storage changes. F. W. Mowbray. *Am Lumberman* 2288:59 Mr 22 '19

Distribution of softwood lumber in the Middle West; retail distribution. O. M. Butler. *U S Agric Rep* 116:1-100 '18

Distribution of softwood lumber in the Middle West; wholesale distribution. O. M. Butler. *maps U S Agric Rep* 115:1-96 '17

Export lumber trade of the United States. E. E. Pratt. *Il diag maps U S Bur For & Dom Com misc ser* 67:1-117 '18

Federal authorities' attitude toward West Coast lumbermen and loggers defined. L. C. Boyle. *Am Lumberman* 2242:56-7 My 4 '18

Forty-five years' evolution in lumber. *Am Lumberman* 2225:33 Ja 5 '18

Latest developments in embargo situation. *Am Lumberman* 2262:43 S 21 '18

Legislation and the future of the lumber trade; with discussion. L. C. Boyle. *Am Lumberman* 2293:44-6 Ap 26 '19

Let the facts be known. C. S. Keith. *Am Lumberman* 2255:38+ Ag 3 '18

Lumber as an essential product awaits judgment. *Am Lumberman* 2263:30 S 28 '18

Lumber dealers will file complaint against mail order houses. *Am Lumberman* 2226:36-7 Ja 12 '18

Lumber exportation a vital topic. *Am Lumberman* 2267:60 O 26 '18

Lumber industry has not profiteered. C. S. Keith. *Am Lumberman* 2259:1 Ag 31 '18

Lumber industry is classed as essential. *Am Lumberman* 2263:46 S 28 '18

Lumber industry is united for reconstruction; representatives of all sections plan post-war measures. *Am Lumberman* 2272:36-9 N 30 '18

Lumber industry's part in the reconstruction program. E. B. Parker. *Am Lumberman* 2272:33-5 N 30 '18

Lumber production in the United States in 1917. *Am Arch* 114:319 S 11 '18

National forest and lumber policy. B. A. Chandler. *Am Lumberman* 2303:1+ J1 5 '19

National lumber and forest policy. H. S. Graves. *U S Agric Circ* 134:1-14 '19; Same cond. *Am Lumberman* 2292:55+ Ap 19 '19

National promotion of lumber. J. B. Crosby. *Am Lumberman* 2249:61 Je 22 '18

Northern Carolinians to enter export trade. *Am Lumberman* 2281:73 F 1 '19

Ohio retailers act on unfilled orders; recommend uniform purchase order blank. *Am Lumberman* 2318:68 O 18 '19

Open letter to the hardwood manufacturers and their patrons. W. M. Ritter. *Am Lumberman* 2317:58-9 O 11 '19

Production of lumber, lath and shingles in 1916. F. H. Smith and A. H. Pierson. *U S Agric Bul* 673:1-43 '18

Refutes the charge of southern pine profiteering. C. S. Keith. *Am Lumberman* 2252:49 J1 13 '18

Report of the Pacific lumber inspection bureau for 1917. *Am Lumberman* 2235:31 Mr 16 '18

Review of lumber trade conditions during 1918. *Am Lumberman* 2278:28-9 Ja 11 '19

Review of the current export situation. *Am Lumberman* 2279:65+ Ja 18 '19

Review of the lumber trade during war. *Am Lumberman* 2307:46 Ag 2 '19

Review of the retail lumber business of Chicago. E. L. Thornton. *Am Lumberman* 2275:1+ D 21 '18

Rosy future for West coast trade. J. H. Bloedel. *Am Lumberman* 2273:46b D 7 '18

St. Louis—an important lumber distributing center. *Il Am Lumberman* 2281:58-60 F 1 '19

Southern piners forming export company. *Am Lumberman* 2280:64-5 Ja 25 '19

Statistics on St. Louis' lumber traffic. *Am Lumberman* 2282:37 F 8 '19

Trade commission on profiteering. *Am Lumberman* 2251:42; 2252:28 J1 6-13 '18

Wages and hours of labor in the lumber, millwork, and furniture industries, 1915. *U S Bur Labor Statistics Bul* 225:7-245 '18

Wages of woods and mill workers established. *Am Lumberman* 2261:46 S 14 '18

War affects Chicago's 1918 lumber trade. *Am Lumberman* 2278:34-34a Ja 11 '19

West coast lumber industry on 8-hour basis. *Am Lumberman* 2234:47 Mr 9 '18

Western retail lumbermen's association holds annual conference. *Am Lumberman* 2231:46-50+ F 16 '18

What conditions are in the lumber trade. *Bldg Age* 41:35 Ja '19

Wholesalers' view of trade relations. *Am Lumberman* 2240:47 Ap 20 '18

*See also Lumber—Prices*

**Lumber yards**

Efficiency of a Detroit lumber yard due to practical utilizing of standardization. *Il Am Lumberman* 2321:40-1 N 8 '19

Line yards (the chain store in the lumber trade). J. M. Gries. *Am Lumberman* 2287:50-1; 2288:40; 2289:38g Mr 15-29 '19

Lumber store that sells complete homes. *Il diag plan Am Lumberman* 2257:39-40 Ag 17 '18

Making a lumber yard attractive to boost sales—the problem of retail sheds built of substitutes—a plea for up-to-date merchandising. *Am Lumberman* 2312:46-7 S 6 '19

Modern lumber yard of the Hoosier state at Gary. *Il diag plans Bldg Age* 40:51-4 Ja '18

Realm of the retailer. *Am Lumberman* 2225:40-1; 2230:38-9; 2231:42-3; 2287:48-9; 2288:38-9 Ja 5, F 9-16 '18, Mr 15-22 '19

Save time and money by system in the yard. *Bldg Age* 40:464 S '18

Yard of W. H. Lear; one of America's great hardwood and cypress lumber merchants. *Il Am Lumberman* 2225:32-3 Ja 5 '18

**Safety devices and measures**

Safety in operating lumber yards and accident prevention. J. Seidel. *Il Am Lumberman* 2262:50-2 S 21 '18

**Lumbering**

**Aids to laying out logging railroads.** Am Lumberman 2250:75 Je 29 '18

**American forestry units are working fifty-three tracts of French timber land.** R. K. Tomlin, jr. *il* Eng N 81:566-70 S 26 '18

**Attachment that loads logs mechanically.** *il* Am Lumberman 2250:61 Je 29 '18

**Burning the profits.** T. W. Bibb. *il* Sci Am 121:110-11 Ag 2 '19

**Cable brake for the lumber camp.** *il* Sci Am 118:145 F 16 '18

**Development of the aircraft spruce industry.** L. K. Hodges. *il* Automotive Ind 39:1037-40, 1100-1 D 19-26 '18

**Efficient American war lumbering in France.** R. H. Faulkner. Am Lumberman 2249:54 Je 22 '18

**Electric yarding engines successfully operated in logging operations.** *il* Elec R 74:217-18 F 8 '19

**Electricity in logging and saw mills.** E. H. Horstkotte. *il* Gen Elec R 21:151-61 F '18

**Filling the allies' rush order for airplane spruce.** N. A. Bowers. *il* Eng N 81:1023-31 D 5 '18

**Flood-basin wood lots logged for construction timber.** *il* Eng N 82:1178-9 Je 12 '19

**Forest engineers tell of work in France.** W. B. Greeley; R. Jarden. Am Lumberman 2256:35 Ag 10 '18

**Geared locomotive in lumbering.** *il* Am Lumberman 2281:51 F 1 '19

**Getting out airplane spruce.** F. W. Vincent. *il* Sci Am 119:438-9 N 30 '18

**High-lead logging in heavy timber.** *il* Am Lumberman 2303:64-5 J 1 '19

**How to build a logging railroad with a ditcher.** *il* Am Lumberman 2239:33 Ap 13 '18

**Log loading device.** *diag* Am Lumberman 2260:59 S 7 '18

**Logging by electricity.** Sci Am 120:34+ Ja 11 '19

**Logging in the Douglas fir region.** W. H. Gibbons. *il* *diag* plan U S Agric Bul 711:1-256 '18

**Logging the black forest of France.** J. B. Woods. *il* plan Am Lumberman 2290:50+ Ap 5 '19

**Lumber operations under war conditions in France.** F. S. Kellogg. *il* Am Lumberman 2263:39-40 S 28 '18

**Lumbering in the Philippines.** *il* Am Lumberman 2298:52-3+ My 31 '19

**Lumbering thirty-eight years ago.** Am Lumberman 2231:31 F 16 '18

**Modernizing logging road construction.** *il* Am Lumberman 2237:57 Mr 30 '18

**Motor truck road, latest addition to logging engineering.** *il* *diag* Am Lumberman 2235:38 Mr 16 '18; Excerpts. Eng N 80:629 Mr 28 '18

**New England sawmill units complete work; cut twenty million feet of lumber in Scotch forests in nine and one-half months.** *il* Am Lumberman 2251:52-3 J 16 '18

**New method of snaking logs.** *il* Am Lumberman 2318:81 O 18 '19

**Operation of steam log haulers.** S. D. Switzer. Am Lumberman 2263:63 S 28 '18

**Pole road plan with adapted truck promises economy.** *diag* Am Lumberman 2261:46 S 14 '18

**Power logging.** W. B. Clubine. Am Lumberman 2263:52-3 S 28 '18

**Power logging.** J. H. Dickinson. Am Lumberman 2237:54-5 Mr 30 '18

**Safety council considers lumbering problems.** Am Lumberman 2262:52-3+ S 21 '18

**Simple method of staking out a logging spur.** B. G. Pasco. Eng & Contr 51:191-2 F 19 '19

**Soldier-forester tells of French forests.** *il* Am Lumberman 2264:33 O 5 '18

**Soldiers build logging roads in spruce forests.** W. A. Welch. *il* Ry Age 65:805-7 N 8 '18

**Use of wood in logging locomotives.** Am Lumberman 2252:53 J 13 '18; Same cond. Ry R 63:105-6 J 1 20 '18

**Where and how to use the thin saw.** L. Prior. Am Lumberman 2265:53 O 12 '18

**With American engineers in French forests.** Am Lumberman 2300:54-5 Je 14 '19

**Work of 10th and 20th engineers (forest) in France.** F. R. Barna. *il* Am Lumberman 2287:48-9; 2288:38-9 Mr 15-22 '19

*See also* Forest products; Forests and forestry; Lumber trade; Woodworking machinery

**Cost**

**Northern logging congress discusses costs.** Am Lumberman 2318:66-7 O 18 '19

**Safety devices and measures**

**Safety in lumbering.** *il* Am Ind 18:supl-4 Ja '18

**Lumbermen**

**Government regulates woods labor conditions.** Am Lumberman 2236:46 Mr 23 '18

**Inland Empire labor wages standardized.** B. P. Disque. Am Lumberman 2256:48 Ag 10 '18

**Loyal legion sets working regulations.** Am Lumberman 2282:45-6 F 8 '19

*See also* Loyal legion of loggers and lumbermen

**Lumen.** *See* Photometry

**Luminal.** *See* Phenylethylbarbituric acid

**Luminescence**

**Animal luminescence and symbiotic microbes.** U. Pierantoni. Sci Am S 87:286-7 My 3 '19

**Crystalloluminescence.** H. B. Weiser. Sci Am S 88:174 S 13 '19

**Luminescence due to radio-activity.** E. Karer and D. H. Kabakjian. *diag* J Fr Inst 186:317-40 S '18

*See also* Fluorescence; Phosphorescence

**Luminosity**

**Revised formula for luminosity curve solution for physical photometry.** H. E. Ives. J Fr Inst 186:121-2 J 1 '18

**Luminosity of animals.** *See* Phosphorescence

**Lunch rooms and cafeterias**

**Band music in shop cafeteria.** *il* Iron Age 102:265 Ag 1 '18

**Cafeteria at the Kerr Lake mine.** H. A. Kee. *il* Eng & Min J 105:945-6 My 25 '18

**Cafeteria for employees of William Wrigley, jr., co., Chicago; views.** Am Arch 113:pl 192-4 My 29 '18

**Cafeteria for the El Mar company; views.** Am Arch 113:pl 187-9 My 29 '18

**Engineering works canteens.** A. F. Agar. plan Engineer 124:491 D 7 '17

**Factory employees' restaurant.** C. S. Rossy. plan Ind Management 55:236-7 Mr '18

**Factory lunchroom and equipment.** *il* Ind Management 55:418-19; 56:264-5 My, S '18

**Factory lunch room that would please Hoover.** H. A. Pope. *il* Factory 21:1058-61 D '18

**Feeding employees at a steel plant.** H. H. Haylett. *il* Iron Age 102:1136-8 N 7 '18; Excerpt. Iron Tr R 63:732-3 S 26 '18

**Feeding factory workers; cafeteria opened by Henry Diaston & sons, inc., Tacony, Philadelphia.** *il* plan Iron Age 103:1579-80 Je 12 '19

**How we put our cafeteria on a paying basis.** Factory 21:528+ S '18

**Human factor.** A. N. Blum. plan Factory 22:1326+ Je '19

**Human problem thought of paramount importance in Paris shrapnel plant.** R. K. Tomlin, jr. *il* Eng N 80:813-16 Ap 25 '18

**Installing and operating an industrial cafeteria.** E. F. Ross. *il* Iron Tr R 65:691-4 S 11 '19

**Insuring hot meals of good quality for shop workers.** Am Mach 49:17 J 14 '18

**Labour administration.** E. T. Elbourne. plan Engineer 126:548-50 D 27 '18

**Lunch room at Balboa.** R. D. Gatewood. *il* plan Am Mach 49:613-15 O 3 '18

**Mechanical restaurant.** *il* Sci Am 118:385+ Ap 27 '18

**Mill employees' lunchrooms.** J. P. Eib. Iron Age 100:1537 D 27 '17

**Mill lunch rooms for employees.** A. W. Anderson. *il* Textile World 56:493+ Ja 11 '19

**Lunch rooms and cafeterias—Continued**

- Modern industrial restaurant installed at the plant of Henry Disston & sons, inc., Tacony, Pa. A. N. Blum. *Il plan Iron Tr R* 64:1088-9 Ap 24 '19
- Ontra cafeteria co., Chicago; views. *Am Arch* 113:738, pl 190-1 My 29 '18
- Plant restaurant managed by employees. *Il Iron Age* 104:489-92 Ag 21 '19
- Welfare important factor in industrial efficiency. E. Szepesi. *Il Textile World* 53:2964, 3175+ Ja 12 '18
- Westinghouse co. to have three-story building seating 3000 employees. *Iron Age* 104:719 S 11 '19; *Textile World* 56:2011+ O 4 '19
- Why a factory lunch room? *Factory* 20:580+ Mr '18

**Lupines**

- Value of lupins in the cultivation of poor, light land. A. W. Oldershaw. *Sci Am S* 88:265 N 8 '19

**Lynn, Massachusetts****Water supply**

- Ipswich river water supply for the city of Lynn. H. K. Barrows. *Il diag map Munic Eng* 57:133-4+ S '19

**Lyons, France****Bridges**

- Wilson bridge at Lyons. *Il diags plan Engineer* 126:387-8 N 8 '18; Same *abr. Eng & Contr* 51:74-6 Ja 22 '19

**Lyons fair**

- American industrial exhibits. *Il Eng N* 80:933-4 My 9 '18; *Am Mach* 49:68-70 Jl 11 '18

**Lysalbinic acid**

- Nitrogen distribution in protalbinic and lysalbinic acids. C. Kennedy and R. A. Gortner. *Am Chem Soc J* 39:2734-6 D '17

**M****Macadamized roads. See Roads, Macadamized****McAdoo, William Gibbs**

- Director general resigns. *Ry Mech Eng* 92:655-8 D '18
- Press comments on McAdoo's retirement. *Ry Age* 65:969-72 N 29 '18
- Retirement. *Ry R* 63:778-9 N 30 '18

**McElwain, W. H., company**

- Annual report for fiscal year ended May 31, 1918. *Ry Age* 65:900-1 N 15 sec 2 '18

**Machine design. See Machine tools—Design; Machinery—Design****Machine guards. See Machinery—Safety devices****Machine guns. See Guns (ordnance)****Machine shop management**

- Advantages of comparing manufacturing methods. D. M. Perrill. *Mach* 24:793 My '18
- Conservation of material in the shop. E. Andrews. *Am Mach* 50:437-8 Mr 6 '19
- Control of orders in process. P. F. O'Shea. *Am Mach* 51:740 O 16 '19
- Controlling production in a jobbing shop. E. L. Shaner. *Il Iron Tr R* 65:623-9 S 4 '19
- Criticism of modern shop systems. H. M. Fitz. *Am Mach* 50:1159 Je 12 '19
- Cutting prices versus raising wages. *Am Mach* 48:647 Ap 18 '18
- Efficient planning and routing aids production in new Cleveland plant. E. W. Kreutzberg. *Il diags Iron Tr R* 65:833-8 S 25 '19
- Elimination of idleness by systematic study. C. W. Baker. *Eng N* 81:450-1 S 5 '18
- Experience-tested plans for the machine shop manager. *Il Factory* 20:1146+; 21:170+, 270+, 546+ Je-S '18
- Finding how many machines you need. *Factory* 21:426 S '18
- Getting a share of general machine shop work. L. W. Alwyn-Schmidt. *Am Mach* 50:843-6 My 1 '19

**Getting quick action on small tool repairs.**

- T. F. W. Meyer. *Factory* 23:504-6 S '19
- Handling production in a small shop. R. T. Kent. *Iron Age* 101:671-5 Mr 14 '18
- High production tooling methods. A. A. Dowd and D. A. Baker. *diags Am Mach* 50:1029-36 My 29 '19
- How to locate machine tools. G. H. Radebaugh. *Il Ind Management* 55:122-5 F '18
- How we lifted production out of a rut. A. A. Dowd. *Il Factory* 20:726+ Ap '18
- Human element in the machine shop; abstracts. J. Hartness. *Ind Management* 57:413-15 My '19; *Am Mach* 50:561-2 Mr 20 '19
- Idle machine hours. E. Lee. *Mach* 24:443 Ja '18
- Jobbing-shop production. C. A. Carpenter. *Mach* 24:569-70 F '18
- Keeping production in balance. *Factory* 23:286-8 Ag '19
- Knowing where each machine goes. W. J. Oldroyd. *Factory* 23:933-5 My '19
- Labor and material waste. A. J. Chamberlain. *Am Mach* 48:362 F 28 '18
- Lay-out and piece-rate card system; forms that assist in efficient shop management. J. J. Borkenhagen. *Mach* 25:327-9 D '18
- Lodge and Shipley control system. D. M. Perrill. *Il Ind Management* 54:208-14, 343-52; 55:24-30 N '17-Ja '18
- Machine shop efficiency. chart *Iron Age* 104:518 Ag 21 '19
- Machinist's criticisms of modern shop systems. J. B. Gray. *Am Mach* 50:777-8 Ap 24 '19
- Making the toolroom efficient. F. B. Jacobs. *Iron Tr R* 65:1326-7 N 13 '19
- Management applied in Winchester shops. W. E. Freeland. *Il chart Iron Age* 101:498, 502, 616-21 F 21, Mr 7 '18
- Managing non-repetitive work; how to set times on lathe work in tool making. N. Howard. *diag Ind Management* 56:94-6 Ag '18
- Managing non-repetitive work; standardization for tool-making and machine shop repairs. N. Howard. *Ind Management* 56:55-8 Jl '18
- Most economical production lot. E. W. Taft. charts *Iron Age* 101:1410-12 My 30 '18
- Operation diagrams for the executive. A. R. DeKuzelewski. *diags Ind Management* 55:180-2 Mr '18
- Organization and management of a machine tool plant. O. Kylin and E. Oberg. *Il charts diag Mach* 25:608-14, 698-702, 813-18, 934-7 Mr-Je '19
- Passing of the machine trade. *Am Mach* 49:426, 577 S 5, 26 '18
- Planning a new job. O. Knaak. *diags Am Mach* 51:313-16 Ag 14 '19
- Planning and controlling production. I. R. DeArmond. *Il Mach* 26:60-6 S '19
- Planning department system. J. H. Black. chart *Ind Management* 58:225-9 S '19
- Preliminary planning of shop operations. A. A. Dowd. *Il diags plan Am Mach* 48:991-7; 49:339-42 Je 13, Ag 22 '18
- Production advertisement filing system. W. N. Allen, jr. *Am Mach* 51:553-6 S 18 '19
- Production planning system of the Heald machine company. W. S. Pratt. *Am Mach* 51:203-8, 501-8 Jl 31, S 11 '19
- Red pans to speed up hoodoo jobs. P. F. O'Shea. *Il Am Mach* 50:827-8 My 1 '19
- Reform in the file industry. G. Taylor. *Engineer* 126:13-14 Jl 5 '18
- Relation of quantity production to cost. A. G. Popcke. *Ind Management* 55:54-61 Ja '18
- Salvaging small tools in the machine shop. J. B. Gray. *Am Mach* 50:966-7 My 15 '19
- Saving tool material in Winchester shop. W. E. Freeland. *Il Iron Age* 102:1574-5 D 26 '18
- 70 per cent more output from 5 per cent more equipment; with planboard and layout drawing. *Factory* 21:841 N '18
- Sidelights on Winchester gun production. W. E. Freeland. *Il Iron Age* 101:1521-6 Je 13 '18
- Standardized form for shop sketches. P. A. Smith. *Iron Age* 101:615 Mr 7 '18

**Machine shop management—Continued**

- Standardizing manufacturing methods; proposal covering methods of handling, tool equipment and gaging systems in making articles for the government. A. A. Dowd. *diags Iron Age* 101:750-1 Mr 21 '18
- Stock parts and their routing. L. D. Burlingame. *diags Mach* 25:1109-14 Ag '19
- Storing of gages and tools. A. Marx. *diags Mach* 25:642 Mr '19
- Supervising a large tool department. A. Jenner. *Ind Management* 57:25 Ja '19
- Supervising a large tool department. C. W. Starker. *Ind Management* 56:481-6 D '18
- System at the Lancaster (Eng.) works. *diags Engineer* 125:133-6 F 15 '18
- Systematizing parts manufacture; plant of Torbensen axle co. H. Markt. *diags plan Iron Tr R* 62:1105-9 My 2 '18
- Tested plans of machine shop management. Factory 21:694+, 1192+, 22:538+, 832+, 1316+ O, D '18, Mr-Apr, Je '19
- Time studies for rate setting on Gisholt boring mills. D. V. Merrick. *diags Ind Management* 56:34-41, 129-33, 181-4, 289-99, 409-11 JI-N '18
- Time studies for rate setting on machine tools. D. V. Merrick. *Ind Management* 55:441-6 Je '18
- Time study and rate setting in a machine tool plant. E. Oberg. *Mach* 25:1051-5 JI '19
- Training men instead of stealing them. F. H. Colvin. *diags Am Mach* 48:1035-9 Je 20 '18
- Two short operations better than one long one. A. R. DeKuzelewski. *Ind Management* 55:372-3 My '18
- Use of sketches on operation sheets. E. Lee. *Mach* 24:740 Ap '18
- Uses of an economic department in a machine-tool plant; collection of information about the market. L. W. Schmidt. *Am Mach* 48:97-100 Ja 17 '18
- Wage payment systems in machine shops. W. D. Stearns. *diags Mach* 25:1115-17 Ag '19
- Working schedule for a time limit job. D. A. Hampson. *Ind Management* 56:407-8 N '18
- See also* Electric railroads—Shops; Industrial management; Locomotive shops; Machine shop practice; Mechanical handling; Railroads—Shops; Repair shops; Shop management
- Study and teaching**
- Course in industrial engineering. F. A. Hobart. *Am Mach* 50:1170 Je 19 '19
- Machine shop practice**
- Assembling Liberty motor cylinders. H. A. Carhart. *diags Am Mach* 51:27-30 JI 3 '19
- Bending and drilling tubes, angles and flat sections. F. A. Stanley. *diags plan Am Mach* 48:697-701 Ap 25 '18
- Bolt manufacture in railway shops. M. H. Williams. *diags Ry Mech Eng* 92:465-70 Ag '18
- British eight-inch howitzer. I. W. Chubb. *diags Am Mach* 50:1189-94; 51:13-17 Je 19 '19
- British 6-in. howitzer. I. W. Chubb. *diags Am Mach* 49:231-42, 411-23 Ag 8, S 5 '18
- Building a sanding machine. R. Mawson. *diags Mach* 25:738-42 Ap '19
- Building marine engines on a quantity basis. F. B. Jacobs. *diags Marine R* 49:272-82, 388-92+ Je, Ag '19
- Building radiators for automobiles and other purposes. E. Sheldon. *diags Am Mach* 49:1165-9 D 26 '18
- Building the Kemp Smith milling machine. M. E. Hoag. *diags Am Mach* 50:101-4, 195-8 Ja 16, 30 '19
- Building the Westinghouse marine system. E. K. Hammond. *diags Mach* 25:789-96, 929-33 My-Je '19
- California jobbing shop. F. A. Stanley. *diags Am Mach* 49:121-3 JI 18 '18
- Compensating spring plungers in jigs and fixtures. G. A. Vis. *diags Am Mach* 51:768-9 O 23 '19
- Connecting rod production in a 50-engine-a-day plant. J. E. Schipper. *diags Automotive Ind* 41:613-19 S 25 '19

- Connecting-rods for motor trucks and passenger cars. F. H. Colvin. *diags Am Mach* 51:467-70 S 4 '19
- Continental plant layout facilitates production. J. E. Schipper. *diags Automotive Ind* 40:1163-73 My 29 '19
- Cutting off stock for machine work. D. Baker. *Am Mach* 49:305 Ag 15 '18
- Cylinder boring and reaming. F. D. Jones. *diags Mach* 25:383-94 Ja '19
- Cylinder valve chamber tools. H. A. Peters. *diags Mach* 24:444 Ja '18
- Dies for tape-measure winder. *diags Mach* 25:46-8 S '18
- Electric-railway motor pinion making. *diags Am Mach* 49:648-50 O 10 '18
- Elements of gagemaking. C. A. Macready. *diags Am Mach* 47:491-3, 661-4, 1112-18; 48:149-52; 49:511-19 S 20, O 18, D 27 '17, Ja 24, S 19 '18
- Engine lathes for precision work. *diags Iron Tr R* 64:633-7 Mr 6 '19
- Finishing operations on Liberty motor cylinders. H. A. Carhart. *diags Am Mach* 50:1197-1201 Je 19 '19
- Fixtures for special operations on spring shackles. A. R. DeKuzelewski. *diags Am Mach* 48:833-4 My 16 '18
- Gas-engine work on the Pacific coast. F. A. Stanley. *diags Am Mach* 49:343-7 Ag 22 '18
- High production tooling methods. A. A. Dowd and D. A. Baker. *diags plan Am Mach* 51:401-7 Ag 28 '19
- Hispano-Suiza airplane engine. H. O. C. Isenberg. *diags Am Mach* 51:703-10, 849-56 O 9, N 13 '19
- How milling cutters are made. F. B. Jacobs. *diags Iron Tr R* 64:150-4 Ja 9 '19
- How the 155-mm. howitzer is made. J. V. Hunter. *diags plan Am Mach* 49:941-5, 983-6, 1123-9; 50:199-204, 249-52, 303-6, 587-93 N 21-28, D 19 '18, Ja 30-F 13, Mr 27 '19
- Inertia effects in the operation of shop machinery. C. E. Clewell. *diags Am Mach* 51:607-9 S 25 '19
- Jobbing shop and foundry in Texas. F. A. Stanley. *diags plan Am Mach* 47:1133-7 D 27 '17
- Loading and assembling time fuses. G. C. White. *diags Mach* 24:671-80 Ap '18
- Machine shop session. *diags Am Soc M E J* 41:159-63 F '19
- Machine tool adaptations for the manufacture of tank lines. *diags Engineer* 127:120-3, 130 F 7 '19
- Machine tools and workshop methods of a former period. A. Herbert. *Engineer* 127:283-4 Mr 21 '19
- Machining a nosed-in shell. M. H. Potter. *diags Mach* 24:780 My '18
- Machining a six-cylinder motor. J. V. Hunter. *diags Am Mach* 50:851-3, 887-90 My 1-8 '19
- Machining air cocks in a small shop. P. M. Herrick. *diags Am Mach* 48:1011-12 Je 13 '18
- Machining an automobile differential cross. A. A. Dowd. *diags Mach* 24:1143-6 Ag '18
- Machining and gaging 9.2-inch high-explosive howitzer shells. M. H. Potter. *diags Mach* 25:125-32 O '18
- Machining base plug for 9.2-inch high-explosive howitzer shells. M. H. Potter. *diags Mach* 25:227-8 N '18
- Machining bearings for Liberty motors. F. H. Colvin. *diags Am Mach* 51:655-60 O 2 '19
- Machining gasoline-engine parts. M. E. Hoag. *diags Am Mach* 48:739-40 My 2 '18
- Machining locomotive driving boxes. F. A. Stanley. *diags Ry Mech Eng* 92:573-5 O '18
- Machining locomotive driving boxes. M. H. Williams. *diags Ry Mech Eng* 93:155-9 Mr '19
- Machining pistons, flywheels and cylinders of gasoline engines. M. E. Hoag. *diags Am Mach* 49:443-4 S 5 '18
- Machining the stitch-making mechanism for hosiery machines. R. Mawson. *diags Am Mach* 48:788-90 My 9 '18
- Magneto industry; the Thomson-Bennett works, Birmingham. *diags Engineer* 127:26-9 Ja 10 '19

**Machine shop practice—Continued**

- Making a moving picture machine.** M. E. Hoag. *il* diags Am Mach 49:718-20, 759-61 O 17-24 '18
- Making a special double-end socket wrench.** I. E. Pearce. diags Am Mach 51:769 O 23 '19
- Making a spiral rack for the sights on the six-pound gun mounts.** S. Seaberg. *il* diags Am Mach 49:470 S 12 '18
- Making accurate turned forgings.** *il* Iron Tr R 64:815-18 Mr 27 '19
- Making an automobile wrench in two operations.** H. F. Pusep. diags Am Mach 50:1147-8 Je 12 '19
- Making and using drifts.** H. F. Pusep. diags Am Mach 51:757-60 O 23 '19
- Making Diamond sprocket chain.** E. K. Hammond. *il* Mach 25:1165-70; 26:25-8 Ag-S '19
- Making dies for cutting rubber, leather, paper, cloth, etc.** S. A. Hand. *il* diags Am Mach 50:52-4 Ja 9 '19
- Making Liberty airplane motor parts.** *il* diags Mach 25:636-41 Mr '19
- Making naval gun mounts.** F. D. Jones. *il* diags plan Mach 25:485-92, 600-6, 745-9 F-Ap '19
- Making of a toolholder.** R. Mawson. *il* Am Mach 50:126-7 Ja 16 '19
- Making the Mark III detonating fuse.** E. K. Hammond. *il* diags plan Mach 25:27-32, 137-44 S-O '18
- Making the Timken roller bearing.** E. K. Hammond. *il* Mach 25:829-35, 953-60 My-Je '19
- Making the U.S. 8-in. shell.** M. E. Hoag. *il* Am Mach 49:457-60, 525-8 S 12-19 '18
- Making the U. S. 75-millimeter field gun.** E. Oberg. *il* diags Mach 25:624-80, 716-21 Mr-Ap '19
- Making typewriter parts.** M. E. Hoag. *il* Am Mach 48:133-5, 235-7, 284-6, 366-9 F 7-14, 28 '18
- Making water-gage fittings in a railroad shop.** F. A. Stanley. *il* diags Am Mach 50:1171-3 Je 19 '19
- Making Whitworth thread gages.** W. D. Woodworth and H. H. Bender. *il* diags Mach 24:483-93 F '18
- Manufacture of caps for threading dies.** F. E. Merriam. *il* diags Am Mach 51:827-30 N 6 '19
- Manufacture of Diamond transmission chain.** J. V. Hunter. *il* diags Am Mach 49:643-7, 845-8, 1027-31, 1077-80 O 10, N 7, D 5-12 '18; Abstract. Am Soc M E J 40:1060-1 D '18
- Manufacture of marine gas engines.** J. V. Hunter. *il* diags Am Mach 50:787-91 Ap 24 '19
- Manufacture of rafwires and their fittings.** *il* (supp) diags Engineer 127:167-9 F 21 '19
- Manufacture of small chain.** E. R. Miner. *il* Iron Age 103:1009-12 Ap 17 '19
- Manufacture of the 4.7-inch gun, model 1906-1.** E. A. Suverkrop. *il* diags Am Mach 48:519-24, 649-58 Mr 28, Ap 18 '18
- Manufacture of the Lewis machine gun.** F. A. Stanley. *il* diags Am Mach 47:969-71; 48:265-73, 397-403, 579-84, 663-7, 747-52, 825-8, 873-8, 949-52; 49:25-9, 203-7, 481-4, 529-31; 50:55-60 D 6 '17, F 14, Mr 7, Ap 4, 18, My 2, 16-23, Je 6, Jl 4, Ag 1, S 12-19 '18, Ja 9 '19
- Manufacture of the 75-mm. high-explosive shell.** S. A. Hand. *il* diags Am Mach 48:435-9, 535-9, 705-12 Mr 14, 28, Ap 25 '18
- Manufacture of the U.S. 75-millimeter shell; methods employed by the American shell co.** E. Oberg. *il* diags plan Mach 24:590-6, 730-4 Mr-Ap '18
- Manufacturing a calculating machine in a western shop.** F. A. Stanley. *il* diags Am Mach 48:621-5, 795-9, 905-9 Ap 11, My 9, 30 '18
- Manufacturing a drill chuck.** F. R. Daniels. *il* diags Mach 25:948-52 Je '19
- Manufacturing a mechanical lubricator.** M. E. Hoag. *il* diags Am Mach 49:1183-5; 50:23-6, 71-4 D 26 '18-Ja 9 '19
- Manufacturing base plugs for the 80 mark VIII time fuse.** J. Campbell. *il* diags Am Mach 48:414-17 Mr 7 '18
- Manufacturing drop-forged pliers.** E. Sheldon. *il* Am Mach 49:889-93 N 14 '18
- Manufacturing marine steam boilers.** E. A. Suverkrop. *il* diags Am Mach 49:1155-63 D 26 '18
- Manufacturing operations in making a gasoline motor.** *il* Am Mach 48:1-4 Ja 3 '18
- Manufacturing operations on jewelry settings.** J. V. Hunter. *il* diags Am Mach 49:47-53 Jl 11 '18
- Manufacturing the addressograph.** M. E. Hoag. *il* Am Mach 48:491-4 Mr 21 '18
- Manufacturing the caterpillar tractor.** F. A. Stanley. *il* diags Am Mach 49:745-7, 801-4, 897-901, 977-80, 1040-2; 50:299-302 O 24-31, N 14, 28-D 5 '18, F 13 '19
- Manufacturing the comptometer.** M. E. Hoag. *il* Am Mach 48:956-8, 1061-4; 49:113-16, 212-15, 303-5, 389-92 Je 6, 20, Jl 18, Ag 1, 15, 29 '18
- Manufacturing the Curtiss airplane cylinder.** G. D. Ranger. *il* Am Mach 48:855-8; 49:62-5, 257-60 My 23, Jl 11, Ag 8 '18
- Manufacturing the Ettco drill chuck.** *il* diags Am Mach 51:209-12 Jl 31 '19
- Manufacturing the 9.2-in. howitzer shell.** S. A. Hand. *il* diags Am Mach 50:799-801, 839-42, 895-7, 1089-93 Ap 24-My 8, Je 5 '19
- Mechanical mathematician.** E. Sheldon. *il* Am Mach 50:875-8 My 8 '19
- Methods employed in machining adapters.** M. H. Potter. diags Mach 25:296 D '18
- Methods of the Nash motors co.** M. E. Hoag. *il* Am Mach 47:1109-11; 48:101-3, 326-8 D 27 '17, Ja 17, F 21 '18
- Microscope in the tool-room.** J. Scott. *il* diags Mach 25:799-802 My '19
- Modern methods of making motor cylinders.** F. H. Colvin. *il* diags Am Mach 50:1099-1103 Je 5 '19
- Mounts for naval anti-aircraft guns.** F. H. Colvin. *il* diags Am Mach 51:79-83, 457-61 Jl 10, S 4 '19
- Novel two part piston ring.** E. Sheldon. *il* Am Mach 51:199-202 Jl 31 '19
- Operations in a creamery machinery plant.** F. A. Stanley. *il* diags Am Mach 48:177-81 Ja 31 '18
- Operations in the manufacture of high-explosive shells.** diags Am Mach 48:735-7 My 2 '18
- Operations on the Liberty motor cylinders.** H. A. Carhart. *il* Am Mach 50:935-91 My 22 '19
- Periodograph; a decimal time-keeping machine.** J. V. Hunter. *il* Am Mach 51:49-54, 161-4 Jl 10, 24 '19
- Phenomenal increase in production in factory of Boss nut co.** M. E. Hoag. *il* Am Mach 48:45-7 Ja 10 '18
- Pneumatic-electric rock drill and some of the tools used in its construction.** F. A. Stanley. *il* diags Am Mach 51:263-6 Ag 7 '19
- Polishing methods.** E. K. Hammond. *il* diags Mach 26:203-10 N '19
- Production milling on automatic machines.** E. K. Hammond. *il* diags Mach 26:48-55, 150-4 S-O '19
- Production of Liberty motor parts at Ford plant.** W. F. Verner. *il* Mech Eng 41:517-22-Je '19; Same. Am Mach 51:123-30 Jl 17 '19
- Production problem for the machine shop; removing stock from a wrench head.** diags Mach 25:1181-2 Ag '19
- Record-smashing crankshaft lathe.** E. Viall. *il* diags Am Mach 51:395-9 Ag 28 '19
- Relining of guns at the Watervliet arsenal.** E. A. Suverkrop. *il* Am Mach 48:687-91, 783-5 Ap 25, My 9 '18
- Shop and drafting room kinks.** D. A. Baker. diags Am Mach 49:445-6 S 5 '18
- Special operations in milling machine manufacture.** F. B. Jacobs. *il* Iron Tr R 64:892-6 Ap 3 '19
- Special parts for four-wheel drive trucks.** H. C. Satterthwaite. *il* diags Am Mach 50:691-8 Ap 10 '19
- Standardization and interchangeability; factors which help or hinder according to the work in hand.** F. H. Colvin. Am Mach 50:1143-6 Je 12 '19



**Machine shop practice—Continued**

- Steel-mill roll shop on the Pacific coast; Judson manufacturing co., Oakland, Calif. F. A. Stanley. *Il Am Mach* 50:15-16 Ja 2 '19
- Supplement to Frederick W. Taylor's, On the art of cutting metals. C. G. Barth. *diags Ind Management* 58:169-76, 282-7 S-O '19 (to be cont)
- Taking machines to the work. E. K. Hammond. *Il Mach* 24:1073-81 Ag '18
- Toolroom methods in a Pacific Coast factory. F. A. Stanley. *Il diags Am Mach* 48:1051-5 Je 20 '18
- Turning out 100 tractors per day; International harvester co. P. M. Heldt. *Il Automotive Ind* 40:852-7 Ap 17 '19
- Turret lathe practice. E. Oberg. *Il diags plans Mach* 26:99-109, 227-35 O-N '19
- Use of precision balls for accurate measurements. R. L. Rankin. *Il diags Mach* 26:236-8 N '19

*See also* Arbors and mandrels; Broaching; Chucks; Drafting room practice; Drilling and boring (metal working, etc.); Electric driving; Forging; Foundry practice; Gages; Gear cutting; Grinding and polishing; Lathes; Locomotive shops; Machine shop management; Machine tools; Machinery; Mechanical engineering; Metal cutting; Pattern making; Railroads—Shops; Riveting; Sheet metal work; Steel works; Welding

**Machine shops**

- Evolution of the workshop. H. H. Manchester. *Il Am Mach* 51:781-4 O 30 '19
- Foundry and shops of striking design. C. Lundberg. *Il plan Iron Age* 103:417-22 F 13 '19
- Ideal shop for sharpening drill steel. G. H. Gilman. *diags plan Eng & Contr* 51:644-8 Je 18 '19
- Machine shop for gas producer work. *Il diag plan Iron Age* 102:1873-8 D 5 '18
- Machine shop is erected in 40 days. *Il Eng N* 79:1070 D 6 '17
- Machine shops of China. F. A. Foster. *Il Am Mach* 51:99-103 Jl 17 '19
- Making provision for factory enlargement. S. Dean. *Mach* 26:166-7 O '19
- Modern light machine shop. H. Carpenter. *diags plans Engineer* 125:102-4 F 1 '18
- Municipal store and machine shop in Los Angeles. C. W. Geiger. *Il Munic J* 45:45-8 Jl 20 '18
- New features in heavy machine shop design in manufacturing building of International harvester corporation. W. S. Tait. *Il diags Eng & Contr* 49:403-5 Ap 24 '18
- New General Electric steam turbine shop. Erie, Pa. F. L. Prentiss. *Il Iron Age* 102:1195-9 N 14 '18
- New National Acme screw products plant. Cleveland, Ohio. *Il Mach* 26:120-2 O '19
- New tool works at Timperley. *Il diags plans Engineer* 124:470-1, 474 N 30 '17
- Novel plant of American tool company. C. L. Smith. *Il diags Iron Age* 103:29-33 Ja 2 '19
- Oversea lumberman's machine shop. J. B. Woods. *Il Am Mach* 51:213-15 Jl 31 '19
- Planning for war work; making estimates for manufacturing for the government and equipping a factory for war work. A. Spangenberg. *Mach* 24:789-90 My '18
- Richborough transportation depot and train ferry terminus. *Il map plan Engineer* 127:102-4, 106 Ja 31 '19
- Shops proclaim Milwaukee's resources. *Il Iron Tr R* 63:sup123-30 O 3 '18
- Tool department of Winchester works. *Iron Age* 102:1129-33 N 7 '18
- Union special machine company's new plant. Chicago. *Il plans Textile World* 55:2997+ My 17 '19
- Union special machine company's plant. Chicago, Illinois. *Il plans Arch Rec* 44:159-63 Ag '18
- What a tinsmith can do in a machine shop. P. F. O'Shea. *Il Am Mach* 50:1067-76 Je 5 '19

*See also* Electric driving; Electric railroads—Shops; Locomotive shops; Machine shop management; Machine shop practice; Machine tools; Railroads—Shops; Repair shops

**Accounting**

*See* Factories—Accounting

**Employees**

- Crippled workers in the machine industry. A. J. Westmayr. *Il Am Mach* 50:81-3 Ja 9 '19
- Cripple's ability as a metal worker. D. C. McMurtree. *Il Iron Age* 102:278-80 Ag 1 '18
- Don'ts for apprentices and others. H. Gardner. *Ry Mech Eng* 92:286 My '18
- Efficiency of both sexes in the machine industry. L. W. Alwyn-Schmidt. *Am Mach* 51:281-2 Ag 7 '19
- Employment of women in our industries. W. A. Viall. *Am Mach* 48:909-11 My 30 '18; Same cond. *Iron Age* 101:1189-90 My 2 '18; Same cond. *Iron Tr R* 62:1190-1 My 9 '18
- Instructing future foremen and superintendents. F. H. Korff. *Mach* 25:338-41 D '18
- Introducing woman labor into the shop. M. C. Hobart. *Am Mach* 49:769-70 O 24 '18
- Keeping the gas mantle business going as usual with women workers. *Il Gas Age* 41:153-6 F 15 '18
- Our experience with the employment of women. D. S. Earll. *Am Mach* 48:240-1 F 7 '18
- Psychology of environment. C. B. Lord. *Am Soc M E J* 40:48-9 Ja '18; Excerpts. *Eng N* 80:69-70 Ja 10 '18; Discussion. *Am Soc M E J* 40:49-51 Ja '18
- Putting women into the machine shop. F. L. Prentiss. *Il Iron Age* 102:892-5 O 10 '18
- Service for women in the Gisholt shops. J. V. Hunter. *Il charts diags Am Mach* 50:6-10 Ja 2 '19
- Shop training school for girls. P. F. O'Shea. *Il diags Ind Management* 58:213-15 S '19
- Skill then and now. D. A. Hampson. *Am Mach* 49:260 Ag 8 '18
- Successful apprentice toolmakers' school of the Savage arms corporation, Utica, N. Y. F. L. Glynn. *Am Mach* 50:347-9 F 20 '19
- Training for the building of machine tools. E. A. Kraus. *Il Am Mach* 51:353-6 Ag 21 '19
- Training women for record output. R. I. Clegg. *Il Iron Age* 103:169-74 Ja 16 '19
- Training women in an airplane plant. J. W. Russell. *Il Mach* 25:593-5 Mr '19
- Training women machinists. L. C. Decatur and H. A. Chase. *Il Mach* 24:823-4 My '18
- Value of women workers in the machine shop. A. C. Halvorsen. *Am Mach* 50:433 Mr 6 '19
- War work for women. L. D. Burlingame. *Il Mach* 24:682-7 Ap '18
- Woman worker. J. W. Upp. *Il Am Soc M E J* 40:45-8 Ja '18; Same cond. *Iron Age* 100:1426-7 D 13 '17; Excerpts. *Eng N* 80:69 Ja 10 '18
- Women in industry. H. E. Miles. *Iron Tr R* 62:1331-2 My 23 '18
- Women in machine shops. *Am Mach* 48:761-2 My 2 '18
- Women in the gear industry. W. H. Diefendorf. *Am Mach* 49:642 O 3 '18
- Women in the machine shop. S. A. Hand. *Il Am Mach* 49:1035-7 D 5 '18
- Women workers in machine shops in Great Britain. *Mach* 24:597 Mr '18
- Women workers in the shop. D. A. Baker. *Mach* 24:451 Ja '18
- Work of women in engineering factories. B. H. Morgan. *Eng & Contr* 50:429-30 O 30 '18

**Equipment**

- Equipment and maintenance factors in cost accounting during transition period. L. W. Alwyn-Schmidt. *Am Mach* 50:366-8 F 20 '19
- Industrial electric trucks and tractors in machine shops. B. J. Dillon. *Il Elec R* 75:683-5 O 25 '19

*See also* Machine tools

**Layout**

- American railroad repair shops in France; layout of tool positions. R. K. Tomlin, jr. *Il diag plans Am Mach* 49:933-8 N 21 '18
- Arrangement of equipment in shops. J. Forrest. *Am Mach* 50:699-701 Ap 10 '19

**Machine shops—Layout—Continued**

General arrangement of tools in the wheel shop of the Minneapolis, St Paul & Sault Ste Marie, at Minneapolis; diagram. Ry Mech Eng 92:578 O '18  
 Planning a machine tool shop for systematized manufacture. E. Oberg. II plan Mach 25:905-13 Je '19  
 Plant of the Continental motors corp., Detroit. Automotive Ind 40:1126a My 22 '18  
 Shop machinery—what to have and where to have it. B. M. Ikert. plan (supp) Motor Age 36:7-9 O 2 '19  
 West Burlington shops of the C. B. & Q. II diag plans Ry Mech Eng 93:5-16 Ja '19

**Lighting**

Better lighting of machine shops. F. H. Bernhard. II diag Elec R 72:907-15 Je 1 '18; Abstract. Illum Engr 11:207 S '18  
 Developments in electric lamps for shop use. C. E. Clewell. II diag Am Mach 51:821-4 N 6 '19  
 Improvement of machine lighting by the use of white paint. diag Illum Engr 11:241 O '18  
 Industrial lighting for shops. O. L. Johnson. II Ry R 62:916-18 Je 22 '18  
 Lighting fixtures for shop illumination. C. E. Clewell. II diag Am Mach 51:727-31 O 16 '19  
 Night-lighting the factory. II Am Arch 113: 835-42 Je 19 '18

**Safety devices**

Reduction of accident hazard. R. L. Gould. chart Am Mach 48:1057-60 Je 20 '18  
 Safeguarding the automobile worker. II Iron Age 101:609-10 Mr 7 '18  
 Safety engineering in the machine shop. C. A. Briggs. Iron Age 102:1028-9 O 24 '18

**See also Machinery—Safety devices****Tables, calculations, etc.**

Simple solution of right-angle-triangle problems for mechanics. S. A. Hand. diag Am Mach 50:494-6 Mr 13 '19

**Machine shops, Portable**

Portable machine shop installation near the battle front. II Elec Ry J 52:341 Ag 24 '18  
 Portable machine shops built by the Four wheel drive auto co. II Eng & Contr 49: 122 Ja 30 '18

**Machine tool builders' association, National.**  
See National machine tool builders' association**Machine tool industry**

After-war prospects for American machine tools in France. C. E. Carpenter. Am Mach 48:146-8 Ja 24 '18  
 American machine tools for Australian railroad shops. L. W. Schmidt. Am Mach 49: 811-12 O 31 '18  
 American machine tools in France. Mach 25: 654-5 Mr '19  
 American machine tools in many markets. L. W. Alwyn-Schmidt. Am Mach 50:1135-7 Je 12 '19  
 American machine tools needed in France. L. W. Alwyn-Schmidt. Am Mach 51:825-6 N 6 '19  
 American machinery in Australia. Am Mach 50:945-6 My 15 '19  
 American tools in Australia. Iron Age 103: 810-11 Mr 27 '19  
 Appointing agents for Belgium—the other side of the question. G. R. Woods. Am Mach 47:256-7 Ag 9 '17; Discussion. 47:884, 984, 1043-4 N 22-29, D 13 '17  
 Appointing machine-tool agents in France. P. Auriol. Am Mach 49:57-8 Jl 11 '18  
 Auto makers are still buying tools. II Iron Tr R 62:365-7 F 7 '18  
 Britain grips tool trade by licenses. H. C. Estep. Iron Tr R 64:27 Ja 2 '19  
 British machine tool and metal industries. A. Luchars. Mach 28:19-24 S '19; Same. Iron Age 104:573-7 Ag 28 '19; Same cond. Am Mach 51:478-80 S 4 '19  
 British machine tools. Iron Age 102:1199 N 14 '18  
 Changes in American machine-tool exports. L. W. Schmidt. Am Mach 49:9-11 Jl 4 '18

China a market for the American machine tool. L. W. Schmidt. Am Mach 49:893-6 N 14 '18

China as a market for machine tools. P. J. Rasmussen. Mach 25:293-4 D '18

Conditions in the machine tool trade. Mach 25:1037, 1132; 26:75-6 Jl-S '19

Demand for machine tools after the war. L. W. Schmidt. Am Mach 49:306-8 Ag 15 '18

Dutch East Indies as a market for machine tools. J. W. Evans. Mach 26:17 S '19

Economics of the machine-tool business. G. R. Woods. Am Mach 48:1044 Je 20 '18

Effect of changes in foreign tariffs on the American machine-tool industry. L. W. Schmidt. Am Mach 48:1047-9 Je 20 '18

Export future for machine tools; abstracts. J. W. Hook. Iron Age 102:1532-4 D 19 '18; Iron Tr R 63:1470-2 D 26 '18; Mach 25:454-6 Ja '19

Exporting of machine tools. Am Mach 49:782 O 24 '18

Exports of metal-working machinery from the United States, August, 1919. Mach 26: 219 N '19

Foreign commerce and the machinery industry. L. W. Schmidt. Am Mach 49:988-90 N 28 '18

Foreign tool markets smaller. A. C. Cook. Iron Tr R 65:443-5 Ag 14 '19

France regulates machine tool business. F. Miltoun. Iron Tr R 63:559 S 5 '18

Future of the machine tool trade. Engineer 125:192 Mr 1 '18

Future of the machine tool trade. C. E. Hill-dreth. Mach 25:652-3 Mr '19

German machine tool and related industries. A. Luchars. Mach 26:223-5 N '19; Iron Tr R 65:1175-7+ O 30 '19

German machine-tool industry during and after the war. Am Mach 51:537-9 S 11 '19

Germany's pre-war machine-tool exports. L. W. Alwyn-Schmidt. Am Mach 51:613-14 S 11 '19

Great need of a machine-tool board. Am Mach 48:848-9 My 16 '18

Growing market for machine tools in the Dutch East Indies. J. W. Evans. Am Mach 51:427-8 Ag 28 '19

How machine-tool builders can cooperate in foreign trade. L. W. Schmidt. Am Mach 48: 839-41 My 16 '18

How machine-tool builders can help make big guns; requirements of the Ordnance department. H. W. Reed. Am Mach 48:891-3 My 23 '18; Same. Iron Age 101:1330-3 My 23 '18; Same cond. Iron Tr R 62:1425-6 Je 6 '18; Same cond. Mach 24:943-4 Je '18

Machine-tool building in the United States; comparison of 1914 and 1918. map Am Mach 50:supp Je 19 '19

Machine tool business of the future. R. Mawson. Iron Tr R 63:335 Ag 8 '18

Machine tool business outlook. A. W. Henn. Mach 25:812 My '19

Machine tool conditions in France, Italy, Switzerland and Holland; abstracts. A. Luchars. Mach 26:221-2 N '19; Iron Tr R 65:1256-7+ N 6 '19

Machine-tool consortium. Am Mach 49:630 O 3 '18

Machine-tool dictator. S. O. Livingston. Am Mach 49:138 Jl 18 '18

Machine tool equipment needed by railroads. Ry Mech Eng 92:209-10 Ap '18

Machine-tool exports after the war. L. W. Schmidt. Am Mach 48:609-11 Ap 11 '18

Machine tool industry and the war. J. B. Doan. Am Mach 48:959-60 Je 6 '18; Same cond. Mach 24:942 Je '18

Machine tool industry in Japan. Mach 26: 17 S '19

Machine-tool market in Switzerland. S. Lam-bercier. Am Mach 48:584 Ap 4 '18

Machine tool output increased in wartime. map Iron Tr R 65:363 Ag 7 '19

Machine tool prices. A. Luchars. Mach 25:705-8 Ap '19

Machine tool prices during last five years. Mach 25:1127 Ag '19

Machine-tool situation in Europe. H. W. Champion. Am Mach 51:340 Ag 14 '19

**Machine tool industry—Continued**

Machine tool trade after the war. A. W. Henn. Mach 24:1096 Ag '18  
 Machine tool trade in northern Europe. S. E. Osmar. Mach 25:597-9 Mr '19  
 Machine tool trade in the Scandinavian countries after the war. O. Ericsson. Mach 25:133-4 O '18  
 Machine tools and small tools. Engineer 127:111-12 Ja 31 '19  
 Machine tools in Belgium. E. G. Todd. Am Mach 47:1045-6 D 13 '17  
 Manufacture of machine tools in Switzerland. C. E. Carpenter. Am Mach 48:485-6 Mr 21 '18  
 Market for machine tools in South America after the war. L. W. Schmidt. Am Mach 47:1025-6 D 13 '17  
 Markets for the American machine tool. L. W. Alwyn-Schmidt. Am Mach 50:75-7 Ja 9 '19  
 National machine tool builders' convention, Atlantic City, May 12-13. Mach 25:924-5 Je '19  
 New French regulations regarding machine tools. Am Mach 49:629-30 O 3 '18  
 New opportunities for machine-tool builders. L. W. Alwyn-Schmidt. Am Mach 50:751-2 Ap 17 '19  
 1917 greatest year for the machinery trade. Iron Age 101:117-21 Ja 3 '18  
 Problems facing American machine tool builders. J. B. Doan. Mach 25:300 D '18  
 Prospects for American machine tools in Italy. E. Vaghl. Mach 25:807-9 My '19  
 Putting the machine tool industry where it belongs. F. H. Colvin. Am Mach 50:762-4 Ap 17 '19  
 Readjustment in Great Britain and France. A. Luchars. Mach 25:558-60 F '19  
 Sales question in Belgium. H. Benedictus. Am Mach 48:1099-1100 Je 27 '18; Discussion. R. G. Pilkington. 49:366 Ag 22 '18  
 Selling machine tools abroad. J. J. Prado. Am Mach 49:366a Ag 22 '18  
 Suggestions for machine-tool salesmen. Am Mach 48:234 F 7 '18  
 Tool exporters have large inquiry from Greece. Iron Tr R 64:1180+ My 1 '19  
 Tools back up nation's war power. H. Markt. Iron Tr R 62:109-12 Ja 3 '18  
 Trend of the machine tool market. Mach 25:572-3, 676-7+ F-Mr '19  
 U.S. government sales and Belgian machine tool conditions. A. Luchars. Mach 26:226 N '19  
 War and the machine tool industry. F. H. Colvin. Am Mach 50:1167-9 Je 19 '19  
 War conditions as applied to twist drills, reamers, etc. R. T. Lane. Am Mach 48:1097 Je 27 '18  
 War demands drive tool builders. Iron Tr R 62:164 Ja 10 '18  
 What is the matter with the machine-tool business? Am Mach 50:645-6 Ap 3 '19  
 What of the machinery of war? B. K. Price. Iron Tr R 64:53-7 Ja 2 '19

**Used tools**

Chart for use in appraisal of standard machine tools to determine service value. Am Mach 50:1202 Je 19 '19; Automotive Ind 41:67 J1 10 '19; Iron Tr R 64:1562-3 Je 12 '19; Iron Age 103:1640-1 Je 19 '19; Ind Management 58:139 Ag '19; Mach 25:1034-5 J1 '19  
 Disposal of government-owned machine tools. A. E. Newton. Mach 25:656 Mr '19  
 Filling the gaps in shop equipment; demand for used machine tools. B. K. Price. Iron Tr R 63:25-7 J1 4 '18  
 Fixing prices of government machine tools. charts Iron Age 104:377-9 Ag 7 '19; Abstract. Iron Tr R 65:349+ Ag 7 '19; Chart. Am Mach 51:388 Ag 21 '19  
 From engines of war to instruments of peace. W. H. Lloyd. Iron Tr R 65:974-81 O 9 '19  
**Machine tools**  
 Automatic machine tools. H. E. Thomas. Iron Tr R 65:426-7 My 2 '19  
 Automatic routing machine for firing pin plugs. Iron Tr R 65:952-3 Je '18

Automatically indexed piercing and shearing tool. L. L. Dodds. Iron Tr R 65:1133-5 Je 12 '19  
 Automatics in railroad shops. M. H. Williams. Iron Tr R 65:303-10 Je '19  
 Avoiding misfits in buying equipment. Iron Tr R 65:493-5 S '19  
 Beatty machine & manufacturing co. combination tool for the steel car shop. Iron Tr R 65:396 Je '19  
 Brass-working tools in a railroad shop for making blow-off valves and their fittings. F. A. Stanley. Iron Tr R 65:1081-4 D 12 '18  
 Buffalo slitting shear, punch, and bar cutter. Iron Tr R 65:947-8 Je '18  
 Built-up tools for brass work. C. W. Hathaway. Iron Tr R 65:835-6 My '18  
 Bullard 8-inch multi-automatic. Iron Tr R 65:236-41 F 6 '19  
 Combination lathe, boring and milling machine. Iron Tr R 65:457 My 18 '18  
 Combination tools. W. P. Lotz. Iron Tr R 65:347 My 1 '19  
 Combination tools and their application. Iron Tr R 65:520-1 F '18  
 Cutting lubricants for machine tools. R. Trautschold. Iron Tr R 65:45-7 S '19  
 Defiance no. 5 horizontal boring, milling, drilling and tapping machine. Iron Tr R 65:499-500 S 12 '18; Iron Age 102:569 S 5 '18; Mach 25:80 S '18  
 Defiance no. 6 boring, milling, drilling and tapping machine. Iron Tr R 65:640-1 Ap 11 '18; Ind Management 55:421-2 My '18  
 Device for cutting oil grooves. F. C. Meyer. Iron Tr R 65:683-4 O 10 '18  
 Efficient machine for finishing crown stays. Iron Tr R 65:519-20 S '18  
 Elimination of chatter marks. F. W. Bach; W. S. Rowell. Iron Tr R 65:307-8, 803 F 13, Ap 24 '19  
 Elimination of chatter marks from machined work. Iron Tr R 65:349-54 Ag 22 '18  
 Evolution of the workshop. H. H. Manchester. Iron Tr R 65:781-4 O 30 '19  
 Future production plans will require special machinery. J. E. Schipper. Iron Tr R 65:145-9 Ja 16 '19  
 Government machinery in school shops. R. W. Derby. Iron Tr R 65:785-6 Ap 24 '19  
 Gray shell machinery. Iron Tr R 65:1125-6 Je 27 '18  
 Heavy forming tool. J. Long. Iron Tr R 65:404 F 27 '19  
 Heavy machine equipment at Panama. R. D. Gatewood. Iron Tr R 65:463-5 S 4 '19  
 Henry & Wright dyeing machine for sheet-metal work. Iron Tr R 65:498-9 S 12 '18  
 High production tooling methods. A. A. Dowd and D. A. Baker. Iron Tr R 65:1029-36; 51:401-7 My 29, Ag 28 '19  
 Huge machine tools for gun plant. Iron Tr R 63:1012-13 O 31 '18  
 Inserted cutter tools. Iron Tr R 65:479 Ag '18  
 Jigs, tools, etc., for the production of standardised parts. H. C. Armitage. Iron Tr R 65:309-10 Mr 28 '19  
 Latest advices from our Washington editor. Am Mach 48:768-70 My 2 '18  
 Machine accuracy in manufacturing small interchangeable parts. G. C. White. Iron Tr R 65:67 S '18  
 Machine tools and workshop methods of a former period. A. Herbert. Engineer 127:283-4 Mr 21 '19; Abstract. J. Fr Inst 187:703-4 Je '19  
 Machine tools of concrete. R. H. Moulton. Iron Tr R 65:565 Je 22 '18  
 Making the toolroom efficient. F. B. Jacobs. Iron Tr R 65:1326-7 N 13 '19  
 Making water-gage fittings in a railroad shop. F. A. Stanley. Iron Tr R 65:1171-3 Je 19 '19  
 Manufacturer's tools in Japan. Sci Am 121:383 O 18 '19  
 Manufacturing time fuse rings; characteristics of some machines for routing powder groove. D. A. Baker. Iron Tr R 65:612-14 Mr '18

**Machine tools—Continued**

Metal machine shop practice. P. W. Blair. *il* diag Metal Ind 15:378-9 S '17  
 Multiplex machine tool. *il* Mach 25:867-9 My '19; Iron Age 103:1001-3 Ap 17 '19; Am Mach 50:959-60 My 15 '19  
 Navy department specifications for sockets for Morse taper-shank tools. diags Am Mach 48:19-20 Ja 3 '18  
 New and improved machine tools and shop equipment. *il* Ry Mech Eng 93:341-96 Je '19  
 New Britain multi-spindle machines. *il* Iron Age 101:383-4 F 7 '18; Am Mach 48:259-60 F 7 '18; Iron Tr R 62:435-6 F 14 '18; Ind Management 55:245 Mr '18; Mach 24:562-3 F '18  
 Preventing warpage and breakage of high-speed steel tools. diags Mach 25:48 S '18  
 Question of weight. J. Vincent. Am Mach 50:339-40 F 20 '19  
 Recessing tool. M. S. Henry. diags Am Mach 49:484 S 12 '18  
 Reducing costs for special manufacturing equipment. F. E. Johnson. Mach 25:72 S '18  
 Rockford horizontal drilling, boring and tapping machine. *il* Am Mach 48:932-3 My 30 '18  
 Screw machine job on an engine lathe. O. W. Pullan. diags Am Mach 51:327-8 Ag 14 '19  
 Simple tools for making coil springs. C. W. Hathaway. diags Mach 24:1036 J1 '18  
 61-in. boring and turning mill of the Bullard machine tool co. *il* Iron Age 101:1401 My 30 '18; Mach 24:945-7 Je '18  
 Special machine tools for airplane motor work. diags Am Mach 49:219 Ag 1 '18  
 Supervising a large tool department. A. Jenner. Ind Management 57:25 Ja '19  
 Supervising a large tool department. C. W. Starker. Ind Management 56:481-6 D '18  
 Thread-cutting attachments. F. D. Jones. *il* diags Mach 24:524-31 F '18  
 Three-operation munition machine. *il* Iron Age 101:1531 Je 13 '18  
 Tool for cutting internal grooves. C. C. Spreen. diags Am Mach 48:717-18 Ap 25 '18  
 Tooling a foreign car in America. T. Orchard. diags Mach 24:410-12, 534-5 Ja-F '18  
 Tooling equipment for an automobile piston-ring. T. Orchard. diags plan Mach 25:1058-60 J1 '19  
 Tools for locomotive-valve parts. F. A. Stanley. *il* diags Am Mach 50:1119-22 Je 12 '19  
 Turret lathe and other tools for railroad shop use. F. A. Stanley. *il* diags Am Mach 51:699-701 O 9 '19  
 Universal tool veritable machine shop. *il* Iron Tr R 64:1296-7 My 15 '19  
 Up to date tools for machining brass parts on turret lathes and screw machines. P. W. Blair. *il* diags Metal Ind 17:272-3 Je '19  
 Using tow tools at once. diags Am Mach 50:402; 51:110, 731 F 27, J1 17, O 16 '19  
 What is a high-grade machine? symposium. Am Mach 51:653-4 O 2 '19  
 Whelan shell-nosing attachment. *il* Am Mach 48:978 Je 6 '18  
*See also* Arbors and mandrels; Bending machines; Broaching machines; Chucks; Cutting machines; Drilling and boring machinery; Electric driving; Gear cutting machines; Grinding and polishing; Grinding machines; Hobs; Lathes; Machine shop practice; Machine tool industry; Machinery; Portable; Metal cutting; Milling cutters; Milling machines; Pipe threading machines; Planing machines; Pneumatic tools; Punching machinery; Reamers; Saws; Screw machines; Shapers; Shears; Slotting machines; Thread cutting machines; Tool steel; Woodworking machinery

**Design**

Designing change-gears. W. C. Steuart. diags Mach 26:252-5 N '19  
 Mechanical data in catalogues; value in designing fixtures. A. A. Dowd. Mach 24:991 J1 '18

Results of faulty tool designing. F. B. Jacobs. diags Mach 24:1028-9 J1 '18  
 Roller bearings for machine shop equipment. E. K. Hammond. *il* diags Mach 25:115-22, 236-45 O-N '18  
 Roller bearings in machine-tool design. R. Porter. Am Mach 48:74-5 Ja 10 '18  
 Technical vs. practical tool designers. D. A. Baker. Am Mach 47:1037-8 D 13 '17

**Electric driving**

Attitude of machine-tool builders to motor drive. C. E. Clewell. *il* diags Elec W 70:994-7 N 24 '17; Excerpt. Am Soc M E J 40:107 Ja '18  
 Drum reversing switch for machine tools. *il* Iron Age 100:1533 D 27 '17  
 Factors affecting application of motors to lathes. C. E. Clewell. *il* Elec W 70:1238-42 D 29 '17  
 Motor drive as viewed by machine builders and motor manufacturers. C. E. Clewell. *il* diag Am Mach 50:475-8 Mr 31 '19  
 Power a machine tool uses. Factory 20:84+ Ja '18  
 Power requirements of machines in large shops. Elec W 71:310 F 9 '18  
 Selection of motors aided by graphic meters. C. E. Clewell. *il* diag chart Elec W 71:454-6 Mr 2 '18  
 Service study of machine tool drives. H. W. Tice. Iron Age 103:1285-7 My 15 '19; Same cond. Iron Tr R 64:897-9 Ap 3 '19  
 Speed, torque and power in machine-tool work. C. E. Clewell. diags Elec W 70:1092-4 D 8 '17  
 Types of motors designed for different loads. C. E. Clewell. *il* Elec W 70:1145-8 D 15 '17

**Fixtures**

Beating the gear cutter. D. A. Hampson. diag Am Mach 48:701 Ap 25 '18  
 Beckett universal angle fixture. *il* diags Mach 25:164-5 O '18  
 Boring bar for the lathe. H. L. Dungan. diags Am Mach 48:632-3 Ap 11 '18  
 Boring fixture for beveled surfaces. F. H. Mayoh. diags Mach 25:1083 J1 '19  
 Centering shell forgings on a drilling machine. J. Homewood. diag Mach 25:63-4 S '18  
 Compensating spring plungers in jigs and fixtures. G. A. Vls. diags Am Mach 51:768-9 O 23 '19  
 Continuous milling fixture. *il* Mach 24:830 My '18  
 Continuous milling fixture. D. A. Hampson. diag Mach 25:1060 J1 '19  
 Continuous rotary milling. E. K. Hammond. *il* diags Mach 25:687-94, 842-6 Ap-May '19  
 Crankshaft turning fixture. C. W. Francis. diags Mach 24:643 Mr '18  
 Crimping fixture for shell bands. A. F. White. diags Am Mach 49:588 S 26 '18  
 Cylinder boring and reaming fixtures. F. D. Jones. *il* diags Mach 25:822-5 My '19  
 Designing fixtures to increase production on drilling machines. *il* Mach 24:793 My '18  
 Detonator socket milling fixture. D. A. Baker. diags Mach 25:515 F '19  
 Draw tools for automobile slide-rails. P. Baldus. diags Am Mach 47:1140 D 27 '17  
 Efficiency in milling fixtures. J. Ahlers. diags Am Mach 48:186 Ja 31 '18  
 Fixture for boring wristpin hole. R. Belmont. diags Am Mach 49:1188 D 26 '18  
 Fixture for centering eccentric work. J. T. Clark. diags Mach 26:272 N '19  
 Fixture for drilling small holes. G. C. Wells. diags Am Mach 48:210 Ja 31 '18  
 Fixture for grinding. A. H. Gerhardt. diags Am Mach 49:410c Ag 29 '18  
 Fixture for milling cylinder heads on engine lathe. F. Fruhner. *il* Mach 24:1138 Ag '18  
 Fixture for milling slots in levers. C. F. Meyer. diags Am Mach 49:588-9 S 26 '18  
 Fixture for nosing shells. G. Barrett. diag Am Mach 49:33 J1 4 '18  
 Fixture for squaring screw heads on the milling machine. F. H. Walker. diags Am Mach 48:718 Ap 25 '18  
 Fixtures for special operations on spring shackles. A. R. De Kuzelewski. *il* diags Am Mach 48:833-4 My 16 '18

**Machine tools—Fixtures—Continued**

- Foot-operated fixtures for drilling machine work. J: A. Shand. diags Am Mach 49:1002-3 N 28 '18
- Grinding Liberty motor cylinders. Iron Tr R 62:1368-9 My 30 '18
- Holding fixture for grinding flat gages. H. F. Pusep. diags Am Mach 50:756-6 Ap 17 '19
- Holding parts for milling. D. A. Hampson. diags Mach 24:820 My '18
- Intensive production on drilling machines. E. K. Hammond. diags Mach 24:1030-4 JI '18
- Jigs and fixture details; drawings. W: Roberts. Am Mach 48:16 Ja 3 '18
- Lathe boring fixture. H. Mead. II diags Mach 25:1079 JI '19
- Machining a 5/8-in. piston on a 3/4-in. Gridley automatic. H. W. Woolums. II Am Mach 49:733 O 17 '18
- Machining adjusting collars. diags Am Mach 46:230; 47:297, 977; 48:671-2 F 8, Ag 16, D 6 '17, Ap 18 '18
- Making naval gun mounts. F. D. Jones. II plan Mach 25:485-92, 600-5 F-Mr '19
- Making typewriter parts. M. E. Hoag. II Am Mach 48:133-5 Ja 24 '18
- Milling fixture. R. W. Smith. diag Mach 24:835 My '18
- Milling-machine fixture. N. V. Christensen. diag Am Mach 48:296 F 14 '18
- Milling-machine fixture. M. G. Hanson. diags Am Mach 48:276 F 14 '18
- Milling-machine vise as a special milling fixture. H. F. Pusep. diags Am Mach 48:1101-3 Je 27 '18; Discussion. G. Kopsch. 49:493 S 12 '18
- Piston-ring slitting fixture. H. E. McCray. diag Am Mach 48:250-1 F 7 '18
- Points on jigs and fixture design. A. F. Owen. Mach 25:1023 JI '19
- Profile milling machine fixture. diags Mach 25:549 F '19
- Radial shaper attachment. II Mach 25:571 F '19
- Reboring cross-compound air-pump cylinders. diags Mach 25:857-8 My '19
- Relation of jigs to machine tools. G. H. Hey. Iron Tr R 64:383 Ap 3 '19
- Shaper fixture for finishing outside of bosses. H: Daut. diags Mach 25:253 N '18
- Sine-bar fixture. II diags plan Mach 25:145-6 O '18
- Special machine-tool fixtures for making the British 18-lb. shell. C. B. Hamilton, Jr. II diags Am Mach 49:395-6 Ag 29 '18
- Special tool equipment for small-quantity production. J: Leafstrom. diags Mach 25:696-7 Ap '19
- Spring forming-tool holder. A. Starr. diags Mach 25:348 D '18
- Squaring the ends of shafts in a special fixture. C: K. Salisbury. diags Am Mach 50:69-70 Ja 9 '19
- Swing vees in jigs and fixtures. R. Spurgin, Jr. diags Mach 25:462 Ja '19
- Tool for removing burrs from jam nuts. F. S. Culver. diag Am Mach 47:1137 D 27 '17
- Tracey angle fixture, thread-milling attachment and lead-screw tester. II Am Mach 49:638-9 O 3 '18
- Turret fixture and expansion arbor. A. J. Cahen. diags Mach 25:750 Ap '19
- Two-position milling fixture. P. P. Fenaux. diags Am Mach 49:772 O 24 '18
- Two-position milling fixture. G. R. Richards. diag Am Mach 50:220-1 Ja 30 '19
- See also Arbors and mandrels; Chucks; Jigs

**Inspection**

- Government inspection of machines and small tools. Am Mach 50:647-8 Ap 3 '19
- Inspection of machine tools. E. Viall. II Am Mach 49:13-17, 101-7 JI 4, 18 '18

**Manufacture**

- Davidson process of casting formed tools. J. E. Johnson, Jr. II Am Inst Min E Bul 146:353-60 F '19; Same cond. Iron Tr R 64:435-7 F 13 '19; Same cond. Iron Age 103:481-3 F 20 '19; Same cond. Foundry 47:162-

- 4 Ap 1 '19; Abstract. Mech Eng 41:395-6 Ap '19; Discussion. Am Inst Min Bul 149:805-7 My '19

- Electric welding of high-speed steel and stellite in tool manufacture. P. T. Van Bibber. II diags Am Mach 50:425-32 Mr 6 '19
- Langeller line of special machinery. K. H. Condit. II diags Am Mach 51:595-9 S 25 '19
- Making a circular forming tool. L. C. Blomstrom. diags Am Mach 48:250 F 7 '18
- Making cobalt-iron steel tools. II Mach 25:1173-4 Ag '19
- Organization and management of a machine tool plant. O. Kylin and E. Oberg. II charts diag Mach 25:608-14, 698-702, 934-6 Mr-Je '19
- Planning a machine tool shop for systematized manufacture. E. Oberg. II plan Mach 25:905-13 Je '19
- Plant builds jigs and fixtures. B. K. Price. II diags Iron Tr R 65:28-9 JI 3 '19
- Production planning system of the Heald machine company. W. S. Pratt. Am Mach 51:203-8, 501-8 JI 31, S 11 '19
- Pyrometry in the tool-manufacturing industry. J. V. Emmons. Am Inst Min Bul 153:2155-8 S '19
- Remarkable development of Davidson cast tool steel. II Ry Mech Eng 93:371 Je '19
- Toolroom methods in a Pacific Coast factory. F. A. Stanley. II diags Am Mach 48:1051-5 Je 20 '18

**Repair**

- Getting quick action on small tool repairs. T. F. W. Meyer. Factory 23:504-6 S '19
- Keeping machines on the job. B. T. Hawley. Am Mach 48:185-6 Ja 31 '18
- Machine repairs and cost data. A. L. Nichols. Am Mach 48:549 Mr 28 '18
- Ordering parts for machine tool repairs. Mach 24:642 Mr '18
- Reclaiming precision tools from high speed cutting scrap heap. W. H. Lloyd. II Iron Tr R 65:1379-83 N 20 '19
- Remanufacturing machine tools. II Sibley J 32:171-3 Ag '18
- Salvaging tools in war time. E: K. Hammond. II Mach 24:771-9 My '18

**Used tools**

See Machine tool industry—Used tools

**Machine work**

- Chart for finding volume of metal removed or area machined in turning or grinding. R. Pollakoff. Am Mach 50:931-2 My 15 '19
- Generating a square hole with a gear-shaper cutter. D. T. Hamilton. II diag Am Mach 49:949-50 N 21 '18

See also Indexing (machine work); Machine shop practice

**Machined steel casting company, Alliance, Ohio**

- Machined steel casting co. organized. Iron Age 103:1697 Je 26 '19

**Machinery**

- Army's foreign stock of machinery. J: B. Woods. II Am Mach 50:775-7 Ap 24 '19
- Cashing in on second-hand machinery. G: M. Rittelmeyer. Textile World 54:83 JI 6 '18
- Factory moving. L. J. Hengesbach. diags Mach 24:999-1002 JI '18
- Machine for splitting hide. D. A. Hampson. diag Mach 24:1037-8 JI '18
- Manchester association of engineers discusses alignment of machinery. Engineer 124:525 D 14 '17
- Materials of machine construction. G. H. Kendall. Mach 25:944-7 Je '19
- Missionary machinery: an appeal. F. A. Foster. II Am Mach 51:754-6 O 23 '19
- Moving machinery. O. E. Koehler. diag Am Mach 47:1060 D 13 '17
- Reconstruction—with American machinery. Sci Am 120:48 Ja 18 '19
- Stresses in machines when starting or stopping. F. Hymans. diag Am Soc M E J 40:383-6 My '18; Same. Iron Tr R 62:1370-2 My 30 '18
- Use of defective articles. C. C. Sherlock. Am Mach 50:701-2 Ap 10 '19

**Machinery—Continued**

What machinery is doing for the walnut industry. H. C. Kegley. *Il Sci Am* 120:51+ Ja 13 '19

*See also* Agricultural machinery; Assembling methods; Balancing of machinery; Ball bearings; Bearings; Belting; Brakes; Bushings; Calculating machines; Calenders; Casting machines; Clutches; Coal mining machinery; Conveying machinery; Cotton machinery; Couplings; Cranes, derricks, etc.; Crankpins; Crankshafts; Creamery machinery; Crushing machinery; Cutting machines; Cylinders (engines); Dredges; Drilling and boring machinery; Dyeing machines; Electric machinery; Engineering; Engines; Excavating machinery; Fans, Mechanical; Forging machinery; Foundry machinery; Friction; Gas and oil engines; Gearing; Grinding machines; Hoisting machinery; Hosier machinery; Hydraulic machinery; Hydraulic presses; Interchangeable mechanism; Inventions; Jacks; Jigs; Joints; Keys and keyways (machinery); Knitting machines; Lathes; Linotype; Locomotives; Looms; Lubrication and lubricants; Machine shop practice; Machine tools; Mechanical drawing; Mechanical engineering; Mechanical handling; Mechanics; Milling machines; Mining machinery; Molding machines; Patents; Pattern making; Planing machines; Power transmission; Presses; Printing machinery; Printing presses; Pulleys; Pumping machinery; Pumps; Refrigeration and refrigerating machinery; Road making machinery; Screw driving machines; Screw machines; Screws; Sewing machines; Shafting; Shafts; Shapers; Shorthand machines; Shoveling machines; Slotting machines; Spinning machinery; Springs (mechanism); Steam engines; Testing machines; Textile machinery; Thread cutting machines; Tools; Treadmills; Trenching machinery; Turbines; Turning; Typesetting machines; Typewriters; Valves; Water wheels; Windmills; Woodworking machinery; Woolen and worsted machinery

**Design**

Calculations for an underslung formed cutter. A. R. Melloy. *diags plan Am Mach* 51:34-5 JI 3 '19  
Design of small machinery. W. E. Thompson. *diags Mach* 26:145-9 O '19  
Designing a special machine. F. E. Johnson. *diags plans Mach* 26:56-9 S '19  
Designing engineer. J. W. Wunsch. *Mach* 24:501 F '18  
Designing marine machinery for economy. H. C. Dinger. *Int Marine Eng* 24:743-4 N '19  
Developing designs for machinery and tools. F. E. Johnson. *diags Mach* 25:517-18 F '19  
Efficiency of the screw. B. F. Groat. *diags Eng Soc W Pa* 34:377-405 Je '18; *Abstract. Am Soc M E J* 40:1049-50 D '18  
Elements of costs in designing special machinery. F. E. Johnson. *Mach* 25:1050 JI '19  
Fatigue factor in machine designing. E. F. Johnson. *Am Mach* 49:56 JI 11 '18  
Formulas for combined bending and torsion. A. L. Jenkins. *Mach* 24:552 F '18  
Machine design in interchangeable manufacturing practice. E. Buckingham. *Il Mach* 26:8-11 S '19  
Modern machine design in old China. *Il Sci Am* 121:199 Ag 30 '19  
Obtaining results in special machinery designing. F. E. Johnson. *Mach* 24:1134 Ag '18  
Principles of special machine design. F. E. Johnson. *Mach* 25:797-8 My '19  
Standardization in special machine design. F. E. Johnson. *Mach* 25:599 Mr '19

*See also* Bearings; Belting; Bushings; Cams; Drafting room practice; Gearing; Interchangeable mechanism; Keys and keyways (machinery); Machine tools—Design; Shafts

**Drawing**

Mechanical sketching. F. D. Jones. *Il diags Mach* 26:140-4 O '19

**Erection**

Care of screw threads when erecting machinery. *Mach* 24:599 Mr '18  
Engine troubles due to carelessness. C: W Oakley. *diags Power* 47:296-7 F 26 '18

**Foundations**

Anchoring an engine foundation. D. R. Shearer. *diag Power* 46:840 D 18 '17  
Concrete foundations, drift linings and reservoirs. J. F. Springer. *Il diags Coal Age* 14:204-10 Ag 1 '18  
Foundations for planers. T. Croft. *diags Am Mach* 47:1029-35 D 13 '17  
Large concrete base for a steam turbine. *Il Concrete* 13:28 JI '18  
Repairing a drop stamp foundation. *Il diags plan Engineer* 125:534 Je 21 '18

**Law**

Laws of guarding machinery. C. C. Sherlock. *Am Mach* 49:76-8 JI 11 '18  
Machinery ordered for one purpose cannot be tested for another. W: B. King. *Eng N* 81:189 JI 25 '18

**Safety devices**

Chemical compounds for the detection of over-heated machinery. H. T. Pincock. *Eng & Min J* 108:615 O 11 '19  
Convenient machine guards. *Il Coal Age* 13:1045 Je 8 '18  
Eye protection in the machine industry. *Il Mach* 24:818-20 My '18  
Laws of guarding machinery. C. C. Sherlock. *Am Mach* 49:76-8 JI 11 '18  
Safe punch press operation. W. W. Roach. *Iron Age* 102:1076-7 O 31 '18  
Safeguarding construction equipment. J. J. Rosedale. *Il Eng & Contr* 50:201 Ag 21 '18  
Safeguarding of working machines. *diags Am Ind* 19:supl-4 Je '19  
Safeguarding power transmission machinery. *Il Textile World* 53:4044 Mr 2 '18  
Safety device for feed mechanisms on planing machines. *diags Am Mach* 50:309, 804 F 13, Ap 24 '19  
Safety equipment for the protection of women operatives. *Il Automotive Ind* 39:150-1 JI 25 '18  
Safety-first opening for metal workers. *Il Metal Work* 89:29-30 Ja 4 '18  
Safety guard prevents injury. V. R. Hughes. *Il Power* 47:521 Ap 9 '18  
Safety practice in power-press work. *Il diags Am Mach* 50:1177-84 Je 19 '19  
*See also* Belt guards; Cranes, derricks, etc.—Safety devices; Grinding machines—Safety devices; Machine shops—Safety devices; Milling cutters—Safety devices; Saws—Safety devices; Textile machinery—Safety devices; Woodworking machinery—Safety devices

**Transportation**

Boxing machinery to prevent damage. L. D. Burlingame. *Il diags Ind Management* 56:27-33 JI '18  
Some problems in shipping. C: M. Ripley. *Il Gen Elec R* 22:82-8 Ja '19; *Same cond. Sci Am S* 87:138-9 Mr 1 '19  
Suggestions for packing machinery for export. *Mach* 25:35 S '18  
**Machinery, Automatic**  
Automatic chucking machine. *Il Iron Tr R* 63:960 O 24 '18  
Automatic machine tools. H. E. Thomas. *Il diags Engineer* 127:426-7 My 2 '19  
Automatic routing machine for firing pin plugs. *Il diag Mach* 24:952-3 Je '18  
Automatics in railroad shops. M. H. Williams. *Il diags Ry Mech Eng* 93:803-10 Je '19  
Bar feed on automatics. D. A. Hampson. *diags Am Mach* 50:849-50 My 1 '19  
Bullard 8-inch multi-automatic. *Il diags Am Mach* 50:236-41 F 6 '19  
Cone four-spindle automatic. *Il Ind Management* 55:78 Ja '18  
Future development of automatic machines. G: O. Gridley. *Mach* 25:114 O '18

**Machinery, Automatic—Continued**

Future of automatic machinery. D: R. Shearer. Ind Management 55:30 Ja '18  
 New Britain multi-spindle machines. Il Iron Age 101:383-4 F 7 '18; Am Mach 48:259-60 F 7 '18; Iron Tr R 62:435-6 F 14 '18; Ind Management 55:245 Mr '18; Mach 24:562-3 F '18

Production milling on automatic machines. E: K. Hammond. Il diags Mach 26:48-55, 150-4, 247-51 S-N '19

Reducing costs for special manufacturing equipment. F. E. Johnson. Mach 25:72 S '18  
 Slotting and shaping in the automatic screw machine. E. Whitney. diags Am Mach 48: 209 Ja 31 '18

**Machinery, Electric. See Electric machinery****Machinery, Hydraulic. See Hydraulic machinery****Machinery, Portable**

Taking machines to the work. E: K. Hammond. Il Mach 24:1073-81 Ag '18  
 Taking the mill to the grist. Il Factory 20: 432-3 Mr '18

**Machinery, Refrigerating. See Refrigeration and refrigerating machinery****Machinery in Industry**

Human aids to machines; man's productive capacity, past and present. A. R. Bond. Sci Am S 86:278-9 My 4 '18

Influence of power machinery on standards of living. H. H. Manchester. Il Am Ind 19:24-8 O '18

Labor saving machinery. H. C. Morris. Gas Age 42:425 N 15 '18

Wanted—one million labor-saving machines. A. J. Baldwin. Il Am Mach 50:526-8 Mr 20 '19

What machinery means; by how much does it increase the productive capacity of the worker? J. M. Bird. Sci Am 118:234+ Mr 16 '18

**Machinery Industry**

American machinery in Japan. A. Kinnosuke. Il Sci Am 118:258 Mr 23 '18

American power equipment in foreign countries. L. W. Schmidt. Power 48:874-5 D 17 '18

Broader field for export organizations. G. A. Harris. Iron Age 100:1456-7 D 13 '17

Business outlook for American industry. F: H. Payne. Ind Management 57:465-8 Je '19

Chinese market for American machinery. Am Mach 49:1084-5 D 12 '18

Engineering salesmanship. C: W. Hunt. Mach 25:7-8 S '18

Export problems in the machinery trade. R. S. Alter. Iron Age 101:1390-2 My 30 '18

Foreign commerce and the machinery industry. L. W. Schmidt. Am Mach 49:988-90 N 28 '18

Interest of American machinery manufacturers in Russia. S. H. Bunnell. Am Mach 49: 155-7 Jl 25 '18

Japan's heavy imports of American steel and machinery. Iron Age 101:393 F 7 '18

Letters from France;—opportunities after the war. H: J. Harms. Concrete 13:117-18 O '18

Machine industry in England and France. A. C. Cook. Am Mach 51:331-5 Ag 14 '19

Machine tools, and small tools. Engineer 127: 111-12 Ja 31 '19

Machinery markets of Syria. Engineer 126: 429-30 N 22 '18

Modernizing Oriental industries. Il Sci Am 119: 502 D 21 '18

National supply and machinery dealers' association aids government. H. W. Strong. Am Mach 48:1098-9 Je 27 '18

1917 greatest year for the machinery trade. Iron Age 101:117-21 Ja 3 '18

Opportunities in France. H. J. Harms, jr. Concrete 11:171-3 D '17

Record of business conditions; 1905-1919. chart Mach 26:164 O '19

Rising cost of machine building. L. W. Schmidt. Am Mach 49:209-11 Ag 1 '18

Salesmen of engineering equipment for export must be engineers. S. T. Henry. Eng N 81:997-9 N 28 '18; Same. Am Mach 50:17-19 Ja 2 '19; Same abr. Eng & Contr 50:505-6 N 27 '18

Testing the buying power of a foreign market. L. W. Schmidt. Am Mach 49:581-4 S 26 '18

Work of American builders for France—in the war and after. H: J. Harms. Il Concrete 13: 185-91 D '18

**See also Machine tool industry****Machines. See Machinery****Machines, Centrifugal. See Centrifugal machines****Machinists**

Experience in training mechanical operators. Il Iron Age 102:551-3 S 5 '18

How the navy trains its machinists ashore. W. Connely. Il Am Mach 50:397-400 F 27 '19

Making expert machinists of our boys. B. K. Price. Il Iron Tr R 63:552-4 S 5 '18

Making machinists to order. M. C. Smith. Am Mach 49:627-8 O 3 '18

National war labor board decisions; machinists' qualifications defined. Iron Age 102: 1080-1 O 31 '18

**McIlhenny, Francis S.**

Design of a house at Chestnut Hill, Philadelphia; the residence of Francis S. McIlhenny, esq. A. I. Meigs. Il plan Arch Forum 31: 119-22, pl 49-58 O '19

**McLauchlan, Jay C., 1874-**

Chief of pig iron division, War Industries board. por Iron Tr R 62:1389 My 30 '18

**Madison, Wisconsin****Sewerage**

Sewage-disposal difficulties at Madison. diag Eng N 83:510-11 S 11 '19

**Water supply**

New Madison water works. Il diags plan Power 50:128-33 Jl 22 '19

Reconstructing Madison's water works. Munic J 47:164-5 S 13 '19

**Madrid, Spain****Rapid transit**

Progress on subway construction, Madrid, Spain. Il diags Ry R 65:25-7 Jl 5 '19

Subways in Madrid, Spain, nears completion. Il diags Elec Ry J 54:21-2 Jl 5 '19

**Magazines. See Periodicals****Magdalena river, Colombia**

Transportation on the Magdalena river. H. W. Wright. Il Sci Am S 87:88-9 F 8 '19

**Magic squares**

Derivation of new magic squares. Sci Am S 88:191 S 20 '19

The 34 supermagic square. F. J. Anderson. diags Sci Am S 87:44-5 Ja 18 '19

**Magnesia**

Conservation of heat losses from pipes and boilers. G. D. Bagley. diag Am Soc M E J 40:918-23 N '18; Same abr. Elec R 74:89-93 Ja 18 '19; Same cond. Power 48:932-4 D 24 '18; Same cond. Textile World 55:355+ Ja 11 '19

Crushing strength of magnesia-silica mixtures at high temperatures. O. L. Kowalke and O. A. Hongren. Met & Chem Eng 18:508 My 15 '18

Influence of the temperature of burning on the rate of hydration of magnesium oxide. E. D. Campbell. J Ind & Eng Chem 10:595-6 Ag '18; Same. Concrete 14:sup32 Mr '19

Physical properties of magnesia cement and magnesia cement compounds. R. J. Roark. bibliog Il Wis U Bul Eng S 8:249-331 no 5 '17; Abstract. Am Arch 114:374-81 S 25 '18

Properties of Portland cement having a high magnesia content. P. H. Bates. Il U S Bur Stand Tech Pa 102:1-42 '18

Refractory magnesia. R. G. Gosrow. Met & Chem Eng 17:415-17 O 1 '17; Excerpt. Eng & Min J 104:1132 D 29 '17

**Magnesite**

Basic refractories for the open hearth. J. S. McDowell and R. M. Howe. Il Am Inst Min E Bul 146:291-309 F '19; Excerpt. Eng & Min J 107:648-50 Ap 12 '19; Discussion. Am Inst Min Bul 149:784-6; 150:961-3 My-Je '19

**Magnesite—Continued**

- Essential and non-essential employees in producing magnesite. Eng & Min J 106:578-9 S 28 '18
- Magnesite. Sci Am S 85:359 Je 8 '18
- Magnesite. W. C. Phalen. J Fr Inst 188:412 S '19
- Magnesite composition decking. G. W. Selby. Int Marine Eng 23:215-16 Ap '18
- Magnesite deposits of Washington. R. W. Stone. II map Eng & Min J 105:665-8 Ap 13 '18; Abstracts. Concrete 12:sup9 Ja '18; Iron Tr R 62:1051-2 Ap 25 '18
- Magnesite from California. Iron Age 101:1400 My 30 '18
- Magnesite in first half of 1918. R. W. Stone. Eng & Min J 106:564 S 28 '18
- Magnesite in Greece. Eng & Min J 107:4 Ja 4 '19
- Magnesite in 1917. Eng & Min J 105:111 Ja 12 '18
- Magnesite in oxychloride cement. Concrete 15:sup63 O '19
- Magnesite in Stevens county, Washington. Concrete 12:sup9 Ja '18
- Magnesite in the United States. W. C. Phalen. Concrete 15:sup79 N '19
- Magnesite industry in 1918. Eng & Min J 107:181 Ja 11 '19
- Magnesite: its geology, products and their uses. C. D. Dolman. II Am Inst Min Bul 152:1193-1202 Ag '19; Discussion. 154:2944-5 O '19
- Magnesite on the island of Margarita. C. F. Z. Caracristi. map Eng & Min J 107:645-7 Ap 12 '19
- Magnesite tariff bill. P. Wooton. Eng & Min J 108:658 O 18 '19
- Northwest magnesite co. quarries large deposit of crystalline magnesite near Chewelah, Stevens county, Wash. II Chem & Met Eng 21:480 O 15 '19
- Possible origin of the magnesite near Valley, Washington. O. P. Jenkins. II diag map Econ Geol 13:381-4 Jl '18
- Sorting and washing plant for magnesite ore. Eng & Min J 107:1111 Je 28 '19
- Status of the domestic magnesite industry. Chem & Met Eng 21:119-20 Ag 1 '19
- Use of magnesite in building construction. II Am Arch 114:323-9, 374-81, 438-43 S 11, 25, O 9 '18
- Magnesium**
- Alkalimetric determination of small amounts of magnesium. P. L. Hibbard. J Ind & Eng Chem 11:753-4 Ag '19
- Development of the magnesium industry. L. Waldo. Chem & Met Eng 19:624-5 O 15 '18
- Magnesium. Metal Ind 17:83-4 F '19
- Magnesium and its alloys: its use for aero-engines and motor cars. diag Engineer 127:402 Ap 25 '19
- Magnesium as a deoxidizer for brass and bronze. Foundry 47:26 Ja '19
- Magnesium as a substitute for tin. Eng & Min J 106:733 O 26 '18
- Magnesium in war work. Eng & Min J 105:135-6 Ja 12 '18
- Magnesium; some of its present commercial applications. Chem & Met Eng 19:525 S 28 '18
- Production of magnesium shows increase. Iron Tr R 64:1292-3 My 15 '19
- Rapid growth of American magnesium industry. Met & Chem Eng 18:284-5 Mr 15 '18
- Specific heats at low temperatures of sodium, potassium, magnesium and calcium metals, and of lead sulfide. E. D. Eastman and W. H. Rodebush. Am Chem Soc J 40:489-500 Mr '18
- Magnesium alloys**
- Magnesium lead alloys. E. A. Ashcroft. Chem & Met Eng 19:776-7 D 1 '18
- New light piston alloy. Automotive Ind 41:161 Jl 24 '19
- Magnesium carbonate.** See **Magnesite**
- Magnesium chloride**
- Cement mortars and magnesium chloride. J Ind & Eng Chem 10:746 S '18
- Magnesium oxide.** See **Magnesia**

**Magnesium sulfate**

- Treatment of war wounds by sulphate of magnesium. Sci Am S 86:99 Ag 17 '18
- Magnet-meter.** See **Magnets**
- Magnetic analysis.** See **Magnetic testing**
- Magnetic chucks.** See **Chucks, Magnetic**
- Magnetic contactors**
- Recent improvements in and factors influencing industrial control equipment. H. D. James. Elec R 75:608-9 O 11 '19
- Magnetic induction**
- Magnetic permeability of steel. F. P. Fahy. II diags Chem & Met Eng 19:247-50 S 1 '18
- See also **Electromagnetism**; **Electromagnets**; **Hysteresis**
- Magnetic measurements**
- Calculating induction-motor magnetizing current. C. M. Laffoon. diags Elec W 73:1258-62 Je 14 '19
- Determination of the degree of uniformity of bars for magnetic standards. R. L. Sanford. II diags U S Bur Stand Bul 14:1-14 Ap 6 '18
- See also **Magnetic induction**; **Magnetic testing**
- Magnetic separation of ores**
- Experiments in magnetizing roasting. G. J. Young. diags Eng & Min J 108:176-7 Ag 2 '19
- Magnetic concentration of iron ores at Mineville, N.Y. E. C. Henry. flow sheet diags Eng & Min J 105:912-14 My 18 '18
- Magnetic concentration of pyrrhotite ores. J. P. Bonardi. Chem & Met Eng 20:266-70 Mr 15 '19
- Roasting and magnetic separation of Wisconsin zinc ores; with cost table. E. G. Deutman. flow sheet II plan Eng & Min J 107:1107-11 Je 28 '19
- See also **Electrometallurgy**; **Magnetic separators**
- Magnetic separators**
- Capacity of belt magnetic separators. G. J. Young. chart Eng & Min J 106:868-9 N 16 '18
- Dings magnetic separator. II Metal Ind 16:477-8 O '18
- Magnetic separator for screws and filings. Elec Ry J 51:377, 772 F 23, Ap 20 '18
- Magnetic separator for use in iron and steel foundries. II Elec W 70:1176 D 15 '17
- Magnetic separators. II Metal Ind 15:454 O '17
- Motor driven magnetic separator. II Metal Ind 16:524 N '18
- Working adjustments of the Wetherill magnetic separator. G. J. Young. diags Eng & Min J 107:1156-8 Je 28 '19
- Magnetic storms**
- Magnetic storms. C. Chree. Inst E E J 57:591-609 Ag '19
- Magnetic surveying**
- Features of magnetic surveys of the magnetite deposits of the Duluth gabbro. T. M. Broderick. II diags maps Econ Geol 13:35-49 Ja '18
- Magnetic testing**
- Location of flaws in rifle-barrel steel by magnetic analysis. R. L. Sanford and W. B. Kouwenhoven. II diags U S Bur Stand Sci Pa 343:219-30 '19
- Magnetic analysis for determining quality. Iron Age 104:42-4 Jl 3 '19
- Magnetic surveys on new and failed rail. P. H. Dudley. diags Ry R 65:204-7 Ag 9 '19; Excerpts. Iron Tr R 64:1685-6 Je 26 '19; Excerpts. Eng & Contr 52:322-4 S 17 '19
- New method of testing iron and steel by which internal defects and nonhomogeneity are disclosed. Eng & Contr 50:495-6 N 27 '18
- Permeameter for general magnetic analysis. F. P. Fahy. II diag plans Chem & Met Eng 19:339-42 S 15 '18
- Proposed revisions in tests for magnetic properties of iron and steel; abstract. Elec W 72:561 S 21 '18
- Rapid testing of magnetic materials. T. Spooner. II diags Elec W 74:4-6 Jl 5 '19



**Magnetic testing—Continued**

- Testing steel by magnetic analysis. R. L. Sanford. *Il diags Iron Tr R* 65:1181-3 O 30 '19
- X-ray supplements magnetic testing. H. M. Howe. *Iron Tr R* 65:1189-+ O 30 '19

**Magnetism**

- Chemical analysis by a magnetic process. *diags Sci Am S* 86:381 D 14 '18
- Magnetic circuit. T. Croft. *diags Elec R* 71: 842-5, 884-7, 929-31, 973-4, 1014-16 N 17- D 15 '17
- Magnetic pulleys. *Il diag Sci Am* 120:59 Ja 18 '19
- Magnetic susceptibility of mixtures of liquids. Alpheus W. Smith and Alva W. Smith. *diags Am Chem Soc J* 40:1218-24 Ag '18
- New physics. A. C. Crehore. *J Elec* 43:466-8 N 15 '19
- Residual magnetism cause of uncommon starting trouble. F. B. Johnson. *Elec R* 75: 667-8 O 18 '19
- Scattering of alpha rays as evidence on the Parson magneton hypothesis. D. L. Webster. *Am Chem Soc J* 40:375-9 F '18
- Susceptibility of feebly magnetic materials. E. Wilson. *Inst E E J* 57:416-17 My '19
- See also* Compass; Electricity; Electromagnetism; Electromagnets; Hysteresis; Lodestone; Magnetic measurements; Magnetic separation of ores; Magnetic surveying; Magnetite; Magnetization; Magnets

**Magnetism, Terrestrial**

- Geological structure in relation to magnetic disturbance. A. H. Cox. *Sci Am S* 86:77 Ag 3 '18

*See also* Magnetic storms

**Magnetite**

- Determination of magnetite in matte and slag. F. G. Hawley. *Eng & Min J* 108:308-10 Ag 23 '19
- Features of magnetic surveys of the magnetite deposits of the Duluth gabbro. T. M. Broderick. *Il diags maps Econ Geol* 13:35-49 Ja '18
- Relation of the titaniferous magnetites of northeastern Minnesota to the Duluth gabbro. T. M. Broderick. *Il diag map Econ Geol* 12:663-96 D 17 '17
- Some of the relations of magnetite and hematite. T. M. Broderick. *Il diags Econ Geol* 14:353-66 Ag '19

*See also* Lodestone

**Magnetization**

- Magnetization and roentgen-ray examination. *Sci Am S* 85:224 Ap 6 '18
- Magnetization by rotation. *Sci Am S* 84:373 D 15 '17
- Magnetization of iron in the absence of hysteresis. W. R. Wright. *Elec W* 71:1381 Je 29 '18
- Variations of length caused by magnetization. D. Hurmuzescu. *Sci Am* 121:23 Ji 5 '19

**Magnetomotive force**

- Calculating induction-motor magnetizing current. C. M. Laffoon. *diags Elec W* 73: 1258-62 Je 14 '19
- Harmonics in symmetrical M-phase systems. V. Karapetoff. *Elec W* 71:660-2 Mr 30 '18

**Magnetos**

- Additions to Bosch line of magnetos. *Il Motor Age* 34:39 Ag 15 '18
- Aircraft magneto adapted to four cylinder car. *Il diag Automotive Ind* 41:364-6 Ag 21 '19
- Airplane motor-ignition systems. B. Z. Reiter. *diags Am Mach* 49:711-17 O 17 '18
- Bosch brings out impulse starter. *Il Automotive Ind* 38:1009 My 23 '18
- Bosch magnetos for Fords. *Il diags Motor Age* 34:26-7 Ag 15; 26-7 Ag 22 '18
- Device for testing series street-lighting circuits. *Elec W* 71:258 F 2 '18
- Dixie magneto for Fords. *Il diags Motor Age* 34:32-3 Ag 1; 33 Ag 8 '18
- Dixie standard aircraft magnetos. *Il diags Automotive Ind* 39:954-7 D 5 '18
- Electrical performance of the transforming magneto-generator. H. F. Geist. *diags Automotive Ind* 38:1198-1200+ Je 20 '18

- Four- and six-cylinder magnetos with common housing. *Il diags Automotive Ind* 41: 217-18 Ji 31 '19
- French magneto. *Il Automotive Ind* 41:570 S 18 '19
- Functions of the condenser in high-tension magnetos. H. F. Geist. *diags Automotive Ind* 41:267-72 Ag 7 '19
- Generation and storage of energy in magnetos. H. F. Geist. *diags Automotive Ind* 40:411-15 F 20 '19
- Historical note on the high-tension magneto. A. P. Young. *J Fr Inst* 185:82 Ja '18
- Ignition magneto construction. H. R. Van Deventer. *diags Sci Am S* 86:364-6 D 7 '18
- Kliesrath magnetos. *Il diags Automotive Ind* 40:702 Mr 27 '19
- Lauraine high tension magneto. *Il diag Automotive Ind* 38:640 Mr 28 '18
- Liberty ignition magneto. *Il diags Automotive Ind* 40:1108-9 My 22 '19
- Magnetism in magneto-generators. H. F. Geist. *Il diags Automotive Ind* 39:616-18 O 10 '18
- Magneto ignition for farm tractors. J. G. Zimmerman. *Il diags Automotive Ind* 38: 1006-9 My 23 '18
- Magneto industry; the Thomson-Bennett works, Birmingham. *Il Engineer* 127:26-9 Ja 10 '19
- Magneto patents situation. C. W. Curtiss. *Il diag Automotive Ind* 39:844 N 14 '18
- Mechanical construction of ignition magnetos. H. R. Van Deventer. *Il diags plan Motor Age* 33:26-30 Je 13 '18
- Most satisfactory way to time a magneto; prize essays. *diags Horseless Age* 43:27-9+ Mr 15 '18
- New design high tension oscillating magneto, by American Bosch magneto co. *Il diags Automotive Ind* 41:665 O 2 '19
- New design of inductor type magneto. *Il diags Automotive Ind* 41:633 S 25 '19
- Non-distributor and multipolar magnetos. F. I. Hoffman. *diags Automotive Ind* 39:222-3 Ag 8 '18
- Pole pieces for magnetos. F. I. Hoffman. *diags Automotive Ind* 38:779-81 Ap 18 '18
- Recharging and testing magneto magnets. *diags Motor Age* 34:35 S 19 '18
- Rotary-pole magneto. *Il diags Sci Am* 120:34+ Ja 11 '19
- Spark gaps. *Sci Am S* 87:198 Mr 29 '19
- Sparkling power of magnetos. H. F. Geist. *diags Automotive Ind* 40:949-53 My 1 '19
- Splitdorf aero magneto now on market. *Il Motor Age* 35:43 Mr 20 '19
- Standardized magnetos for aircraft engines. *Il Aviation* 6:37 F 1 '19
- Unusual features in Rogers magneto. *diags Motor Age* 36:48-9 O 2 '19

**Testing**

- How to test Ford magnetos for defective coils; prize essays. *diags Horseless Age* 43: 28-9+ F 1 '18
- Note on the testing of magneto magnets. J. D. Morgan. *Il diags Sci Am S* 86:204 S 28 '18
- Tester for magneto power. *Il diag Motor Age* 34:40+ D 5 '18
- Testing a magneto armature. *diag Horseless Age* 42:37 D 15 '17
- Testing and repairing magneto condensers; prize essays. *diags Horseless Age* 44:29-31+ My 1 '18
- Testing electric ignition apparatus. J. D. Morgan. *diags Automotive Ind* 38:643-4 Mr 28 '18

**Magnets**

- Chromium steel for magnets; abstract. *Elec W* 71:264 F 2 '18
- Magnet for cleaning chips from holes. R. Gibbs. *diag Mach* 25:343-4 D '18
- Permanent magnets. F. C. Kelley. *Gen Elec R* 20:569-75 Ji '17; Same. *Sci Am S* 84:382-4 D 15 '17
- Permanent magnets and their proper treatment. *Elec W* 73:1321 Je 21 '19
- Recharging and testing magneto magnets. *diags Motor Age* 34:36 S 19 '18
- See also* Electromagnets

**Magnets—Continued****Testing**

- Apparatus for testing permanent magnets. *diags Automotive Ind* 41:169 J1 24 '19  
 Instrument for testing permanent magnets. *diags Automotive Ind* 39:505 S 19 '18  
 Instrument which decides the magnetic qualities of magnets. *il diags Sci Am* 120:103-F 1 '19  
 Note on the testing of magneto magnets. J. D. Morgan. *il diags Sci Am* S 86:204 S 28 '18  
 Testing permanent magnets by means of a voltmeter. *il Elec W* 73:267-8 F 8 '19

**Magnets, Lifting.** See **Lifting magnets**

**Mahogany**

- Specifications for mahogany lumber for use in propeller construction. *diags Automotive Ind* 38:1000 My 23 '18

**Mail.** See **Postal service**

**Mail handling**

- Locating a block in the underground mail tubes. *il Sci Am* 118:385 Ap 27 '18  
 Novel mail delivery system developed by the Westinghouse company. *il Iron Age* 103:745 Mr 20 '19; *Ind Management* 57:270 Ap '19  
 See also **Motor trucks** in **postal service**

**Mail order business**

- Big mail order house collides with Federal trade commission. *Dom Eng* 85:371 D 7 '18  
 How to successfully meet mail order competition. G. Ernst. *Bldg Age* 40:368-9 J1 '18  
 Lumber dealers will file complaint against mail order houses. *Am Lumberman* 2226:36-7 Ja 12 '18  
 Mail order accounting. H. L. Cavanagh. *J Account* 26:436-40 D '18  
 Why some inquiries go to mail order houses. *Am Lumberman* 2233:56-7 Mr 2 '18  
 See also **Sears, Roebuck and company**

**Mail service.** See **Motor trucks** in **postal service**; **Parcel post**; **Postal service**; **Aerial**; **Railway mail service**

**Main, Charles Thomas, 1856-**

- New president of the American society of mechanical engineers. *Am Soc M E J* 40:73 Ja '18; Same. *Am Mach* 47:1099-1100 D 20 '17; Same. *Power* 46:814 D 11 '17

**Maintenance of way master painters association**

- 15th annual convention, Chicago, Oct. 15-17. *Ry Age* 65:733-4 O 25 '18

**Make-ready.** See **Printing, Practical—Presswork**  
**Make-up (printing).** See **Printing, Practical—Imposition**

**Malaria**

- Bearing of malaria on railroad operation. H. W. Van Hovenberg. *il Ry Age* 65:23-6 J1 5 '18; *Excerpt. Eng & Contr* 50:202-3 Ag 21 '18  
 Malaria caused by nondrainage of irrigated lands. H. F. Gray. *Eng N* 83:207 J1 31 '19  
 Malaria control at nitrate plant. W. G. Stromquist. *il map Eng N* 82:718-20 Ap 10 '19  
 Malaria-control engineering in Texas increases labor efficiency. C. Saville and H. W. Van Hovenberg. *il Eng N* 80:176-8 Ja 24 '18  
 Malaria in Rumania. *Sci Am* S 85:277 My 4 '18  
 Malarial fever in Brazil. R. P. Momsen. *Eng & Min J* 106:299 Ag 17 '18  
 Methods of eradicating mosquitoes in malarial control campaign. C. N. Harrub. *Eng & Contr* 50:344-5 O 9 '18; Same. *Eng & Min J* 106:1064-5 D 21 '18  
 Mosquito control for the municipality. W. A. Hardenbergh. *il diag map Munic J* 47:236-40 O 18 '19  
 Preventing malaria around Camp Bowie, Texas. W. A. Hardenbergh. *Munic J* 45:54-5 J1 20 '18; *Excerpts. Eng & Contr* 50:260-1 S 11 '18  
 Sanitary engineers get direct results in East Indian mining camp. H. N. Jenks. *il Eng N* 82:172-5 Ja 23 '19; *Excerpts. Eng & Min J* 107:389-91 Mr 1 '19

Southern railroads and the problem of malaria control. R. C. Derivaux. *Ry R* 63:230-3 Ag 17 '18

Treatment of malaria. *Sci Am* S 86:328 N 23 '18

**Malic acid**

Optical method for the determination of malic and tartaric acids in the same solutions. J. J. Willaman. *Am Chem Soc J* 40:693-704 Ap '18

**Malicious prosecution**

Making criminal complaint against employe for theft a dangerous thing unless facts can be proved. *Dom Eng* 85:481-2 D 28 '18

**Malingering**

Doctor vs. malingerer. *il Sci Am* 120:115 F 8 '19

Malingering. F. S. Riordan. *Coal Age* 12:967-8 D 8 '17

Malingering and loafing. C. C. Sherlock. *Eng & Min J* 105:549 Mr 23 '18

**Malleable castings.** See **Iron founding**

**Malleable iron.** See **Cast iron**

**Maltobionic acid**

Oxidation of maltose in alkaline solution by hydrogen peroxide and by air; the preparation and study of maltobionic acid. J. W. E. Glatfield and M. T. Hanke. *Am Chem Soc J* 40:973-92 Je '18

**Maltose**

Determination of maltose conversions. F. E. Coombs. *Chem & Met Eng* 21:398-9 S 15 '19

Oxidation of maltose in alkaline solution by hydrogen peroxide and by air; the preparation and study of maltobionic acid. J. W. E. Glatfield and M. T. Hanke. *Am Chem Soc J* 40:973-92 Je '18

**Mammals**

When did our ancestors take to trees? J. W. Gidley. *Sci Am* S 88:74+ Ag 2 '19

**Man**

See also **Anthropology**; **Ethnology**; **Heredity**; **Hygiene**

**Origin and antiquity**

Pleistocene man of Vero, Florida. F. H. Sterns. *bibliog Sci Am* S 85:354-5; 87:118-19 Je 8 '18, F 22 '19

**Man, Prehistoric**

Prehistoric classification. W. J. L. Abbot. *Sci Am* S 84:370-1 D 15 '17

Pre-paleolithic man in England. J. R. Moir. *diags Sci Am* S 88:70-1 Ag 2 '19

See also **Cave dwellers**

**Management.** See **Electric plants (central stations)—Management**; **Electric utilities—Management**; **Employment management**; **Factory management**; **Foundry management**; **Gas companies—Management**; **Industrial management**; **Machine shop management**; **Mine management**; **Motor trucks—Management**; **Office management**; **Organization in industry**; **Railroads—Management**

**Management, Industrial.** See **Industrial management**

**Manayunk, Pennsylvania**

**Bridges**

New Pennsylvania railroad bridge at Manayunk, Pa. A. M. Wolf. *il Ry R* 62:195-7 F 9 '18

**Manchester, England**

**Railroads**

Reconstruction of the Oldham road freight station. *il plans Ry R* 61:687-91 D 8 '17

**Manchester, New Hampshire**

Change in department of public works advised. *Eng N* 80:171-2 Ja 24 '18

**Manchuria**

**Railroads**

See **Railroads—Manchuria**

**Mandrels.** See **Arbors and mandrels**

**Manganates**

Studies on manganates and permanganates. H. I. Schlesinger, R. D. Mullinix and S. Popoff. *J Ind & Eng Chem* 11:317-23 Ap '19

**Manganese**

Arkansas manganese field. D. E. Woodbridge. *Eng & Min J* 106:669-70 O 12 '18

Cuban manganese in 1918. J. B. Stewart. *Eng & Min J* 107:196 Ja 25 '19

Cuba's chrome and manganese ores. Iron Tr R 63:1238-9 N 28 '18; Excerpts. Iron Age 102:693-4 S 19 '18

Determination of manganese and chromium. *Eng & Min J* 105:248-9 F 2 '18

Determination of manganese in steel in the presence of chromium and vanadium by electrometric titration. G. L. Kelley and others. *J Ind & Eng Chem* 10:19-23 Ja '18

Determining the presence of manganese in iron and steel pipe. *Coal Age* 13:781 Ap 27 '18

Developing Arkansas manganese. II Iron Tr R 64:328-30 Ja 30 '19

Effect of manganese on the growth of wheat; a source of manganese for agricultural purposes. J. S. McHargue. II *J Ind & Eng Chem* 11:332-5 Ap '19

Electric smelting of domestic manganese ores. H. W. Gillett and C. E. Williams. U S Bur Mines War Minerals Investigations Ser 10:1-48 '18 (Typew)

Electrolytic behavior of manganese in sulphate solutions; abstracts. G. D. Van Arsdale and C. G. Maier. *Elec W* 71:990 My 11 '18; *Met & Chem Eng* 18:507 My 15 '18

Estimation of manganese in aluminum alloys and dust. J. E. Clennell. *Eng & Min J* 105:407-10 Mr 2 '18

Germany to get manganese from Ukraine mines. Iron Tr R 62:739 Mr 21 '18

Great Britain's manganese resources. *Eng & Min J* 105:683 Ap 13 '18

Greater use of domestic manganese supply. F. L. Garrison. Iron Age 101:680-2 Mr 14 '18

Imported Indian manganese ores show uniformity. *Eng & Min J* 105:327 F 16 '18

Influence of aluminum ions on seed germination. J. Stoklasa and others. *Sci Am* 87:318-20 My 17 '19

Jones process for concentrating manganese ores. P. Christianson and W. H. Hunter. U S Bur Mines War Minerals Investigations Ser 12:1-26 '19 (Typew)

Labor factor in manganese industry. C. M. Weld and W. R. Crane. Iron Tr R 65:422 Ag 14 '19

Manganese and chromium in California. Iron Tr R 62:324 Ja 31 '18

Manganese at Butte, Montana. J. T. Pardee. *Eng & Min J* 105:1076-9 Je 15 '18; Excerpt. Iron Tr R 63:388-9 Ag 15 '18

Manganese at Kaslo, B. C. *Eng & Min J* 106:1077 D 21 '18

Manganese concentrator at Philipsburg, Montana. *Met & Chem Eng* 18:625 Je 15 '18

Manganese content of the ash of certain drugs. L. E. Westman and R. M. Rowat. *Am Chem Soc J* 40:558-62 Mr '18

Manganese deposits in Cuba. *Eng & Min J* 106:570 S 28 '18

Manganese deposits in White Pine county, Nevada. J. T. Pardee. *Eng & Min J* 106:308 Ag 17 '18

Manganese deposits near Lake Creek, Oregon. *Eng & Min J* 106:872-3 N 16 '18

Manganese deposits of Clark county, Nevada. F. A. Hale, Jr. II *Eng & Min J* 105:775-7 Ap 27 '18

Manganese deposits of South Wallingford, Vermont. R. W. Jones. *Eng & Min J* 105:779 Ap 27 '18

Manganese development in Virginia. M. Haney. II *Eng & Min J* 106:697 O 19 '18

Manganese exports from Brazil increase in 1917. *Eng & Min J* 105:28 Ja 5 '18

Manganese in California. *Chem & Met Eng* 19:702 N 15 '18

Manganese in slags and its incorporation in steel. Iron Age 101:373 F 7 '18

Manganese in the water supply of Pierre, South Dakota. J. W. Sale. II *Eng N* 79:1063-4 D 6 '17

Manganese investigation—a war problem. Iron Tr R 61:1273 D 13 '17

Manganese mines in Ecuador. *Eng & Min J* 107:967 My 31 '19

Manganese mining in Arkansas. T. Shiras. II *Eng & Min J* 104:1079-80 D 22 '17

Manganese mining in the Magdalena mining district, New Mexico. R. H. West. *Eng & Min J* 106:435 S 7 '18

Manganese near Green River, Utah. *Eng & Min J* 106:908 N 23 '18

Manganese ore deposits in Cuba. E. F. Burckhard. *Am Inst Min E Bul* 147:591-5 Mr '19

Manganese ore in east Tennessee. H. V. Maxwell. *Eng & Min J* 107:149 Ja 18 '19

Manganese ore in Georgia. Iron Age 102:787 S 26 '18

Manganese ore in Nevada. Iron Age 102:241 Jl 25 '18

Manganese ore in 1918. *Eng & Min J* 107:77-8 Ja 11 '19

Manganese ore in South Africa. C. J. Pisar. Iron Age 104:494 Ag 21 '19

Manganese ore in Virginia. M. Haney. II Iron Age 101:1659 Je 27 '18

Manganese ore mines in Northwest. Iron Tr R 64:273-4 Ja 23 '19

Manganese-ore mining industry. *Eng & Min J* 107:362-3 My 31 '19

Manganese-ore production in 1918. *Eng & Min J* 107:444 Mr 8 '19

Manganese ores in Utah. *Eng & Min J* 106:706 O 19 '18

Manganese price schedule issued. *Eng & Min J* 106:1053 Je 8 '18; Same. *Automotive Ind* 38:1107 Je 6 '18; Same. Iron Age 101:1459 Je 6 '18; Same. *Met & Chem Eng* 18:629 Je 15 '18

Manganese prices in California. *Eng & Min J* 106:456 S 7 '18

Manganese production for 1917. Iron Tr R 62:218 Ja 17 '18

Manganese production in Arkansas in 1917. Iron Tr R 63:1013 O 31 '18

Manganese prospects in eastern Cuba. H. M. Wolcott. *Eng & Min J* 105:779-80 Ap 27 '18

Manganese special work repaired by welding. J. M. Scott. II *diags Elec Ry J* 53:1227-8 Je 21 '19; Same *abr. Eng & Contr* 52:68 Jl 16 '19

Manganese washing plant of the Eureka company, Arkansas. T. Shiras. II *Eng & Min J* 105:778 Ap 27 '18

Manganiferous iron mining in the Cuyuna district, Minnesota. P. M. Ostrand. II *Eng & Min J* 105:269-73 F 9 '18

Manganiferous iron ore occurrences at Red Cliff, Colo. J. B. Umpleby. *Eng & Min J* 104:1140-1 D 29 '17

Manganiferous iron ores of the Cuyuna district, Minnesota. E. C. Harder. *diags maps Am Inst Min E Bul* 129:1313-44 S '17; Discussion. 133:103-4 Ja '18

Manganiferous iron ores of the Cuyuna district, Minnesota. E. Newton. map Minn U Sch Mines Bul 5:1-126 '18; Abstract. Iron Tr R 63:837 O 10 '18

Mining manganese at Crimora, Virginia. M. Haney. *Eng & Min J* 105:875 My 11 '18

More use of domestic manganese and chrome. Iron Age 101:810-11 Mr 28 '18

New manganese district in Virginia. *Eng & Min J* 104:990 D 8 '17

Occurrence of tungsten in manganese ore. W. S. Palmer. *Eng & Min J* 105:780 Ap 27 '18

Opportunities for the marketing of manganese ores. *Eng & Min J* 108:242 Ag 9 '19

Place of manganese in the periodic system. F. R. v. Bichowsky. *Am Chem Soc J* 40:1040-6 Jl '18

Problems involved in concentration and utilization of domestic low-grade manganese ore. E. Newton. U S Bur Mines War Minerals Investigations Ser 9:1-20 '18 (Typew); Same *abr. Am Inst Min E Bul* 146:879-89 F '19; Excerpt. *Chem & Met Eng* 20:211 Mr 1 '19; Excerpt. *Eng & Min J* 107:527, 572-3 Mr 22-29 '19; Discussion. *Am Inst Min E Bul* 148:737-9 Ap '19

**Manganese—Continued**

- Producers and consumers of manganese and manganiferous ores. Eng & Min J 105:195-7 Ja 26 '18
- Prospecting for manganese. H: V. Maxwell. Eng & Min J 105:236 F 9 '18
- Pure carbon-free manganese and manganese copper. A. F. Braid. Am Inst Min E Bul 143:1697-8 N '18; Same. Metal Ind 16:457-8 O '18; Discussion. Am Inst Min E Bul 144:1783 D '18
- Quality of Batesville (Ark.) manganese. Eng & Min J 105:996 Je 1 '18
- Recent studies of domestic manganese deposits; abstract. E. C. Harder and D. F. Hewett. Am Inst Min Bul 149:895-901 My '19
- Review of the manganese situation. C. M. Weld. U S Bur Mines Investigation Ser 7:1-12 '18
- Situation in regard to manganese, sulphur, pyrite, and some other war minerals; with discussion. J. E. Johnson, jr. Eng Soc W Pa 33:644-52 Ja '18
- Solid manganese vs. manganese-insert special work. W. L. Whitlock. Il Elec Ry J 52:425 S 7 '18
- Substituting manganese for phosphorus. A. F. Braid. Foundry 47:17 Ja '19
- Tungsten in manganese ore. W: R. Jones. Eng & Min J 106:779 N 2 '18
- Two manganese deposits in northern Washington. O. P. Jenkins. Eng & Min J 105:1082 Je 15 '18
- Uses of manganese dioxide ore. W. C. Phalen. Chem & Met Eng 21:196-9 Ag 15 '19
- Utilization of low-grade manganese deposits a metallurgical problem. J. E. Johnson, jr. Eng & Min J 104:1027-30 D 15 '17
- Utilization of manganese ores in Sweden. J. Harden. Met & Chem Eng 17:701-4 D 15 '17; Same abr. Iron Age 101:938-40 Ap 11 '18
- Valuation of manganese ores. G: T. Holloway. Eng & Min J 105:1163-5 Je 29 '18
- Virginia and the manganese shortage. M. Haney. Eng & Min J 106:582 S 28 '18
- Western manganese deposits extensive. Iron Tr R 62:329 Ja 31 '18
- See also Manganates
- Bibliography**
- Bibliography of the occurrence, geology and mining of manganese with some references on its metallurgy and uses. H. L. Wheeler. Econ Geol 14:245-61 My '19
- Cost**
- Cost of producing ferro-grade manganese ores. C. M. Weld and W. R. Crane. U S Bur Mines Minerals Investigations Ser 13:1-22 '19 (Typew)
- Manganese alloys**
- Alloys of manganese and copper. J. Scott. Il Metal Ind 15:518-19 D '17
- Manufacture and electrical properties of manganin. F. E. Bash. Am Inst Min Bul 153:1717-22 S '19; Discussion. 155:3021-3; 156:3149-50 N-D '19
- Pure carbon-free manganese and manganese copper. A. F. Braid. Am Inst Min E Bul 143:1697-8 N '18; Same. Metal Ind 16:457-8 O '18
- Use of manganese alloys in open-hearth practice. S: L. Hoyt. U S Bur Mines War Minerals Investigations Ser 11:1-17 '18 (Typew); Same. Am Inst Min E Bul 146:277-89 F '19; Same abr. Sci Am S 87:282-3 My 3 '19; Excerpt. Iron Age 103:1363-5 My 22 '19; Discussion. Am Inst Min E Bul 148:728-35 Ap '19
- See also Ferromanganese; Manganese bronze; Manganese steel
- Manganese bronze**
- Effect of corrosion on wrought manganese bronze under tensile stress. P. D. Merica and R. W. Woodward. Il diag Am Mach 51:217-20 Jl 31 '19; Abstract. Mech Eng 41:765-6 S '19
- Failure of brass; initial stress produced by the burning in of manganese bronze. P. D. Merica and C. P. Karr. U S Bur Stand Tech Pa 84:1-7 '16
- How to make manganese bronze. Foundry 46:29 Ja '18
- Increasing elongation of manganese bronze. Foundry 46:481 S '18
- Making a manganese bronze mixture. Foundry 46:534 N '18
- Making manganese bronze from scrap metals. C: Vickers. Foundry 47:440 Jl 1 '19
- Manganese bronze. F. E. McKinney. Am Inst Min E Bul 146:421-5 F '19; Same. Metal Ind 17:71-2 F '19; Same. Foundry 47:172-3 Ap 1 '19; Abstract. Chem & Met Eng 20:212 Mr 1 '19; Discussion. Am Inst Min E Bul 148:700-7 Ap '19
- Manganese bronze made from scrap metals. P. E. McKinney. Foundry 47:398 Je 15 '19
- Manganese bronze subjected to superheated steam. Foundry 46:430 S '18
- Properties of manganese bronze test coupons. diag Foundry 46:218-19 My '18
- Standard specifications for manganese-bronze ingots for sand castings; English and Spanish. diag U S Bur For & Dom Com Ind Stand 56:1-13 '19
- Manganese dioxide**
- Manganese dioxide depolarizers; patent. Chem & Met Eng 20:432 Ap 15 '19
- Manganese steel**
- Manganese conservation necessary. C. R. Ellicott. Iron Tr R 62:1439-41 Je 6 '18; Same cond. Iron Age 101:1484-5 Je 6 '18; Discussion. Iron Tr R 62:1492-4 Je 13 '18; Same. Iron Age 101:1485-86a Je 6 '18
- Manufacture of manganese steel castings. B. S. Carr. Mach 25:182 O '18
- Relative life of manganese and open-hearth rail on curves. H. W. Roberts. diag Elec Ry J 52:697 O 19 '18; Same cond. Eng & Contr 50:479 N 20 '18
- Tests of manganese steel rails. Ry Age 64:162 Ja 18 '18; Same. Iron Age 101:560 F 23 '18
- Manganin.** See Manganese alloys
- Manganous tartrate**
- Manganous tartrate and potassium manganous tartrate. L. Dobbin. diag Am Chem Soc J 41:934-40 Je '19
- Manhattan.** See New York (city)
- Manhattan railway company**
- History of the Manhattan railway company's system. F. W. Gardiner and S. Johannesson. J Fr Inst 185:437-9 Mr '18
- Manholes**
- Adjustable manhole top. Il Munic Eng 54:38-9 Ja '18
- Collapsible form of manhole guard. E. E. Noble. Il Elec R 72:564-5 Mr 30 '18
- Combination manhole and sand trap for tile drainage. diag Eng & Contr 52:206 Ag 13 '19
- Cost of concrete vault for electric cable system. H. R. Ferriss. diag Eng & Contr 50:385 O 23 '18
- Cost of manholes on street-lighting system. Elec W 70:1103 D 8 '17
- Daniels adjustable manhole frame. Il Munic J 44:235 Mr 16 '18
- Design and cost of concrete-block manholes for pipe sewers. R. A. Koerner. diag plan Eng N 82:1250 Je 26 '19
- Large manhole simplifies cable work in substation. diag plan Elec W 72:698-9 O 12 '18
- Manhole cleaning and maintenance. M. S. Montgomery. Elec R 71:1025 D 15 '17
- Manhole construction: use of previously molded reinforced-concrete slabs. Il Elec W 70:1196 D 22 '17
- Manhole containing no spliced cables. Il Elec W 70:1244 D 29 '17
- Manhole top made of cast concrete. G. W. McAlpin. diag Eng N 80:1182 Je 20 '18
- Molding manhole frames. J. V. Hunter. diag Am Mach 48:313-14 F 21 '18
- Precast concrete rings for sewer manholes. Il Concrete 13:179 D '18
- Protecting cables in manholes. A. L. Fisher. Elec R 73:739 N 9 '18
- Manifolds.** See Automobile engines—Manifolds

- Manila rope**  
Distinguishing manila from all other hard rope fibers. C: E. Swett. J Ind & Eng Chem 10:227 Mr '18  
Origin of government specification for Manila rope. S. W. Stratton. Eng N 82:1127 Je 5 '19  
Strength requirements for manila rope. Eng N 82:958-9 My 15 '19
- Manitoba**  
Industries and resources  
See Mines and mineral resources—Manitoba  
Manning formula. See Hydraulics  
Manning of ships. See Ships—Manning
- Mannite**  
Some physical properties of mannite and its aqueous solutions. J. M. Braham. diags Am Chem Soc J 41:1707-18 N '19
- Mannoheptonic amide**  
Amide of  $\alpha$ - $\delta$ -mannoheptonic acid. C. S. Hudson and K. P. Monroe. Am Chem Soc J 41:1140-1 Jl '19
- Manometers**  
Air weight and volume measurement. D. T. Hastings. diags Automotive Ind 40:1278-87 Je 12 '19  
Comparison of various manometers: abstract. L. Holborn. Am Soc M E J 40:867 O '18
- Mantels**  
English architectural decoration. A. E. Bullock. Il Arch Rec 44:237-51 S '18  
English architectural decoration; overmantels and mirrors. A. E. Bullock. Il Arch Rec 46:220-36 S '19  
See also Fireplaces
- Mantles, Gas.** See Gas mantles
- Manual training**  
Sheet metal training in New York. Il Metal Work 92:338-9 S 19 '19  
See also Industrial education; Technical education; Trade schools; also Cleveland, Ohio—University school
- Manufacturers, National association of.** See National association of manufacturers
- Manufacturers' liability**  
Manufacturer's liability for defective products. C. C. Sherlock. Mach 26:29 S '19
- Manufactures**  
Factors to be considered in the selection of materials. D. Harvey. Am Mach 51:689-90 O 9 '19  
Manufacturing conditions in early days. H. H. Manchester. Il Am Ind 19:20-2 Mr '19  
Rise of manufacture. F. W. Burstall. Engineer 128:278 S 19 '19  
See also Automobiles—Manufacture; Cars; Catalogs; Chains; Chemistry, Technical; Clothing; Commercial products; Competition. Unfair; Cost accounting; Cotton manufacture; Factories; Foundries; Fuel; Gas manufacture and works; Glass manufacture; Hardware; Industrial arts; Inspection; Iron industry and trade; Labor and laboring classes; Leather; Locomotives—Manufacture; Machine shops; Machinery; Metal work; Metals; Mills and millwork; Munitions of war; Paper making and trade; Patents; Pottery; Prices; Rubber; Shells—(projectiles)—Manufacture; Textile fabrics; Textile industry; Trade marks; Waste products
- Cost**
- Energy component in industry. Elec W 74:650-2 S 20 '19
- Manuscripts**  
Restoring books and papers injured by fire. Sci Am S 86:165 S 14 '18
- Maple sugar**  
Maple sugar; composition, methods of analysis, effect of environment. A. H. Bryan and others. maps U S Agric Bul 466:1-46 '17  
Maple tree helps to relieve sugar shortage. Il Sci Am S 85:324-5 My 25 '18
- Maps**  
Map-indexing system adapted to small cities. F. J. Calkins. Eng N 82:965-6 My 15 '19  
Railway surveys and government maps. Eng & Contr 51:643 Je 18 '19
- Maps, Military**  
Airplane mapping by the United States army. Il Sci Am S 88:213 O 11 '19  
Army engineer school in France standardizes work in the field. R. K. Tomlin, Jr. Il Eng N 81:182-5 Jl 25 '18  
Army topographical division co-ordinates work of map makers in air and on ground. R. K. Tomlin, Jr. Il Eng N 80:984-8 My 23 '18  
Engineers assist in military mapping. D: A. White. Eng N 80:298-9 F 14 '18  
Geologist in war times—the training of artillery officers. A. M. Bateman. Econ Geol 12:628-31 O '17  
Making war maps by camera. Il diags maps Automotive Ind 39:485-9, 541-3 S 19-26 '18  
Map for German submarines. Sci Am 119:49 Jl 20 '18  
Map making and the use of maps in the war. C: M. Clement. Eng & Contr 49:490-1 My 15 '18  
Map making from the sky. Il Sci Am S 86:372-3 D 14 '18  
Military opinions on scales for United States maps. R. C. Kuldell. Eng N 83:708-9 O 9 '19  
See also Military topography
- Maps, Relief.** See Relief maps
- Maps, Road.** See Road maps
- Marble**  
Marble. Il Am Arch 114:35-43 Jl 10 '18  
Marble, its specification, installation and subsequent care. H. H. Miles. Il Am Arch 114:44-7 Jl 10 '18
- Testing**
- Physical and chemical tests of the commercial marbles of the United States. D. W. Kessler. Il U S Bur Stand Tech Pa 123:1-54 '19; Abstracts. Mech Eng 41:469 My '19; J Fr Inst 187:631-2 My '19; Sci Am S 88:111 Ag 16 '19
- Marburg, Edgar, 1864-1918**  
Sketch. por Eng N 81:50-3 Jl 4 '18; Iron Age 102:83 Jl 11 '18; Iron Tr R 63:52 Jl 4 '18; Am Soc M E J 40:698 Ag '18
- Marconi, Guglielmo, 1874-**  
Presentation of the Franklin medal, May 15, 1918. por J Fr Inst 186:77-106 Jl '18
- Marder, John, 1835-1918**  
Benefactor of printers. por Inland Ptr 62:446 Ja '19
- Mare Island navy yard**  
Mare Island dry dock suit decided against contractor. Eng & Contr 49:379 Ap 17 '18
- Margarin.** See Oleomargarine
- Margarita Island**  
Magnesite of the island. C: F. Z. Caracristi. map Eng & Min J 107:645-7 Ap 12 '19
- Marine biology**  
Production in the sea. C. G. J. Petersen. Sci Am S 87:201 Mr 29 '19  
See also Marine fauna
- Marine boilers.** See Boilers, Marine
- Marine borers.** See Borers (animals)
- Marine engineering**  
British marine engineering design and construction committee. Int Marine Eng 23:63 F '18  
Designing marine machinery for economy. H. C. Dinger. Int Marine Eng 24:743-4 N '19  
Development of machinery in the United States navy during the past ten years. C. W. Dyson. Engineer 124:170-1, 190-1, 211-12, 214 Ag 24-S 7 '17; Same. Int Marine Eng 22:498-502, 545-7; 23:28-30, 69-71 N '17-F '18  
Engineering education as applied to naval architecture and marine engineering. H. A. Everett. Int Marine Eng 23:339-42 Je '18  
Fifty-year retrospect. C. W. Dyson. Sci Am S 86:246-7 O 19 '18  
Keeping the engine room log. W. E. Davis. supp Int Marine Eng 24:568-9 Ag '19

**Marine engineering—Continued**

Marine engineer and his work. Power 47:562-4 Ap 16 '18

Marine practice in valves and fittings. A. G. Christie. Am Soc M E J 41:135-6 F '19

Notes on the importance of research in marine engineering; abstracts. A. E. Seaton. Engineer 125:459-60 My 24 '18; Int Marine Eng 23:420-3 J1 '18

See also Boilers, Marine; Diesel engines, Marine; Gas and oil engines, Marine; Marine engines; Naval architecture; Propellers; Salvage; Ship propulsion; Ship resistance; Shipbuilding; Ships; Steam turbines, Marine

**Marine engineers**

Duties of newly-trained marine engineers on merchant vessels. C. H. Willey. diags Int Marine Eng 22:502-4, 542-4; 23:34-6 N '17-Ja '18

Plea for the apprentice in the marine engineering shop. Int Marine Eng 24:365-6 My '19

Requirements of marine engineers by American, English and German governments. R. Haig. Power 46:880-5 D 25 '17

Shipping board engineers study marine turbine construction and operation. II Int Marine Eng 24:756-8 N '19

Training engine-room crews for America's new ships. H. Howard. Power 47:435-6 Mr 26 '18

Training of enlisted personnel of the United States navy for engineering duties. R. R. Smith. Int Marine Eng 24:685-8 O '19

**Marine engines**

Adjusting marine-engine bearings. W. M. McRobert. diags Power 47:120-2 Ja 22 '18; Same. Int Marine Eng 23:307-9 My '18

Emergency fleet engines built by Buckeye engine company; abstract. diags Am Soc M E J 40:pt 1, 589 J1 '18

Marine engineering from 1911 to 1917. Sci Am S 84:390-1 D 22 '17

Michell journal bearing. II diags Engineer 128:202-4 Ag 29 '19

New method of erecting marine reciprocating engines. K. M. Walker. diags Int Marine Eng 24:105-6 F '19

Return to the reciprocating engine. Int Marine Eng 22:476-7 N '17; Discussion. 22: 523; 23:5, 53-4 D '17-F '18

Solving marine engine shortage. V. G. Iden. II Iron Tr R 63:1061-4 N 7 '18

Standard propelling engines for British standard ships. II Sci Am S 85:52 Ja 26 '18

Standardization of marine engines. Marine R 49:179-81 Ap '19

See also Boilers, Marine; Diesel engines, Marine; Gas and oil engines, Marine; Marine engineering; Motor ships; Ship propulsion; Steam turbines, Marine

**Fuel**

Fuel for the merchant marine. F. P. Coffin. Gen Elec R 22:200-12 Mr '19

Oil gains importance as ship fuel. V. G. Iden. II Marine R 49:321-4 J1 '19

**Lubrication**

Lubricating marine machinery. W. D. Forbes. Int Marine Eng 24:152-3 Mr '19

Lubrication of marine engines. Marine R 49: 374 Ag '19

**Manufacture**

Building marine engines on a quantity basis. F. B. Jacobs. II Marine R 49:272-82, 338-43, 388-92+ Je-Ag '19

Inland plant sets record on marine engine castings. D. M. Avey. II diags Foundry 47:196-204 Ap 15 '19

Remarkable feat of engine assembling. Am Mach 50:291-2 F 13 '19

Remarkable feat of engine assembling. B. M. Davis. II Am Mach 51:631-2 S 25 '19

**Testing**

Indicator test of triple expansion marine engine. A. C. De Lorme. Int Marine Eng 23: 250-1 Ap '18

**Marine fauna**

Filming marine life; how curator Dittmars makes motion-picture studies of aquaria for the screen. II Sci Am 119:10+ J1 6 '18

Leather from the sea. R. G. Skerrett. II Sci Am 121:182-3 Ag 23 '19

Oceanographic work of the Royal Italian committee. Sci Am S 86:118-19 Ag 24 '18

See also Fishes; Mollusks

Marine gas and oil engines. See Gas and oil engines, Marine

Marine lighting. Recent developments in. Engineer 125:165+, 201-2, 225-6 F 22, Mr 8-15 '18; Same. Sci Am S 87:359+, 388-9; 88:40 Je 7, 21, J1 19 '19

Marine railroads. See Ship railroads

Marine steam turbines. See Steam turbines, Marine

Marine terminals. See Terminals

**Maritime law**

Elements of U.S. policy in return of requisitioned merchant vessels. J. S. Stover. II Marine R 49:518-21+ N '19

**Market buildings**

Produce terminal for Los Angeles, Cal. L. A. Waterbury. II diags plan Eng N 80:167-8 Ja 24 '18

Unique electrical features of Los Angeles terminal market. C. W. Geiger. II Elec R 72: 962-3 Je 8 '18

**Marketing**

Marketing butter and cheese by parcel post. L: B. Flohr and R. C. Potts. II U S Agric Farmers' Bul 930:1-12 '18

Suggestions for parcel post marketing. L: B. Flohr and C. T. More. II U S Agric Farmers' Bul 703:1-20 '18

**Marketing, Cooperative**

Suggested form of by-laws for a cooperative nonprofit marketing association formed without capital stock. C. E. Bassett and O. B. Jesness. U S Agric Bul 541:14-23 '18

**Markets, Municipal**

Long Beach municipal markets. Munic J 46: 90 F 1 '19

Municipal markets. Munic J 47:146-8, 165-6 S 6-13 '19

To market, to market in a motor car. A. G. Vestal. II Motor Age 34:22-3 O 31 '18

Marsh gas. See Firedamp

**Maryland**

Rural express possibilities; Maryland has twenty-two routes. II map Automotive Ind 38:604-5 Mr 21 '18

**Masonry**

Country house details. A. B. Greenberg. diags Bldg Age 41:206-7, 240-1+ Je-J1 '19

Estimating figures used in masonry work. J. Upton. Bldg Age 40:541-2 N '18

Masonry in ancient times. M. T. Cantrell. Am Arch 115:880 Je 25 '19

Repairing and strengthening old masonry; committee report of American bridge and building assn. Ry Age 65:705-6 O 18 '18; Eng & Contr 50:390 O 23 '18

Stone foundations. C. King. II diags Bldg Age 40:93-4 F '18

See also Arches; Brick construction; Bricklaying; Bricks; Bridges—Foundations and piers; Bridges, Concrete; Building; Cement; Concrete construction; Dams; Foundations; Mortar; Plaster and plastering; Retaining walls; Sea walls; Stone cutting; Walls

Mass, Standards of. See Standards of mass

**Massachusetts. Homestead commission**

Housing by the commonwealth of Massachusetts; homesteads built at Lowell. W. H. Kilham. II plans Am Inst Arch J 6:131-4 Mr '18

Massachusetts homestead commission plans for the Lowell, Mass., homestead project. II Am Lumberman 2230:40 F 9 '18; Excerpt. Am Arch 113:633 My 1 '18

Massachusetts housing demonstration. W. R. Greeley. II plans Am Arch 113:643-6 My 15 '18

- Massachusetts Institute of technology**  
Concrete materials and design of the new buildings of the Massachusetts Institute of technology, Cambridge, Mass. S. E. Thompson. diag. plan Boston Soc C E J 5:39-52 Ja '18  
Foundations of the new buildings of the Institute, Cambridge. C. T. Main and H. E. Sawtell. diag. Boston Soc C E J 5:1-34 Ja '18; Abstract. Am Soc M E J 40:340-1 Ap '18; Discussion. Boston Soc C E J 5:34-8, 135-7 Ja, Mr '18  
Hydraulic laboratory of the Institute. G. E. Russell. II Boston Soc C E J 5:121-30 Mr '18  
M. I. T. a military camp. Power 47:148 Ja 29 '18  
Service rendered the United States government. Elec W 71:406-7 F 23 '18  
War instruction at Massachusetts "Tech." II Elec W 72:636-8 O 5 '18
- Pratt school of naval architecture**  
Pratt school of naval architecture. C. H. Peabody. II plans Int Marine Eng 24:220-3 Ap '19
- Master and servant**  
Legal duties of employes. C. C. Sherlock. Mach 24:1006 Jl '18  
Not every act of apparent insubordination by an employe with a written contract of hire, will justify his discharge. Dom Eng 85:255-6 N 16 '18  
*See also* Apprentices; Employers' liability; Trade secrets; Workmen's compensation
- Master boiler makers' association**  
11th annual convention, Chicago, May 26-29. Ry Age 66:1328-32 My 30 '19; Ry Mech Eng 93:333-4, 439-43 Je-Jl '19
- Master car & locomotive painters' association**  
48th convention, Chicago, Sept. 9-11. Ry Age 67:549-52 S 19 '19; Ry Mech Eng 93:605-11 O '19
- Master car builders' association**  
Activities. J. W. Taylor. Ry R 63:6-9 Jl 6 '18; Same cond. Ry Mech Eng 92:398-400 Jl '18  
Joint meeting with the American railway master mechanics' association, Chicago, June 19-20. Ry Age 64:1480-1513 Je 21 '18; Ry R 62:938-51 Je 29 '18  
*See also* American railroad association—Mechanical division
- Master plumbers, National association of. See** National association of master plumbers
- Master tin and sheet metal workers' association**  
Philadelphia fuel conservation activities. Metal Work 89:385-7, 431-2 Mr 22-29 '18
- Matches**  
Gas appliance testing laboratory. H. M. Riley and L. B. Wilson, Jr. diag. Am Gas Eng J 110:120-1 F 8 '19  
How matches are made. II Sci Am S 87:56 Ja 25 '19  
Market for matches. M. B. Stanton. Am Ind 18:31 D '17
- Materia medica**  
Dyestuffs as medicinal agents. G. Heyl. Color Tr J 4:73-6 Ap '19  
*See also* Anesthetics; Drugs; Poisons
- Material handling machinery manufacturers' association**  
1st semi-annual meeting, New York, June 11. Iron Age 103:1630 Je 19 '19  
Organization. Iron Age 103:248-9 Ja 23 '19; Elec R 74:468 Mr 22 '19; Elec W 73:442 Mr 1 '19
- Materials, Building. See** Building materials
- Materials, Factors to be considered in the selection of. D. Harvey. Am Mach 51:689-90 O 9 '19**
- Materials, Road. See** Road materials
- Materials, Strength of. See** Strength of materials
- Materials of war. See** Munitions of war
- Mathematical instruments. See** Calculating machines; Differentiation, Mechanical; Drawing instruments; Measuring instruments; Nocturnals; Slide rule
- Mathematical notation**  
Octaval notation in shop measurements. A. Watkins. diag. Mech Eng 41:870-1+ N '19
- Mathematics**  
Mathematics as a source of decorative design. C. Bragdon. II diag. Am Arch 112:465-70 D 26 '17  
Mathematics in the artillery. A. A. Bennett. Texas U Bul 1827:9-16 My 10 '18  
*See also* Fourth dimension; Mechanics; Mensuration; Metric system; Navigation; Surveying; Trigonometry
- Formulas**  
Given area and radius of a segment to find the height. Mach 24:447 Ja '18  
Tables, calculations, etc.  
Guide for the reading of traverse tables. H. Goodnow. II Coal Age 13:771 Ap 27 '18  
*See also* Logarithms
- Matter**  
Molecular orientations in physics and in crystallography. A. Perrier. diag. Sci Am S 87:18-19, 46-8 Ja 11-18 '19  
Non-molecular structure of solids. A. H. Compton. diag. J Fr Inst 185:745-74 Je '18  
Relations of matter and ether. C. Morris. Sci Am S 85:402 Je 29 '18; Discussion. E. Woolard. 86:75 Ag 3 '18  
*See also* Adsorption; Atoms; Brownian movement; Capillarity; Chemistry; Compressibility; Dissociation; Dynamics; Elasticity; Electrons; Force and energy; Hardness; Ions; Molecules; Physics; Radioactivity; Specific gravity; Viscosity
- Matter, Properties of**  
Relation connecting the derivatives of physical quantities. M. D. Hersey. U S Bur Stand Sci Pa 331:21-9 '19
- Matthiessen, F. W., 1835-1918**  
Sketch. por Eng & Min J 105:381-2 F 23 '18
- Mattresses (hydraulic engineering)**  
Board mattress for preventing scour in drainage channel. B. F. Burns. II diag. plan Eng & Contr 52:299 S 10 '19  
Sinking a long board mattress in a narrow channel. II diag. plan Eng N 83:230-1 Jl 31 '19
- Maxwell motor company**  
Annual report for the fiscal year ended July 31, 1917. Automobile 37:602 O 4 '17
- Mayaguez mesa, Porto Rico**  
Limonite deposits of Mayaguez mesa. C. R. Fetteke and B. Hubbard. II map Am Inst Min E Bul 135:661-76 Mr '18; Same cond. Iron Tr R 63:210-11 Jl 25 '18
- Mazda lamps. See** Electric lamps, Tungsten
- Measurement. See** Area measurement; Calorimeters and calorimetry; Electric measurement; Gages; Gas measurement; Gas meters; Meters; Micrometers; Pitot tube; Pyrometers and pyrometry; Surveying; Temperature—Measurement; Thermometers and thermometry; Water flow; Water meters; Weights and measures
- Measurement, Electric. See** Electric measurement
- Measurement of liquids. See** Gaging
- Measurements, Magnetic. See** Magnetic measurements
- Measures. See** Weights and measures
- Measuring instruments**  
Concept of resilience with respect to indicating instruments. F. J. Schlink. J Fr Inst 187:147-69 F '19; Abstract. Mech Eng 41:396-7 Ap '19  
Contour- and radius-measuring instrument. II diag. Mach 24:898-9 Je '18  
Johansson angle gages and measuring tools. II Mach 26:178-80 O '19; Automotive Ind 41:611-12 S 25 '19; Am Mach 51:669-70 O 2 '19; Ind Management 58:343-4 O '19; Mech Eng 41:845 O '19  
Johansson, apostle of mechanical accuracy, in America. II Automotive Ind 41:608-10 S 25 '19

**Measuring instruments—Continued**

- Knapp thread inspection equipment. *Il Mach* 25:357-60 D '18  
 Octaval notation in shop measurements. A. Watkins. *diags Mech Eng* 41:870-1+ N '19  
 Use of precision balls for accurate measurements. R. L. Rankin. *Il diags Mach* 26:236-8 N '19  
 Variance of measuring instruments and its relation to accuracy and sensitivity. F. J. Schlink. *diags U S Bur Stand Bul* 14:741-64 J1 '12 '19; Abstracts. *Am Soc M E J* 40: pt 1,590-1 J1 '18; *J Fr Inst* 186:743-7 D '18  
*See also* Calipers; Gages; Micrometers; Slide rule; Volumenometer

**Measuring machines**

- Improved scale for measuring machine. W. C. Betz. *diags Am Mach* 48:674 Ap 18 '18  
 Measuring templates and screw threads with a microscopic measuring machine. F. D. Jones. *Il diags Mach* 24:791-3 My '18  
 New type measuring machine. *Il Iron Age* 104:776 S 18 '19  
 Simple form of measuring machine. *Il Engineer* 125:302 Ap 5 '18

**Measuring tape**

*See also* Steel tape

**Meat**

- Cold storage of food. I. Jørgensen and W. Stiles. *Sci Am S* 88:178+ S 20 '19  
 Low temperature-vacuum food dehydration. K. G. Falk, E. M. Frankel and R. H. McKee. *J Ind & Eng Chem* 11:1036-40 N '19  
 Preservation of food products by drying. G. C. Shadwell. *Il diags Am Soc Heat & V E* 23:537-44 '17  
 Supposed occurrence of methylguanidine in meat, with observations on the oxidation of creatine by mercuric acetate. I. Greenwald. *Am Chem Soc J* 41:1109-15 J1 '19  
*See also* Packing industry; Whale meat

**Meat markets**

- Practical reasons why gas lighting should be easily sold to butchers. J. E. Bullard. *Il Am Gas Eng J* 110:209-11 Mr 8 '19

**Mechanical differentiation. See Differentiation, Mechanical****Mechanical draft**

- Economy of automatic combustion control. I. L. Kentish-Rankin. *Elec R* 71:971-2; 72: 64-6 D 8 '17, Ja 12 '18  
 Forced draft for hot-blast stoves. *diags Iron Age* 103:630-1 Mr 6 '19  
 Further notes on forced draft. C. H. Willey. *diags Int Marine Eng* 23:241-3 Ap '18  
 Operation of forced-draft equipment. J. F. Tuteln. *Power* 48:554 O 15 '18  
 Palmer forced-draft burner. *diags Power* 48: 387-8 S 10 '18; Discussion. R. Snow. 48:463 S 24 '18  
*See also* Blowers; Draft; Fans, Mechanical

**Mechanical drawing**

- Component drawings for interchangeable manufacture. E. Buckingham. *diags Mach* 26:259-63 N '19  
*See also* Architectural drawing; Drafting room practice; Drawing instruments; Graphic methods; Graphic statics; Lettering; Machinery—Design; Machinery—Drawing

**Mechanical engineering**

- Modern power plant education at University of Cincinnati. C. A. Joerger. *Power* 48:162-3 J1 30 '18  
 Passing of ingenuity. *Eng & Contr* 52:117 J1 30 '19; Same. *Engineer* 127:405 Ap 25 '19  
*See also* Aeronautics; Automobiles; Boilers; Chemical engineering; Electric engineering; Engines; Friction; Fuel; Horsepower; Hydraulic engineering; Locomotives; Lubrication and lubricants; Machine shop practice; Machine tools; Machinery; Marine engineering; Mechanical draft; Mechanical movements; Mechanics; Packing; Power (mechanics); Power transmission; Steam engineering; Steam engines

**Mechanical engineers**

- Urgent need for the inventive ability of mechanical engineers. R. N. Inglis. *Am Soc M E J* 40:397 My '18

**Mechanical fans. See Fans, Mechanical****Mechanical handling**

- Automobile factory transportation systems. E. K. Hammond. *Il Mach* 26:1-7 S '19  
 British shell-shop handling devices. G. F. Zimmer. *Il diags plan Ind Management* 55: 269-76, 358-66, 473-9 Ap-Je '18  
 Chain grate bunker shutter. *diags Iron Age* 104:775 S 18 '19  
 Control of manipulators. J. D. Wright. *Il diags Iron Tr R* 62:849-51 Ap 4 '18  
 Drag-line car for handling track materials. *Il Elec Ry J* 54:531-2 S 13 '19  
 Economy of centralized trucking. J. M. Van Harlingen. *Il charts Ind Management* 55:199-203 Mr '18  
 Electric automechanical handling of freight shipments. Z. W. Carter. *Elec R* 75:939-41 D 6 '19; Same. *Ry Age* 67:922-4 N 7 '19  
 Handling materials; seven plans as used in two plants. F. T. Buell; E. R. Cole. *Il Factory* 22:470-1 Mr '19  
 How to move materials by machinery. H. J. Edsall. *Il diags Ind Management* 56:42-9 J1 '18  
 Lummus lifting tongs. *Il Textile World* 53: 2793 Ja 5 '18  
 Material handling in a paper mill. H. J. Edsall. *Il diags Ind Management* 57:97-103, 183-9 F-Mr '19  
 Mechanical handling of foundry material. *Il Iron Age* 104:870-2 S 25 '19  
 Mechanical handling the feature of concrete pile yard. *Il diags plan Eng N* 82:1155-8 Je 12 '19  
 Mechanical material handling system reduces labor and hauling costs and eliminates waste in construction of Michigan road. *Il plan Eng & Contr* 50:233-4 S 4 '18; Concrete 13:104-5 S '18; *Eng N* 81:465-6 S 5 '18; *Munic Eng* 55:99-100 S '18; *Munic J* 45:181-2 S 7 '18  
 Modern terminal. *Il Sci Am* 121:390-1 O 18 '19  
 Phenomenal increase in production in factory of Boss nut co. M. E. Hoag. *Il Am Mach* 48:45-7 Ja 10 '18  
 Routing and handling shells. J. Forrest. *diags Mach* 24:922-5 Je '18  
 Routing the product. *Il Am Arch* 113:240-2 F 27 '18  
 Saving man power on the tie pile. *Il Elec Ry J* 52:70 J1 13 '18  
 Shell-handling devices; drawings. J. A. Lucas. *Am Mach* 48:786-7; 49:520-1 My 9, S 19 '18  
 Simpler methods of moving materials. *Il Factory* 16:176+, 264+, 412+, 474+; 17:104+, 176+, 310+, 450+, 568+, 718+; 18:70+, 280+, 338+, 550+, 726+, 862+; 19:122+, 254+, 422+, 760, 930+; 20:96+, 272+, 446+, 704+, 906+, 1116+; 21:102+, 248+, 496+, 760+, 926+, 1102+; 22:362+, 490+, 982+, 1270+; 23:1188+ F-My, J1 '16-S, N '17-D '18, F-Mr, My-Je, N '19  
 Some observations on the field for and use of materials handling equipment. J. M. Van Harlingen. *Munic Eng* 57:sup29-30 S '19  
 Typical mechanical handling of miscellaneous articles. A. B. Proal, Jr. *Il Ind Management* 55:453-6 Je '18  
 Various shell-handling devices; drawings. J. A. Lucas. *Am Mach* 49:520-1 S 19 '18  
*See also* Ash handling; Coal handling; Coke handling; Concrete handling; Conveying machinery; Cranes, derricks, etc.; Dumping appliances; Electric trucks, Industrial; Freight handling; Grain handling; Hoisting; Lifting magnets; Loading and unloading; Lumber handling; Mail handling; Mine haulage; Mine hoisting; Motor trucks; Ore handling; Rail handling; Sand handling; Slings and hitches; Trucks  
 Mechanical hands. *See* Hands, Mechanical  
 Mechanical laboratories. *See* Engineering laboratories  
 Mechanical models. *See* Models  
 Mechanical movements  
 Ingenious mechanical movements. F. D. Jones. *Il diags Mach* 24:781-7, 902-8 My-Je '18



**Mechanical movements**

Uniform expansion. F. R. Daniels. *diags Mach* 25:122 O '18

*See also* Cams; Gearing; Pulleys

**Mechanical sketching.** *See* Machinery—Drawing**Mechanical stokers.** *See* Stokers, Mechanical**Mechanics**

Analysis of statically indeterminate structures by the slope deflection method. W. M. Wilson, F. E. Richart and C. Weiss. *diags Ill U Eng Exp Sta Bul* 108:1-214 '18

Mechanics and electricity. W. S. Franklin. *diags Sci Am S* 87:252-4 Ap '19

Note on a theorem in mechanics dealing with the subject of accelerated or retarded motion estimated with reference to a revolving line of a datum. W. F. Durand. *diags Sibley J* 32:48-50 Ja '18

Stability of long struts of variable section; abstract. A. Ono. *Mech Eng* 41:841-2 O '19

Standard symbols for mechanics and hydraulics. *Eng N* 79:1113-14 D '13 '17

*See also* Aeronautics; Balance; Bridges—Load; Dynamics; Elasticity; Engineering; Fluids; Force and energy; Friction; Gases; Graphic statics; Hydraulics; Hydrodynamics; Liquids; Load (mechanics); Machinery; Matter; Mechanical movements; Moments of inertia; Perpetual motion; Physics; Power; Power transmission; Pressure; Pulleys; Steam engines; Strains and stresses; Strength of materials; Thermodynamics; Torque; Torsion; Vibration; Viscosity

**Mechanics (persons)**

Preparing men for war tasks; General motors truck co., Pontiac, furnishes school to train men for the sanitary corps. *Il Automotive Ind* 39:374-5 Ag '18

Training for soldier mechanics. W. Bathon. *Am Mach* 49:230a Ag '18

Training mechanics for service in army field units. J. V. Hunter. *Il Am Mach* 49:163-7 Jl '18

Training of soldier mechanics at Wentworth institute. *Am Mach* 49:70 Jl '18

Training technicians and mechanics for the army. *Am Mach* 48:1049-50 Je '18

Training the fighting mechanic. *Il Motor Age* 33:22-3 Je '18

**Mechanics, Applied**

Application of mechanical differentiation to engineering problems. A. Elmendorf. *J Fr Inst* 185:269-76 F '18

Relation between force, energy and work. D. S. Kimball. *diags Am Mach* 49:757-8 O '18

*See also* Machinery—Design; Mechanical engineering; Power transmission; Strains and stresses

**Mechanics' liens**

Difference in mechanics' liens under different statutes. *Am Arch* 115:765 My '18

Heating and ventilating plants and mechanics' liens. A. L. H. Street. *Heat & Ven* 16:19-23 My; 32-5 Je '19

If boiler inspector requires changes in work after its completion, additional work is part of original contract and keeps lien rights alive. *Dom Eng* 86:87-8 Ja '19

Mechanic's lien for preliminary plans. *Arch & Bldg* 49:101 N '17

Mechanics' liens—accounting. *Am Arch* 114:729-30 D '18

Person, performing work on property which is destroyed, is entitled to payment for what he did. *Dom Eng* 84:356-7 S '18

Small repairs do not revive mechanics lien. *Dom Eng* 82:411 Mr '18

Subcontractor, apart from mechanic's lien statutes, must look to general contractor and not owner for payment. *Dom Eng* 85:443-4 D '18

Work under guaranty for year keeps mechanic's lien alive. *Dom Eng* 83:9+ Ap '18

**Mechanism, interchangeable.** *See* Interchangeable mechanism**Mechanotherapy**

Mechanotherapy to aid injured soldiers. *Il Sci Am S* 86:152-3 S '18

**Medals.** *See* Decorations of honor; also names of medals, e.g., John Fritz medal, Nichols medal

**Medical botany.** *See* Botany, Medical

**Medical electricity.** *See* Electrotherapeutics

**Medical examinations.** *See* Physical examinations

**Medical jurisprudence**

Medicolegal aspects of radium-therapy. J. B. Bissel. *Sci Am S* 87:167 Mr '19

*See also* Employers' liability; Malingering

**Medical service, industrial**

Cost of health supervision in the metal trades in 1916; table. M. W. Alexander. *Am Mach* 47:1049 D '13 '17

Cost of industrial health supervision. R. Trautschold. *Ind Management* 55:48-54 Ja '18

Development of the health department of Thomas A. Edison interests. M. M. Jones. *Il Ind Management* 55:491-3 Je '18

How we keep our men well. R. W. Elliott. *Factory* 22:247-8 F '19

How we shorten time off. *Factory* 22:50-1 Ja '19

Human potential in industry. O. P. Geier. *Am Soc M E J* 39:604-8 Jl '17; Same. *Sci Am S* 84:386-7 D '17; Same cond. *Am Mach* 46:1107-9 Je '18; Discussion. *Am Soc M E J* 39:608 Jl '17

Human relations and the industrial physician. R. S. Quimby. *Ind Management* 57:503a-b Je '19

Human relations department from the standpoint of the industrial physician. O. P. Geier. *Ind Management* 57:503-503a Je '19

Injuries at steel plants; first-aid principles and record of hospital service at thirty-seven Carnegie plants. A. W. Colcord. *Iron Age* 102:398 Ag '18

It costs only \$2.32 apiece to keep workers fit. *Il Factory* 22:472 Mr '19

Keeping workers well. *Factory* 23:596+, 1124+, 1316+ S, N-D '19

Maintaining the efficiency of the working force. E. Oberg. *Il Mach* 25:1149-52 Ag '19

Medical service for the industrial army; joint resolution 63. *Am Ind* 19:30-1 S '18

Physician and surgeon in the industrial crisis. O. P. Geier. *Am Ind* 20:26-9 N '19

Trained nurse and field hospital reduce labor turnover. *Eng N* 81:54 Jl '18

*See also* Dental service, Industrial

**Medicinal plants.** *See* Botany, Medical**Medicine**

Debt of preventive medicine to chemistry. G. W. Goler. *J Ind & Eng Chem* 10:303-6 Ap '18

*See also* Bacteriology; Botany, Medical; Chemistry, Medical; Diseases; First aid in illness and injury; Hospitals; Hygiene; Indians of North America—Medicine; Medical service, Industrial; Poisons; Surgery

**Medicine, Military**

Making over the disabled doughboy. J. B. Huber. *Il Sci Am* 120:542-3 My '19

Our technical achievements in the great war. *Sci Am* 121:284+ S '19

Pathology of war neuroses. J. S. Bury. *Sci Am S* 86:226-7 O '18

Rapid cure of hysterical symptoms in soldiers. A. F. Hurst and J. L. M. Symms. *Sci Am S* 86:304 N '18

*See also* European war—Medical and sanitary affairs; First aid in illness and injury; Military hygiene; Surgery, Military

**Medieval architecture.** *See* Architecture, Medieval**Mediterranean sea**

Exploration of the Mediterranean. *Sci Am* 118:405 My '18

**Megaphones**

Megaphone of novel design. F. R. Watson. *Il diags Sci Am* 120:548+ My '19

**Melezitose**

Occurrence of melezitose in a manna from the Douglas fir. C. S. Hudson and S. F. Sherwood. *Am Chem Soc J* 40:1456-60 S '18

**Mellon institute.** See Pittsburgh university. Mellon institute

**Melting points**

Formulas for the foundryman; melting points of solders. *Foundry* 47:546a Ag 15 '19

Melting point of asphalt. L. M. Proctor. *Chem & Met Eng* 21:81-3 JI 15 '19

Melting point of refractory materials. L. I. Dana. *diag Am Inst Min Bul* 153:1571-86 S '19. Discussion. 156:3153 D '19

Melting point of rosin. T. L. Crossley. *J Ind & Eng Chem* 11:52-3 Ja '19

Melting points and other temperatures. *Eng & Min J* 107:479 Mr 15 '19

Melting points of chemical elements, and other standard temperatures. *Chem & Met Eng* 20:351 Ap 1 '19; Same. *Metal Ind* 17:171 Ap '19

Phthalic anhydride: the melting point of pure phthalic anhydride; the system: phthalic anhydride-phthalic acid. K. P. Monroe. *diags J Ind & Eng Chem* 11:1116-19 D '19

**Membranes**

Membranes made from skins of mould. *Sci Am* 118:345 Ap 13 '18

**Memorial arches.** See Arches, Memorial

**Memorial tablets**

Competition for a memorial tablet held by the John Polachek bronze & iron company, New York. *Am Arch* 115:pl 160-1 My 14 '19

**Memorials**

Advisory committee on war memorials. *Am Arch* 115:387-8 Mr 12 '19

American memorial to Theodore Roosevelt. G. W. Maher. *Am Arch* 115:268+ F 19 '19

Bronze Buddies to commemorate New York divisions. *Am Arch* 116:179 Ag 6 '19

Charing Cross improvement scheme and national war memorial. II plans *Am Arch* 116:261-3 Ag 27 '19

Cities deciding on war memorials. *Am Arch* 115:176-7 Je 29 '19

Civic type of war memorial. M. S. Franklin. *diags plan Am Arch* 115:259-68 F 19 '19

Community building as a war memorial. *Am Arch* 116:pl 33-6 JI 23 '19

Community house as a war memorial. M. Candler. II plans *Am Arch* 116:195-202, 205-7 Ag 13 '19

Concrete band stands for memorials. II *diag plan Concrete* 15:129 S '19

Description of suggested design for a victory memorial. O. R. Eggers and E. H. Rosen-garter. *Am Arch* 114:671-2, pl 169-71 D 4 '18

Federation of art defines attitude toward war memorials. *Am Arch* 115:857 Je 18 '19

Gateway of the nation. II *diags Am Arch* 115:602-6 Ap 30 '19

Honor roll memorial in Chicago. II *diag Am Arch* 115:96 Ja 15 '19

John Mervin Carrère memorial, Riverside drive, New York city. II *Arch Forum* 31:161 N '19

Memorials in New York. *Am Arch* 115:131-2 Ja 22 '19

Memorials of the war. *Am Arch* 115:849-50 Je 18 '19

National victory memorial building, Wash-ington, D.C. II *Am Arch* 115:847 Je 18 '19

Observations on types of memorials. A. L. Brockway. *Am Arch* 115:511-14 Ap 9 '19

Olmsted memorial, Harrisburg, Pa.; views. *Arch Rec* 42:578-82 D '17

Proposed Telegraph Hill memorial, San Fran-cisco, Cal. *Am Arch* 114:730 D 18 '18

Stirling Calder, sculptor, discusses war memorials. *Am Arch* 115:885 Je 25 '19

Suggestion for a war memorial on Riverside Drive, New York. D. Barber. II *plan Am Arch* 114:320a-320b, pl 81 S 11 '18

Suggestions regarding treatment of war memorials. *Arch Rec* 45:191-2 F '19

Third division plans memorials. *Am Arch* 116:213-14 Ag 13 '19

Town halls as war memorials. II *Am Arch* 115:607-8 Ap 30 '19

War memorials. *Am Inst Arch J* 7:30-2 Ja '19

War memorials. C: O. Cornelius. *Arch Rec* 46:94-6 JI '19

War memorials. R. A. Cram. *Arch Rec* 45:116-17 F '19

Whitehall cenotaph, London, England. II *Arch Forum* 31:162 N '19

See also Arches, Memorial

**Bibliography**

War memorial bibliography. F. Weitenkamp. *Arch Rec* 46:278-85 S '19

**Mendenhall, Thomas Corwin, 1841-**

Presentation of the Franklin medal, May 15, 1918. *por J Fr Inst* 186:77-106 JI '18

**Mensuration**

Calculating the volume of piles and poles. *Eng & Contr* 52:349 S 24 '19

Simple method of determining height of an object. L. A. Ring. *diag Elec R* 73:222-3 Ag 10 '18

See also Arcs; Area measurement; Gages; Gaging; Measuring instruments; Metric system; Surveying; Trigonometry; Weights and measures

**Mental healing**

Psychotherapy. S. Block. *Sci Am S* 85:270-1 Ap 27 '18

**Mental tests.** See Ability tests

**Meprolene**

Merrill heating process; meprolene circulated through machines. *diag Textile World* 53:4581 Ap 6 '18

Oil heating system for industrial processes. *plan Met & Chem Eng* 17:717 D 15 '17

Practical oil circulating system for indirect heating. II *Chem & Met Eng* 19:733-5 N 15 '18

**Mercerizing**

Results in varying mercerizing conditions. E. R. Clark. *Textile World* 56:1779+ S 27 '19

**Merchant marine**

Effect of the war on the world's shipping. II *Sci Am* 121:51+ JI 19 '19

High wages raise shipping costs. II *Marine R* 49:78-81 F '19

Should not all the merchant ships of the world be owned and operated jointly by all the nations? *Eng & Contr* 50:376 O 23 '18

What is happening with the world's great merchant commerce? *Int Marine Eng* 23:239-40 Ap '18

See also Convoy; Free harbors; Shipping; Ships—Manning

**Bibliography**

List of books on ships, commerce, and the merchant marine. U S Shipping Board, Free Pub Lib, Newark, N.J. 7p '18

**China**

Progress of shipbuilding. *Int Marine Eng* 24:398-9 Je '19

**France**

France stripped of merchant vessels. II *Marine R* 49:153-5 Mr '19

Great French shipbuilding scheme. *Engineer* 128:183 Ag 22 '19

Merchant shipbuilding in France. *Engineer* 127:59-60 Ja 17 '19

**Germany**

Future of the German merchant marine. O. Linder. *Int Marine Eng* 23:417 JI '18

Present state of the German merchant fleet. *Sci Am S* 87:96 F 8 '19

**Great Britain**

Mercantile marine uniforms. A. L. Haas. *Int Marine Eng* 23:364-5 Je '18

Our merchant navy—the war and after. *En-gineer* 125:505-6 Je 14 '18

Refitting war-torn British fleet taxes ca-pacity of shipyards. C. Maughan. II *Marine R* 49:525-30+ N '19

**Sweden**

War-time changes in Swedish merchant marine. *Int Marine Eng* 24:472-3 JI '19

## Merchant marine—Continued

## United States

- Advocates government control of ships. F: B. Lynch. *Marine R* 49:324-5 J1 '19
- Alien crews on our merchantships. *Sci Am* 118:162 F 23 '18
- American bottoms for American goods. G: W. Norris. *Textile World* 55:2536b Ap 26 '19
- American maritime policy. J. A. Farrell. *Iron Tr R* 64:1160-2 My 1 '19
- American merchant marine. *Am Mach* 49:1130-4 D 19 '18
- American merchant marine will total 25,000,000 tons in 1920. E: N. Hurley. *Int Marine Eng* 23:379-81 J1 '18; Abstract. *Elec R* 72:1045 Je 22 '18
- American seagoing merchant fleet. *Int Marine Eng* 24:706-7 O '19
- American ship construction is now overtaking all ship destruction. *Eng N* 81:598+ S 26 '18
- American ship-operating program. *Sci Am* 120:364 Ap 12 '19
- American ships for foreign trade. E: N. Hurley. *Int Marine Eng* 23:497-8 S '18
- Are war-built ships fit for peace? V. G. Iden. *Il Marine R* 49:66-70 F '19
- Backing American ships with American dollars. E: N. Hurley. *Am Lumberman* 2259:37 Ag 31 '18; Same. *Gen Elec R* 21:658-9 S '18
- Classification society necessary to the merchant marine. *Int Marine Eng* 23:674+ D '18
- Cleaning up after the submarine war. *Il Sci Am* 120:538 My 24 '19
- Congress and the merchant marine. W. Fawcett. *Int Marine Eng* 24:601-4 S '19
- Congress grapples with the problem of the establishment of an American merchant marine. W. Fawcett. *Int Marine Eng* 24:515-17 Ag '19
- Development of trade routes for the new merchant marine. J. H. Rosseter. *Int Marine Eng* 24:469 J1 '19
- Exporters in drive for world trade. *Iron Tr R* 63:1078-9 N 7 '18
- Future of the American merchant marine from standpoint of steamship operator. O. C. Chapman. *Int Marine Eng* 24:381-3 Je '19
- How big is our merchant fleet? *Sci Am* 120:392 Ap 19 '19
- Manning the new merchant marine. *Int Marine Eng* 23:6 Ja '18
- Manning the new merchant marine. H: Howard. *Power* 47:634-5 Ap 30 '18; Same cond. *Int Marine Eng* 23:499-501 S '18
- Merchant marine problem. *Sci Am* 120:164 F 22 '19
- Merchant marine progress. C. H. Claudy. *Sci Am* 121:228 S 6 '19
- Neglected American merchant marine. R: H. Tingley. *Am Ind* 19:14-15 My '19
- New American merchant marine. E: N. Hurley. *Sci Am* 87:226-7, 250-1 Ap 12-19 '19; Excerpt (Recommendations). *Ry R* 64:516-17 Ap 5 '19; Excerpt. *Int Marine Eng* 24:187-8 Ap '19
- New Orleans trains navigating and engineering officers for America's new merchant marine. M. O. Frost. *Il Int Marine Eng* 23:417-19 J1 '18
- Our merchant fleet; its great future. E: N. Hurley. *Textile World* 54:1351 S 21 '18
- Our merchant marine. E: N. Hurley. *Ry R* 63:601-2 O 26 '18
- Present status of our merchant marine. *Sci Am* 121:360 O 11 '19
- Problems of the American merchant marine. L. B. Chapman. *Int Marine Eng* 24:317-21 My '19
- Raw materials and the merchant marine. E: N. Hurley. *Am Lumberman* 2267:45 O 26 '18
- Reconstruction and extension of American merchant marine. *Int Marine Eng* 24:49 Ja '19
- Ship-owners' point of view. *Sci Am* 120:504 My 17 '19
- Ship policy up to new Congress. L. W. Moffett. *Marine R* 49:531-2 N '19
- Suggestion for building up the American merchant marine. W: T. Bonner. *Int Marine Eng* 24:292 Ap '19
- Training engine-room crews for America's new ships. H: Howard. *Power* 47:435-6 Mr 26 '18
- U.S. ships delivered by American yards to December 31, 1918. *Il Marine R* 49:103-14 F '19
- U.S. wartime ships prove well built. *Marine R* 49:505+ N '19
- Vessels requisitioned or under contract for United States Shipping board; number, type and tonnage. *Int Marine Eng* 23:171 Ap '18
- What Congress plans for U.S. ships. L. W. Moffett. *Marine R* 49:51-6 F '19
- What do ships mean to you? *Int Marine Eng* 23:556-60 O '18
- What shall we do with our ships? *Sci Am* 120:648 Je 21 '19
- Merchant mills. See Rolling mills
- Mercuric potassium iodide
- Preservation of plant juices for analysis of sugar content. D. O. Spriestersbach. *Am Chem Soc J* 40:431-6 F '18
- Mercury
- American quicksilver industry. *Eng & Min J* 107:878-9 My 17 '19; Discussion. 108:24, 321-2 J1 5, Ag 23 '19
- Anticlinical theory and some quicksilver deposits. W: H. Emmons. *diags Eng & Min J* 107:916-17 My 24 '19
- Cinnabar ore in Jackson county, Oregon. A. E. Kellogg. *Il Eng & Min J* 107:787 My 3 '19
- Cost of quicksilver and fulminate. *Chem & Met Eng* 20:454 My 1 '19
- Details of quicksilver production. *Eng & Min J* 105:315 F 16 '18
- Fume and other losses in condensing quicksilver from furnace gases. L. H. Duschak and C. N. Schuette. *Il diags U S Bur Mines Tech Pa* 96:1-26 '19
- Future of the quicksilver-mining industry in the United States. F. L. Ransome. *Eng & Min J* 107:876-7 My 17 '19
- Gravimetric and volumetric determination of mercury precipitated as mercury zinc thiocyanate. G: S. Jamieson. *J Ind & Eng Chem* 11:296-7 Ap '19
- Hydrocarbo bases and a study of organic derivatives of mercury and of lead. L. W. Jones and L. Werner. *Am Chem Soc J* 40:1257-75 Ag '18
- Mercury losses in retorting. A. Thomas. *Eng & Min J* 106:742 O 26 '18
- Mercury production at Almaden, Spain. R. Sterner-Rainer. *Il Chem & Met Eng* 20:32-5 Ja 1 '19
- Metallurgical practice on cinnabar at Idria, Austria. R. Sterner-Rainer. *Il diags plan Chem & Met Eng* 19:721-7 N 15 '18
- Metallurgy of quicksilver. M. Innes. *Eng & Min J* 105:110-11 Ja 12 '18
- Metallurgy of quicksilver, 1918. M. Innes. *Eng & Min J* 107:86 Ja 11 '19
- Minor occurrences of mercury in Europe. R. Sterner-Rainer. *Chem & Met Eng* 20:32-4 Ja 15 '19
- Organic mercury compounds derived from *p*-bromo-dimethylaniline. F. C. Whitmore. *Am Chem Soc J* 41:1841-54 N '19
- Position of the quicksilver producers in California. *Eng & Min J* 106:439-42 S 7 '18
- Production and exportation of mercury in Spain. *Chem & Met Eng* 21:448 O 8 '19
- Quicksilver in California. flow sheet *Il diags Chem & Met Eng* 19:237-40 S 1 '18
- Quicksilver in California. M. Innes. *Eng & Min J* 105:52 Ja 12 '18
- Quicksilver in California, 1918. M. Innes. *Eng & Min J* 107:56 Ja 11 '19
- Quicksilver in first half of 1918. F. L. Ransome. *Eng & Min J* 106:707 O 19 '18; Same. *Chem & Met Eng* 19:689 N 1 '18
- Quicksilver in Texas in 1918. W. D. Burcham. *Eng & Min J* 107:145-6 Ja 18 '19
- Quicksilver operations at Monte Amiata, Italy. R. Sterner-Rainer. *Il diags Chem & Met Eng* 19:770-5 D 1 '18
- Quicksilver statistics in 1917. *Eng & Min J* 105:51-2 Ja 12 '18

**Mercury—Continued**

U. S. P. assay of mercurial ointment. L. F. Gabel. *J Ind & Eng Chem* 11:960 O '19  
Vapor pressures of mercury in the range 120° to 250°. A. W. C. Menzies. *diag Am Chem Soc J* 41:1783-7 N '19

*See also* Amalgams

Mercury arc rectifiers. *See* Electric current rectifiers

**Mercury compounds****Bibliography**

Bibliography of the literature of organic mercurials. F. C. Whitmore. *J Ind & Eng Chem* 11:1083-91 N '19

Mercury vapor lamps. *See* Electric lamps, Mercury vapor

Mercury vapor pumps. *See* Vacuum pumps

Mercury vapor rectifiers. *See* Electric current rectifiers

**Mercury zinc thiocyanate**

Gravimetric and volumetric determination of mercury precipitated as mercury zinc thiocyanate. G. S. Jamieson. *J Ind & Eng Chem* 11:296-7 Ap '19

**Meridian**

Determination of latitude and the meridian. A. C. Callen. *diags Coal Age* 14:168-70 JI 25 '18

Determining the true meridian. J. A. Macdonald. *Sci Am* 116:328 Mr 31 '17; *Abstract. Eng N* 79:932-3 N 15 '17; *Discussion. R. E. Davis; C. M. Bell. 79:1073-4 D 6 '17*

*See also* Meridiograph

**Meridian, Mississippi****Water supply**

Acting on recommendations of U.S. Public health service in improving quality of Meridian water supply. W. L. Worrell. *Munic Eng* 54:142-4 Ap '18

**Meridiograph**

Chart for estimating change in declination of sun; explanation of chart used with meridiograph. *Coal Age* 13:943 My 18 '18

Ross meridiograph. J. T. Beard. *il diag Coal Age* 13:732-4 Ap 20 '18; *Discussion. 13:891, 1028-9 My 11, Je 1 '18*

Mesabi range. *See* Geology—Minnesota; Iron mines and mining—Minnesota

**Mesopotamia**

Regeneration of Mesopotamia. H. Brown. *Engineer* 128:373-4 O 17 '19

**Agriculture**

*See* Agriculture—Mesopotamia

**Antiquities**

Future of the archeologist in Mesopotamia. E. J. Banks. *il Sci Am* 120:506+ My 17 '19

**Industries and resources**

Minerals and manufactures in Mesopotamia. *Sci Am S* 87:397 Je 21 '19

**Mesothorium**

Mesothorium as a radium substitute in luminous paint. *Eng & Min J* 106:1124-5 D 28 '18; *Sci Am* 119:501 D 21 '18; *Automotive Ind* 40:16 Ja 2 '19; *Chem & Met Eng* 20:168 F 15 '19; *Illum Engr* 12:109-10 Ap '19  
Ratio of mesothorium to thorium. H. N. McCoy and L. M. Henderson. *Am Chem Soc J* 40:1316-26 S '18

**Mess halls, Camp. See** Camp mess halls**Metal & thermite corporation**

Large metal and chemical interests combine business under new name. *Ry Age* 64:384-5 F 15 '18

**Metal cleaning**

Cleaning of metal parts. W. H. Addis. *il Am Mach* 51:215-16 JI 31 '19

Ideal cleaning and rinsing machine for metal parts. *il Am Mach* 48:639-40 Ap 11 '18

Industrial processes and appliances using gas. E. F. Davis. *il Gas Age* 41:169-70 F 15 '18

Nivin metal parts washing machine. *il Mach* 25:370 D '18

Steel wool. G. P. Butler. *Metal Ind* 16:549 D '18

**Metal coating**

Electrical application of the Schoop process; abstract. W. Kasperowitz. *Elec W* 73:1400 Je 28 '19

Metallic coatings for rust-proofing iron and steel. H. S. Rawdon, M. A. Grossman and A. N. Finn. *diags Chem & Met Eng* 20:458-64, 530-7, 591-2 My 1-Je 1 '19; *Abstract (pt 1). Automotive Ind* 41:216 JI 31 '19

Standards for protective finishes for iron. E. P. Later. *Foundry* 46:424-6 S '18

Structure of sprayed metallic coatings; Schoop process. R. Durrer. *il Metal Ind* 16:116 Mr '18

*See also* Electroplating; Galvanizing; Plating

**Bibliography**

Metallic coatings for rust-proofing iron and steel. H. S. Rawdon, M. A. Grossman and A. N. Finn. *Chem & Met Eng* 20:591-2 Je 1 '19

**Metal coloring**

Black finish on steel. *Metal Ind* 16:16 Ja '18; *Same. Mach* 24:531 F '18

Black finishes on iron and steel. E. S. Whit-tier. *Metal Ind* 16:509-10 N '18

Bluing steel. W. B. Greenleaf. *diags Mach* 24:997-8 JI '18

Coloring of shakudo. S. Miyasawa. *Sci Am S* 85:35 Ja 19 '18

Cyanide black solution. *Metal Ind* 16:308 JI '18  
Industrial processes and appliances using gas. E. F. Davis. *il diag Gas Age* 41:209-12, 265-6, 309, 361-2, 408-10, 463-4, 513-15, 561-4 Mr 1-Je 15 '18

Platin-nig; a new substitute for chloride of platinum for oxidizing gold, silver, copper, bronze and brass. C. H. Proctor. *Metal Ind* 16:41 Ja '18

Silver plating and oxidizing advertising jewelry and novelties. E. J. Beaudry. *Metal Ind* 16:27 Ja '18

Use of sodium sulpho-cyanide in black nickel solutions. C. H. Proctor. *Metal Ind* 16:26 Ja '18

*See also* Brass—Coloring; Copper—Coloring; Gilding

Metal corrosion. *See* Corrosion and anti-corrosives

**Metal cutting**

Air-operated cutting gun saves time and labor. *il Elec Ry J* 51:979 My 18 '18

Alignment chart for Dempster Smith's formulas for cutting speed. A. L. Jenkins. *diag Am Mach* 48:614-15 Ap 11 '18

Alignment chart for Herbert's cubic law. A. L. Jenkins. *Am Mach* 48:540-1 Mr 28 '18

Building special work with an oxygen-acetylene cutting and welding outfit. M. C. Smith. *diags Elec Ry J* 54:317-19 Ag 16 '19

Cutting a narrow slot with the shaping machine. G. W. Cooper. *diags Am Mach* 49:852 N 7 '18

Cutting steel ingots with oxy-hydrogen. W. B. Perdue. *il Iron Tr R* 63:504-5 Ag 29 '18

Elimination of chatter marks. F. W. Bach; W. S. Rowell. *diags Am Mach* 50:307-8, 303 F 13, Ap 24 '19

Elimination of chatter marks from machined work. *diags Am Mach* 49:349-54 Ag 22 '18

Manufacture of oxygen and its use for welding and metal-cutting. J. M. Christie. *Eng & Contr* 50:129-30 JI 31 '18

Mechanically operated cutting and welding torches. E. K. Hammond. *il Mach* 24:869-76 Je '18

Metal cutting with the electric arc. G. Kearney. *J Fr Inst* 186:382 S '18

Modern welding and cutting. E. Viall. *il diags Am Mach* 50:1081-7 Je 5 '19

Oxy-acetylene machine for cutting holes in steel plates. *il Iron Age* 104:922 O 2 '19

Portable rail sawing machines. *il Sci Am* 120:438+ Ap 26 '19

Practical methods in cutting. T. P. Bowman. *diags Motor Age* 36:98-9 N 6; 32-3 N 13 '19

**Metal cutting—Continued**

- Racine electrically operated metal-cutting machines. *Il Elec R* 72:612 Ap 6 '18  
 Repairing a large boring mill table. *Il Mach* 24:1045 J1 '18  
 Repairing water tank by acetylene welding. D: Baxter. *Il Metal Work* 90:303-5 S 13 '18  
 Supplement to Frederick W. Taylor's, On the art of cutting metals. C. G. Barth. *diags Ind Management* 58:169-75, 282-7 S-O '19 (to be cont)  
 Use of acetylene in navy yards. H. G. Knox. *Il plan Int Marine Eng* 24:720-7 N '19; Same cond. *Am Mach* 51:661-4 O 2 '19  
*See also* Cutting machinery; Gear cutting; Milling cutters; Oxyacetylene flame; Screw machines; Shears; Steel cutting; Thread cutting; Thread cutting machines

**Metal films**

- Ultramicroscopic investigation of very thin metal films obtained by evaporation in a high vacuum; abstract. W. Reinders and L. Hamburger. *Am Soc M E J* 40:1052-3 D '18

**Metal finishing**

- Army or military bronze finish. C: H. Proctor. *Il Metal Ind* 15:467-8 N '17  
 Artistic metal finishing; plating antimonial lead fixture work without scratch brushing. J: Burke. *Il Metal Ind* 16:214 My '18  
 Guerini process for the oxidation of finished metal surfaces. *diag Mach* 25:177 O '18  
 Nickel finish on brass. *Metal Ind* 16:73 F '18  
 Planning a metal finishing department. *diag Metal Ind* 17:5-6 Ja '19  
 Progress in metal finishing as practiced at the Corona typewriter company. P. S. Brown. *Il Metal Ind* 17:274-6 Je '19  
 Pullman bronze finish. *Metal Ind* 16:219 My '18  
 Standards for brass and bronze foundries and metal-finishing processes. L. Erskine. *Am Inst Min E Bul* 146:263-75 F '19; Same. *Metal Ind* 17:113-17 Mr '19  
*See also* Grinding and polishing; Gun metal; Metal coloring; Metal protection

**Metal Industries. See Metal trade; Metal work; Mineral industries****Metal marking**

- Martin hydraulic marking machine. *Il Mach* 24:564-5 F '18; *Am Mach* 48:638-9 Ap 11 '18

**Metal parts washing machine. See Metal cleaning****Metal polishing. See Grinding and polishing****Metal prices. See Metal trade****Metal protection**

- Is rust-proofing for trucks practical? E. T. Birdsall. *Automotive Ind* 41:24-5 J1 '19  
 Military applications of electroplating. W: Blum. *Metal Ind* 16:498-9 N '18  
 Paint for iron; abstracts. J. N. Friend. *Sci Am* S 86:37 J1 20 '18; *Eng & Contr* 50:434 O 30 '18; *Mach* 25:145 O '18  
 Preserving iron and steel. M. Meredith. *Int Marine Eng* 23:712 D '18  
 Rust prevention as a structural conservation measure. D. O'Brien. *Elec Ry J* 53:243-4 F 1 '19  
 Rustproofing steel. *Il Mach* 25:736-7 Ap '19  
 Use of self-healing coating on New York Central bridges. *Eng N* 80:159 Ja 24 '18  
*See also* Corrosion and anti-corrosives; Galvanizing; Metal coating

**Metal spraying. See Metal coating****Metal tariff. See Metal trade****Metal testing. See Metals—Testing****Metal trade**

- Average monthly prices of pig iron, rolled products and old material in principal districts in 1918. *Iron Tr R* 64:122 Ja 2 '19  
 Average prices of principal metals for 23 years, 1895-1917. *Eng & Min J* 105:199 Ja 26 '18  
 Average prices of principal metals for 24 years. *Eng & Min J* 107:352 F 22 '19  
 British imports and exports, 1917 and 1918. *Eng & Min J* 107:359 F 22 '19

- British machine tool and metal industries. A. Luchars. *Mach* 26:19-24 S '19; Same. *Iron Age* 104:573-7 Ag 28 '19; Same cond. *Am Mach* 51:478-80 S 4 '19

**Business conditions in the metal trade. G. H. Clamer. Metal Ind 17:24-5 Ja '19****Business of British merchants in danger. Iron Age 102:1268-9 N 21 '18****Chart of metal prices for 1916-1917. Metal Ind 16:60 Ja '18****Chart of metal prices for 1917-1918. Metal Ind 17:60 Ja '19****Commercial position of some unusual ores and metals in 1917. Eng & Min J 105:134-5 Ja 12 '18****Cost of health supervision in the metal trades in 1916: table. M. W. Alexander. Am Mach 47:1049 D 13 '17****Fluctuations in prices of pig tin, aluminum, antimony, lake copper, spelter, lead, tin plate and galvanized sheets, 1900-1918. Iron Tr R 64:104a Ja 2 '19****40 years of domestic metal production. Automotive Ind 40:180-1 Ja 16 '19****French buying and distributing associations. Eng & Min J 107:22 Ja 4 '19****Imports and exports. Chem & Met Eng 20: 295 Mr 15 '19****Increased export duties in Peru. Eng & Min J 106:61 J1 13 '18****Metal conditions in central empires. Eng & Min J 106:1091-2 D 21 '18****Metal exports in 1917. Eng & Min J 105:344 F 16 '18****Metal industries flower in war. G. F. Creveling. Il chart Iron Tr R 64:87-92 Ja 2 '19****Metal market review of 1917. W. T. Partridge. Metal Ind 16:56-8 Ja '18****Metal market review of 1918—outlook for 1919. W. T. Partridge. Metal Ind 17:55-8 Ja '19****Metal markets yield to war needs. Iron Tr R 64:110-11 Ja 2 '19****Metal, tin-plate and sheet prices for twenty years, 1898-1917. chart (supp) Iron Age 101: 76 Ja 3 '18****Metal, tin-plate and sheet prices for twenty-one years, 1898-1918. supp Iron Age 103:26 Ja 2 '19****Metals in 1917 respond to war factors. Iron Tr R 62:166-7 Ja 10 '18****Non-ferrous markets uneventful in 1918. E. F. Cone. Iron Age 103:16-17 Ja 2 '19****Pig iron and metal products of the United States—calendar years 1907-1915, (1916 estimated). Metal Ind n s 15:57 Ja '17****Pig iron and metal products of the United States, calendar years 1908-1916; 1917 estimated; tabulation. Metal Ind 16:59 Ja '18****Pig iron and metal products of the United States, calendar years 1909-1917. Metal Ind 17:61 Ja '19****Present condition of the mining and metallurgical industries in Germany. Am Inst Min E Bul 140:sup54-6 Ag '18****Prospect for the metals. Eng & Min J 106: 970-1 N 30 '18****Record war prices in non-ferrous metals. E. F. Cone. Iron Age 101:66-7 Ja 3 '18****Report of alien property custodian on the metal industry. Chem & Met Eng 20:313-17 Ap 1 '19; Eng & Min J 107:532-4 Mr 22 '19****Review of 1917. Metal Ind 16:30-1 Ja '18****Salesman as an aid to the brass manufacturer in the trade. P. W. Blair. Metal Ind 16:416 S '18****Uncommon ores and metals. H. C. Meyer. Eng & Min J 107:124-5 Ja 11 '19****United States tariff commission and the metal industries. Eng & Min J 105:328 My 4 '18*****See also* Copper industry and trade; Iron industry and trade; Lead industry and trade; Scrap metal; Sheet metal trade; Steel industry and trade; Tin plate; Zinc industry and trade****Metal waste****Brass for fuses and other munition products; a description of methods employed in England for the production of war-time alloys. A. E. Tucker. Metal Ind 16:212-14 My '18****Brass reclaiming plant. diag Mach 24:628 Mr '18**

**Metal waste—Continued**

- Briquetting of non-ferrous light metal scrap. A. L. Stillman. *II* charts diag. plan Metal Ind 15:526-30 D '17; Same cond. Mach 24:473, 476 Ja '18
- Economy scrap metal baler. *II* Mach 24:950-1 Je '18
- Foundry scrap prices are changed. Foundry 46:143-4 Ap '18
- Galland-Henning scrap metal compressor. *II* Metal Ind 16:281 Je '18
- Installation and operation of a small reclamation plant. W. H. Parry. Metal Ind 15:429-30 O '17
- Junk pile transformed into gold. G. H. Manlove. *II* diag Iron Tr R 62:1173-6 My 9 '18
- Manchester association of engineers discusses briquetting metal turnings and borings. Engineer 124:525 D 14 '17
- Metal conservation; the electrolytic recovery of copper and sulphuric acid from copper mill pickling solutions. J. L. Jones. *II* diag. Metal Ind 15:433-5 O '17
- New scrap schedule put in effect. Iron Tr R 62:553 F 28 '18; Same. Iron Age 101:570-1 F 28 '18
- Quantities of material handled by Ford. Automotive Ind 38:585 Mr 21 '18
- Reclamation of brass ashes. A. F. Taggart. Metal Ind 15:74-6 F '17
- Salvage at the Winchester plant. C. M. Horton. *II* Ind Management 56:201-4 S '18
- Salvaging and utilizing wastes and scraps in industry. W. R. Conover. Ind Management 56:449-51 D '18; Same. Gen Elec R 22:88-91 Ja '19
- Scrap metal briquetting machines; patent. *II* Met & Chem Eng 18:157 F 1 '18
- Separating white metal and brasses. *II* Metal Ind 16:506 N '18
- Separating white metals from brass turnings. Foundry 46:138 Mr '18
- Steel turnings and the electric furnace. J. A. Holden. Iron Age 101:424 F 7 '18; Same. Met & Chem Eng 18:372 Ap 1 '18
- Tests on brass sweepings show good results. Foundry 46:373 Ag '18
- Utilization of waste metals in the plating department; with discussion. C. C. Martel. Metal Ind 16:215-17 My '18
- Youngstown sheet & tube co. scrap specifications. Iron Age 101:584 F 28 '18
- See also* Scrap metal; Tailings

**Metal work**

- Chinese metal manufactures. H. K. Richardson. *II* diag Metal Ind 15:191-4, 477-8, 523-5 My. N-D '17
- Extruded metal. Metal Ind 15:435 O '17
- Manufacture of steel barrels. E. K. Hammond. *II* diag Mach 25:526-33 F '19
- Manufacturing non-ferrous metal articles. *II* diag Iron Age 103:1209-14 My 8 '19
- Trying to thicken the edges of a disk. J. A. Ahlers. *diag* Am Mach 49:707 O 17 '18
- Trying to thicken the edges of a disk. H. F. Pusep. *diag* Am Mach 50:171-2 Ja 23 '19
- Working monel metal. H. R. Williams. *diag* Am Mach 51:509-11 S 11 '19
- See also* Brass founding; Brass work; Bronze; Bushings; Dies; Electroplating; Forging; Foundry practice; Hardware; Ironwork; Jewelry; Keys and keyways (machinery); Machine tools; Metal coloring; Pickling (metals); Plating; Punching machinery; Sheet metal work; Solder and soldering; Tin plate; Welding

**Tables, calculations, etc.**

- Chart for finding volume of metal removed or area machined in turning or grinding. R. Pollakoff. Am Mach 50:931-2 My 15 '19
- Metal work, Architectural.** *See* Sheet metal work, Architectural
- Metal work, Artistic**
- Art of engraving and embossing. *II* Metal Ind n 14:160-2, 330-1, 507-9; 15:119-20; 16:458-9, 554-5 Ap. Ag. D '16, Mr '17, O, D '18
- Design value of decorative motifs. A. F. Saunders. *II* Metal Ind n 15:15-16, 390-1, 513-14; 16:163-5, 349-51, 504-6; 17:10-12, 214-16 Ja, S, D '17, Ap, Ag, N '18, Ja, My '19

Nocturnals of the renaissance and their decorations. J. T. Perry. *II* Sci Am S 86:412-13 D 28 '18

War material for ornaments; artistic and useful articles manufactured from 18 pound shrapnel shells. P. W. Blair. *II* Metal Ind 15:207 My '17

**Metal workers**

- Cripple's ability as a metal worker. D. C. McMurtrie. *II* Iron Age 102:278-80 Ag 1 '18
- Fewer workers but increased wages. Iron Age 104:38-9 Jl 3 '19
- Relative efficiency of male and female operatives. Automotive Ind 39:537-40 S 26 '18
- Standardizing the job. M. R. Lott. chart Factory 23:1290-2 D '19
- Wartime experience with women metal workers. Foundry 47:6-7 Ja '19
- Women in metal trades: report of the National industrial conference board; abstracts. Iron Age 102:282 Ag 1 '18; Elec Ry J 52:242 Ag 10 '18; Mach 25:84-5 S '18

**Metal working machinery**

- New draw bench. E. R. Sheldon. *II* Metal Ind 15:132-3 Mr '17
- See also* Machine tools

**Accidents**

Accidents in metal-working industries. Mach 25:317 D '18

**Metallic furniture.** *See* Furniture, Metallic

**Metallography**

- Alloys of copper and phosphorus. J. Scott. *II* Metal Ind 15:386-7 S '17
- Alloys of silicon and copper and their high electrical conductivity. J. Scott. *II* Metal Ind 16:464-5 O '18
- Aluminum-copper. J. Scott. *II* Metal Ind 15:340-2 Ag '17
- Brass weakness; a microscopical explanation. J. Scott. *II* Metal Ind 16:319-20 Jl '18; Abstract. Am Soc M E J 40:774-5 S '18
- Cause of failure in boiler plates. W. Rosenhain and D. Hanson. *II* diag Iron Age 102:632-6 S 12 '18
- Comparison of grain-size measurements and Brinell hardness of cartridge brass. W. H. Bassett and C. H. Davis. *II* Am Inst Min E Bul 145:57-78 Ja '19; Discussion. 148:692-9 Ap '19
- Constitution and metallography of aluminum and its light alloys with copper and with magnesium. P. D. Merica, R. G. Waltenberg and J. R. Freeman, jr. *II* diag. U S Bur Stand Sci Pa 337:105-19 '19; Same. Am Inst Min Bul 151:1031-49 Jl '19; Abstract. Chem & Met Eng 21:551-2 O 29 '19
- Cupro-nickel; examination of its physical properties and structure. T. H. A. Eastick. *II* diag Metal Ind 17:26-8 Ja '19
- Cupro-nickel; its micro-structure. J. Scott. *II* Metal Ind 15:72-3 F '17
- Development of grain boundaries in heat-treated alloy steels. R. S. Archer. *II* Am Inst Min E Bul 145:51-5 Ja '19; Same. Iron Age 103:366-7 F 6 '19; Discussion. J. A. Mathews. Am Inst Min Bul 149:787-8 My '19
- Differential crystallization in a cast-steel runner. F. B. Foley. *II* Am Inst Min Bul 151:1117-21 Jl '19; Same. Iron Tr R 65:30 Jl 8 '19
- Effect of heat treatment on bronze. F. F. Hausen and O. A. Knight. *II* Iron Age 103:347-9 F 6 '19
- Effect of rate of temperature change on transformations in an alloy steel. H. Scott. *II* U S Bur Stand Sci Pa 335:91-100 '19; Same. Am Inst Min E Bul 146:157-67 F '19; Discussion. 149:807-8 My '19
- Erosion of guns. H. M. Howe. *II* diag Am Inst Min E Bul 134:335-90 F '18; Discussion. Iron Age 101:554-6 F 28 '18; Discussion. Am Inst Min E Bul 136:734-61 Ap '18
- Flakes in alloy steel; divergent views of Howe, Clayton, Rawdon, Foley and Laney. *II* Chem & Met Eng 20:216-19 Mr 1 '19
- Flaky and woody fractures in nickel-steel gun forgings. C. Y. Clayton, F. B. Foley and F. B. Laney. *II* Am Inst Min E Bul 146:203-37

**Metallography—Continued**

- F '19; Same abr. Iron Age 103:761-3 Mr 20 '19; Discussion. Am Inst Min Bul 149:792-804 My '19
- French use of X-rays on metals. Sci Am 119: 262+ S 28 '18
- Fusion welding applied to drop-forgings. S. W. Miller. Il Iron Age 104:287-93 JI 31 '19; Same cond. Am Mach 51:378-82 Ag 21 '19
- Grain growth in alpha brass. F. G. Smith. Il Am Inst Min Bul 152:1361-88 Ag '19
- Grain growth in metals. Z. Jeffries. Engineer 126:250 S 20 '18
- Grain-size inheritance in iron and carbon steel. Z. Jeffries. Il Am Inst Min E Bul 131: 1883-99 N '17; Abstract. Am Soc M E J 39: 1036-7 D '17; Discussion. Am Inst Min E Bul 135:699-700; 136:727-34; 137:1023-5 Mr-May '18
- Grain-size measurements. Z. Jeffries. Met & Chem Eng 18:185 F 15 '18
- Heat treatment of cast steel. J. H. Hall, A. E. Nissen and K. Taylor. Il diags Am Inst Min Bul 153:sup2881-2922 S '19; Discussion. 156:3154-5 D '19
- Inclusions in steel and ferrite lines; with discussion. J. E. Stead. Engineer 125:422-3 My 17 '18
- Influence of surface tension. F. C. Thompson. Il diags Iron Tr R 62:1299-1304 My 23 '18
- Macro-etching and macro-printing; abstract. J. C. W. Humphrey. Chem & Met Eng 21:40-1 JI 1 '19
- Metallic coatings for rust-proofing iron and steel. H. S. Rawdon, M. A. Grossman and A. N. Flinn. Il diags Chem & Met Eng 20: 530-7 My 15 '19
- Metallographic investigation of transverse-fissure rails with special reference to high-phosphorus streaks. G. F. Comstock. Il Am Inst Min E Bul 143:1699-1714 N '18; Same cond. Iron Tr R 63:1457-62 D 26 '18; Same cond. Iron Age 103:613-16 Mr 6 '19; Discussion. Am Inst Min E Bul 147:598-602; 149: 869-94; 150:963-8 Mr, My-Je '19
- Metallography and heat treatment of metals used in aeroplane construction. F. Grotts. Il Chem & Met Eng 19:121-8, 191-7, 241-7, 315-19, 583-6 Ag 1-S 15, O 1 '18
- Metallography and the war. Z. Jeffries. Chem & Met Eng 19:518-19 S 28 '18
- Metallography applied to nonferrous metals. E. J. Davis. Il Foundry 46:427-9; 47:215-18, 263-6, 304-7, 344-9, 398-8, 438-9 S '18-JI 1 '19
- Metallography of aluminium. R. J. Anderson. Il Met & Chem Eng 18:172-8 F 15 '18
- Metallography of aluminum. R. J. Anderson. bibliog Il J Fr Inst 187:1-47 Ja '19
- Metallography of aluminum ingot. R. J. Anderson. Il diags Chem & Met Eng 21: 229-34 S 1 '19
- Metallography of rifle-barrel steel. G. F. Butterworth, Jr. Il Am Inst Min Bul 151: 1107-11 JI '19; Same. Iron Age 104:225-6 JI 24 '19
- Metallography of tungsten. Z. Jeffries. bibliog Il Am Inst Min E Bul 138:1037-92 Je '18; Discussion. 142:1527-8; 143:1641-9; 144:1779-82 O-D '18
- Metallurgy of the arc weld. W. E. Ruder. Il Gen Elec R 21:941-6 D '18
- Micrograph of aluminum. Sci Am S 88:57 JI 26 '19
- Microscope in metal study. H. M. Sayers. Sci Am S 87:210-11 Ap 5 '19
- Microscopic analysis of iron and steel. C. G. Nicholson. Il Sci Am 121:460+ N 8 '19
- Microstructural features of flaky steel. H. S. Rawdon. Il Am Inst Min E Bul 146:183-201 F '19; Same cond. Iron Age 103:769-61 Mr 20 '19
- Microstructure of certain titanite iron ores. C. H. Warren. Il Econ Geol 13:419-46 S '18
- Microstructure of iron deposited by electric arc welding. G. F. Comstock. Il Am Inst Min E Bul 145:43-50 Ja '19; Discussion. 149: 849-53 My '19
- Motion pictures of metal stresses. Il Sci Am 119:329 O 26 '18
- Nonmetallic inclusions in bronze and brass. G. F. Comstock. Il Foundry 47:79-83 F '19
- Observations on so-called flakes in steel. H. Styrl. Il Chem & Met Eng 20:342-51 Ap 1 '19
- Overstrain and fatigue failure of steel as related to grain structure. H. S. Prichard. Il diags Eng N 80:1086-90 Je 6 '18
- Path of rupture in steel fusion welds. S. W. Miller. Il Am Inst Min E Bul 146:311-38 F '19
- Photographing of etched sections of steel forgings at low magnifications. F. B. Foley. Il plan Chem & Met Eng 21:140-1 Ag 1 '19
- Photography in research. A. G. Eldredge. Il diags Chem & Met Eng 20:506-10 My 15 '19; Same. Sci Am S 88:72-3+ Ag 2 '19
- Physical properties of certain lead-zinc bronzes. H. F. Staley and C. P. Karr. Il diags Am Inst Min Bul 153:sup2513-22 S '19; Discussion. 156:3185-7 D '19
- Physical properties of copper and the factors by which they are affected. P. D. Merica. Il Met & Chem Eng 18:121-4 F 1 '18
- Positions of atoms in metals. A. W. Hull. Il diags Am Inst E E Pro 38:1171-92 O '19
- Present striking use of X-ray in metallurgy. Sci Am 121:179 Ag 23 '19
- Prevention of season and corrosion cracks. W. B. Price. Il Am Mach 49:848-50 N 7 '18
- Properties of high speed steel. G. J. Horvitz. Il Iron Age 103:1711-14 Je 26 '19
- Radiometallography. Engineer 127:432-3; 128: 80-1 My 2, JI 25 '19; Same (pt. 1). Sci Am S 88:18-19 JI 12 '19
- Relation of microstructure to phase changes in heat-treated aluminum bronzes. L. R. Seidell and G. J. Horvitz. bibliog Il Chem & Met Eng 21:179-81 Ag 15 '19
- Research work on malleable iron. E. Touda. Il Mech Eng 41:593-600 JI '19; Excerpts. Foundry 47:436-7 JI 1 '19
- Results of heat-treating bronze castings. G. F. Comstock. Il Foundry 47:189-94+ Ap 15 '19
- Structural characteristics of rolled sheet brass. H. A. Eastick. Il diags Metal Ind 17: 121-4, 176-8 Mr-Apr '19
- Structures in steel fusion welds. S. W. Miller. Il Am Inst Min E Bul 134:391-408 F '18; Same cond. Iron Tr R 62:713-18 Mr 21 '18; Discussion. Am Inst Min E Bul 136:720-4; 137:1023 Ap-May '18; Discussion. Z. Jeffries. Iron Tr R 62:1365-6 My 30 '18
- Study of the joining of metals. J. A. Capp. Il Gen Elec R 21:947-56 D '18
- Supposed reversal of inheritance of ferrite grain size from that of austenite. H. M. Howe. Am Inst Min E Bul 129:1365-7 S '17; Discussion. 133:105-6 Ja '18
- Transverse rail fissures and the derailment at Juniper, Ga. J. E. Howard. Il diags Ry R 63:305-8 Ag 31 '18
- Unusual features in the microstructure of wrought iron. H. S. Rawdon. Il U S Bur Stand Tech Pa 97:1-25 '17; Same. Am Inst Min E Bul 129:1345-63 S '17; Excerpts. Iron Age 100:538-40 S 6 '17; Abstract. Am Soc M E J 39:886 O '17; Discussion. Am Inst Min E Bul 133:107 Ja '18
- Use of the microscope in engineering. W. E. W. Millington. Engineer 125:49 Ja 18 '18; Same. Sci Am S 85:164 Mr 16 '18
- Using X-rays in examination of steel. H. S. Rawdon. Il Iron Tr R 65:1329-31 N 13 '19
- Warping of steel by repeated quenching. J. H. Whiteley. Il Iron Age 102:1256-7 N 21 '18
- X-ray examination of metals. Eng & Contr 52:131 JI 30 '19
- X-rays and metal structure; important French results from increasing the intensity of the light. Iron Age 102:330 Ag 15 '18; Same. Sci Am 119:262+ S 28 '18

**See also Alloys****Metallurgical analysis**

- Analyses of brass or bronze and babbitt. E. W. Hagmaier. Metal Ind 15:520-2 D '17
- Analysis of alloys of tin. A. Craig. J Ind & Eng Chem 11:750-3 Ag '19
- Analysis of white metal; note. J Ind & Eng Chem 10:937 N '18
- Approximate determination of the minerals in concentrates by means of the microscope. K. Thomas and F. W. Appar. Met & Chem Eng 18:514 My 15 '18

**Metallurgical analysis—Continued**

- Copper-smelter slag from the microscopic and chemical point of view. C. G. Maier and G. D. Van Arsdale. *Il Eng & Min J* 107:815-24 My 10 '19; *Abstract. Chem & Met Eng* 21:46-7 J1 1 '19
- Detection of the heavy metals by means of zinc sulfide wool fibers. E. M. Chamot and H. I. Cole. *J Ind & Eng Chem* 10:49-50 Ja '18
- Determination of tin in concentrates. A. M. Smoot. *diag Eng & Min J* 106:25-6 J1 6 '18
- Determination of tin in high-grade wolfram ores. A. R. Powell. *Eng & Min J* 106:964-6 N 30 '18
- Determination of tungsten. A. H. Low. *Eng & Min J* 106:27 J1 6 '18
- Determination of tungstic acid in wolframite. L. Guglielmelli and U. Hordh. *Eng & Min J* 106:585 S 23 '18
- Estimation of manganese in aluminum alloys and dust. J. E. Clennell. *Eng & Min J* 105:407-10 Mr 2 '18
- Gallium. L. M. Dennis and J. A. Bridgman. *Il diag Am Chem Soc J* 40:1531-61 O '18
- Improved test for tungsten. R. F. Heath. *Eng & Min J* 106:27 J1 6 '18
- Iodide copper method with sodium fluoride. A. L. Reese. *Eng & Min J* 105:1170 Je 29 '18
- Methods for determining copper minerals in partly oxidized ores. C. E. Van Barneveld and E. S. Leaver. *Eng & Min J* 105:552-5 Mr 23 '18; *Discussion. G. D. Van Arsdale. 105:645-6 Ap 6 '18*
- Quantitative analysis of bismuth in lead bullion. D. W. Jessup. *Eng & Min J* 105:603-4 Mr 30 '18
- Rapid determination of tungsten. F. W. Foote and R. S. Ransom, jr. *Eng & Min J* 105:836 My 4 '18
- Refinement in chemical analysis. W. F. Hillebrand. *Eng & Min J* 103:391-2 Mr 3 '17
- Speeding up metallurgical analysis. H. C. Parish. *Chem & Met Eng* 19:505-8 S 23 '18
- See also Assaying; Brass—Analysis; Iron—Analysis; Steel—Analysis*

**Metallurgical apparatus**

- Apparatus for extracting metals from their ores; patent. *diag Chem & Met Eng* 21:404 S 15 '19
- Hewitt pulp distributor. *diag Eng & Min J* 106:906 N 23 '18
- Laboratory electro-deposition plant. C. R. Hayward. *Il diag Chem & Met Eng* 20:240 Mr 1 '19

*See also Agitators; Classifiers; Concentrators*

**Metallurgical furnaces. See Furnaces, Metallurgical****Metallurgical laboratories**

- Evolution of the Lynite laboratories. *Il chart plans Iron Age* 104:149-54 J1 17 '19
- Smelting and refining laboratory of Goldsmith Bros., Chicago, Ill.; views and plan. *Am Arch* 114:pl 38-9 J1 31 '18
- U.S. metals refining co.'s new laboratory at Chrome, N.J. B. B. Hood. *Il plans Eng & Min J* 105:451-4 Mr 9 '18

**Metallurgical patents**

- Supreme court hears Minerals separation vs. Butte & Superior. *Chem & Met Eng* 20:318 Ap 1 '19

*See also Alloys—Patents; Flotation process—Patents*

**Metallurgical plants**

- Arizona Hercules copper company's plant. flow sheets *Il Eng & Min J* 107:1117-20 Je 28 '19
- Complete and modern heat-treating plant. L. A. Danse. *Il diag plan Am Mach* 51:149-60 J1 24 '19
- Concentrating plant aids oil production; Witherbee, Sherman & co., Mineville, N.Y. *Iron Tr R* 64:1555-6 Je 12 '19
- Control of ore-dressing operations. G. J. Young. *Eng & Min J* 107:907-8 My 24 '19
- Design of a small zinc mill. W. F. Boericke. flow sheet *diag plan Eng & Min J* 107:1158-9 Je 28 '19

- Design of small metallurgical mills. H. A. Megraw. *diag Eng & Min J* 107:1141-4 Je 28 '19

- Graphic metallurgical control. H. M. Merry. *Am Inst Min Bul* 153:sup2313-21 S '19; *Excerpt. Eng & Min J* 108:512 S 20 '19

- International nickel company's refining works at Port Colborne, Ontario. W. L. Wotherpoon. *Il Eng & Min J* 107:429-35, 446-7 Mr 8 '19

- Metallurgical practice on cinnabar at Idria, Austria. R. Sterner-Rainer. *Il diag plan Chem & Met Eng* 19:721-7 N 15 '18

- Milling in the San Juan, Colorado. C. B. Wilfley. *Il Eng & Min J* 107:1129-31 Je 28 '19

- Mining and metallurgical construction in 1917. *Eng & Min J* 105:80-4 Ja 12 '18

- Morale of mill crews. P. T. Bruhl. *Eng & Min J* 106:658-9 O 12 '18

- New mining and metallurgical construction in 1918. *Eng & Min J* 107:71-6 Ja 11 '19

- Non-ferrous metallurgy in the Chicago district. H. B. Pulsifer. *Il map Chem & Met Eng* 21:310-14 S 15 '19

- Notes on recent metallurgical progress. E. P. Mathewson. *diag Eng & Min J* 106:138-45 J1 20 '18

- Plan of a section of the copper-concentrating mill of the Anaconda copper mining co. *Eng & Min J* 107:1128 Je 28 '19

- Reclamation of brass ashes. A. F. Taggart. *Metal Ind* 15:74-6 F '17

- Tall chimneys in metallurgical plants. *Il Eng & Min J* 106:168-75 J1 27 '18

- United Verde extension mining company's smelter and converter plant; layout of plant and auxiliary equipment. F. E. Nichols. flow sheet *Il diag plan Eng & Min J* 106:689-92 O 19 '18

*See also Bag houses; Cyanide plants; Iron works; Metallurgical laboratories; Smelting works; Steel works*

**Accidents**

- Accidents at metallurgical works in the United States during the calendar year 1916. A. H. Fay. *U S Bur Mines Tech Pa* 201:1-17 '18; *Summary. Iron Tr R* 63:446 Ag 22 '18
- Accidents at metallurgical works in the United States during the calendar year 1917. A. H. Fay. *U S Bur Mines Tech Pa* 215:1-21 '19

**Accounting**

- Metallurgical accounting. *Eng & Min J* 107:887 My 17 '19

**Power**

- Selection of the power plant for the mill. G. J. Young. *Eng & Min J* 107:1121-4 Je 28 '19

**Repair**

- Repair work in milling plants. C. Labbe. *diag Eng & Min J* 107:1153-5 Je 28 '19

**Safety devices and measures**

- Hazards and safeguards in ore-dressing plants. J. S. McKaig. *Il Eng & Min J* 106:897-9 N 23 '18
- Safety and health in hydrometallurgical plants. A. W. Allen. *Eng & Min J* 106:480-1 S 14 '18
- Safety rules needed to govern repairs to acid lines in flotation plants. *Eng & Min J* 105:188 Ja 26 '18

*See also Blast furnaces—Safety devices and measures; Steel works—Safety devices and measures*

**Metallurgy**

- Distinction between extraction and recovery. A. W. Allen. *Eng & Min J* 106:740-1 O 26 '18
- Future of electrochemistry and metallurgy on the Pacific coast. J. W. Beckman. *Chem & Met Eng* 19:30-2 J1 1 '18
- Interesting things in metallurgical chemistry; the eutectic alloy and changes occurring in metals and alloys when cooling. C. W. Star-ker. *Il Mach* 24:821-2 My '18



**Metallurgy—Continued**

- Metallurgy of the Oklahoma-Kansas district.** R. W. Johnson and C. E. Heinz. Eng & Min J 107:558-60 Mr 29 '19
- Proposed metallurgical process for the treatment of vanadinite for the recovery of lead and vanadium.** J. E. Conley. diag Chem & Met Eng 20:514-18 My 15 '19
- Quicksilver operations at Monte Amiata, Italy.** R. Sterner-Rainer. II diag Chem & Met Eng 19:770-5 D 1 '18
- Recent metallurgical progress.** H. K. Picard. Eng & Min J 108:65-9 J 12 '19
- Separating white metal and brasses.** II Metal Ind 16:506 N '18
- Treatment of complex speisses.** P. Papen-cordt. diag Chem & Met Eng 21:30-3 J 1 '19
- Treatment of cuprodescloizite for extraction and recovery of vanadium, lead and copper.** J. E. Conley. Chem & Met Eng 20:465-9 My 1 '19
- Use of X-rays in metallurgy.** Iron Age 103:1650-2 Je 19 '19

*See also* Alloys; Aluminum metallurgy; Assaying; Blast furnaces; Chemical engineering; Chemistry, Technical; Copper metallurgy; Cyanide process; Electrometallurgy; Filters and filtration (metallurgy); Flotation process; Flue dust; Flux; Furnaces, Metallurgical; Gold metallurgy; Hydrometallurgy; Iron metallurgy; Lead metallurgy; Magnetic separation of ores; Metallurgical analysis; Metallurgical apparatus; Metallurgical laboratories; Metallurgical plants; Metals; Ore treatment; Ores; Refractory materials; Screening; Silver metallurgy; Smelting; Steel metallurgy; Titanium; Zinc metallurgy

**Bibliography**

**Mining and metallurgical index.** See monthly numbers of Bulletin of the American institute of mining engineers

**Tables, calculations, etc.**

- Metallurgical calculations; conditions that govern size and type of melting appliances.** A. Bregman. Metal Ind 17:369-70 Ag '19; Abstract. Chem & Met Eng 21:402 S 15 '19
- Milling calculations.** R. S. Lewis. bibliog II Chem & Met Eng 20:224-33 Mr 1 '19

**Metals**

- Canada's progress in metals.** F. J. Dickie. II Metal Ind 15:105-8 Mr '17
- Decomposition of metals.** A. I. Krynsky. II diag Chem & Met Eng 20:277-82, 421-4 Mr 15, Ap 15 '19
- Determination of gases in metals.** H. M. Ryder. Met & Chem Eng 18:503-4 My 15 '18
- Effect of temperature, deformation, and grain size on the mechanical properties of metals.** Z. Jeffries. Am Inst Min E Bul 146:575-8 J '19; Discussion. 149:855-69 My '19
- Electrical conduction in metals at low temperatures.** F. B. Silsbee. U S Bur Stand Bul 14:301-6 Je 17 '18
- Electrical melting of nonferrous metals.** D. D. Miller. Foundry 46:110-14 Mr '18
- Failure in metals; its cause and diagnosis.** F. Rowlinson. Sci Am S 85:299 My 11 '18
- Grain growth in metals.** Z. Jeffries. Engineer 126:250 S 20 '18
- Materials of machine construction.** G. H. Kendall. Mach 25:944-7 Je '19
- Metals and alloys from a colloid-chemical viewpoint.** J. Alexander. Am Inst Min E Bul 146:427-30 F '19; Same. Eng & Min J 107:354-5 F 22 '19; Discussion. Am Inst Min Bul 148:707-10; 149:776-7 Ap-May '19
- Metals used in aeroplane construction.** W. J. May. Sci Am S 86:262-3 O 26 '18
- New system of reinforcing metals.** II diag Engineer 125:322 Ap 12 '18
- Occlusion of gases by metals.** Engineer 126:444 N 22 '18
- Properties of metals and alloys.** Metal Ind 15:164 Ap '17
- Rare metals in the United States and their alloys.** Sci Am S 85:395 Je 22 '18
- Secondary metals recovered in the U.S. in 1918.** J. P. Dunlop. Metal Ind 17:459 O '19

**Size of metallic crystals.** G. H. Gulliver. Met & Chem Eng 18:546 My 15 '18

**Some of the rarer metals.** II Sci Am 119:500+ D 21 '18

- Testing engineers discuss standard specifications for nonferrous metals.** Foundry 46:302-6 J 1 '18
- Thermostatic metal developed by General electric company to control appliances by heat or cold.** Int Marine Eng 22:17-18 Ja '18; Same. Automotive Ind 37:970-1 N 29 '17
- Vapor pressures of liquid metals.** J. H. Hildebrand. Am Chem Soc J 40:45-9 Ja '18
- Vapor tensions of the metals.** J. W. Richards. J Fr Inst 187:581-98 My '19
- White metals for patterns.** Dom Eng 82:425 Mr 16 '18

*See also* Alloys; Amalgamation; Amalgams; Annealing; Assaying; Babbitt metal; Bario metal; Corrosion and anti-corrosives; Ductility; Earths, Rare; Electrometallurgy; Foundry practice; Geology; Gun metal; Hardening; Hardness; Metal trade; Metal work; Metallography; Metallurgy; Mineralogy; Mines and mineral resources; Monel metal; Ore deposits; Pickling (metals); Slag; Smelting; Solder and soldering; Stellite; Strength of materials; Type metals; Welding; Wire; also names of metals and alloys, e.g. Aluminum, Antimony, Bismuth, Brass, Bronze, Cadmium, Chromium, Cobalt, Copper, Gold, Iron, Lead, Manganese, Mercury, Molybdenum, Platinum, Speisses, Steel, Tin, Titanium, Tungsten, Vanadium, Zinc

**Analysis**

*See* Metallurgical analysis

**Bibliography**

**Hydraulic forging presses; literature on the machinery used in plastic metal deformation.** E. C. Buck. Iron Age 100:1480, 1522-4 D 20 '17

**Testing**

- Apparatus for determining the thermal conductivity of metals.** G. E. Wilkes. diag Chem & Met Eng 21:241-3 S 1 '19
- Effect of cold work on copper; abstract.** W. E. Alkins. Am Soc M E J 40:957-8 N '18
- Effect of corrosion on wrought manganese bronze under tensile stress.** P. D. Merica and R. W. Woodward. II diag Am Mach 51:217-20 J 31 '18
- Fatigue phenomena in metals.** bibliog II diag Mech Eng 41:731-8 S '19; Excerpts. Eng & Contr 52:357-9 S 24 '19
- Manufacturers' tests of materials for railway motors.** J. S. Dean. II Elec Ry J 54:320-5 Ag '19
- Metallography and heat treatment of metals used in aeroplane construction.** F. Grotts. II Chem & Met Eng 19:121-2 Ag 1 '18
- New method of testing hardness.** C. A. Edwards and F. W. Willis. Engineer 126:142 Ag 16 '18
- Relations of laboratory research to mill practice.** II Metal Ind 17:174-6 Ap '19
- Report on a series of comparative tests of zinc-bronze (88 Cu—10 Sn—2Zn) standard test bars.** C. P. Karr. Metal Ind 15:121-3 Mr '17
- Resistance of metals to penetration under impact; discussion.** W. A. Edwards. Engineer 126:217 S 13 '18
- Static, dynamic, and notch toughness.** S. L. Hoyt. II Am Inst Min E Bul 146:339-51 F '19; Excerpts. Iron Age 103:545-7 F 27 '19; Abstract. Mech Eng 41:389-90 Ap '19; Discussion. Am Inst Min Bul 148:760-6; 149:804-5 Ap-May '19

*See also* Ductility; Hardness; Sheet metal—Testing; Steel—Testing; Testing machines

**Metals, Fatigue in.** *See* Fatigue in metals

**Metalwork.** *See* Metal work

**Metasaccharins**

**Confirmation of Van't Hoff's hypothesis: optical superposition in the metasaccharins and related bodies.** E. A. Hill. Am Chem Soc J 40:764-73 My '18

**Meteorites**

Photographic spectra of aerolites. Sci Am S 86:155 S 7 '18

**Meteorological optics**

Optics of the air. W. J. Humphreys. II diag J Fr Inst 188:433-88, 607-74 O-N '19

**Meteorology**

Additional meteorological data needed by engineers. R. E. Horton. Eng N 82:614-16 Mr 27 '19

Advent of military meteorology. Sci Am 117: 490 D 29 '17

Dustfall of March, 1918. A. N. Winchell and E. R. Miller. maps Sci Am S 87:234-5 Ap 12 '19

How the meteorologist aids the aviator. II Sci Am 121:11+ JI 5 '19

Illusions of the atmosphere and the traveling vortex. Sci Am S 85:403 Je 29 '18

Meteorological service of the army. G. O. Squier. II Am Inst E E Pro 38:76-8 F '19; Same. Elec R 74:131-2 Ja 25 '19

Meteorology and aeronautics. W. R. Blair. U S Nat Advisory Com for Aeronautics 1917:41-82 '18; Same (pt. 1-2). Sci Am S 85:158-60; 86:12-14 Mr 9, JI 6 '18

Meteorology in relation to aeronautics. W. H. Dines. Sci Am S 86:351-2, 366-8 N 30-D 7 '18

New Dutch export industry; small balloons used in studying air currents. I. I. Branta. Sci Am 118:406 My 4 '18

Notes on kite flying. V. E. Jakl. Sci Am S 87:110-12 F 15 '19

Physics of the air. W. J. Humphreys. II diag J Fr Inst 184:137-78, 371-408, 527-51, 651-74, 805-36; 185:83-117, 359-72, 517-38, 611-47, 785-824; 186:57-75, 211-32, 341-70 Ag '17-Ja, Mr-S '18

Trans-Atlantic flight from the meteorologist's point of view. W. R. Gregg. diag maps Flying 8:357-61+ My '19; Same. Sci Am S 87:274-5, 300-2 My 3-10 '19; Same cond. Aviation 6:370-2, 422-5 My 1-15 '19

Uniformity in aerographic records. A. McAdie and A. L. Rotch. Sci Am S 87:15-16 Ja 4 '19

*See also* Air; Atmosphere; Atmospheric electricity; Atmospheric temperature; Auroras; Clouds; Cyclones; Earth temperature; Floods; Fog; Frost; Hail; Humidity; Ice on rivers, lakes, etc.; Lightning; Magnetism; Terrestrial; Rain and rainfall; Solar radiation; Sun spots; Thunder storms; Weather forecasts; Winds

**Meteorology, Agricultural**

Relation of the weather to agriculture. Sci Am S 86:354-5 D 7 '18

**Meteors**

Meteor observation. Sci Am 119:49 JI 20 '18

South Carolina meteor. R. H. Sullivan. Sci Am S 87:87 F 8 '19

**Meter reading**

Bonuses for correct meter readings. Am Gas Eng J 111:68-9 JI 26 '19

Collection, billing and meter-reading economy. R. J. Hole. Elec W 73:691-2 Ap 5 '19

Co-operative meter reading suggested for Kansas City. E. W. Hammond. Elec R 73: 416 S 14 '18

Experience with bonus system for meter reading. J. T. Kermod. Elec W 73:485 Mr 8 '19

How many meters should a man read daily? Eng & Contr 52:30 JI 9 '19

It pays well to train metermen intensively. C. P. Garman. Elec W 74:533 S 6 '19

Meter reading plan. R. L. Marchant. Gas Age 43:555 My 15 '19

Problem of getting good meter readers. H. M. Edwards. Elec W 73:1040 My 17 '19

**Meters**

Martindale efficiency meter. II Ind Management 55:74-5 Ja '18

Meters and gages in boiler operation. E. A. Uehling. Power 48:842-4 D 10 '18

*See also* Blowoff meters; Boiler meters; Coal meters; Electric meters; Extensometers; Flow meters; Gas meters; Graphic meters; Meter reading; Steam meters; Venturi meters; Viscosimeters; Water meters

**Meters, Boiler.** *See* Boiler meters

**Meters, Electric.** *See* Electric meters

**Meters, Gas.** *See* Gas meters

**Meters, Steam.** *See* Steam meters

**Meters, Water.** *See* Water meters

**Methane**

Methane accumulations from interrupted ventilation, with special reference to coal mines in Illinois and Indiana. H. I. Smith and R. J. Hamon. II diag U S Bur Mines Tech Pa 190:1-42 '18

Methanophone. Coal Age 13:579 Mr 30 '18

Use of methane as a fuel. G. W. Williams. II Coal Age 14:988-9 N 28 '18; Same. Power 48: 908-9 D 24 '18

*See also* Firedamp

**Methyl alcohol.** *See* Alcohol, Wood

**Methyl chloride**

Apparatus for manufacturing chlormethane; patent. diag Chem & Met Eng 19:152-3 Ag 1 '18

Determination of methyl chloride in gas mixtures. V. C. Allison and M. H. Meighan. diag J Ind & Eng Chem 11:943-6 O '19

**Methyl orange**

Salts of helianthine. C. R. Stark and W. M. Dehn. Am Chem Soc J 40:1573-80 O '18

**Methylamine**

Absorption spectra of the blue solutions of certain alkali and alkaline earth metals in liquid ammonia and in methylamine. G. E. Gibson and W. L. Argo. diag Am Chem Soc J 40:1327-61 S '18

Preparation of methylamine. H. I. Jones and R. Wheatley. Am Chem Soc J 40:1411-15 S '18

**Methyldichlorarsine**

Manufacture of methyldichlorarsine. R. H. Uhlinger and R. V. Cook. diag J Ind & Eng Chem 11:105-9 F '19

**Methylene coumarane**

Cyclic ethers from o-allyl phenols; methylene coumaranes. R. Adams and R. E. Rindfusz. Am Chem Soc J 41:648-65 Ap '19

**Methylguanidine**

Supposed occurrence of methylguanidine in meat, with observations on the oxidation of creatine by mercuric acetate. I. Greenwald. Am Chem Soc J 41:1109-15 JI '19

**Methyltetronic acid**

Methyltetronic acid and its amide. C. S. Hudson and L. H. Chernoff. Am Chem Soc J 40:1005-7 Je '18

**Metol**

Preparation of metol (*N*-methyl-*p*-amido-phenol sulfate). R. N. Harger. Am Chem Soc J 41:270-6 F '19

**Metric system**

Alternative for the metric system. E. S. Mummert. Sci Am 121:57 JI 19 '19

Another advantage of the metric system. P. N. Holst. Sci Am 121:205 Ag 30 '19

British parliamentary commission makes a final and decisive report against the metric system. Iron Age 101:1327 My 23 '18; Same. Am Mach 49:92a JI 11 '18; Same. Ind Management 56:152-3 Ag '18

Business and the metric system. J. W. McEachren. Iron Tr R 62:161 Ja 10 '18

Case for the adoption of the metric system (and decimal coinage) by Great Britain. A. J. Stubbs. Inst E E J 56:129-35 F '18

Change to metric system undesirable. Eng & Min J 105:1013-14 Je 1 '18

Conversion table: pounds to grams. D. Gerber. Met & Chem Eng 18:60 Ja 15 '18

Crisis for the metric system. E. Stewart. Sci Am 121:205 Ag 30 '19

Decimal equivalents and metric conversions. Motor Age 34:44 N 7 '18

Export trade and the metric system. K. G. Martin. Iron Age 104:715 S 11 '19

Extent to which the metric system is used in Latin America; discussion. Am Soc M E J 41:38-41 Ja '19

Hank favors the metric system. diag Metal Work 91:649+ My 23 '19

**Metric system—Continued**

- How to determine metric equivalents. Motor Age 34:34-5 Ag 8 '18  
 Metric conversion tables. Automotive Ind 40:150-3 Ja 16 '19  
 Metric question—both sides. F. A. Halsey; H. Richards, Jr. Sci Am 121:281 S 20 '19  
 Metric system. Illum Engr 10:283-4 N '17  
 Metric system and the maintenance of standards. F. J. Miller. J Fr Inst 185:443-4 Mr '18  
 Metric system in engineering. F. A. Halsey. Sibley J 32:134-7 Je '18  
 Metric system in export trade. F. A. Halsey. Am Mach 50:1236 Je 26 '19  
 Metric system in export trade. F. A. Halsey. Textile World 53:5201+ My 4 '18  
 Metric system in watch industry. Mach 24:643-4, 702 Mr-Apr '18  
 Metric system not essential in export trade. F. A. Halsey. Heat & Ven 15:49 O '18  
 Metric system! why—. Concrete 14:246-7 Je '18  
 Practical application of metric system. H. Richards, Jr. Metal Work 92:42 Ji 11 '19  
 Pros and cons of the metric system. L. B. Atkinson. Inst E E J 66:121-8 F '18  
 Report of committee on weights and measures. Am Soc M E J 40:756-66 S '18  
 South American plea for the metric system. L. C. Berrin. Mach 25:850 My '19  
 Standardization and the metric system. H. T. Wade. Iron Tr R 62:321-2 Ja 31 '18  
 Standardization with metric units. A. Drury. J Elec 43:409-11 N 1 '19  
 Values of fractions of inch in millimeters. C. H. Whipple. Mach 24:1135 Ag '18  
 Weights and measures in Venezuela. Power 47:816 Je 4 '18  
 Why force us to speak a foreign language? S. Lambercier. Am Mach 48:29 Ja 3 '18; Discussion. L. D. Burlingame. 48:373-4 F 28 '18  
 Word with the editor. Iron Tr R 65:169-70 Ji 17 '19

*See also* Weights and measures  
 Metrology. *See* Weights and measures  
 Metropolis, Illinois

**Bridges**

- Designing the 720-foot Metropolis span. II diags Eng N 79:1140-3 D 20 '17  
 Metropolis bridge over the Ohio river. R. Modjeski. II diags map plans W Soc E J 24:59-81; Discussion. 81-7 F '19  
 Metropolitan museum. *See* New York (city)—Metropolitan museum

**Mexicans**

- Importation of Mexican labor. Am Ind 19:14-15 Ag '18  
 Regulations for admitting Mexican labor. Ry R 63:654-5 N 2 '18  
 Southwest copper field. J. R. Finlay. Eng & Min J 106:204 Ag 3 '18

**Mexico**

- Early Indian raids on Mexico. J. B. Tyrrell. Eng & Min J 107:477-8 Mr 15 '19  
 Mexican problem. Eng & Min J 107:832-4 My 10 '19  
 Mining taxes in Mexico. Eng & Min J 106:316 Ag 17 '18  
 New department of commerce. Iron Age 102:826 O 3 '18  
 Protecting American rights in Mexico. Eng & Min J 107:327 F 15 '19  
 Recent events in the Mexican situation. Eng & Min J 107:541-2 Mr 22 '19

**Economic conditions**

- Commercial conditions in Mexico. W. O. Simpson. Am Ind 19:24-5 Ja '19  
 Conditions in Sonora. F. F. Sharpless. Eng & Min J 107:1007-8 Je 7 '19  
 Future of Mexican mining. Eng & Min J 107:239-40 F 1 '19  
 Japs buy Mexico's iron mountain. Iron Tr R 64:1097 Ap 24 '19  
 Lumberman makes extensive tour of Mexico and reports on business prospects there. A. Deutsch. Am Lumberman 2318:58-9 S 13 '19  
 Mexican paper currency. Eng & Min J 106:253 Ag 10 '18

- Mexico from within. Eng & Min J 107:530-1 Mr 22 '19  
 Mining in Mexico today. II Eng & Min J 107:175-7 Ja 25 '19  
 Over the border. Sci Am 119:502 D 21 '18

*See also* Mines and mineral resources—Mexico; Petroleum—Mexico

**Law**

- Mexico's new mining law. Eng & Min J 108:186-8 Ag 2 '19  
 What Mexico needs. Eng & Min J 108:612-15 O 11 '19

**Railroads**

*See* Railroads—Mexico

**Miami copper company**

- Annual report, 1917. Eng & Min J 106:110 Ji 20 '18

**Miami river**

- Draglines will handle 2,000,000 cu. yds. of excavation for deepening Miami river. II Eng & Contr 51:533-4 My 21 '19

**Miami valley**

- Construction camps model towns on Miami flood works. II plans Eng N 81:576-8 S 26 '18  
 Delivering mixed concrete by industrial railway. F. Teas. II Concrete 14:218-21 Je '19  
 Flood prevention works of Miami conservancy district to be built by day labor. Eng & Contr 48:509 D 19 '17  
 Miami conservancy flood prevention plan. W. A. Drake. II plan Sci Am 120:282-3+ Mr 22 '19

**Mica**

- Electric conductivity of mica; abstract. E. Branly. Elec W 71:264 F 2 '18  
 Insulated armature coils. Iron Tr R 64:572 F 27 '19; Same. Coal Age 15:563 Mr 27 '19  
 Mica. Sci Am 121:135 Ag 9 '19  
 Mica for use in electric condensers. Elec R 74:987 Je 14 '19  
 Mica in 1918. Eng & Min J 107:123 Ja 11 '19  
 Tool for undercutting mica. diag Power 48:174, 500, 678 Ji 30, O 1, N 5 '18  
 Tools for cutting mica washers. F. R. Zimmerman. diags Am Mach 48:634 Ap 11 '18  
 Use of mica insulation for alternating-current generators. H. D. Stephens. II Elec J 16:91-4 Mr '19  
 What are safe operating temperatures for mica insulation. H. D. Stephens. II diags Elec J 16:131-3 Ap '19; Abstract. Elec W 73:1280 Je 14 '19

**Michigan**

*See also* Chemical industries—Michigan; Mines and mineral resources—Michigan; Roads—Michigan

**Michigan, Lake**

- Lake Michigan's encroachment on its coast. H. Maxwell. II map Sci Am 120:687-+ Je 28 '19

**Michigan Central railroad**

- Report. Ry Age 66:1342-3 Je 6 '19  
 Report for the year ended December 31, 1917. Ry Age 64:1157-9, 1206-7 My 10 '18  
 73d annual report. Ry Age 66:1572-3 Je 20 '19

**Michigan-Ohio-Indiana coal association**

- Annual convention, Cincinnati, April 9-10. Coal Age 13:676-7 Ap 13 '18

**Michigan society of architects**

- Proposed general accounting and cost system for the Michigan society of architects. Arch Forum 30:13-21 Ja '19

**Micrographic analysis. *See* Metallography****Micrometers**

- Adding life by taking care of a micrometer. H. M. Darling. diags Am Mach 47:1095 D 20 '17  
 Ball-point attachments for micrometers. G. C. Haneman. diags Mach 25:645 Mr '19  
 Base for inside micrometer. A. B. Chiarello. II Am Mach 51:328-9 Ag 14 '19  
 Effect of finger-heat upon the micrometer gauge. L. Pyle. II Sci Am S 88:185 S 20 '19  
 Johansson angle gages and measuring tools. II Mach 26:178-80 O '19; Automotive Ind 41:611-12 S 25 '19; Am Mach 51:669-70 O 2 '19; Ind Management 58:343-4 O '19; Mech Eng 41:845 O '19

**Micrometers—Continued**

- Lapping micrometer spindles and anvils. W: H. Muhleib. diags Mach 25:1177-8 Ag '19
- Lapping micrometers. V. E. Snow. diags Am Mach 48:380-1 F 28 '18
- Micrometer clamp attachment for a height gage. L. C. Blomstrom. diags Am Mach 48:338 F 21 '18
- Micrometer for setting boring-bar fly cutters. diags Mach 25:646-7, 964 Mr. Je '19
- Micrometer gage. H. Kurzwel. diags Mach 25:937 Je '19
- Micrometer head in toolwork. H. F. Pusep. diags Am Mach 48:59-62 Ja 10 '18
- Micrometer of early vintage. E. Sheldon. II Am Mach 50:847-8 My 1 '19
- Micrometer test gages. H. Crowther. diags Mach 24:440 Ja '18
- Micrometer with pressure attachment. II Chem & Met Eng 20:434-5 Ap 15 '19
- Microscope in the tool-room. J. Scott. II diags Mach 25:799-802 My '19
- Tools of the automobile repair shop. D. A. Hampson. diags Horseless Age 43:64-5+ Ja 1 '18

**Micro-organisms**

- Animal luminescence and symbiotic microbes. U. Plerantoni. Sci Am S 87:286-7 My 3 '19
- Fallacious arguments against influenza masks. Eng & Contr 50:476 N 20 '18
- Micro-organisms in plant chemistry and nitrogen fixation. E. Hendrick. II Chem & Met Eng 19:574-6 O 1 '18
- Use of micro-organisms in chemical industry. E. G. Genoud. Chem & Met Eng 19:616-17 O 15 '18
- Use of microorganisms to determine the preservative value of different brands of spices. F. M. Bachmann. J Ind & Eng Chem 10:121-3 F '18

See also Bacteriology

**Microphotography**

- Photography in research. A. G. Eldredge. II diags Chem & Met Eng 20:506-10 My 15 '19; Same. Sci Am S 88:72-3+ Ag 2 '19

See also Photomicrography

**Microscope and microscopy**

- Approximate determination of the minerals in concentrates by means of the microscope. K. Thomas and F. W. Appar. Met & Chem Eng 18:514 My 15 '18
- Chemical microscopy. E. M. Chamot. II J Ind & Eng Chem 10:60-6 Ja '18
- Experiments in ray collecting and filtering for microscopists. Sci Am S 85:407 Je 29 '18
- Microscope in metal study. H: M. Sayers. Sci Am S 87:210-11 Ap 5 '19
- Microscope in ore-dressing. C: Y. Clayton. Chem & Met Eng 19:61-2 JI 15 '18
- Microscope in the tool-room. J: Scott. II diags Mach 25:799-802 My '19
- Microscope in war. Sci Am 121:122 Ag 2 '19
- New illuminator for microscopes. A. Silverman. II J Ind & Eng Chem 10:1013-14 D '18
- New method of microscope illumination. A. Silverman. II Met & Chem Eng 18:318; 19:508-9 Mr 15, S 28 '18
- Oscillation method for measuring the size of ultramicroscopic particles. P. V. Wells and R. H. Gerke. II diags Am Chem Soc J 41:312-29 Mr '19
- Technique of mineragraphy. W. L. Whitehead. II diags Econ Geol 12:697-716 D '17
- Use of microscopes in the gage section. Bureau of standards. R. L. Rankin. II Am Mach 51:581-2 S 18 '19
- Use of the microscope in engineering. W. E. W. Millington. Engineer 125:49 Ja 18 '18; Same. Sci Am S 85:164 Mr 16 '18

See also Metallography; Photomicrography

**Microscopic analysis. See Metallography****Microscopy. See Microscopes and microscopy****Middle ages**

- Art of the Middle ages. A. K. Porter. II Arch Rec 43:115-30, 213-30 F-Mr '18

**Middle states textile manufacturers association**

- Annual convention, Louisville, July 26. Textile World 54:393+ JI 27 '18
- Annual convention, Louisville, July 15. Textile World 56:472 JI 26 '19

**Midvale steel & ordnance company**

- Annual report for the year ended Dec. 31, 1917. Iron Age 101:914 Ap 4 '18
- Midvale plan of employee representation. Iron Age 102:763, 834-5 S 26-O 3 '18
- Midvale steel's part in winning the war. Iron Age 103:894-6 Ap 3 '19

**Migraine tablets. See Headache tablets****Miles acid process. See Sewage disposal—Chemical treatment****Military aeronautics. See Aeronautics, Military****Military art and science**

- Colored smoke for use in military operations; patent. Met & Chem Eng 17:716 D 15 '17
- Genie of France and how they locate enemy guns by sound ranging. C: M. Clement. Eng & Contr 50:22 JI 3 '18
- Geologist in war time—geology on the western front. H. F. Cleland. Econ Geol 13:145-6 Mr '18
- Getting the soldier to think. Sci Am 118:206 Mr 9 '18
- Listening for the enemy; sound-ranging devices. II Sci Am 120:510-11 My 17 '19

See also Aeronautics, Military; Arms and armor; Artillery; Automobiles in war and army service; Camouflage; Camps, Military; Firearms; Fortification; Gases in warfare; Greek fire; Grenades; Gunnery; Guns; Guns (ordnance); Hospitals, Military; Intrenchments; Liquid fire; Mines, Military; Munition factories; Munitions of war; Projectiles; Railroads, Military; Railroads in war; Shells (projectiles); Shrapnel shells; Soldiers; Torpedoes; Transportation, Military; Trench warfare; War; Wireless telegraph in war; also headings beginning Military and War

**Military camps. See Camps, Military****Military cloths. See Army cloths****Military communication. See Communication, Military; Military telephone; Wireless telegraph in war****Military decorations. See Decorations of honor****Military education**

- Education and training in the Ordnance department. II Am Mach 50:357-61 F 20 '19
- Military instruction planned for college students. Am Soc M E J 40:713 Ag '18
- Students' army training corps. Concrete 13:136 O '18
- University of Uncle Sam. Eng N 81:420 Ag 29 '18

**Military engineering**

- Army electrical work in the advance areas in France. O. F. Allen. II map Gen Elec R 22:568-86 Ag '19
- Army engineer school in France standardizes work in the field. R. K. Tomlin, Jr. II Eng N 81:112-17, 182-5 JI 18-25 '18
- Engineering achievements of the army. II Mech Eng 41:372-4 Ap '19
- Liaison of divisional engineers with the other troops. Eng & Contr 49:188-91 F 20 '18
- Magic behind the trenches. II Sci Am S 84:372-3 D 15 '17
- Relation between civil and military engineers. W: M. Black. Eng & Contr 51:58-9 Ja 15 '19
- Training engineer officers for the army at Camp Lee. F. C. Wight. II Eng N 81:12-15 JI 4 '18
- Training Sammlies to make good concrete. II Concrete 13:111-12 O '18
- War engineering photographs from America and the Western front. supp Eng N 81:32a JI 4 '18

See also Armies—Water supply; Bridges, Military; Concrete construction, Military; Explosives, Military; Fortification; Intrenchments; Military hygiene; Military lighting; Military telephone; Mines, Military; Railroads, Military; Roads, Military; Transportation, Military

**Military engineers**  
 Military engineering. W: M. Black. Stevens Ind 35:1-11 Ja '18

**Military equipment and supplies**  
 Engineers convert French beet-sugar fields into advance depot. R. K. Tomlin, Jr. II Eng N 81:27-32 Jl 4 '18  
*See also* Munitions of war

**Military explosives.** *See* Explosives, Military

**Military hospitals.** *See* Hospitals, Military

**Military hygiene**  
 Invasion of the trenches by rats. Sci Am S 86:258-9, 278-9 O 26-N 2 '18  
 Protective treatment against typhoid in the French armies. Sci Am S 85:37 Ja 19 '18  
 Respiratory diseases in the army. Sci Am S 86:320 N 16 '18  
*See also* Armies—Water supply; Camp sanitation; European war—Medical and sanitary affairs; Medicine, Military; Sterilisation

**Military lighting**  
 Illuminating devices in the great war. H. M. Brayton. diag Sci Am S 88:114-15+, 146-7+ Ag 23, S 6 '19  
 Military searchlights. H. C. Judson. II Sci Am S 86:148 S 7 '18  
 Rockets and illuminating shells as used in the present war; with discussion. A. Bergman. Illum Eng Soc 13:219-31 no 4 '18; Same cond. Illum Engr 11:189-91 Ag '18  
 Sky-rockets of the night fighters. Sci Am 119:18 Jl 6 '18  
*See also* Searchlights

**Military locomotives.** *See* Locomotives, Military

**Military maps.** *See* Maps, Military

**Military medicine.** *See* Medicine, Military

**Military mines.** *See* Mines, Military

**Military motor cycles.** *See* Motor cycles, Military

**Military photography.** *See* Photography, Military

**Military railroads.** *See* Railroads, Military

**Military roads.** *See* Roads, Military

**Military service**  
 England protects needed workers. Iron Tr R 63:1017-18 O 31 '18  
 Getting the soldiers in their proper places. Am Mach 49:19-21 Jl 4 '18  
 Industrial exemption. Am Mach 49:689-90 O 10 '18  
 Military service for engineering students. Elec W 70:1211-12 D 22 '17  
 Procedure for exemption of workers. Iron Age 102:639+ S 12 '18  
 Report to Secretary Baker on the first draft under the selective service law. E. H. Crowder. Iron Tr R 62:172+ Ja 10 '18  
 Selected engineering students will be exempt from draft. Eng N 79:1130-1 D 13 '17  
 Selective draft. Mach 24:428 Ja '18  
 What are engineering societies doing to secure universal exemption of engineering students from draft? Eng & Contr 49:352-3 Ap 10 '18; Discussion. A. D. Flinn. 49:451 My 8 '18

**Military shooting.** *See* Shooting, Military

**Military surgery.** *See* Surgery, Military

**Military telegraph.** *See* Wireless telegraph in war

**Military telephone**  
 Battle telephones. II Sci Am S 85:376-7 Je 15 '18  
 Sound-range telephones on the front in France. J. F. Bell. Elec W 71:1023 My 18 '18  
 Telephone in khaki. II Sci Am 118:252+ Mr 23 '18

**Military topography**  
 Topographic engineers assist in military mapping. R. B. Marshall. II Eng N 82:235-6 Ja 30 '19

**Military training camps.** *See* Camps, Military

**Militia.** *See* United States—Militia

**Milk**

Attempt to filter the enzymes of milk. J. Piccard and M. Rising. diag Am Chem Soc J 40:1275-81 Ag '18  
 High price of milk: some of the causes, and the remedy. A. J. Lotka. II Sci Am 121: 512-13+ N 22 '19  
 How bacteria in milk are counted. F. H. Hall. Sci Am S 86:122-3 Ag 24 '18  
*See also* Butter; Cheese

**Analysis**

Comparison of the proximate and mineral analysis of desiccated skim milk with normal cows' milk. E. P. Harding and H. Ringstrom. J Ind & Eng Chem 10:295-7 Ap '18  
 Forms of nitrogen in protein-free milk. C. Kennedy. Am Chem Soc J 41:388-93 Mr '19  
 Research on the detection of added water in milk. H. Durand and R. Stevenson. diag J Ind & Eng Chem 10:26-30 Ja '18

**Transportation**

Universal type of milk ticket. II Elec Ry J 52:929 N 23 '18

**Milk, Substitutes for**

Good milk with cows 10,000 miles away. Sci Am 119:295 O 12 '18

**Milk houses**

Bottled milk dairy. II diags plan Am Lumberman 2234:43 Mr 9 '18

**Milkweed**

Flower that catches insects; a little-known characteristic of the common milkweed. A. J. Eldredge. II Sci Am 119:64 Jl 27 '18

**Mill construction.** *See* Building, Mill construction

**Miller lock company**

What an industrial census can do; results of an experiment of the Miller lock co. D. Wolf. Ind Management 56:213-16 S '18

**Milling**

Continuous milling. Mach 24:458 Ja '18  
 Device for milling keyways for eccentric arms in crank pins. diags Ry Mech Eng 92:112 F '18

Fixture for milling slots in levers. C. F. Meyer. diags Am Mach 49:588-9 S 26 '18

Manufacturing the caterpillar tractor. F. A. Stanley. II diags Am Mach 49:897-901 N 14 '18

Milling dovetail slots on a lathe. J. Limbrunner. diags Mach 25:63 S '18

Milling practice in railway shops. F. A. Stanley. II diags Ry Mech Eng 92:521-4 S '18

Milling relief in knurls. II Mach 24:395 Ja '18

Simple but efficient milling fixture. J. P. Brophy. II diag Mach 24:537-8 F '18

**Milling (metallurgy).** *See* Ore treatment

**Milling cutters**

Altering the shape of a formed cutter. G. Kopsch. diags Am Mach 49:820 O 31 '18

Calculations for a tangent formed cutter. A. R. Melloy. diag Am Mach 51:283-4 Ag 7 '19

Calculations for an underslung formed cutter. A. R. Melloy. diags plan Am Mach 51: 34-5 Jl 3 '19

Chart for determining approach for milling cutters. W. H. Volkmar. Am Mach 48:465 Mr 14 '18

Continuous thread milling machine of unusual design. E. K. Hammond. diags plan Mach 25:727-9 Ap '18

Davidson process of casting formed tools. J. E. Johnson, Jr. II Am Inst Min E Bul 146: 353-60 F '19; Same cond. Iron Tr R 64:485-7 F 13 '19; Same cond. Iron Age 103:481-3 F 20 '19; Same cond. Foundry 47:162-4 Ap 1 '19; Abstract. Mech Eng 41:395-6 Ap '19

Drop-forging high-speed milling cutters. J. V. Hunter. II diag Am Mach 51:165-8 Jl 24 '19

Form-milling a wire to a peculiar cross-section. A. Moses. diag Am Mach 50:904-5 My 8 '19

Gale-Sawyer self-tightening inserted-tooth milling cutters. II diag Am Mach 50:866 My 1 '19

**Milling cutters—Continued**

- Grinding a half-round concave milling cutter. A. Moses. diags Am Mach 50:1048 My 29 '19
- Grinding relief of milling cutters. II diags Mach 25:9-10 S '18
- How milling cutters are made. F. B. Jacobs. II Iron Tr R 64:150-4 Ja 9 '19
- Inserted tooth facing and bossing cutter. II diags Engineer 127:613 Je 20 '19
- Inserted-tooth milling cutters. W. P. Lots. diags Mach 25:1073-4 Jl '19
- Latest practice in cutter grinding. II diags Am Mach 51:135-8, 185-8, 251-4, 323-5 Jl 17-Ag 14 '19
- Machines for milling piston rods keyways. II diags Ry Mech Eng 92:37 Ja '18
- Making a forming tool. F. J. Miller. diags Mach 24:303 D '17; Discussion. C. C. Hermann. 24:646-7 F '18
- Milling applications and adaptations. II diags Engineer 127:6-9 Ja 3 '19; Abstract. Mech Eng 41:397-8 Ap '19
- Milling teeth of end mills. A. Moses. chart Am Mach 51:33 Jl 3 '19
- Plain knee type and similar milling machines. M. H. Williams. diags Ry Mech Eng 92:41-6 Ja '18
- Tools for forming and relieving convex milling cutters. O. F. Schweitzer. diags Mach 24:937 Je '18
- Two types of interlocking milling cutters. D. A. Baker. diags Am Mach 49:957-8 N 21 '18
- Unusually large form cutter. II Mach 25:334 D '18

See also Slotting machines

**Safety devices**

- Universal guard for milling machine cutters. II Am Mach 50:599-600 Mr 27 '19

Milling machinery. See Crushing machinery

**Milling machines**

- Back geared milling machine. II Iron Age 103:878 Ap 3 '19; Iron Tr R 64:963 Ap 10 '19
- Beaman & Smith continuous manufacturing milling machines. II Am Mach 50:1013-14 My 22 '19; Iron Age 103:1441 My 29 '19; Mach 25:983 Je '19; Ry Mech Eng 93:351-2 Je '19
- Becker model D-1 vertical milling machine. II diags Am Mach 50:825-7 My 1 '19; Ry Mech Eng 93:346 Je '19
- Becker no. 3 universal milling machine. II Am Mach 48:347 F 21 '18
- Bickett horizontal bench miller. II Ry Mech Eng 92:289-90 My '18
- Biggs-Watterson thread milling machine for shell work. II diags Iron Age 101:1397 My 30 '18; Am Mach 48:981 Je 6 '18
- Cincinnati M-type milling machine. J. H. Van Deventer. II Am Mach 51:749-53 O 23 '19
- Cleveland milling machine with new type of drive. II Iron Age 102:207 Jl 25 '18; Am Mach 49:225-6 Ag 1 '18; Mach 24:1147-8 Ag 18
- Cleveland universal and plain milling machines. II Am Mach 50:759-60 Ap 17 '19; Iron Tr R 64:1020 Ap 17 '19; Ry Mech Eng 93:377-8 Je '19
- Cochrane-Bly millers and shapers. II Mach 25:1187-8 Ag '19; Am Mach 51:289-91 Ag 7 '19
- Continuous rotary milling. E. K. Hammond. II diags Mach 25:687-94, 842-6 Ap-May '19
- Cutting an irregular recess on the milling machine. E. Sheldon. II Am Mach 49:755-6 O 24 '18
- Davenport power and hand feed milling machine. II Iron Age 101:1407 My 30 '18; Am Mach 48:981-2 Je 6 '18; Mach 24:956-7 Je '18
- Doing a large job on a small milling machine. D. A. Hampson. diags Am Mach 49:494 S 12 '18
- Double-spindle milling machine for wrench slot in detonator socket. D. A. Baker. diags Mach 25:193 N '18
- Forming combination-lathe, boring and milling machine. II Am Mach 48:597 Ap 4 '18

- Garvin no. 1x duplex milling machine. II Am Mach 49:593 S 26 '18; Iron Age 102:333 O 3 '18
- Hall planetary thread-milling machine for shell work. II Am Mach 49:734 O 17 '18
- Ingersoll differential type continuous milling machine. J. V. Hunter. II diags Am Mach 51:645-50 O 2 '19; Abstract. Mech Eng 41:899-900 N '19
- Kempsmith maxmill. II diags Am Mach 49:595-600 O 3 '18
- Kempsmith maxmill. II Ry Mech Eng 93:161-2 Mr '19
- Langeller duplex shell adapter milling machine. II diags Mach 25:270-1 N '18
- Machine for milling powder pockets in firing-pin plugs. II diags Am Mach 49:42-3 Jl 4 '18
- Making use of a discarded machine. D. A. Hampson. II Am Mach 49:1020 D 5 '18
- Milling machine attachment for facing feed nut abutments. II Mach 24:611 Mr '18
- Milling machine fixture for sawing off tubes. D. A. Baker. diags Mach 25:155 O '18
- Milling-machine vise as a special milling fixture. H. F. Pusep. diags Am Mach 48:1101-3 Je 27 '18
- Milling practice in locomotive shops. E. K. Hammond. II diags Mach 25:1122-5 Ag '19
- Milling pulley faces. J. A. Lucas. diags Am Mach 49:528 S 19 '18
- Milling rack teeth on multiple-spindle milling machine. II diags Mach 26:66 S '19
- Milling tractor cylinders on continuous type machine. II Mach 25:928 Je '19
- Moline back-facing machine for cylinder-base bosses. II Am Mach 49:593-4 S 26 '18; Iron Age 102:693 S 19 '18
- Moline special milling and drilling machine. II Ind Management 55:333-4 Ap '18
- New Cincinnati no. 4 high-power milling machines. II diags Am Mach 51:623-4 S 25 '19
- New Cincinnati no. 5 high power milling machine. J. H. Van Deventer. II diags Am Mach 50:971-6 My 22 '19
- Newton deck-plate-scarf milling machine. II Am Mach 49:318-19 Ag 15 '18; Iron Tr R 63:390 Ag 15 '18; Iron Age 102:439 Ag 22 '18
- Newton duty horizontal milling machine. II Ry Mech Eng 93:374-5 Je '19; Am Mach 51:143-4 Jl 17 '19
- Newton heavy-duty horizontal keyseat milling machine. II Am Mach 50:323-4 F 13 '19
- Newton heavy-duty vertical-spindle milling machine. II Am Mach 51:90-1 Jl 10 '19
- No. 4 Cincinnati vertical high-power milling machine. II diags Am Mach 50:1229-32 Je 26 '19; Mach 25:1088-90 Jl '19
- No. 5 Cincinnati high-power milling machine. II Mach 25:988-90 Je '19
- Ohio tilted rotary milling machine. II Automotive Ind 40:1174-6 My 29 '19; Ind Management 57:508 Je '19; Iron Age 103:1358-9 My 22 '19; Iron Tr R 64:1359-60 My 22 '19; Mach 25:979-82 Je '19; Ry Mech Eng 93:360-2 Je '19; Mech Eng 41:623-4 Jl '19
- Plain knee type and similar milling machines. M. H. Williams. diags Ry Mech Eng 92:41-6 Ja '18
- Planer milling practice in automobile plants. E. K. Hammond. II Mach 25:965-71, 1044-9 Je-Jl '19
- Pollock crankshaft milling machines. II Am Mach 51:439-40 Ag 28 '19
- Power-driven revolving table for a milling machine. J. V. Hunter. II Am Mach 50:1047-8 My 29 '19
- Production milling on automatic machines. E. K. Hammond. II diags Mach 26:48-55, 150-4, 247-51 S-N '19
- Setting angle for fluting taper reamers. B. E. Keifer. diags Am Mach 49:446 S 5 '18
- Slotting machine converted into rotary milling machine. A. Brown. II Am Mach 49:392 Ag 29 '18
- Special machine for milling wrench slots. D. A. Baker. diags Mach 25:592 Mr '19
- Standardization of spindle noses for milling machines. diags Engineer 128:358 O 10 '19
- Superior oscillating-head milling machine. II diags Mach 25:568 F '19
- Supports for milling machine arbors. L. D. Burlingame. II diags Mach 24:992-6 Jl '18

**Milling machines—Continued**

Taylor & Fenn high-speed vertical-spindle milling machine. *Il Am Mach* 50:1108-9 Je 6 '19; *Iron Age* 103:1504 Je 6 '19

*See also* Die sinking machines; Gear cutting machines; Machine tools; Milling cutters

**Manufacture**

Building the Kempsmith milling machine. M. E. Hoag. *Il Am Mach* 50:101-4, 195-8 Ja 16, 30 '19

Special operations in milling machine manufacture. F. B. Jacobs. *Il Iron Tr R* 64:892-6 Ap 3 '19

**Milling of ores.** *See* Crushing machinery; Ore treatment

**Milling plants.** *See* Metallurgical plants

**Mills and millwork**

Wages and hours of labor in the lumber, millwork, and furniture industries, 1915. U S Bur Labor Statistics Bul 225:246-73 '18

*See also* Cotton mills; Factories; Flour mills; Knitting mills; Machinery; Paper mills; Rolling mills; Sawmills; Textile mills

**Milwaukee, Wisconsin**

Foundry, metal working and allied industries in Milwaukee and vicinity; Hist. map *Iron Age* 102:822-5 O 3 '18

Industrial power consecrated to country. G. H. Manlove. *Il Iron Tr R* 63:sup100-7 O 3 '18

Meeting of the allied metal trades associations and the exhibition of foundry apparatus and supplies to be held in Milwaukee. J. V. Loewi. *Il Metal Ind* 16:395-401 S '18

Milwaukee as return loads hub. *Il map Motor Age* 33:20-1 Je 20 '18

Milwaukee foundries serve all industry. D. M. Avey. *Il Iron Tr R* 63:sup109-15 O 3 '18

Milwaukee historic in iron trade. *Il Iron Tr R* 63:sup118-22 O 3 '18

Milwaukee's organization for war. W. Pollock. *Ind Management* 56:121-3 Ag '18

Report of the Milwaukee housing commission. *Am Inst Arch J* 7:79-81 F '19

Shops proclaim Milwaukee's resources. *Il Iron Tr R* 63:sup123-30 O 3 '18

Welcomes great army of foundrymen. *Il Foundry* 46:471-83 O '18

**Rapid transit**

Zone fares have been found satisfactory in Milwaukee. *Il map Elec Ry J* 54:613-20 S 27 '19

**Sewerage**

Conclusions on activated-sludge process. T. C. Hatton. *Eng N* 79:840-4 N 1 '17; Same cond. *Munic Eng* 53:243-6 D '17

**Streets**

Resurfacing of old macadam streets in Milwaukee. C. J. Van Etta. *Il Munic Eng* 57:195-6 N '19

**Water supply**

Find cause of obnoxious tastes in Milwaukee water. H. P. Bohmann. *Eng N* 82:181-2 Ja 23 '19; Same. *Eng & Contr* 51:629-30 Je 11 '19

**Milwaukee electric railway and light company** Both parties rebuked in Milwaukee. *Elec Ry J* 53:976 My 17 '19

**Milwaukee school of engineering.** *See* School of engineering of Milwaukee

**Mine accidents**

British mine accidents and their causes. *Coal Age* 14:1164-5 D 26 '18

Careful records reduce mine accidents. A. H. Fay. *Coal Age* 14:503-4 S 12 '18; Excerpts. *Eng & Min J* 106:699-701 O 19 '18

Fatalities in mineral industry in 1916. A. H. Fay. *Eng & Min J* 104:1086 D 22 '17

Fatality rates in Pennsylvania mines. chart *Coal Age* 13:822 My 4 '18

Forms for use in recording compensation. *Coal Age* 14:506-8 S 12 '18

Holting-rope accidents. *Eng & Min J* 107:435 Mr 8 '19

Legal decisions on mine shaft accidents. C. C. Sherlock. *Eng & Min J* 106:341 Ag 24 '18

Metal-mine accidents in the United States during the calendar year 1916. A. H. Fay. U S Bur Mines Tech Pa 202:1-84 '18

Metal-mine accidents in the United States during the calendar year 1917. A. H. Fay. U S Bur Mines Tech Pa 224:1-78 '19

Mine accidents. F. G. Jarrett. *Coal Age* 14:262-3 Ag 8 '18

Standardization of first-aid methods. C. H. Connor. *Coal Age* 14:728-9 O 17 '18

Standardization of mine accident reports and statistics. *Eng & Min J* 105:1165 Je 29 '18

Utilization of mine-accident reports. D. E. Charlton. *Eng & Min J* 106:945-8 N 30 '18

Who gets hurt and when? *Coal Age* 14:480-2 S 12 '18

*See also* Coal mines and mining—Accidents and explosions; Coal mines and mining—Safety measures; Firedamp; Mine cars; Mine explosions; Mine fires; Mine rescue work; Mining engineering—Safety measures; Safety lamps

**Mine accounting**

Accounting of materials. *Coal Age* 14:417, 754-5, 956-8; 15:66 Ag 29, O 17, N 21 '18, Ja 9 '19

Correct accounting. *Coal Age* 15:248, 501-2 Ja 30, Mr 13 '19

Cost accounting at coal mines. J. B. Dilworth. *Coal Age* 13:874-6 My 11 '18

Cost accounting in mine haulage. *Coal Age* 14:876-7, 1175 N 7, D 26 '18

Cost keeping for small metal mines. J. C. Pickering. U S Bur Mines Tech Pa 223:1-46 '19

Daily cost sheets for mine managers. E. B. Wilson. *Coal Age* 12:1051-2 D 22 '17

Development period of a mine. H. H. Stoeck. *Coal Age* 14:1076-7 D 12 '18

Uniform cost sheet. *Coal Age* 14:545-7 S 19 '18

What price should the coal operator charge the boiler-room coal account? C. W. Hippard. *Coal Age* 15:955 My 22 '19

**Mine air**

Available oxygen. *Coal Age* 15:1177 Je 26 '19

Dew point in mine air. *Coal Age* 15:831 My 1 '19

Methane accumulations from interrupted ventilation, with special reference to coal mines in Illinois and Indiana. H. I. Smith and R. J. Hamon. *Il diag U S Bur Mines Tech Pa* 190:1-42 '18

Sampling of dust in mine air. J. Boyd. *diag Eng & Min J* 107:395-6 Mr 1 '19

*See also* Mine gases; Mine ventilation

**Mine buildings**

Dallas change house at Bisbee, Ariz. *diag Eng & Min J* 105:20 Ja 5 '18

Ideal changehouse. F. M. Heidelberg. *diag plan Eng & Min J* 103:389-90 Mr 3 '17

Mine bathhouses in Utah. A. C. Watts. *Il diag plan Coal Age* 15:4-8 Ja 2 '19

Overhead hanging arrangement for clothes. *Il Eng & Min J* 108:243 Ag 9 '19

Strong background for community work is formed by bathhouses and laundries. D. J. Baker. *Il Coal Age* 16:634-7 O 16 '19

*See also* Miners' houses

**Mine cages. See Mine hoisting****Mine car retarders**

Efficient car retarder. R. L. Mayer. *diag Coal Age* 16:44 Jl 10 '19

Readily constructed mine car retarder. *diag Coal Age* 13:816-17 My 4 '18

**Mine cars**

Advantages of standardization of mine cars. H. V. Brown. *Il Coal Age* 15:793 My 1 '19

Automatic car-door opener saves lots of time in dumping cars. R. W. Mayer. *diag Coal Age* 16:479 S 18 '19

Automatic drop-bottom mine car. *diag Engineer* 124:457 N 23 '17

Coal production and lubrication. R. Traut-schold. *Coal Age* 14:175-6 Jl 25 '18

Cost of upkeep of mine cars. *Coal Age* 14:918, 1174-5; 15:460-1 N 14, D 26 '18, Mr 6 '19

- Mine cars—Continued**  
 Effect of anti-friction bearings on the haulage of a coal mine. P. B. Liebermann. Am Inst Min E Bul 127:1051-62 J1 '17; Discussion. 133:14-15 Ja '18  
 Fluid-controlled check rail device. Il diag Coal Age 16:448 S 11 '19  
 Frozen mine-car journals. M. Ashley. Coal Age 13:757 Ap 20 '18  
 Iron vs. wood mine cars. Coal Age 14:793-4, 913, 960, 999-1000, 1045-6, 1174; 15:157, 461-2 O 24, N 14-28, D 5, 26 '18, Ja 16, Mr 6 '19  
 Lubricating mine cars. Coal Age 15:377, 768 F 20, Ap 24 '19  
 Lubrication as an aid in stimulating coal production. R. Trautschold. Coal Age 13:1112-13 Je 15 '18  
 Maximum production for humanity's sake. H. K. Porter. Il Coal Age 14:97-8 J1 20 '18  
 Mine-car axles. B. P. Lieberman. Il Coal Age 14:219-22 Ag 1 '18  
 Mine car chocks. diag Coal Age 14:973 N 28 '18  
 Mine-car door. V. C. Robbins. Coal Age 13:1031 Je 1 '18; Discussion. 13:1124-5, 1171-2; 14:75, 140-1 Je 15-22, J1 13-20 '18  
 Mine cars; using roller-bearing cars and plain-bearing cars together. Coal Age 13:346, 514, 557-8, 757, 845 F 16, Mr 16-23, Ap 20, My 4 '18  
 New type of mine car. Il Coal Age 15:809 My 1 '19; Same. Eng & Min J 107:1088 Je 21 '19  
 Ore car designed at Hecla mine. C. T. Rice. Il diag Eng & Min J 106:522-5 S 21 '18  
 Repairing and oiling mine cars. Eng & Min J 105:1173-4 Je 29 '18  
 Roller bearings for mine cars. R. W. Harris. Coal Age 16:546 S 25 '19  
 Safe powder car. H. H. Honaker. Il Coal Age 16:565 O 2 '19  
 Safety powder car. G. Deuvell. Il Coal Age 16:432 S 11 '19  
 Self-locking pipe and timber binder for slope car. R. W. Mayer. Il Coal Age 13:1044-5 Je 8 '18  
 Simple car chock. diag Coal Age 14:1104 D 19 '18  
 Standardization of mine cars in metal mines. R. M. Raymond. diag Eng & Min J 107:220-4 F 1 '19  
 Steam-shovel ore cars at New Cornella, Ajo, Ariz. diag Eng & Min J 105:416-17 Mr 2 '18  
 Two-ton car and tippie. diag Eng & Min J 104:1006 D 8 '17  
 Use of side board in loading cars. H. H. Hunner. diag Eng & Min J 106:223 Ag 3 '18  
*See also* Mine haulage
- Mine construction**  
 Concrete and tile lining for headings. Il diag Coal Age 13:317 F 16 '18  
 Novel brick and concrete work. Il Coal Age 14:780-1 O 24 '18  
*See also* Headframes; Mine buildings; Mine roofs; Mine shafts; Mine timbering; Mine tipples
- Mine costs.** *See* Mining costs
- Mine doors**  
 Automatic doors for colliery haulage ways. diag plan Engineer 127:378 Ap 18 '19  
 Finding a mine door set open. Coal Age 16:462, 626-8, 660-1 S 11, O 9-16 '19  
 Mine door protector. diag Coal Age 16:38 J1 17 '19
- Mine drainage**  
 Discharging water from mining plants; mine owner's liability. C. C. Sherlock. Eng & Min J 107:311-12 F 15 '19  
 How the drainage problem of Edna no. 2 mine was solved. D. J. Baker. Il Coal Age 16:434-5 S 11 '19  
 Keeping water out of chutes. C. T. Rice. diag Eng & Min J 106:66 J1 13 '18  
 Roosevelt deep drainage tunnel finished. C. B. Harpole. Il diag Sci Am 120:331+ Ap 5 '19  
 Siphon to unwater a mine. J. A. MacDonald. diag Eng & Min J 105:599-600 Mr 30 '18  
 Unusual method of drainage. map Coal Age 13:281 F 9 '18
- Water drain for wet roof.** R. H. Poston. diag Eng & Min J 108:324 Ag 23 '19; Same. Eng & Contr 52:324 S 17 '19; Same. Coal Age 16:575 O 2 '19  
*See also* Mine pumping
- Mine dust**  
 Dust abatement in mines. W. O. Borchardt. Eng & Min J 106:783-6 N 2 '18  
 Dust prevention in Transvaal mines. A. C. Whittome and J. H. Veasey. Eng & Min J 106:249-53 Ag 10 '18  
 Sampling of dust in mine air. J. Boyd. diag Eng & Min J 107:395-6 Mr 1 '19
- Mine employees.** *See* Mine firebosses; Mine foremen; Miners
- Mine equipment**  
 New type of tire expander for use in coal mines. Il Coal Age 15:187 Ja 23 '19  
 Standardization of mining methods; standard equipment. C. A. Mitke. diag Eng & Min J 106:1071-4 D 21 '18  
*See also* Electricity in mining; Mine cars; Mine doors; Mine hoisting; Mining machinery
- Mine explosions**  
 Air blasts in the Kolar gold field, India. E. S. Moore. Am Inst Min E Bul 135:687-94 Mr 18; Same cond. Eng & Min J 105:957-9 My 25 '18; Discussion. Am Inst Min E Bul 142:1542-53; 144:1765-6 O, D '18  
 Current velocity re mine explosion. J. Verner. diag Coal Age 15:676-7 Ap 10 '19  
 Effect of the velocity of ventilating current upon mine explosions. G. S. Rice and W. L. Egy. diag Coal Age 15:308-9 F 13 '19  
 Latest mine holocaust in Pennsylvania. Eng & Min J 107:1058-9 Je 14 '19  
 Nature of mine explosions. H. E. Gray. diag Coal Age 13:930-1 My 18 '18; Discussion. J. Ashworth. 13:1170-1 Je 22 '18  
 What caused the explosion? Coal Age 13:645, 983, 1126 Ap 6, My 25, Je 15 '18  
*See also* Coal dust; Coal mines and mining—Accidents and explosions; Mine accidents; Mine fires; Mine gases
- Mine fans.** *See* Fans, Mine
- Mine firebosses**  
 Alabama firebosses' examination Birmingham, Jan. 20-23, 1919. diag plan Coal Age 15:729 Ap 17 '19  
 Bituminous (Penn.) firebosses' examination, April 11, 1919. Coal Age 15:1181; 16:33 Je 26-J1 3 '19  
 Cooperation between firebosses and assistant foremen. A. T. Dickson. Coal Age 16:528-9 S 25 '19  
 Efficiency in firebossing. Coal Age 14:1133-4; 15:199-200, 245-6, 417-18, 462-3, 589-90, 679-80, 727, 767-8, 829-30 D 19 '18, Ja 23-30, F 27, Mr 6, 27, Ap 10-My 1 '19  
 Examination of a mine. Coal Age 12:1069-70; 13:256, 431, 472, 600, 643-4 D 22 '17, F 2, Mr 2-9, 30-Ap 6 '18  
 Firebosses as state officials. Coal Age 15:544-5, 726, 876, 919, 1178-9; 16:31, 119, 245-6, 334-5 Mr 20, Ap 17, My 8-15, Je 26-J1 3, 17, Ag 7, 21 '19  
*See also* Mine inspection
- Mine fires**  
 Disastrous mine fire at Villa, W. Va. Coal Age 13:1106 Je 15 '18  
 Engineering problems encountered during recent mine fire at Utah-Apex mine, Bingham Canyon, Utah. V. S. Rood and J. A. Norden. diag Am Inst Min E Bul 138:1093-1104 Je 18 '18  
 Fire prevention in anthracite coal mines. M. W. Price. Coal Age 16:651-2 O 16 '19  
 Hydraulic-filling method to extinguish fires in Butte mines. Eng & Min J 104:1026 D 15 '17  
 Measures for controlling fires at the Copper Queen mine. G. Sherman. diag plan Am Inst Min E Bul 133:169-73 Ja '18; Excerpt. Eng & Min J 105:559-60 Mr 23 '18; Discussion. Am Inst Min E Bul 136:807-8 Ap '18  
 Mudding coal at St Eloy, France. M. A. Plaisard. diag plan Coal Age 15:266-9 F 6 '19  
 Sealing off fire on intake. Coal Age 13:1173; 14:33, 79, 143, 187-9, 236, 285-6, 373-4 Je 22, J1 6-Ag 8, 22 '18



**Mine fires—Continued**

Standardization of mining methods; fire protection for metal mines. C. A. Mitke. *Il diags plan Eng & Min J* 106:1025-30 D 14 '18

*See also* Firedamp; Mine accidents; Mine explosions; Safety lamps

**Mine foremen**

Bituminous (Penn.) mine foremen's examination, April 8-10, 1919. *Coal Age* 15:881, 925 My 8-15 '19

Certification and safety. *Coal Age* 15:374-5, 766-7, 1010-11, 1094, 1177-8; 16:29-31, 68-9, 203, 245, 288-9 F 20, Ap 24, My 29, Je 12, 26-Jl 10, 31-Ag 14 '19

Coöperation between firebosses and assistant foremen. A. T. Dickson. *Coal Age* 16:528-9 S 25 '19

Corporal in every squad of eight. *Coal Age* 14:608-9 S 26 '18

Holding men in the mine. W. H. Noone. *Coal Age* 13:1168 Je 22 '18

Let the operator get on the job. *Coal Age* 14:185, 656-7, 793, 1002-3, 1047-8, 1176-7 Jl 25, O 3, 24, N 28, D 5, 26 '18

Perplexities of mine foremen. *Coal Age* 14:656-7, 793, 1002-3, 1047-8, 1176-7; 15:31, 247, 291-2, 334, 375-6 O 3, 24, N 28, D 5, 26 '18, Ja 2, 30-F 20 '19

Prime producer in a coal mine. *Coal Age* 15:637, 1011, 1137; 16:459-60 Ap 3, My 29, Je 19, S 11 '19

Problem of the mine foreman. *Eng & Min J* 107:206 Ja 25 '19

Qualified mine foremen. *Coal Age* 12:591-2, 690, 734-5, 776-7, 821-2, 903-4, 1071, 1112 O 6, 20-N 10, 24, D 22-29 '17

Selecting mine foremen. J. Lawrence. *Coal Age* 14:76 Jl 13 '18

Standardize the mine foreman. G. E. Daugherty. *Coal Age* 12:1108-9 D 29 '17

Tennessee foremen's examination held at Nashville, Sept. 1919; selected questions and answers. *Coal Age* 16:694 O 23 '19

Tennessee mine foremen's examination, 1918. *diag Coal Age* 13:1129, 1174 Je 15-22 '18

Test of a man's capability. *Coal Age* 12:380, 642, 860-1; 13:73-4 S 1, O 13, N 17 '17, Ja 12 '18

Utah mine foremen's examination. *Coal Age* 13:434 Mr 2 '18

West Virginia examination (1918) mine foreman and firebosses. *Coal Age* 14:757 O 17 '18

When your neighbor is angry. *Coal Age* 14:654 O 3 '18

*See also* Mine management

**Mine gases**

Barometer vs. outflow of gas. *Coal Age* 15:634, 1009-10; 16:159-61, 502-3 Ap 3, My 29, Jl 24, S 18 '19

Bumps and outbursts of gas in the Crowsnest Pass coal field. G. S. Rice. *diags maps Coal Age* 15:660-5 Ap 10 '19

Chart of properties of mine gases. G. A. Burrell. '18 U.S. Bur. mines, Washington, D.C. Clearing a heading of gas. *Coal Age* 12:823, 990, 1027; 13:31-2, 159, 302, 348, 388 N 10, D 8-15 '17, Ja 5, 19, F 9-23 '18

Conservation of mine gas. *Coal Age* 12:1029-30; 13:210-12, 345-6 D 15 '17, Ja 26, F 16 '18

Detection of mine gas. *Coal Age* 13:984 My 25 '18

Effect of breaking of coal on the emission of gas. R. Dunn. *Coal Age* 16:20 Jl 3 '19

Gas encountered reopening mine. *Coal Age* 13:394 My 11 '18; Discussion. J. Touhey. 13:1125-6 Je 15 '18

Limits of complete inflammability of mixtures of mine gases and of industrial gases with air. G. A. Burrell and A. W. Gauger. *diag Sci Am S* 86:236 O 12 '18

Methanophone. *Coal Age* 13:579 Mr 30 '18

Occulsion of explosive gases in coal. J. Ashworth. *Coal Age* 14:990-1 N 28 '18

Outbursts of gas in Crowsnest field. J. Ashworth. *diags plan Coal Age* 14:443-6 S 5 '18

Overcome on reaching fresh air. *Coal Age* 14:35 Jl 6 '18

Results of analysis of airs from a mine fire. A. G. Blakeley and H. H. Gelst. *J Ind & Eng Chem* 10:552-3 Jl '18

Science and research in coal mining. G. W. Harris. *Coal Age* 15:17-19 Ja 2 '19

Testing for gas in mines. H. E. Gray. *diags Coal Age* 14:217-18 Ag 1 '18

Utilizing mine gas to save fuel. *Coal Age* 15:372-3, 586 F 20-27 '19

*See also* Blackdamp; Carbon monoxide; Firedamp; Mine explosions; Mine ventilation

**Mine haulage**

Anchoring the bullwheel of 3500-horsepower haulage. R. W. Mayer. *diags Coal Age* 16:19 Jl 3 '19

Back to rope haulage. F. A. Pocock. *Coal Age* 12:1044-5 D 22 '17

Block signal system for coal mines. F. Huskinson. *diags Coal Age* 13:57-9 Ja 12 '18

Coefficient of rolling friction. *Coal Age* 16:28-9 Jl 3 '19

Cost accounting in mine haulage. *Coal Age* 14:876-7, 1175 N 7, D 26 '18

Counterbalanced room haulage that saves considerable man-power. J. M. Roddy. *diags Coal Age* 13:47 Ja 12 '18

Determination of the proper size of storage-battery locomotive. D. C. Ashmead. *Coal Age* 14:548-52 S 19 '18

Device for stopping runaway mine train. *diag Eng & Min J* 106:538-9 S 21 '18

Effect of anti-friction bearings on the haulage of a coal mine. F. B. Liebermann. *Am Inst Min E Bul* 127:1051-62 Jl '17; Discussion. 133:14-15 Ja '18

Efficiency in underground haulage. C. E. Bowron. *Coal Age* 16:360-1 Ag 28 '19

Efficient haulage methods. P. Teas. *Il Coal Age* 14:106-8 Jl 20 '18

Efficient locomotive haulage depends a great deal on motorman. E. Steck. *Coal Age* 15:479 Mr 13 '19

Electric drive for rope haulage. *Coal Age* 14:191 Jl 25 '18

Electric mine haulage. T. O. Hughes. *Coal Age* 14:233-4 Ag 1 '18

Electrically interlocked car haul and car feeder. R. P. Hines. *Il diag Coal Age* 14:300-2 Ag 15 '18

Engine-plane haulage. *Coal Age* 15:293, 545-6, 723-4 F 6, Mr 20, Ap 17 '19

Estimating power in haulage. *Coal Age* 14:615 S 26 '18; Correction. 14:833 O 31 '18

Gravity-plane haulage. *Coal Age* 15:32, 459, 827-8 Ja 2, Mr 6, My 1 '19

Hauling capacity of storage-battery locomotives. *Coal Age* 14:660 O 3 '18; Discussion. H. K. Porter. 14:958-9 N 21 '18

Homemade dirt motor. *Il diag Coal Age* 13:401 Mr 2 '18

Improving top-landing haulage equipment. L. C. Moore. *Il diags Eng & Min J* 108:324-5 Ag 23 '19

Interesting mine haulage proposition. J. H. Dickerson. *diag Coal Age* 15:1058 Je 5 '19

Large coal mine adopts electric power for hauling. W. P. Potter. *Il Elec R* 74:631 Ap 19 '19

Linking up isolated mineral districts by the loco.-tractor transport system. F. Dutton. *Il Eng & Min J* 107:313-14 F 15 '19

Markers on mine trips. *Coal Age* 16:503, 543-4 S 18-25 '19

Maximum grade in motor haulage. *Coal Age* 16:249 Ag 7 '19

Mine-haulage proposition. *diag Coal Age* 16:27-8, 70-2, 202-3, 417-18 Jl 3-10, 31, S 4 '19

Mule power in mine haulage. *Coal Age* 15:293, 503 F 6, Mr 13 '19

Novel self-acting plane. J. A. Smith. *diag Coal Age* 12:885 N 24 '17; Same. *Eng & Min J* 105:164-5 Ja 19 '18

Pneumoelectric haulage and loading equipment. E. M. Mackie. *Il diag Coal Age* 14:120-1 Jl 20 '18

Power required in electric haulage. *Coal Age* 12:865, 987-8 N 17, D 8 '17

Resistance of mine-track curves. *Coal Age* 16:589 O 2 '19

Safeguards in trolley haulage. *Coal Age* 15:71, 502-3 Ja 9, Mr 13 '19

Speeding up mining in shallow drifts. G. H. Kirchgasser. *Il diag Coal Age* 14:202-3 Ag 1 '18

**Mine haulage—Continued**

Substantial rope guide. R. W. Mayer. diag  
Coal Age 12:961 D 8 '17

Vesta coal co.'s modern system of mine  
haulage. R. W. Mayer. il Coal Age 15:  
1072-6 Je 12 '19

Work and strength of a mine mule. Coal  
Age 16:379 Ag 28 '19

See also Locomotives, Mine; Mine cars;  
Mine hoisting; Mine tipples; Mine tracks

**Cost**

Cost of mule and locomotive haulage. W. L.  
Cross, jr. Coal Age 15:439-40 Mr 6 '19

**Mine hoisting**

Breaking of cable in protection shaft. R.  
Dunn. diag Coal Age 15:489-91 Mr 13 '19

Cage chairs for shaft landings. W. F. Fancy.  
diag Eng & Min J 104:1005 D 8 '17

Converting scrap into a sinking hoist. Eng &  
Min J 106:453-4 S 7 '18

Dog for lowering mine timbers into stopes.  
diag Eng & Min J 106:222-3 Ag 3 '18; Same.  
Coal Age 14:386 Ag 29 '18

Drum shapes as affecting the mine hoist duty  
cycle and motor rating. F. L. Stone. il diag  
Am Inst E E Pro 37:1203-21 O '18

Economy of electricity over steam for power  
purposes in and about mines. R. E. Hobart.  
il Am Inst Min E Bul 134:213-21 F '18;

Same. Coal Age 13:532-6 Mr 23 '18; Discus-  
sion. Am Inst Min E Bul 136:807-8 Ap '18

Effect of hoisting on ventilation. Coal Age  
15:969 My 22 '19

Efficiency of mine hoist. Coal Age 15:831 My  
1 '19

Electric control equipment of mine hoist. il  
Coal Age 13:929 My 18 '18

Electric hoist at Alaska colliery. il plan Coal  
Age 13:672-3 Ap 13 '18

Engineering features of modern large coal  
mines in Illinois and Indiana. C. A. Herbert  
and C. M. Young. diag Am Inst Min Bul  
153:sup2452-7 S '19; Discussion. 155:3044-7  
N '19

Flexible trolley construction. G. H. Bolus.  
diag Eng & Min J 106:711 O 19 '18; Same.  
Coal Age 14:848 N 7 '18

Hoisting coal in skips. J. A. Garcia. il diag  
plan Coal Age 13:1150-5 Je 22 '18

Hoisting engineers' examination. Springfield,  
Ill., Dec. 18, 1918. Coal Age 15:770 Ap 24 '19

Hoisting water in tanks by electricity. G. W.  
Harris. il diag plan Coal Age 13:1094-1100  
Je 15 '18

Inclined plane of the Union mining co. U. U.  
Carr. il plan Coal Age 15:856-7 My 8 '19

Lilly hoist controller. il diag Eng & Min J  
106:956-7 N 30 '18

Lowering shaft timbers. C. T. Rice. diag Eng  
& Min J 106:222 Ag 3 '18

Monorail and monocable hoisting. C. C.  
Hoke. diag Eng & Min J 107:757-8 Ap 26  
'19

Motor-driven shaft-hoist installation. R. P.  
Hines. il Coal Age 14:50-4 Jl 13 '18

Progress in the electrification of mine hoists.  
R. S. Sage. il Gen Elec R 22:332-41 My  
'19; Same. Coal Age 16:770-6 N 13 '19

Simplified caging with heavy mine cars. diag  
plan Eng & Min J 106:559 Mr 23 '18

United eastern mine cage and skip. B. C.  
Staiger. diag plan Eng & Min J 106:880 N  
16 '18

See also Dumping appliances; Hoisting  
machinery; Mine cars; Mine haulage; Wire  
rope

**Safety devices and measures**

Controlling apparatus for elevators and other  
devices. H. Goodnow. diag Coal Age 16:406-  
7 S 4 '19

Increasing cage safety. T. Price. il Coal Age  
15:570 Mr 27 '19

Safety, direction and warning signal. R. H.  
Coulson. diag Coal Age 13:1195-7 Je 29 '18

Safety gate protection at mine shaft. R. P.  
Hines. il diag Coal Age 15:262-5 F 6 '19

Safety on an electric hoist. R. J. Calloway.  
diag Coal Age 14:478 S 12 '18

**Mine inspection**

Finding a mine door set open. Coal Age 16:  
462, 626-8, 660-1 S 11, O 9-16 '19

Lawful examination of a mine. Coal Age 16:  
244-5, 285, 334, 503-4, 693, 723 Ag 7-21,  
S 18, O 23-30 '19

Proper and lawful examination of a mine by  
the mine examiner. S. Gosnell. Coal Age  
16:18-19 Jl 3 '19

**Mine inspectors**

List of the chiefs of state mine inspection  
bureaus. Eng & Min J 105:150 Ja 19 '18

**Mine inspectors' Institute of America**

10th annual meeting, Indianapolis, July 8-11.  
J. T. Beard. il Coal Age 16:144-5 Jl 24 '19

**Mine labor. See Coal miners; Miners****Mine lamps. See Safety lamps****Mine lighting**

Mine electric lighting. T. Croft. Coal Age  
16:3 Jl 3 '19

Portable lighting set. F. Huskinson. il Coal  
Age 14:722-3 O 17 '18

**Mine locomotives. See Locomotives, Mine****Mine machine shops. See Mine shops****Mine management**

Accounting of materials. Coal Age 14:417, 754-  
5, 956-8; 15:66 Ag 29, O 17, N 21 '18, Ja 9 '19

Bonus system applied to mining. W. V. De  
Camp. Eng & Min J 105:461-2 Mr 9 '18

Commonsense of mine management. H. M.  
Adkinson. Eng & Min J 104:991-3 D 8 '17

Constructive practice in mining. M. Ashley.  
Coal Age 14:1135-6 D 19 '18

Co-operation among small mines. G. J. Young.  
il Eng & Min J 106:811-13 N 9 '18

Cooperation in mine promotion and manage-  
ment. P. T. Bruhl. Eng & Min J 106:862-3  
N 16 '18

Efficiency of mine officials. Coal Age 15:  
159-60, 504-5, 548, 678-9, 878-9, 922-3 967-  
8 Ja 16, Mr 13-20, Ap 10, My 8-22 '19

Favoritism in mine management. Coal Age 12:  
862-3; 13:213, 471-2, 602, 644, 1030 N 17 '17,  
Ja 26, Mr 9, 30-Apr 6, Je 1 '18

Handling miner's checks at the tippie. R.  
W. Mayer. Coal Age 16:682 O 23 '19

Handling of men. Coal Age 12:735, 777-8, 946;  
13:159-60, 432, 709-10 O 27, N 3, D 1 '17, Ja  
19, Mr 2, Ap 13 '18

High efficiency at small cost. G. E. Alloway.  
Coal Age 13:690 Ap 13 '18

Human side of mining engineering. J. F.  
Kemp. Mo U Sch Mines & Met Bul 10:1-  
13 Je '18

Identification card and passbook. J. A. Smith.  
Coal Age 13:572 Mr 30 '18

Method of curtailing forces at the Copper  
Queen. C. F. Willis. Am Inst Min Bul 153:  
sup2229-32 S '19; Discussion. 156:3192-4 D  
'19

Practice in mines in England. R. Laverick.  
Coal Age 13:889, 1169 My 11, Je 22 '18

Qualifications and duties of a shift boss. J. P.  
Hodgson. Eng & Min J 105:376-7 F 23 '18

Study of shoveling as applied to mining.  
G. T. Harley. diag Coal Age 15:356-64 F  
20 '19

Success in mine management. Coal Age 13:  
707, 1026 Ap 13, Je 1 '18

Success in superintending. F. L. Serviss. Coal  
Age 13:707-8 Ap 13 '18

Training a mining organization in efficiency  
methods. C. A. Mitke. Eng & Min J 105:  
200-1 Ja 26 '18

See also Coal mines and mining—Manage-  
ment; Mine accounting; Mine firebosses;  
Mine foremen; Mine gases; Mine records;  
Mine reports; Mine signals

**Mine maps**

Marking drill holes distinctively. J. Stewart.  
Eng & Min J 105:798 Ap 27 '18

Surveying and mapping. W. L. Owens. diag  
Coal Age 12:960-1 D 8 '17; Discussion. 12:  
1109-10; 13:157, 386-7, 470-1, 517, 755-6; 14:  
30-1 D 29 '17, Ja 19, F 23, Mr 9-16, Ap 30,  
Jl 6 '18

See also Mine surveying

**Mine models**

Mine models constructed at the University of Illinois. H. H. Stoek. *Il Am Inst Min E Bul* 124:431-7 Ap '17; Discussion. 130:1849-50; 133:108-11 O '17, Ja '18

**Mine officials.** See **Mine management****Mine power.** See **Mining engineering—Power****Mine pumping**

Centrifugal mine pumps. *Coal Age* 14:1049; 15:66-7, 245 D 5 '18, Ja 9, 30 '19

Centrifugal mine pumps. O: Haentjens. *diags* *Coal Age* 13:998-1002 Je 1 '18

Centrifugal pumps for mine service. H. Ax-ford. *Coal Age* 12:485-90 S 22 '17; Same cond. *Power* 47:636-8 Ap 30 '18

Deep-mine pumping in the Lake Superior iron districts. *Il Eng & Min J* 108:466 S 13 '19

Don'ts for pump runners. *Eng & Min J* 106:454 S 7 '18

Electrically driven mine pump. J: Martin. *Coal Age* 13:214 Ja 26 '18; Discussion. 13:429, 559, 889 Mr 2, 23, My 11 '18

Exhaust from steam pump. *diag* *Coal Age* 15:826-7, 876-7, 964-5, 1097-8, 1179 My 1-8, 22, Je 12, 26 '19

Handling mine water. H: E. Cole. *Il Coal Age* 14:264-6 Ag 8 '18

Harris mine pump. *Il Coal Age* 13:681 Ap 6 '18

Home-made slip-joint. G: S. Sturges. *diag* *Eng & Min J* 108:105 Jl 19 '19

Modern mine pump. *Il Coal Age* 14:101-2 Jl 20 '18

Priming centrifugal pumps. *Il diags* *plan* *Coal Age* 13:226-7 F 2 '18

Pump troubles. C: Labbe. *diags* *Eng & Min J* 108:217-22 Ag 9 '19

Pumping water in a shaft. *Coal Age* 15:506 Mr 13 '19

**Mine railroads.** See **Mine ties**; **Mine track**; **Railroads, Industrial****Mine records**

Forms for the local shipping department. G: N. Lantz. *Coal Age* 12:1012-14 D 15 '17

Measuring coal areas and making coal summary sheets. *chart* *Coal Age* 13:954-5 My 25 '18

Tabulation of entry progress. O. H. Hampsch. *Coal Age* 14:63 Jl 13 '18

See also **Mine accounting**

**Mine reports**

Report of the committee on the standardization of mining statistics. A. H. Fay, comp. *U S Bur Mines Tech Pa* 194:1-38 '18

Standardization of directors' reports. *Eng & Min J* 105:848-9 My 4 '18

Standardization of directors' reports for mining companies. T. O. McGrath. *Eng & Min J* 105:825-7 My 4 '18

Standardization of mine statistics. *Coal Age* 14:27 Jl 6 '18

**Mine rescue work**

Desirability of standardizing mine rescue training and a plan therefor. D. J. Parker. *Coal Age* 16:686-7 O 23 '19

Gibbs oxygen rescue apparatus. *Il diag* *Eng & Min J* 105:323-4 F 16 '18

Men who received Bureau of mines certificates of mine rescue training. D. J. Parker. *U S Bur Mines Tech Pa* 226:1-70. '19

Mine-rescue and first-aid contest in British Columbia. R. Dunn. *Il Coal Age* 16:577-8 O 2 '19

Mine-rescue and first-aid contest in Pittsburgh. *Il Coal Age* 16:614-17 O 9 '19

Mine rescue apparatus; report of committee of Advisory council for scientific and industrial research. *Il diags* *Engineer* 126:219-20 S 13 '18

Mine-rescue work. *Coal Age* 14:32-3, 283-4, 656, 1001-2 Jl 6, Ag 8, O 3, N 28 '18

Orient central rescue station the result of operators' cooperation. L. U. Leslie. *Coal Age* 15:274 F 6 '19

Paul breathing apparatus. *Coal Age* 14:864 N 7 '18

Qualifying for mine-rescue work. *Coal Age* 12:945-6, 1028-9 D 1, 15 '17

Recent development in mine-rescue apparatus in the United States. F. F. Morris. *Il Coal Age* 16:649-50 O 16 '19

Resuscitated after long treatment. *Il Coal Age* 14:497 S 12 '18

Six men rescued by breathing apparatus. J: T. Ryan. *Coal Age* 15:272-3 F 6 '19

Stretcher for pitching places. *Il Coal Age* 13:928 My 18 '18

Suggestions for mine rescue work. *Coal Age* 14:902 N 14 '18

Testing the new Gibbs standard two-hour breathing apparatus. J: Lyons. *Il Coal Age* 14:1019-20 D 5 '18

See also **Geophone**; **Mining engineering—Safety measures**; **Respiratory apparatus**

**Mine roofs**

Roof conditions in longwall work. *Coal Age* 15:591, 920-1, 966, 1055-6 Mr 27, My 15-22, Je 5 '19

Supporting the roof in coal mines. R. D. Brown. *diags* *Coal Age* 13:870-3, 407-9, 454-7 F 23-Mr 9 '18

**Mine safety.** See **Mining engineering—Safety measures****Mine sampling.** See **Ore sampling****Mine sanitation**

Miners' safety and health almanac. R. C. Williams. *Il diags* *U S Bur Mines Circ* 24:1-45 '18

See also **Mine air**; **Mine ventilation**; **Miners—Diseases and hygiene**; **Mining camps**

**Mine shafts**

Caisson method for foundations and mine shafts. G: R. Johnson. *Il diags* *Eng Soc W Pa* 34:502-10 O '18

Calculating depth of shaft. *diag* *Coal Age* 15:464 Mr 6 '19

Concrete water-seal ring for shaft. G. G. Wald. *diags* *plan* *Eng & Min J* 106:1129-30 D 23 '18

Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. *Am Inst Min Bul* 153:sup2449-52 S '19

Fireproofing mine shafts of the Anaconda copper mining co. E. M. Norris. *diag* *Am Inst Min E Bul* 135:657-9 Mr '18; Same. *Eng & Min J* 105:1126-7 Je 22 '18; Same abr. *Eng & Contr* 49:287 Mr 20 '18

Freezing of shaft in winter. *Coal Age* 14:1004, 1134-5, 1175-6; 15:28-9, 156-7, 200-1, 334 N 23, D 19 '18-Ja 2, 16-23, F 13 '19

Holisting shaft problems. *Coal Age* 14:1049 D 5 '18

Modern shaft development of the Consolidation coal company. G: W. Harris. *Il diag* *plans* *Coal Age* 15:527-31 Mr 20 '19

New 7000-ft. shaft for a Transvaal mine. *Eng & Min J* 106:534 S 21 '18

Notes on shaft relining with concrete. G. G. Stonemark. *Eng & Min J* 106:8-10 Jl 6 '18; Same abr. *Eng & Contr* 51:295-6 Mr 19 '19

Precast concrete lumber proves successful in mine. *Il Eng N* 81:627-8 O 3 '18

Reline and waterproof mine shaft of the Oliver iron mining co. with cement gun. *diag* *plan* *Eng N* 81:333-4 Ag 15 '18; Same. *Coal Age* 14:400-1 Ag 29 '18

Reline mine shaft on steep slope with concrete. *Eng N* 82:1152 Je 12 '19

Reopening the Golden Eagle shaft. F. D. Bradley. *Il diags* *Eng & Min J* 106:853-6 N 16 '18

Safeguarding the mine shaft. D. E. Charlton. *Il Eng & Min J* 106:1061-3 D 21 '18

Shaft for water holisting and ventilation. *Il diags* *plans* *Coal Age* 14:397-400 Ag 29 '18

Sinking and concreting mine shaft 936 feet deep. R: L. Russell. *diags* *plan* *Eng N* 82:1259-62 Je 26 '19; Same. *Eng & Min J* 108:56-9 Jl 12 '19

Sinking the H shaft at the Pabst mine. A. J. Wagner. *Il diags* *plans* *Eng & Min J* 108:513-15 S 20 '19; Same abr. *Eng & Contr* 52:441-2 O 15 '19

Size of shaft pillars in mines. *Coal Age* 14:230 Ag 1 '18

See also **Headframes**; **Mine holisting**; **Mine timbering**; **Mine tracks**; **Mine ventilation**; **Shaft sinking**

**Mine shops**

Car lifter for mine car shop. diag Coal Age 12:1003 D 15 '17; Same. Eng & Min J 106:247 F 2 '18

Foundry and machine shop at a central Pennsylvania coal mine. il Coal Age 13:61 Ja 12 '18

Underground motor repair shop. R. W. Mayer. plan Coal Age 15:1161 Je 26 '19

**Mine signals**

Anaconda company's bell and buzzer signal system. R. H. Richards. diag Eng & Min J 106:453 S 7 '18

Audible signal to indicate discontinuance of load. diag Coal Age 14:723 O 17 '18

Combination signal system. diag Coal Age 13:1044 Je 8 '18

Electric buzzer raises. C. T. Rice. Eng & Min J 106:454 S 7 '18

Electric signal system that eliminated collision troubles. O. Kelly. il diag Coal Age 15:3 Ja 2 '19

Electric signals on a modern tippie. F. Huskinson. diag Coal Age 13:1056-6 Je 8 '18

Mine electric signaling practice. T. Croft. diag Coal Age 16:308-12 Ag 21 '19

Practical signal system on a mine slope. C. G. Brehm. diag Coal Age 14:479 S 12 '18

Safety signal switch for mine use. diag Eng & Min J 105:1133 Je 22 '18

Signal lights at entry junctions. O. H. Hampsch. diag Coal Age 13:725 Ap 20 '18

Signaling in British coal mines under the new act. S. F. Walker. Coal Age 14:980+ N 28 '18

**Mine subsidences**

Anthracite mine-cave situation. Coal Age 14:598-601 S 26 '18

**Mine surveying**

Deflection angles and azimuth. diag Coal Age 13:329-30 F 16 '18

Errors in surveying practice. L. S. Youngling. diag Coal Age 16:246-7 Ag 7 '19

Estimating percentage of grade. diag Coal Age 14:756, 959-60; 15:70 O 17, N 21 '18, Ja 9 '19

Expedients in surveying practice. diag Coal Age 13:573 Mr 30 '18

Methods of tabulating and computing latitude and departure notes. O. H. Hampsch. diag Coal Age 14:768 O 24 '18

Mine surveyor's lamp signals. R. H. Poston. diag Eng & Min J 107:1087 Je 21 '19

Survey office on the Rand. E. M. Weston. charts Eng & Min J 106:58-61 Jl 13 '18

Surveying in an inclined seam. diag Coal Age 15:769 Ap 24 '19

Surveying without an instrument. T. E. Smith. diag Coal Age 15:562-3 Mr 27 '19; Discussion. 15:1011-12; 16:159 My 29, Jl 24 '19

Triangulation system for mining properties. diag Eng & Min J 108:554 S 27 '19

Triangulation system installed at the Paloma and Cabrillas mines. W. W. Adams. Eng & Min J 105:164 Ja 19 '18

Value of an engineer to the operator. Coal Age 13:823-4 My 4 '18

See also Mine maps

**Mine taxation**

Abstracts of current decisions on mines and mining reported from May to August, 1917. J. W. Thompson. U S Bur Mines Bul 159:97-101 '17

Abstracts of current decisions on mines and mining reported from September to December, 1917. J. W. Thompson. U S Bur Mines Bul 164:134-6 '18

American institute of mining engineers discussion on taxation and price regulation. Am Inst Min E Bul 133:sup10-19 Ja '18

Application of federal income tax laws to mine taxation. Eng & Min J 105:639-43 Ap 6 '18

British attitude on taxation of mines. Eng & Min J 103:375 Mr 3 '17

Depletion of mineral deposits and the federal income tax. P. Armitage. Eng & Min J 107:750-2 Ap 26 '19

Excess profits of mines. Eng & Min J 105:975-6 My 25 '18

Federal income tax on mines. Eng & Min J 105:301 F 9 '18

Federal taxation of mines. L. C. Graton. Am Inst Min Bul 155:2957-98 N '19; Discussion. 155:2998-3007; 156:3079-3113 N-D '19

Iron-ore taxation in Minnesota. Eng & Min J 107:803-4 My 3 '19

Mexico modifies rules on payment of overdue mine taxes. Eng & Min J 106:438 S 7 '18

Mining taxes in Mexico. Eng & Min J 106:316 Ag 17 '18

Nature and uses of capital in mining. J. R. Finlay. Eng & Min J 107:780-6 My 3 '19

New mines of the Far East. Rand. A. C. Key. Eng & Min J 106:821-4 N 9 '18

Principles of mining taxation; with discussion. T. W. Gibson. Am Inst Min Bul 143:611-20 Ap '19

Taxation of land and underlying deposits. C. C. Sherlock. Eng & Min J 106:1115-16 D 28 '18

Taxing the mining industry. F. H. Allen. Eng & Min J 106:310-11 Ag 17 '18

Taxing the prospector. T. O. McGrath. Eng & Min J 106:825 N 9 '18

War taxes on mining companies. Eng & Min J 104:769-70, 883, 921; 105:202-4 O 27, N 17-24 '17, Ja 26 '18

See also Mine valuation

**Mine telephones**

Mine telephone systems. F. Huskinson. il diag Coal Age 13:444-6 Mr 9 '18

Nerves of the mine. L. B. Gawthrop. il Coal Age 14:108 Jl 30 '18

Stentor telephone admirably adapted for use in mines. il Coal Age 15:235 Ja 30 '19

**Mine ties**

Steel mine ties. G. A. Richardson. il Coal Age 14:112-15 Jl 20 '18

Steel mine ties. R. B. Woodworth. il Coal Age 15:814-16 My 1 '19

**Mine timbering**

Cutting round timber posts. L. D. Davenport. il diag Eng & Min J 106:24 Jl 6 '18

Details of timbering in stoping by the incline top-slice method. diag Eng & Min J 105:246-7 F 2 '18

Driving and timbering transfer chutes. C. T. Rice. diag Eng & Min J 106:991-3 D 7 '18

Fixing a chute mouth without emptying chute. C. T. Rice. diag Eng & Min J 105:923 My 18 '18

Great Britain relies on foreign countries for supply of mine timber. M. Meredith. Coal Age 15:447 Mr 6 '19

Hollow concrete posts packed with sand. diag Eng N 83:269 Ag 7 '19

Inclined-shaft timbering and a method of alignment. A. Neustaedter. diag plan Eng & Min J 107:349-51 F 22 '19

Method of relining timber sets. diag Eng & Min J 106:1086 D 21 '18

New timber set for inclined shafts. J. E. Harding. diag Eng & Min J 106:448-9 S 7 '18

Preservation of mine timber. Coal Age 16:164, 377-8, 459 Jl 24, Ag 28, S 11 '19

Preservation of timber in coal mines. P. Groom. Engineer 125:126-7 F 8 '18

Preservative treatment of mine timbers as a conservation measure. K. C. Barth. Coal Age 14:1025-7 D 5 '18

Pulling heavy timbers. W. Lawton. il Coal Age 14:626 O 3 '18

Quality of mine timber. Coal Age 15:333-4, 1136; 16:201 F 13, Je 19, Jl 31 '19

Reinforced drift set. J. E. Harding. diag Eng & Min J 106:710-11 O 19 '18

Reinforced concrete mine timber. D. Phillips. diag Coal Age 13:642 Ap 6 '18

Reinforced-concrete pit props. M. Meredith. Coal Age 14:362 Ag 22 '18

Reopening the Golden Eagle shaft. F. D. Bradley. il diag Eng & Min J 106:853-6 N 16 '18

Resistance of artificial mine-roof supports. W. Griffith. il Am Inst Min E Bul 130:1797-1809 O '17; Discussion. 133:124-6 Ja '18

Safety in mine timbering. il Coal Age 15:919, 1175-6; 16:163, 378, 541, 587-8 My 15, Je 28, Jl 24, Ag 28, S 25-O 2 '19

**Mine timbering—Continued**

- Selection of mine timber. C. McManiman. Coal Age 13:941-2 My 18 '18  
 Setting timber on a pitch. diag Coal Age 12: 1072 D 22 '17; Discussion. W. Dickinson. Coal Age 13:157-8 Ja 19 '18  
 Size and kind of timber required. Coal Age 12:1113 D 29 '17  
 Standardization of mining methods—standard raises. C. A. Mitke. diag plans Eng & Min J 106:814-19 N 9 '18  
 Supporting the roof in coal mines. R. D. Brown. diag Coal Age 13:370-3, 407-9, 454-7 F 23-Mr 9 '18  
 Timbering in English mines. S. Evans. diag Coal Age 15:400-3 F 27 '19  
 Timbering in mines made safe by means of drawings. J. R. Thomas. diag Coal Age 15: 349 F 20 '19  
 Various timbering methods. M. M. Haley. diag Coal Age 15:696-7 Ap 17 '19

*See also* Mine construction; Mine shafts

**Mine tipples**

- Avoidable degradation of coal. B. Shubart. diag Coal Age 16:401-3 S 4 '19  
 Coal tipple and washery at Lehigh, Mont. E. P. Stewart. flow sheet il Coal Age 15:9-11 Ja 2 '19  
 Coal tipple for small operations. H. B. Mosley. il diag Coal Age 13:1046-8 Je 8 '18  
 Electric signals on a modern tipple. F. Huskinson. diag Coal Age 13:1055-6 Je 8 '18  
 Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. il Am Inst Min Bul 153: sup2457-61 S '19  
 Hinckston run mine of Cambria steel co. W. E. Winn. Coal Age 14:647 O 3 '18  
 Kathleen mine of the Union colliery company at Dowell, Illinois. il Coal Age 13:1186-8 Je 29 '18  
 Modern shaft development of the Consolidation coal company. G. W. Harris. il diag plan Coal Age 15:480-5 Mr 13 '19  
 Modern tipple equipped with a simple balanced horizontal screen. F. J. Schraeder. il diag Coal Age 15:233-5 Ja 30 '19  
 Montour no. 8 plant of the Pittsburgh coal co. G. W. Harris. il diag map plan Coal Age 13:574-8 Mr 30 '18  
 New coal tipple at a Virginia operation. C. Sharon. il diag plan Coal Age 15:796-8 My 1 '19  
 New coal tipple of the Consolidation coal company near Wyatt, W. Va. W. Brasack. il diag plan Coal Age 16:678-82 O 23 '19  
 New tipple of the Granby consolidated mining, smelting & power co. F. E. Mueller. il diag plans Coal Age 15:804-5 My 1 '19  
 Simpson Creek coal co.'s tipples. R. G. Read. il diag plans Coal Age 14:430-3 S 5 '18  
 Two-ton car and tipple. diag Eng & Min J 104:1006 D 8 '17  
 Valley Camp coal co.'s tipple at Parnassus, Penn. G. S. Jaxon. il Coal Age 14:582-5 S 26 '18

*See also* Mine car retarders

**Mine tracks**

- Adapting railway curves to mines. F. MacCoy. Eng & Min J 107:539 Mr 22 '19  
 Automatic tipple switch. T. F. Price. plan Coal Age 14:250 Ag 8 '18  
 Calculating a room switch. O. Bullock; C. W. Carruth. Coal Age 14:1087-8 D 12 '18  
 Calculation of runaway track. Coal Age 15: 201-2 Ja 23 '19  
 Cause of brittleness in mine rails. C. J. Creveling; C. Hering. Coal Age 14:237 Ag 1 '18  
 Common track difficulties and their solution. H. Goodnow. diag Coal Age 15:349 F 20 '19  
 Derailing switch for mine use. diag Eng & Min J 105:515-16 Mr 16 '18  
 Diamond crossover in a mine. diag Coal Age 15:335 F 13 '19  
 Diamond rerailer. J. Hittmeier. diag Coal Age 13:360 F 23 '18  
 Efficiency in underground haulage. C. E. Bowron. Coal Age 16:360-1 Ag 28 '19  
 Elevation of outer rail of track. G. D. York. Coal Age 14:284-5 Ag 8 '18

- Frog rerail that prevents cars from leaving the track. diag Coal Age 16:2-3 Jl 3 '19  
 Frog, switch and track formulas. O. H. Hampsch. diag Coal Age 13:614 Ap 6 '18  
 Frogless crossover. R. W. Mayer. il Coal Age 16:575 O 2 '19  
 Frogless one-point switch. H. M. Wirtz. diag Eng & Min J 104:1089 D 22 '17  
 Frogs and latches in mines. Coal Age 14:1179 D 26 '18  
 Importance of rail bonding. E. Steck. Coal Age 15:1167-8 Je 26 '19  
 Importance of the proper bonding of mine rails. C. C. Beck. diag Coal Age 16:90-3 Jl 17 '19  
 Laying a room switch. Coal Age 15:969 My 22 '19  
 Lead rail of a mine switch. diag Coal Age 15: 248 Ja 30 '19  
 Mechanical tampers in mine track work. H. L. Hicks. il Eng & Min J 105:1048-9 Je 8 '18  
 Mine section insulator with a switch. N. A. Wahlberg. il Coal Age 15:491 Mr 13 '19; Same abr. Eng & Min J 107:279 F 8 '19  
 Mine-switch calculations. diag Coal Age 14: 961 N 21 '18  
 Mine-track switches. R. Z. Virgin. diag Coal Age 15:289-90 F 6 '19  
 Mine trackage for motor haulage. D. C. Ashmead. Coal Age 13:784-6 Ap 27 '18  
 Movable-point frog. il diag Coal Age 14:2 Jl 6 '18  
 New type of mine bonds. E. Steck. il Coal Age 16:237-8 Ag 7 '19  
 Peculiar arrangement of mine track. diag Coal Age 15:219 Ja 30 '19  
 Platt car spragger. diag Coal Age 13:996 Je 1 '18  
 Practical underground motor curves. H. Goodnow. diag Coal Age 13:400-1 Mr 2 '18  
 Ramsay automatic switch. E. Ramsay. diag Coal Age 14:580 S 26 '18  
 Safety block for use near the face. J. Reay. diag Coal Age 13:816 My 4 '18  
 Simple derailing device. J. W. Powell. diag Coal Age 14:531 N 21 '18  
 Simple rerail. R. W. Mayer. il Coal Age 13: 530 Mr 23 '18  
 Straightening brittle mine rails. Coal Age 13: 847; 14:77 My 4, Jl 13 '18  
 To save time in laying out mine curves. R. D. Hall. Coal Age 15:782 My 1 '19  
 Track switch calculations. Coal Age 13:1080 Je 8 '18

*See also* Mine car retarders; Mine ties

**Mine transportation.** *See* Mine haulage; Mine hoisting

**Mine valuation**

- Depletion of copper mines in relation to income tax returns. W. B. Gower. J Account 26:81-92 Ag '18  
 Depletion of mineral deposits and the federal income tax. P. Armitage. Eng & Min J 107:750-2 Ap 26 '19  
 Nature and uses of capital in mining. J. R. Finlay. Eng & Min J 107:780-6 My 3 '19  
 Valuation of Arizona producing mines for taxation. Eng & Min J 106:53 Jl 13 '18  
 Valuation of mines in Arizona. E. Jacobs. Eng & Min J 106:664-5 O 12 '18  
 Valuation of ore reserves. Eng & Min J 106: 833 N 9 '18  
 Wisconsin zinc district. H. C. George. diag Am Inst Min E Bul 132:2058-60 D '17; Same. Eng & Min J 105:322 F 16 '18; Discussion. Am Inst Min E Bul 135:702-6 Mr '18

*See also* Ore valuation; Prospecting

**Mine ventilation**

- Auxiliary power to drive fan. Coal Age 13: 1173 Je 22 '18; Discussion. C. Scholz. 14:76-7 Jl 13 '18  
 Blower fans in gangway driving. W. L. Cross. Coal Age 13:1156-7 Je 22 '18  
 British Columbia examination first class. Nov. 20, 1918. Coal Age 15:1100 Je 12 '19  
 Calculating velocities of air. Coal Age 14:417 Ag 29 '18  
 Canvas tubing for mine ventilation. L. D. Frink. il Am Inst Min E Bul 133:183-91 Ja '18; Same abr. Eng & Contr 49:64-7 Ja 18 '18; Same cond. Eng & Min J 105:325-7 F 16 '18

**Mine ventilation—Continued**

- Current velocity re mine explosion. J: Verner. diag Coal Age 15:676-7 Ap 10 '19
- Dust abatement in mines. W. O. Borchardt. Eng & Min J 106:783-6 N 2 '18
- Dust prevention in Transvaal mines. A. C. Whitton and J. H. Veasey. Eng & Min J 106:249-53 Ag 10 '18
- Effect of hoisting on ventilation. Coal Age 15:969 My 22 '19
- Effect of the velocity of ventilating current upon mine explosions. G. S. Rice and W. L. Egly. diag Coal Age 15:308-9 F 13 '19
- Effective air trap. diags Coal Age 14:348 Ag 22 '18
- Enlarging an airway. Coal Age 15:637 Ap 3 '19
- Erecting a line for brattice. S. Gosnell. diags Coal Age 13:344 F 16 '18
- Experiences in gas. L. R. Thomas. diag Coal Age 13:598-9 Mr 30 '18
- Fans and boilers. W. D. Owens. Coal Age 14:937-40 N 21 '18
- Interpreting mining law. Coal Age 14:143-4 J1 20 '18
- Law on ventilation. C: Martin. Coal Age 13:1080 Je 8 '18; Discussion. 13:1170; 14:33-4 Je 22, J1 6 '18
- Mine ventilating plant. II diags Engineer 127:110-11 Ja 31 '19; Abstract. Mech Eng 41:390-1 Ap '19
- Mine ventilation. J. J. Walsh. Am Soc Heat & V E 23:659-64 '17
- Mine ventilation in the Cœur d'Alenes. R. N. Bell. Eng & Min J 107:603-4 Ap 5 '19
- Natural mine ventilation. Coal Age 14:330 Ag 15 '18
- Reducing ventilation at firing time. Coal Age 14:1000-1: 15:69-70, 290-1, 538, 625-6, 1054-5; 16:203-4 N 28 '18, Ja 9, F 6, Mr 27-Ap 3, Je 5, J1 31 '19
- Relative size of intake and return airways. Coal Age 13:32-3, 160, 258-9, 299-300, 387-8, 558-9 Ja 5, 18, F 2-9, 23, Mr 23 '18
- Reversing a mine fan. Coal Age 13:603 Mr 30 '18
- Securing proper mine ventilation by Flexoid tubing. II Eng & Min J 105:336-7 F 16 '18; Same. Coal Age 13:417-18 Mr 2 '18
- Shaft for water hoisting and ventilation. II diags plans Coal Age 14:397-400 Ag 29 '18
- Standardization of mining methods; ventilation of metal mines. C: A. Mitke. charts diags plan Eng & Min J 106:939-44 N 30 '18
- Temperature conditions in deep mines. chart Eng & Min J 106:750-1 O 26 '18
- Temperatures in deep mines. Engineer 128:214 Ag 29 '19
- Test on a Jeffrey fan. W. D. Owens. Coal Age 13:1188-9 Je 29 '18
- Ventilating a gassy slope mine. Coal Age 14:191, 326, 372-3, 565-6, 914-15 J1 25, Ag 15-22, S 19, N 14 '18
- Ventilation at Old Dominion. Eng & Min J 103:387-8 Mr 3 '17
- Ventilation for prospects. C: E. Dutton. diag Eng & Min J 107:926 My 24 '19
- Ventilation of coal mines. H. W. Chadbourne. II diags Gen Elec R 22:341-7 My '19; Abstract. Coal Age 15:990-1 My 29 '19
- Ventilation of mines. T: Chester. II diags Am Soc Heat & V E 24:297-312 '18; Abstract. Heat & Ven 15:30-1 J1 '18; Discussion. Am Soc Heat & V E 24:313-16 '18
- Ventilation problem. diags Coal Age 14:287 Ag 8 '18; Discussion (Use and location of booster fans). Coal Age 14:461, 659 S 5, O 3 '18
- See also Coal dust; Firedamp; Mine air; Mine doors; Mine gases
- Mine water**
- Corrosive action of mine water. Coal Age 13:214 Ja 26 '18
- Designing a mine siphon. diag Coal Age 13:1213 Je 29 '18
- Hoisting water in tanks by electricity. G: W. Harris. II diags plan Coal Age 13:1094-1100 Je 15 '18
- Shaft for water hoisting and ventilation. II diags plans Coal Age 14:397-400 Ag 29 '18
- Treatment of impure feed water. Coal Age 13:261 F 2 '18
- See also Mine drainage; Mine pumping
- Mineragraphy, Technique of.** W. L. Whitehead. II diags Econ Geol 12:697-716 D '17
- Mineral industries**
- British mineral production, 1915 and 1916. Eng & Min J 105:506 Mr 16 '18
- Fatalities in mineral industry in 1916. A. H. Fay. Eng & Min J 104:1086 D 22 '17
- Federal control of metallic minerals; bill drawn up by the War minerals committee of the American institute of mining engineers. Am Inst Min E Bul 134:sup22-9 F '18; Excerpts. Eng & Min J 105:149-50 Ja 19 '18
- Mineral output of Great Britain. J Ind & Eng Chem 10:573 J1 '18
- Mineral production of British Columbia for 1918. Eng & Min J 107:320-2 F 15 '19
- Minerals control hearings before Senate mines committee. Eng & Min J 105:929, 970-1, 1011-12, 1052-3 My 18-Je 8 '18
- Mines administration bill. Eng & Min J 105:933 My 18 '18
- Molybdenum and the mines control bill. M. Flahback. Eng & Min J 105:966 My 25 '18
- Need for research in the non-metallic mineral field. R. B. Ladoo. II Chem & Met Eng 21:348-62 S 15 '19
- Preliminary report on the mineral production of Canada for 1918. J: McLeish. Eng & Min J 107:618-19 Ap 5 '19
- Problems of international readjustment of mineral supplies as indicated in recent foreign literature. E. F. Bliss. Econ Geol 14:147-71 Mr '19
- Relief claims exceed \$18,000,000. P. Wooton. Eng & Min J 107:1053 Je 14 '19
- War minerals. J. E. Spurr. Econ Geol 13:500-11 N '18
- War time mineral activities in Washington. E. S. Bastin. Econ Geol 13:524-37 N '18
- World control of minerals. C. K. Leith. Iron Tr R 65:160-1 J1 17 '19
- See also Iron industry and trade; Metal trade; Mines and mineral resources; Mining industry and finance; Petroleum industry
- Mineral lands**
- Abstracts of current decisions on mines and mining, reported from May to August, 1917. J. W. Thompson. U S Bur Mines Bul 159:3-9 '17
- Abstracts of current decisions on mines and mining, reported from September to December, 1917. J. W. Thompson. U S Bur Mines Bul 164:3-15 '18
- Abstracts of current decisions on mines and mining, reported from January to May, 1918. J. W. Thompson. U S Bur Mines Bul 172:1-160 '19
- Abstracts of current decisions on mines and mining reported from May to September, 1918. J. W. Thompson. U S Bur Mines Bul 174:1-137 '19
- Abstracts of current decisions on mines and mining; reported from September to December, 1918. J. W. Thompson. U S Bur Mines Bul 179:1-19 '19
- Conclusiveness of Land department findings. A. L. H. Street. Eng & Min J 105:583 Mr 30 '18
- Jim Butler Tonopah loses appeal; U.S. Supreme court affirmed judgment of Nevada Supreme court in favor of West End consolidated co. Eng & Min J 106:64-5 J1 13 '18
- Method of administering leases of iron-ore deposits belonging to the state of Minnesota. J. R. Finlay. U S Bur Mines Tech Pa 222:1-28 '19
- New mines of the Far East Rand. A. C. Key. Eng & Min J 106:821-4 N 9 '18
- Right to surrender lease. A. L. H. Street. Eng & Min J 108:278 Ag 16 '19
- Senate passes bill to authorize mining on Indian reservations. Eng & Min J 106:210 Ag 3 '18
- Sufficiency of assessment work. A. L. H. Street. Eng & Min J 105:630 Ap 6 '18
- See also Coal lands; Mines and mineral resources; Oil lands; Ore deposits
- Mineral oils.** See Petroleum
- Mineral resources.** See Mines and mineral resources

**Mineral springs.** See **Mineral waters**

#### Mineral waters

Determination of bromide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *diag J Ind & Eng Chem* 11:954-9 O '19

Determination of iodide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *J Ind & Eng Chem* 11:563-8 Je '19

Mineral springs of Alaska. *J Fr Inst* 185:415-16 Mr '18

#### Mineralogy

Magmatic ore deposits, Sudbury, Ont. A. M. Bateman. *Econ Geol* 12:391-426 Ag '17; Discussion. W. H. Goodchild. 13:137-43 Mr '18

Mechanics of vein formation. S. Taber. *il Am Inst Min E Bul* 140:1189-1222 Ag '18; Discussion. 144:1768-70 D '18

Quantitative measurements of minerals of the nickel-eruptive at Sudbury, Ontario. M. A. Dresser. *il diag Econ Geol* 12:563-80 O '17

Relation of sphalerite to other sulphides in ores. L. P. Teas. *il Am Inst Min E Bul* 131:1917-31 N '17; Discussion. 136:843-5 Ap '18

Technique of mineragraphy. W. L. Whitehead. *il diag Econ Geol* 12:697-716 D '17

See also **Assaying**; **Crystallography**; **Earths, Rare**; **Geology**; **Metals**; **Meteorites**; **Mines and mineral resources**; **Precious stones**; **Rocks**; also names of minerals, e.g. **Coal**, **Feldspar**, **Mica**

#### Minerals

Specific gravity table. *Eng & Min J* 107:1145 Je 28 '19

War minerals nitrogen fixation and sodium cyanide. V. H. Manning. *U S Bur Mines Bul* 178-B:41-61 '19

See also **Mineral lands**; **Mineralogy**; **Mines and mineral resources**; **Ores**; also names of minerals

**Minerals control bill.** See **Mineral industries**

#### Minerals separation, *il*

Report for 1917. *Eng & Min J* 105:758-9 Ap 20 '18

Supreme court hears **Minerals separation vs. Butte & Superior mining company.** *Chem & Met Eng* 20:318 Ap 1 '19

#### Miners

Adjustment of miners' wages on the Rand. *Eng & Min J* 105:3-4 Ja 5 '18

Americanizing the foreigner. *Coal Age* 14:286, 415, 521, 614, 708-9, 873-5, 1089-91 Ag 8, 29, S 12, 26, O 10, N 7, D 12 '18

British miners threaten strike. *Coal Age* 15:585 Mr 27 '19

Child labor in mines. *Coal Age* 16:457, 585-6, 661-2 S 11, O 2, 16 '19

Development of community interest. C. F. Willis. *Eng & Min J* 105:830-1 My 4 '18

Employment of mine labor. W. H. Noone. *Coal Age* 13:979-80 My 26 '18

Employment of mine labor. H. M. Wilson. *Am Inst Min E Bul* 145:83-5 Ja '19; Discussion. 147:608-10; 148:667-70 Mr-Apr '19

Future of mine labor. J. Majer. *Coal Age* 15:632-4 Ap 3 '19

Illinois mining statutes annotated. J. W. Thompson. *U S Bur Mines Bul* 169:1-594 '19

Kansas has school for mine workers. *Coal Age* 14:28 Jl 6 '18

Labor and gold mining in South Africa. E. A. Wallers. *Eng & Min J* 107:918-22 My 24 '19

Labor and mining in 1918. F. F. Sharpless. *Eng & Min J* 107:66-8 Ja 11 '19

Labor at Broken Hill. *Eng & Min J* 107:902 My 24 '19

Labor shortage in anthracite mines. *Coal Age* 13:1164-5 Je 22 '18

Labor situation at Cobalt. *Eng & Min J* 107:1173 Je 28 '19

Labor troubles at Butte. *Eng & Min J* 108:69 Jl 12 '19

Living conditions at mines. *Coal Age* 15:381-2, 726-7, 1056-7, 1098; 16:115, 377 F 13, Ap 17, Je 5-12, Jl 17, Ag 28 '19

Loyalty of foreign-born miners. *Coal Age* 14:189-90 Jl 25 '18

Men who received Bureau of mines certificates of mine rescue training. D. J. Parker. *U S Bur Mines Tech Pa* 226:1-70 '19

Miner and his pleasure. *Coal Age* 14:329, 463, 613-14, 657-8, 796, 834 Ag 15, S 5, 26-O 3, 24-31 '18

Miners oppose ending of apprenticeship. *Coal Age* 14:608 S 26 '18

Morale of mill crews. P. T. Bruhl. *Eng & Min J* 106:658-9 O 12 '18

Need for vocational schools in mining communities. J. C. Wright. *Am Inst Min E Bul* 145:91-4 Ja '19; Discussion. 148:674-80; 150:991-4 Ap, Je '19

Northwest needs man power. C. P. Norton. *il Coal Age* 14:16-19 Jl 6 '18

Oliver iron mining co. adopts labor co-operation policy. *Eng & Min J* 105:1166-7 Je 29 '18

Selective service act not to blame for scarcity of mine workers. *Coal Age* 14:278 Ag 8 '18

Shortage of mine labor. *Coal Age* 13:1209-10; 14:79, 186 Je 29, Jl 13, 25 '18

United mine workers of America convention, Indianapolis. *Coal Age* 13:153-4, 203-4 Ja 19-26 '18

Wages and labor conditions in gold mining. *Eng & Min J* 107:877 My 17 '19

Wages, working costs, and ore reserves of the Rand. A. C. Key. *Eng & Min J* 106:954-5 N 30 '18

Y. M. C. A. building vs. Y. hut. C. F. Willis. *il Coal Age* 14:486-8 S 12 '18

See also **Coal miners**; **Mine firebooses**; **Mine foremen**; **Mining camps**; **Mining schools and education**

#### Diseases and hygiene

Dust inhalation in mines. J. S. Haldane. *Sci Am S* 86:119 Ag 24 '18

Miners' safety and health almanac. R. C. Williams. *il diag U S Bur Mines Circ* 24:1-45 '18

Mortality from respiratory diseases in dusty trades. F. L. Hoffman. *U S Bur Labor Statistics Bul* 231:327-414 '18

Prevention of illness among employees in mines. A. J. Lanza. *Am Inst Min E Bul* 146:435-7 F '19; Same. *Eng & Min J* 107:351-3 F 22 '19; Discussion. *Am Inst Min Bul* 148:670-4; 150:989-90 Ap, Je '19

Siliceous dust in relation to pulmonary disease among miners in the Joplin district, Missouri. E. Higgins and others. *il diag plan maps U S Bur Mines Bul* 132:1-108 '17

#### Miners' houses

Building frame houses for miners as a contract job. C. S. Rindsfoos. *il diag Eng N* 79:1191-3 D 27 '17

Housing developments at Lee Park and Wanamie. E. H. Poggi. *il plans Coal Age* 12:962-5 D 8 '17

Modern housing standards at Dawson, New Mexico. C. F. Willis. *il diag plans Coal Age* 16:220-4 Ag 7 '19

Pisé de terre mine buildings. *Eng & Min J* 106:615-16 O 5 '18

Recent dwelling construction in Pennsylvania. D. C. Ashmead. *il diag plans Coal Age* 13:726-31 Ap 20 '18

#### Miners' lamps. See **Safety lamps**

#### Mines, Bureau of. See **United States—Mines, Bureau of**

#### Mines, Military

Blowing up the enemy; large-scale mining operations as a weapon of offensive warfare. *il Sci Am* 118:165 F 23 '18

Geology in the war. *Sci Am* 118:353+ Ap 20 '18

Mining in No man's land. H. D. Trownce. *Eng & Min J* 106:187-8 Jl 27 '18; Same abr. *Eng & Contr* 50:372 O 16 '18

See also **Bombs, Depth**; **Mines, Submarine**

#### Mines, Submarine

Derelict mines—a peace peril. *Sci Am* 120:196 Mr 1 '19

Elevators on mine-laying fleet made possible steady flow of mines to launching deck. *il Int Marine Eng* 24:293-4 Ap '19

**Mines, Submarine—Continued**

- Floating mines in the north Atlantic and Arctic oceans. Albert, Prince of Monaco. II maps Sci Am 120:394-5+ Ap 19 '19  
 Germany's plans for mining the sea. Sci Am 118:294 Ap 6 '18  
 North sea mine barrage. R. R. Belknap. II diags map Sci Am 120:250-1, 288-9 Mr 15-22 '19  
 Production of submarine mines. Iron Age 102: 669 S 12 '18  
 Submarine mining; abstract. A. L. Gwynne. Engineer 128:298 S 26 '19  
 When a periscope does not mean a submarine. Sci Am 118:383 Ap 27 '18  
*See also* Submarine warfare

**Protective devices**

- Mysterious paravane. W: W. Nutting. II diags Int Marine Eng 24:289-92 Ap '19  
 Paravane—a steel shark which protects vessels in mine-infested waters. II Sci Am 120: 91+ F 1 '19  
 Paravane; abstract. R. F. McKay. Engineer 128:298-9 S 26 '19  
 Protection of ships against mines. II diags Engineer 127:222-4, 293-4 Mr 7, 28 '19; Excerpt. Eng & Contr 51:440-1 Ap 30 '19

**Mines and mineral resources**

- Canada mining corporation's efforts to secure new properties. Eng & Min J 107:1048-9 Je 14 '19  
 Data of the world's principal mines. S. F. Shaw. Eng & Min J 105:87-8 Ja 12 '18  
 Problems of international readjustment of mineral supplies as indicated in recent foreign literature. E. F. Bliss. Econ Geol 14: 147-71 Mr '19  
*See also* Coal mines and mining; Copper mines and mining; Copper ores; Divining rod; Geology; Gold mines and mining; Hydraulic mining; Iron mines and mining; Lead mines and mining; Magnesite; Manganese; Mercury; Metals; Mine accidents; Mine management; Mine surveying; Mine ventilation; Mine water; Mineral lands; Mineralogy; Minerals; Mining engineering; Mining industry and finance; Mining law; Mining machinery; Molybdenite; Natural resources; Ore deposits; Ore sampling; Ores; Petroleum; Phosphates; Potash; Prospecting; Quarries and quarrying; Salt; Silver; Silver mines and mining; Sulfur; Tin; Tin mines and mining; Tungsten; Zinc; Zinc mines and mining

**Bibliography**

- Mining and metallurgical index. See monthly numbers of Bulletin of the American institute of mining engineers

**Alabama**

- Alabama graphite in 1918. W. F. Prouty. Eng & Min J 107:194-5 Ja 25 '19  
 Grading of graphite in Alabama. F. G. Downs. Eng & Min J 105:282-3 F 9 '18  
 Graphite companies in Alabama. W. F. Prouty. Eng & Min J 107:306 F 15 '19  
 Graphite industry in Alabama. maps Eng & Min J 105:281-2 F 9 '18  
 Mineral resources of chemical and metallurgical importance. E. A. Smith. II Met & Chem Eng 18:449-51 My 1 '18

*See also* Petroleum—Alabama

**Alaska**

- Alaskan chromite deposits. Eng & Min J 105: 777 Ap 27 '18  
 Mining in Alaska. C. C. Semple. Eng & Min J 106:736-9 O 26 '18  
 Mining in Alaska under war conditions. P. C. Stoess. Eng & Min J 106:611-14 O 5 '18  
 Mining industry in the territory of Alaska during the calendar year 1916. S. S. Smith. flow sheet U S Bur Mines Bul 153:1-89 '17  
*See also* Coal mines and mining—Alaska; Gold mines and mining—Alaska

**Arizona**

- Electric power for mining in Yavapai county, Arizona. II map Eng & Min J 105:1113-16 Je 22 '18

- Valuation of mines in Arizona. E. Jacobs. Eng & Min J 106:664-5 O 12 '18

*See also* Copper mines and mining—Arizona

**Arkansas**

- Developing Arkansas manganese. II Iron Tr R 64:328-30 Ja 30 '19  
 Manganese mining in Arkansas. T. Shiras. II Eng & Min J 104:1079-80 D 22 '17  
*See also* Bauxite; Lead mines and mining—Arkansas; Zinc mines and mining—Arkansas

**Australasia**

- Australasia in 1917. W. P. Geary. Eng & Min J 105:131-2 Ja 12 '18  
 Australasia in 1918. W. P. Geary. Eng & Min J 107:121-3 Ja 11 '19

**Australia**

- Alunite deposits of Australia. Engineer 125: 269 Mr 29 '18  
 Australian lead, silver and zinc. Eng & Min J 106:704 O 19 '18  
 Australian metal production. Eng & Min J 106:969 N 30 '18  
 Cost of Australian copper. R. Slessor. Eng & Min J 105:1100-1 Je 15 '18  
 Future of gold and copper mining in Australia. Eng & Min J 107:738 Ap 26 '19  
 Impressions of Australia and the Australians. G. C. Stone. Eng & Min J 107:5-7 Ja 4 '19  
 Mineral production of Queensland, 1917. Eng & Min J 105:1171 Je 29 '18  
 Queensland mineral production. Am Ind 18: 44 Ap '18

**Belgium**

- Mining and metallurgical situation in Belgium in 1919. Chem & Met Eng 21:154-5 Ag 1 '19

*See also* Coal mines and mining—Belgium

**Billiton**

- Tin-mining in the Dutch Indies. Sci Am S 87:383 Je 14 '19

**Bolivia**

- Bolivia. Eng & Min J 107:115-16 Ja 11 '19  
 Wolfram mining. G. F. Freumont. II Eng & Min J 107:597-600 Ap 5 '19

**Brazil**

- Platinum and palladium in Brazil. G: F. Kunz. II Sci Am S 88:24-5 Jl 12 '19

*See also* Iron ores—Brazil

**British Columbia**

- British Columbia mineral production in 1917. Eng & Min J 105:318 F 16 '18  
 Copper silver veins of the Telkwa district. V. Dolmage. II diags Econ Geol 13:349-80 Jl '18  
 Details of important mining bill before the British Columbia legislature. R. Dunn. Coal Age 15:524-6 Mr 20 '19  
 Mineral production of British Columbia for 1918. Eng & Min J 107:320-2 F 15 '19  
 Mining in British Columbia in 1918. R. Dunn. Eng & Min J 107:110-11 Ja 11 '19  
 Source of placer platinum in the Tulameen district. R. M. Macaulay. map Eng & Min J 107:303-6 F 15 '19  
*See also* Gold mines and mining—British Columbia

**Bulgaria**

*See* Coal mines and mining—Bulgaria

**Burma**

- Mineral industry in Burma. H. Adamson. Eng & Min J 106:877 N 16 '18  
 Minerals in Burma increase 16 2/3 per cent. Automotive Ind 39:934-5 N 28 '18  
 Operations of the Burma mines, ltd. A. B. Parsons. II Eng & Min J 107:257-62 F 8 '19

**California**

- California mineral production in 1916. Eng & Min J 104:1086 D 22 '17  
 California mineral production in 1918. Eng & Min J 107:801 My 3 '19



**Mines and mineral resources—California—Cont.**  
 California state mining bureau. W. T. Lundy. Eng & Min J 108:228-9 Ag 9 '19  
 Chrome-ore specifications and producers of chromite. Eng & Min J 105:420-1 Mr 2 '18  
 Notes on the black sand deposits of southern Oregon and northern California. R. R. Hornor. bibliog il 8 pls maps U S Bur Mines Tech Pa 196:1-39 '18  
 Quicksilver in California. flow sheet il diag Chem & Met Eng 19:237-40 S 1 '18  
*See also* Petroleum—California

#### Canada

Canadian mineral production, 1917. J. McLeish. Met & Chem Eng 18:624 Je 15 '18  
 Canadian mines and ore deposits. Iron Tr R 62:916-4 Ap 11 '18  
 Chrome mining. R. Harvie. Eng & Min J 107:144 Ja 18 '19  
 Methods for more efficiently utilizing our fuel resources. B. F. Haanel. map Gen Elec R 21:689-98 O '18  
 Preliminary report on the mineral production of Canada for 1917. Eng & Min J 105:588-91 Mr 30 '18

*See also* Coal mines and mining—Canada;  
 Mines and mineral resources—Manitoba;  
 Mines and mineral resources—Ontario

#### Central America

Central America in 1917. Eng & Min J 105:122-3 Ja 12 '18

#### Chile

Activity throughout 1918. Eng & Min J 107:113-15 Ja 11 '19  
 Veins of Chafarcillo. W. L. Whitehead. bibliog il diag Econ Geol 14:1-45 Ja '19

*See also* Copper mines and mining—Chile

#### China

Wolfram ore in Swatow district, China. M. S. Myers. Eng & Min J 106:445 S 7 '18  
*See also* Coal mines and mining—China;  
 Iron mines and mining—China

#### Colombia

Guanoco district of Colombia. S. F. Eaton. il Eng & Min J 107:513-15, 609-13 Mr 22, Ap 5 '19

#### Colorado

Colorado mining in 1918. Eng & Min J 106:381 Ag 31 '18  
 Manganiferous iron ore occurrences at Red Cliff, Colo. J. B. Umpleby. Eng & Min J 104:1140-1 D 29 '17  
 Milling in the San Juan. C. R. Wilfley. il Eng & Min J 107:1129-31 Je 28 '19  
 Mining in Colorado in 1917. G. E. Collins. Eng & Min J 105:143-4 Ja 19 '18  
 Mining in Colorado in 1918. G. E. Collins. Eng & Min J 107:152-4 Ja 18 '19  
 Mining in the Telluride district. H. J. Wolf. il Eng & Min J 106:395-9 Ag 31 '18  
 Molybdenite operations at Climax. D. F. Haley. Am Inst Min E Bul 140:1183-8 Ag '18; Same cond. Eng & Min J 106:394 Ag 31 '18  
 Ore deposition and enrichment at the Evergreen mine, Gilpin county. D. H. McLaughlin. il Econ Geol 14:465-75; Discussion. 475-9 S '19  
 Platoro-Summitville district of Colorado. C. S. Barnes. Eng & Min J 107:999 Je 7 '19  
 War minerals of Colorado. A. H. Hubbell. Eng & Min J 106:382-4 Ag 31 '18

#### Cuba

Chrome-ore deposits in Cuba. E. F. Burchard. il Am Inst Min Bul 153:sup2523-46 S '19  
 Cuba's chrome and manganese ores. Iron Tr R 63:1238-9 N 28 '18; Excerpts. Iron Age 102:693-4 S 19 '18; Excerpts. Eng & Min J 106:617 O 5 '18  
 Manganese deposits in Cuba. Eng & Min J 106:570 S 28 '18  
 Manganese ore deposits. E. F. Burchard. Am Inst Min E Bul 147:591-5 Mr '19

Manganese prospects in eastern Cuba. H. M. Wolcott. Eng & Min J 105:779-80 Ap 27 '18  
 Mining in Cuba in 1917. Eng & Min J 108:121-2 Ja 12 '18  
 Mining in Cuba in 1918. Eng & Min J 107:111-12 Ja 11 '19

#### Egypt

Phosphate in Egypt. E. Cortese. map Am Inst Min E Bul 134:523-7 F '18

#### France

Briey and Lens—a personal glimpse. H. C. Estep. il Iron Tr R 64:569-72 F 27 '19  
 With the return of Alsace-Lorraine France will become dominant factor in future steel industry of Europe. F. H. Probert. Am Gas Eng J 110:355-6 Ap 26 '19

*See also* Iron mines and mining—France;  
 Iron ores—France

#### Georgia

Bauxite in the Coastal plain. H. K. Shearer. diag Eng & Min J 105:13-16 Ja 5 '18  
 Mineral resources. S. W. McCallie. il Met & Chem Eng 18:451-3 My 1 '18

#### Georgia (republic)

Mineral resources of the republic of Georgia. Sci Am S 88:78 Ag 2 '19

#### Germany

Germany's mineral losses under the treaty. Iron Age 104:252-3 Jl 24 '19  
 Treaty strips Huns of plants. J. Horton. Iron Tr R 65:158 Jl 17 '19  
 Utilization of low-grade minerals in Germany. Eng & Min J 105:369 F 23 '18

*See also* Iron mines and mining—Germany

#### Great Britain

Mineral statistics. Engineer 126:12-13 Jl 5 '18  
 Mines and quarries general report and statistics for 1917. Engineer 127:156-8 F 14 '19  
*See also* Coal mines and mining—Great Britain

#### Guatemala

Mineral resources of Guatemala. W. C. Thurston. Dom Eng 86:275 F 8 '19

#### Idaho

Mining in Idaho in 1917. R. N. Bell. Eng & Min J 105:145-8 Ja 19 '18  
 Mining in Idaho in 1918. R. N. Bell. Eng & Min J 107:236-8 F 1 '19  
 Preliminary report on the mining districts of Idaho. T. Varley and others. maps U S Bur Mines Bul 166:1-113 '19

*See also* Lead mines and mining—Idaho

#### Illinois

Mineral resources of the La Salle district. J. A. Ede. diag maps plan Am Inst Min Bul 153:sup2609-30 S '19  
*See also* Coal mines and mining—Illinois;  
 Petroleum—Illinois

#### India

*See* Gold mines and mining—India

#### Indiana

Raw material resources of Indiana. W. N. Logan. il map Chem & Met Eng 21:320-3 S 15 '19

#### Indo-China

*See* Zinc mines and mining—Indo-China

#### Italy

Italy's mineral production in 1917 as influenced by the war. E. Ferraris. Eng & Min J 105:331 F 16 '18

#### Japan

*See* Petroleum—Japan

#### Kentucky

*See* Petroleum—Kentucky

#### Kongo, Belgian

Mineral industries in the Katanga. Eng & Min J 105:1167 Je 29 '18

**Mines and mineral resources—Kongo, Belgian**  
—*Continued*

Mining in the Belgian Congo. S. H. Ball and M. K. Shaler. map Eng & Min J 108:213-16 Ag 9 '19

**Lorraine**

See Iron mines and mining—Lorraine

**Madagascar**

Madagascar graphite exports. Eng & Min J 106:535 S 21 '18

**Manitoba**

Mining in Manitoba in 1917. R. C. Wallace. Eng & Min J 105:119-20 Ja 12 '18  
Mining in northern Manitoba. J. A. Campbell. II Eng & Min J 106:702-4 O 19 '18  
Molybdenite near Falcon lake. C. L. Bruce. Eng & Min J 106:856 N 16 '18

**Maryland**

Mineral resources. E. B. Mathews. Met & Chem Eng 18:453 My 1 '18

**Mexico**

Geology and mining methods at Pilares mine. W. R. Wade, A. Wandtke and P. De Nacozari. II diag plan maps Am Inst Min Bul 152:1143-69 Ag '19  
Mexican mining in 1918. Eng & Min J 107:112-13 Ja 11 '19  
Mining in Chihuahua. Eng & Min J 107:871 My 17 '19  
Mining in Mexico. Eng & Min J 105:120-1 Ja 12 '18  
Mining in Mexico today. II Eng & Min J 107:175-7 Ja 25 '19  
Relation of sulphides to water level in Mexico. P. K. Lucke. diag Am Inst Min E Bul 138:1105-8 Je '18  
Sulphur mining in Mexico. T. Paredes. Eng & Min J 106:253 Ag 10 '18

See also Petroleum—Mexico

**Michigan**

Mineral resources of Michigan. R. A. Smith. II Chem & Met Eng 21:326-30 S 15 '19

**Minnesota**

Minnesota state-owned iron mines; table. Chem & Met Eng 21:340 S 15 '19

See also Iron mines and mining—Minnesota

**Missouri**

See Lead mines and mining—Missouri;  
Zinc mines and mining—Missouri

**Montana**

Manganese at Butte. J. T. Pardee. Eng & Min J 105:1076-9 Je 15 '18; Excerpt. Iron Tr R 63:388-9 Ag 15 '18

See also Copper mines and mining—Montana; Zinc mines and mining—Montana

**Nevada**

Divide district. J. A. Carpenter. II Eng & Min J 107:859-61 My 17 '19  
Manganese deposits in White Pine county. J. T. Pardee. Eng & Min J 106:308 Ag 17 '18  
Manganese deposits of Clark county, Nevada. F. A. Hale, Jr. II Eng & Min J 105:775-7 Ap 27 '18  
Recently recognized alunite deposits at Sulphur, Humboldt county. I. C. Clark. II diag map Eng & Min J 106:159-63 Jl 27 '18  
See also Copper mines and mining—Nevada; Geology—Nevada

**New Caledonia**

Mineral exports of New Caledonia. Eng & Min J 107:348 F 22 '19

**New Jersey**

See Glauconite; Zinc mines and mining—New Jersey

**New Mexico**

Manganese mining in the Magdalena mining district. R. H. West. Eng & Min J 106:435 S 7 '18

Sulphur in Jemez canyon, New Mexico. P. S. Smith. Eng & Min J 106:449 S 7 '18

**New York**

Graphite mining in New York. D. H. Newland. Eng & Min J 105:151 Ja 19 '18

**North Carolina**

North Carolina minerals. J. H. Pratt. Met & Chem Eng 18:453-5 My 1 '18

See also Garnets

**Ohio**

Pyrite deposits in Ohio coal. W. M. Tucker. maps Econ Geol 14:198-219 My '19

See also Coal mines and mining—Ohio

**Oklahoma**

Miami district. A. E. Bendelari. Eng & Min J 107:145 Ja 18 '19

See also Petroleum—Oklahoma

**Ontario**

Graphite in Ontario in 1917. T. W. Gibson. Eng & Min J 105:151-2 Ja 19 '18  
Mining in Ontario in 1917. T. W. Gibson. Eng & Min J 105:117-19 Ja 12 '18  
Mining in Ontario in 1918. T. W. Gibson. Eng & Min J 107:108-10 Ja 11 '19  
Ontario metalliferous production. Eng & Min J 105:1087 Je 15 '18  
Ontario metalliferous production in the first nine months of 1917. Eng & Min J 104:1002 D 8 '17  
Ontario mineral production. Eng & Min J 107:1096 Je 21 '19  
Ontario mines production in 1918. Eng & Min J 106:1021 D 14 '18  
See also Gold mines and mining—Ontario; Nickel ores—Ontario

**Oregon**

Cinnabar ore in Jackson county, Oregon. A. E. Kellogg. II Eng & Min J 107:787 My 3 '19  
Manganese deposits near Lake Creek. Eng & Min J 106:872-3 N 16 '18  
Notes on the black sand deposits of southern Oregon and northern California. R. R. Hornor. bibliog II 8 pls maps U S Bur Mines Tech Pa 196:1-39 '18

**Papua**

Development of mining in Papua. Eng & Min J 106:481 S 14 '18

**Pennsylvania**

See Coal mines and mining—Pennsylvania

**Philippine Islands**

See Coal mines and mining—Philippine Islands

**Poland**

See Zinc mines and mining—Poland

**Porto Rico**

Limonite deposits of Mayaguez mesa, Porto Rico. C. R. Fetteke and B. Hubbard. II map Am Inst Min E Bul 135:661-76 Mr '18; Same cond. Iron Tr R 63:210-11 Jl 25 '18

**Portugal**

Mineral industry of Portugal. F. W. Foote and R. S. Ransom, Jr. II diag map Eng & Min J 106:47-53 Jl 13 '18

**Queensland**

Mineral production of Queensland. Eng & Min J 107:958 My 31 '19

**Rhodesia**

Mining in Rhodesia in 1918. Eng & Min J 108:645 O 18 '19  
Rhodesian mining operations. H. L. Stokes. Eng & Min J 105:23 Ja 5 '18  
Rhodesia's mineral output in 1917. Eng & Min J 106:1083 D 21 '18  
Tungsten deposits of southern Rhodesia. Sci Am S 85:10 Ja 5 '18

## Mines and mineral resources—Continued

- Russia**  
 Irtysh corporation developments in Siberia and the Russian internal situation. Eng & Min J 105:275-9 F 9 '18  
 Platinum mining in Russia. I. I. Rogovin. Eng & Min J 105:638 Ap 6 '18; Correction. 105:846 My 4 '18  
 Russia in 1917. J. P. Hutchins. Eng & Min J 105:126-8 Ja 12 '18
- Saar valley**  
 France given vast mineral stores. F. Mil-toun. map Iron Tr R 64:1354-5 My 22 '19
- Serbia**  
*See* Coal mines and mining—Serbia
- Siam**  
 Mining in Siamese Malaya. C. C. Hansen. Eng & Min J 106:79 JI 13 '18
- Siberia**  
 Siberian mines. C. W. Purington. Eng & Min J 108:403-5 S 6 '19
- South Africa**  
 Mineral production of South Africa in 1917. A. C. Key. Eng & Min J 105:1042-3 Je 8 '18  
 South African mineral production in 1916. Eng & Min J 105:369 F 23 '18
- South America**  
 South America in 1917. Eng & Min J 105:123-5 Ja 12 '18  
*See also* Petroleum—South America
- Spain**  
 Platinum in Ronda mountains, Spain. L. G. Dreyfus, jr. Eng & Min J 104:1122 D 29 '17
- Spitzbergen**  
 Spitzbergen and its resources. map Sci Am S 85:197 Mr 30 '18
- Tennessee**  
 Pyrite and pyrrhotite resources of Ducktown, Tenn. J. H. Taylor. Am Inst Min E Bul 134:529-33 F '18  
*See also* Coal mines and mining—Tennessee
- Texas**  
 Texas lignite industry. B. Gentry. map Coal Age 16:59-61 JI 10 '19  
*See also* Petroleum—Texas
- Transvaal**  
 Transvaal mining in 1917. H. F. Marriott. Eng & Min J 105:128-31 Ja 12 '18  
 Transvaal mining in 1918. H. F. Marriott. Eng & Min J 107:118-21 Ja 11 '19
- United States**  
 General review of mining in the United States in 1917. Eng & Min J 105:112-7 Ja 12 '18  
 General review of mining in the United States in 1918. Eng & Min J 107:103-7 Ja 11 '19  
 Metal industries flower in war. G. F. Creveling. II chart Iron Tr R 64:87-92 Ja 2 '19  
 Mineral and metal production, 1916-1917. Eng & Min J 105:612 Mr 30 '18  
 Mineral information board organized. Eng & Min J 105:477 Mr 9 '18  
 Mineral resources from a military standpoint. J. E. Pogue. Sci Am 118:147 F 16 '18  
 Mineral resources of the Appalachian South. II map Met & Chem Eng 18:448-59 My 1 '18  
 Minerals for ferroalloys; Senate committee on mines and mining has rewritten the Foster bill. Iron Age 102:671 S 12 '18  
 Natural and industrial resources of the North Central states; tables. map Chem & Met Eng 21:308-9 S 15 '19  
 Our deficient minerals. Eng & Min J 105:652-3 Ap 6 '18; Discussion. N. R. Layng. 105:797 Ap 27 '18  
 Plans for the fourteenth census of mines and quarries. Eng & Min J 108:688-9 O 25 '19

- Proposed minerals administration bill. Met & Chem Eng 18:442-3; 19:498 My 1, S 28 '18; Eng & Min J 106:462, 500, 545 S 7-21 '18  
 Proposed mines control. Eng & Min J 105:651-2 Ap 6 '18  
 United States mineral production in 1915 and 1916. Eng & Min J 104:1057 D 15 '17  
 War minerals. J. E. Spurr. Econ Geol 13:500-11 N '18

*See also* Coal mines and mining—United States; Iron mines and mining—United States; Petroleum—United States; Zinc mines and mining—United States

**Utah**

- Mining in Utah in 1917. E. R. Zalinski. Eng & Min J 105:140-3 Ja 19 '18  
 Mining in Utah in 1918. E. R. Zalinski. Eng & Min J 107:178-83 Ja 25 '19  
 Ore deposits of Utah. B. S. Butler. II diagms map Eng & Min J 108:605-11, 641-5 O 11-18 '19

*See also* Coal mines and mining—Utah; Copper mines and mining—Utah

**Venezuela**

- Mineral industry in Venezuela. C. F. Z. Caracristi. Eng & Min J 107:438-41 Mr 8 '19

**Vermont**

- Manganese deposits of South Wallingford. R. W. Jones. Eng & Min J 105:779 Ap 27 '18

*See also* Talc

**Virginia**

- Mineral resources in the chemical industries. T. L. Watson. II Met & Chem Eng 18:456-8 My 1 '18  
 Mining manganese at Crimora. M. Haney. Eng & Min J 105:875 My 11 '18  
 New manganese district in Virginia. Eng & Min J 104:990 D 8 '17  
 Pyrrhotite deposits of southwest Virginia. J. A. Van Mater. map Eng & Min J 105:198-9 Ja 26 '18

*See also* Tin mines and mining—Virginia

**Washington**

- Magnesite deposits of Washington. R. W. Stone. II map Eng & Min J 105:665-8 Ap 13 '18  
 Two manganese deposits in northern Washington. O. P. Jenkins. Eng & Min J 105:1082 Je 15 '18

**West Virginia**

- Geographic distribution of sulfur in West Virginia coal beds. I. C. White. maps Am Inst Min Bul 153:2197-2206 S '19  
 Mineral resources available for chemical, metallurgical, and electrometallurgical manufacturing. I. C. White. Met & Chem Eng 18:458-9 My 1 '18  
*See also* Coal mines and mining—West Virginia

**Wisconsin**

- Raw material resources of Wisconsin. W. O. Hotchkiss. II Chem & Met Eng 21:335-8 S 15 '19  
*See also*, Zinc mines and mining—Wisconsin

**Wyoming**

*See* Petroleum—Wyoming

- Minimum wage  
 Minimum wage. Monthly Labor R 7:1013-27 O '18  
 War labor board on minimum wage. Am Ind 19:11 N '18  
 Mining. Hydraulic. *See* Hydraulic mining  
 Mining accidents. *See* Mine accidents  
 Mining and metallurgical society of America  
 Presentation of medal to Pope Yeatman. Eng & Min J 105:594-6 Mr 30 '18  
 Mining camps  
 American engineer at Burma camp fights epidemics. H. N. Jenks. map Eng N 82:339-40 F 13 '19  
 Boarding house—an institution. R. W. Arms. Eng & Min J 108:616 O 11 '19

**Mining camps—Continued**

- Cafeteria at the Kerr Lake mine. H. A. Kee. *Eng & Min J* 105:945-6 My 25 '18
- Dietary for miners. S. H. Brockunier. *Eng & Min J* 105:627-30 Ap 6 '18; Discussion. J. B. Hastings. 105:1090-1 Je 15 '18
- Living conditions at mines. *Coal Age* 15: 331-2, 726-7, 1056-7, 1098; 16:115, 377 F 13, Ap 17, Je 5-12, JI 17, Ag 28 '19
- Mining-camp welfare. C. R. Brockunier. *Eng & Min J* 105:798 Ap 27 '18
- One-year retrospect of the coal industry of Utah. A. C. Watts. *Coal Age* 15:610-11 Ap 8 '19
- Sanitary engineers get direct results in East Indian mining camp. H. N. Jenks. *Eng & Min J* 107:389-91 Mr 1 '19
- Mining companies**
- Abstracts of current decisions on mines and mining reported from May to August, 1917. J. W. Thompson. *U S Bur Mines Bul* 159: 16-19 '17
- Abstracts of current decisions on mines and mining reported from September to December, 1917. J. W. Thompson. *U S Bur Mines Bul* 164:23-36 '18
- Oliver iron mining co. adopts labor co-operation policy. *Eng & Min J* 105:1166-7 Je 29 '18
- See also Mining industry and finance
- Mining congress, American.** See American mining congress
- Mining contracts.** See Mining law
- Mining convention, International.** See International mining convention
- Mining corporation of Canada, ltd.**
- Canada mining corporation's efforts to secure new properties. *Eng & Min J* 107:1048-9 Je 14 '19
- Mining costs**
- Alleviation of gold-mining conditions. G. E. Collins. *Eng & Min J* 106:581 S 28 '18
- Anthraxite mining costs. R. V. Norris. *Am Inst Min E Bul* 146:249-62 F '19; Same. *Coal Age* 15:1124-8 Je 19 '19; Discussion. *Am Inst Min Bul* 148:739-47 Ap '19
- Bunker Hill & Sullivan mining and concentrating co. report with unit costs of exploration, mining and milling. *Eng & Min J* 106:268-9 Ag 10 '18
- Coronado incline top-slicing method. W. G. Scott. *Am Inst Min E Bul* 135:1986 N '17; Same (table). *Eng & Min J* 105:279 F 9 '18
- Cost of producing ferro-grade manganese ores. C. M. Weld and W. R. Crane. *U S Bur Mines Minerals Investigations Ser* 13:1-22 '19 (Typew)
- Effect of the war upon Tonopah mining. J. A. Carpenter. *Eng & Min J* 106:601-4 O 5 '18
- Homestake mining expenses. *Eng & Min J* 107:1145 Je 28 '19
- Iron-ore super-taxation in Minnesota. D. E. Woodbridge. *Eng & Min J* 107:791-4 My 3 '19
- Labor-saving methods and appliances for loading coal. G. W. Engel. *diags plans Coal Age* 14:974-80 N 28 '18
- Mining costs at Cordova, Ontario. S. H. Brockunier. *Eng & Min J* 105:22 Ja 5 '18
- Operating cost of electric shovels in underground mining. *Eng & Contr* 50:486-7 N 20 '18; *Iron Age* 102:1281 N 21 '18
- Porphyry coppers. L. H. Goodwin. *Eng & Min J* 106:780-2, 866-6 N 2, 16 '18
- Rise in cost of zinc mining in Wisconsin. W. F. Boericke. *Eng & Min J* 107:564-6 Mr 29 '19
- Study of shoveling as applied to mining. G. T. Harley. *Coal Age* 15:314-22, 356-64 F 13-20 '19; Excerpts. *Eng & Contr* 51:187, 661-5 F 19, Je 18 '19; Summary. *Am Inst Min E Bul* 146:571-3 F '19
- Underground mining with electric shovels. E. J. Witthoff. *diag Coal Age* 14:1016-17 D 5 '18
- Wages, working costs, and ore reserves of the Rand. A. C. Key. *Eng & Min J* 106:954-5 N 30 '18
- See also Coal mines and mining—Cost; Mine haulage—Cost

**Mining dividends.** See Mining industry and finance**Mining engineering**

- Bulkheading open stopes. M. E. Richards. *diag plan Eng & Min J* 108:463-4 S 13 '19
- Cementation process in mining. A. H. Kry-nauw. *diag Eng & Min J* 106:596-7 D 7 '18
- Concreting prospect drill holes. R. H. Poston. *diag Eng & Min J* 107:309-11 F 15 '19
- Controlling the drawing-off in caving stopes. chart *diags Eng & Min J* 106:901-3 N 23 '18
- Determining length of diagonal crosscuts between parallel headings. P. M. Sherwin. *diag Coal Age* 15:218 Ja 30 '19
- Drawing pillars in machine mining. *Coal Age* 15:32, 288-9, 330-1, 415-16, 462, 503-4, 586-7, 724-5 Ja 2, F 6-13, 27, Mr 6-13, 27, Ap 17 '19
- Educating the small mine owner to the value of engineering. O. H. Hampsch. *Coal Age* 13:1043 Je 8 '18
- Examining and developing the mine prospect. H. T. Curran. *Eng & Min J* 107:343-8 F 23 '19
- Hand v. air drills for stoping. *Engineer* 128:315 S 26 '19
- Incline top-slicing method. W. G. Scott. *diag plans Am Inst Min E Bul* 131:1983-93 N '17; Excerpt. *Eng & Min J* 105:464-5 Mr 9 '18; Discussion. *Am Inst Min E Bul* 135:710-12 Mr '18
- Jackhammers vs. reciprocating machines. J. J. Wessels. *Eng & Min J* 106:209 Ag 3 '18
- Kinks for use around the mine; diagrams. *Coal Age* 14:156-7 JI 25 '18
- Method of supporting underground workings in the Rand mines. P. Cazalet and G. Hil-deck-Smith. *Eng & Contr* 50:116-7 JI 31 '18
- Mining in prehistoric times. F. C. Lincoln. *Eng & Min J* 107:866-7 My 17 '19
- Mining lower levels of the Comstock lode. L. H. Eddy. *diag Eng & Min J* 105:1029-32 Je 8 '18
- Mining methods at Chapin mine, Michigan. W. C. Gordon. *Eng & Min J* 104:995-8 D 8 '17
- Mining methods of United Verde extension mining co. C. A. Mitke. *diags Am Inst Min E Bul* 145:9-22 Ja '19
- Pillar workings. R. Littlehales. *Coal Age* 14:31-2 JI 6 '18
- Recovering caved stopes in narrow veins. C. T. Rice. *diag Eng & Min J* 105:1069-75; 106:1-7, 243-8 Je 15, JI 6, Ag 10 '18
- Standardization of mining methods. C. A. Mitke. *diags plans Eng & Min J* 106:814-19, 857-61, 939-44, 982-7, 1025-30, 1071-4, 1106-11 N 9-16, 30-D 28 '18
- Steam-shovel mining on the Mesabi range. L. D. Davenport. *diag plan Eng & Min J* 105:403-6, 493-8, 579-83 Mr 2, 16, 30 '18; Excerpts. *Eng & Contr* 49:388-9, 487, 489; 50: 66 Ap 17, My 15, JI 17 '18
- Stripping and drilling methods at the Sacramento Hill copper mines. R. T. Banks. *Eng & Contr* 51:389-90 Ap 16 '19; Same. *Eng & Min J* 107:690-1, 700-1 Ap 19 '19
- Survey office on the Rand. E. M. Weston. charts *Eng & Min J* 106:58-61 JI 13 '18
- Tunnel driving at Copper Mountain, B.C. O. Lachmund. *diags Am Inst Min E Bul* 147: 579-83 Mr '19; Same. *Eng & Contr* 51:286-7 Mr 19 '19; Same. *Eng & Min J* 107:567-8 Mr 29 '19
- Unusual bounce condition. A. C. Watts. *diag plan Coal Age* 14:1028-30 D 5 '18; Discussion. H. M. Chance. 15:198-9 Ja 23 '19
- Working a 22-deg. pitch. *Coal Age* 14:837 O 31 '18
- See also Blasting; Coal mines and mining; Drilling and boring (earth and rocks); Electricity in mining; Hydraulic mining; Iron mines and mining; Mine construction; Mine drainage; Mine haulage; Mine hoisting; Mine management; Mine shafts; Mine shops; Mine surveying; Mine timbering; Mine ventilation; Mines and mineral resources; Mining engineers; Mining machinery; Mining schools and education; Ore handling; Ore sampling; Prospecting;

**Mining engineering—Continued**

Rock drills; Shaft sinking; Shoveling;  
Tunnels and tunneling; Water supply for  
mines

**Bibliography**

Mining and metallurgical index. See monthly  
numbers of Bulletin of the American insti-  
tute of mining engineers

**Examinations**

See Coal mines and mining—Examinations

**Power**

- Central station power for mines. A. Tancig.  
Eng & Min J 106:1119 D 28 '18  
Centralized mine plant. C. C. Muldner. II  
Power 47:370 Mr 12 '18  
Changing from isolated to central station  
power. F. Huskinson. II diags Coal Age  
14:14-15 Jl 6 '18  
Economics in a mine power plant. J. A.  
Carruthers. diags Power 49:720-2 My 13  
'19; Same. Eng & Min J 107:1032-4 Je  
14 '19  
Economy in power for the mine. C. M. Gar-  
land. Coal Age 13:789-90 Ap 27 '18  
Economy of electricity over steam for power  
purposes in and about mines. R. E. Hobart.  
II Am Inst Min E Bul 134:213-21 F '18;  
Same. Coal Age 13:532-6 Mr 23 '18; Discus-  
sion. Am Inst Min E Bul 136:811-17 Ap '18  
Efficiency engineering for coal mines. C. H.  
Elsom. Coal Age 13:53-6 Ja 12 '18  
Electricity in coal-mining operations. F.  
Huskinson. II Elec R 73:1-4, 81-2 Jl 6, 20  
'18  
Electrification of a Durham colliery. II diags  
plan Engineer 126:136-8, 152-4, 160 Ag 16-23  
'18  
Elimination of power losses. G. Bright. Coal  
Age 14:1021-4 D 5 '18; Discussion. 15:27-8,  
460 Ja 2, Mr 6 '19  
Exhaust-steam turbine installations at coal  
mines. E. I. Roberts. Coal Age 13:1049-52,  
1101-6 Je 8-15 '18  
Illinois coal-mine power plants. E. Steck.  
Coal Age 16:355-6 Ag 28 '19  
Increasing coal mine efficiency. C. E. Stuart.  
Coal Age 14:773-8, 820-3, 857-60, 903-4 O  
24-N 14 '18  
Logan, West Virginia, power plant. II diags  
plan Power 46:818-22 D 18 '17  
Modern substations of large anthracite dis-  
tribution system. II diag plan Coal Age 14:  
850-2 N 7 '18  
Power rates for the Engels copper mining co.  
Eng & Min J 108:452 S 13 '19  
Selection of power for mine service. E. Steck.  
Coal Age 16:534-5 S 25 '19  
Up-to-date coal-mine power plant of Clear-  
field bituminous coal corporation. D. C.  
Ashmead. II diags plans Coal Age 13:48-52,  
232-6 Ja 12, F 2 '18  
Use of electric power in the mining of anthra-  
cite coal. J. B. Crane. II Am Inst E E Pro  
37:1197-1202 O '18; Same. Elec R 73:976-7 D  
21 '18; Same. Gen Elec R 22:146-8 F '19  
See also Electricity in mining

**Safety measures**

- Alarm bell on mine car. M. Stafford. diag  
Coal Age 14:429 S 5 '18  
Apex water-blast apparatus. E. M. Weston.  
diags Eng & Min J 105:922 My 18 '18; Same.  
Eng & Contr 49:623 Je 19 '18  
Dust abatement in mines. W. O. Borchardt.  
Eng & Min J 106:1084-5 D 21 '18  
Markers on mine trips. Coal Age 16:503, 543-4  
S 18-25 '19  
Mine labor and accidents. H. M. Wilson. Am  
Inst Min E Bul 134:275-7 F '18; Same cond.  
Iron Tr R 62:428 F 14 '18; Discussion. Am  
Inst Min E Bul 136:858-65 Ap '18  
Mine safety in wartime. D. Harrington.  
Coal Age 14:638-41 O 3 '18  
Mine safety rules. 125p '18 California Indus-  
trial accident comm., 525 Market st, San  
Francisco  
National safety council 8th annual safety  
congress, Cleveland. R. D. Hall. Coal Age  
16:618-23 O 9 '19

Need for a definite technical service in the  
mining section of the National safety coun-  
cil. B. F. Tillson. Coal Age 16:645-8 O 16  
'19

- New type of safety horn. II Coal Age 16:720  
O 30 '19  
Portable tank for gasoline engine working  
underground. diag Eng & Contr 49:57 Ja  
16 '18  
Prevention of mine explosions. J. Ashworth.  
Coal Age 13:915 My 18 '18  
Quickly adjusted jack-prop. H. Goodnow.  
diag Coal Age 14:342 Ag 22 '18  
Reducing ventilation at firing time. Coal Age  
14:1000-1; 15:69-70, 290-1 N 28 '18, Ja 9, F  
6 '19  
Safe and unsafe practices in mines; photo-  
graphs. Eng & Min J 105:832-3 My 4 '18  
Safe practice in using wire ropes in mines.  
R. H. Kudlich and O. P. Hood. U S Bur  
Mines Tech Pa 237:1-11 '19  
Safeguarding the mine shaft. D. E. Charlton.  
II Eng & Min J 106:1061-3 D 21 '18  
Safeguards in trolley haulage. Coal Age 15:  
71, 502-3 Ja 9, Mr 13 '19  
Safety first. T. Cowperthwaite. Eng & Min  
J 105:566-7 Mr 23 '18  
Safety in mine timbering. II Coal Age 15:  
919, 1175-6; 16:163 My 15, Je 26, Jl 24 '19  
Safety precautions and results. E. Higgins.  
Eng & Min J 106:751 O 26 '18  
Simple safety device for skips handling men.  
II Eng & Min J 105:165 Ja 19 '18  
Some common violations of the mining  
laws. W. J. Heatherman. Coal Age 15:  
1159-60 Je 26 '19  
Standardization of mining methods; fire pro-  
tection for metal mines. C. A. Mitke. II  
diags plan Eng & Min J 106:1025-30 D 14 '18  
Suggestions for the safe operation of gasoline  
engines in mines. R. H. Kudlich and E.  
Higgins. diags U S Bur Mines Tech Pa 174:  
1-16 '17; Summary. Eng & Contr 49:395 Ap  
17 '18  
Violations of mining laws. R. Bowen. Coal  
Age 16:286 Ag 14 '19  
What's wrong with the mines? J. Touhey.  
Coal Age 13:1078-9 Je 8 '18  
Work of accident prevention. W. Conibear.  
Eng & Min J 108:226-7 Ag 9 '19  
See also Car stop; Coal mines and mining  
—Safety measures; Mine hoisting—Safety  
devices and measures; Mine rescue work;  
Mine signals; Odorometer; Respiratory ap-  
paratus; Safety lamps

**Standards**

- Standardization of mining methods. C. A.  
Mitke. diags plans Eng & Min J 106:814-19,  
857-61 N 9-16, 30-D 28 '18  
Standardized system of mining. diag Coal  
Age 14:266 Ag 8 '18

**Tables, calculations, etc.**

- Contents of mine sump. diag Coal Age 16:  
337 Ag 21 '19

**Mining engineers**

- International cooperation in mining in North  
America. A. R. Ledoux. Am Inst Min E Bul  
148:649-51 Ap '19  
Mining engineers in the war. F. F. Sharpless.  
Eng & Min J 107:1-4 Ja 4 '19  
Success of the coal mining engineer. E. I.  
Roberts. Coal Age 13:689-90 Ap 13 '18  
Teaching engineers economics. A. P. Allen.  
Eng & Min J 107:366-7 F 22 '19  
Value of an engineer to the operator. Coal  
Age 13:823-4 My 4 '18  
Value of the mining engineer. F. L. Serviss.  
Coal Age 14:708 O 10 '18

See also Raymond, Rossiter Worthington

**Mining industry and finance**

- Alaska Gastineau mining co. Eng & Min J  
107:622 Ap 5 '19  
American mining after the war. K. Thomas.  
Eng & Min J 106:918-19 N 23 '18  
American mining congress. B. Wells. Eng &  
Min J 107:489-90 Mr 15 '19  
Bankers and mining. H. A. Wheeler. Eng  
& Min J 108:690-1 O 25 '19  
Chronology of mining for 1917. Eng & Min  
J 105:77-9 Ja 12 '18

**Mining industry and finance—Continued**

- Chronology of mining for 1918. Eng & Min J 107:69-71 Ja 11 '19
- Company reports. See weekly numbers of Engineering & mining journal
- Co-operation among small mines. G: J. Young. II Eng & Min J 106:811-13 N 9 '18; Discussion. 106:879 N 16 '18
- Coöperation in mine promotion and management. P. T. Bruhl. Eng & Min J 106:862-3 N 16 '18
- Cornish mining development. Eng & Min J 106:213 Ag 3 '18
- Data of the world's principal mines. S. F. Shaw. Eng & Min J 105:87-8 Ja 12 '18
- Depletion and depreciation of coal-mining properties. D. C. Burdick. Coal Age 16:185-7 J1 31 '19
- Depreciation and measurement of expired outlay on plant. E. A. Erickson. Eng & Min J 103:370-2, 447-9 Mr 3, 17 '17
- Dividends by Colorado mines. Eng & Min J 106:404 Ag 31 '18
- General review of mining in the United States in 1917. Eng & Min J 105:112-17 Ja 12 '18
- General review of mining in the United States in 1918. Eng & Min J 107:103-7 Ja 11 '19
- International mining convention at Vancouver. Eng & Min J 107:860-6 Ap 12 '19
- Marketing the mine prospect. E. S. Boalich. Eng & Min J 107:601-2 Ap 5 '19
- Merits of gold and base-metal mines as speculative investment. H. B. Hatch. Eng & Min J 105:430 Mr 2 '18
- Mining and metallurgical construction in 1917. Eng & Min J 105:80-4 Ja 12 '18
- Mining conditions in South Africa. E. M. Weston. Eng & Min J 107:363-4 F 22 '19
- Mining dividends in 1917. Eng & Min J 105:159-61 Ja 19 '18
- Mining dividends in 1918. Eng & Min J 107:127-9 Ja 11 '19
- Mining in Ontario in 1918. T. W. Gibson. Eng & Min J 107:108-10 Ja 11 '19
- Mining stocks in 1917. Eng & Min J 105:85-6 Ja 12 '18
- Mining stocks in 1918. Eng & Min J 107:158-9 Ja 18 '19
- Mining stocks on the New York stock exchange, 1914-17. Eng & Min J 105:84 Ja 12 '18
- Nature and uses of capital in mining. J. R. Finlay. Eng & Min J 107:780-6 My 3 '19
- New mining and metallurgical construction in 1918. Eng & Min J 107:71-6 Ja 11 '19
- North Star mines co.; 1918 report. Eng & Min J 108:61 J1 12 '19
- Present condition of the mining and metallurgical industries in Germany. Am Inst Min E Bul 140:sup 64-6 Ag '18
- Rand's financial aspect. A. C. Key. Eng & Min J 108:144-5 J1 26 '19
- Spain's 1917 mineral production. Eng & Min J 106:840 N 9 '18
- Trade commission reports on profits. Eng & Min J 106:30 J1 6 '18
- War-baby mines. F. F. Sharpless. Eng & Min J 105:555 Mr 23 '18
- See also Metal trade; Mine accounting; Mine taxation; Mine valuation; Mineral industries; Mining costs
- Mining institute, Canadian.** See Canadian mining institute
- Mining law**
- Abstracts of current decisions on mines and mining reported from May to August, 1917. J. W. Thompson. U S Bur Mines Bul 159:1-110 '17
- Abstracts of current decisions on mines and mining reported from September to December, 1917. J. W. Thompson. U S Bur Mines Bul 164:1-146 '18
- Abstracts of current decisions on mines and mining, reported from January to May, 1918. J. W. Thompson. U S Bur Mines Bul 172:1-160 '19
- Abstracts of current decisions on mines and mining reported from May to September, 1918. J. W. Thompson. U S Bur Mines Bul 174:1-137 '19

- Abstracts of current decisions on mines and mining, reported from September to December, 1918. J. W. Thompson. U S Bur Mines Bul 179:1-164 '19
- Abstracts of current decisions on mines and mining reported from January to May, 1919. J. W. Thompson. U S Bur Mines Bul 181:1-173 '19
- British Columbia operators object to features of new act. Coal Age 15:571 Mr 27 '19
- California mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 161:1-312 '18
- Certification and safety. Coal Age 15:374-5, 766-7, 1010-11 F 20, Ap 24, My 29 '19
- Deficiency of coal in place under lease—loss of renewal option. Coal Age 13:512 Mr 16 '18
- Details of important mining bill before the British Columbia legislature. R. Dunn. Coal Age 15:524-6 Mr 20 '19
- Discharging water from mining plants; mine owner's liability. C. C. Sherlock. Eng & Min J 107:311-12 F 15 '19
- Extralateral mining rights. A. L. H. Street. Eng & Min J 105:273 F 9 '18
- Illinois mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 169:1-594 '19
- Interpreting mining laws. Coal Age 12:294-5, 463; 13:1170; 14:77, 143-4 Ag 13, S 15 '17, Je 22, J1 13-20 '18
- Jim Butler Tonopah loses appeal; U.S. Supreme court affirmed judgment of Nevada Supreme court in favor of West End consolidated co. Eng & Min J 106:64-5 J1 13 '18
- Legal aspect of tailings disposal. C. C. Sherlock. Eng & Min J 107:1080-1 Je 21 '19
- New angles to the apex law. J. A. Shelton. diag Am Inst Min Bul 152:1417-23 Ag '19; Same. Eng & Min J 108:733-5 N 1 '19
- Peculiar mining rights. C. C. Sherlock. Eng & Min J 107:569 Mr 29 '19
- Pennsylvania mining law. Coal Age 12:589-90, 986 O 6, D 8 '17
- Phase of the apex law. C. E. Dutton. Eng & Min J 108:146-7 J1 26 '19
- Requirements in mining law. R. W. Mayer. Coal Age 13:335-6 F 23 '18
- Safety laws and the responsibilities of operators. C. C. Sherlock. Eng & Min J 106:831 N 9 '18
- Some common violations of the mining laws. W. J. Heatherman. Coal Age 15:1159-60 Je 26 '19
- Uniform mining law for North America. T. E. Godson; H. V. Winchell. Am Inst Min E Bul 148:653-60; Discussion. 660-5 Ap '19
- Water rights in mining; legal elements defining ownership in water. C. C. Sherlock. Eng & Min J 108:181 Ag 2 '19
- What Mexico needs. Eng & Min J 108:612-15 O 11 '19
- See also Mine taxation; Mineral lands
- Mining machinery**
- American mining machinery for Chosen. II Sci Am 119:414 N 23 '18
- English practice in overburden stripping in mining iron ore. diags Eng & Contr 50:402-3 O 30 '18
- Mine machinery manufacture in the Middle West. Eng & Min J 108:440-2 S 13 '19
- Purchase of mining machinery and supplies. C. E. Bowron. Coal Age 14:782-4 O 24 '18
- Report on economies in mill parts in South African gold mills. Eng & Min J 107:1125 Je 28 '19
- See also Coal breakers; Coal cutters; Coal mining machinery; Electricity in mining; Excavating machinery; Hoisting machinery; Jigs (mining); Mine haulage; Mine hoisting; Mine pumping; Ore treatment; Rock drills; Shoveling machines
- Mining research**
- Research in the coal-mining industry. E. A. Holbrook. Am Inst Min Bul 153:1723-37 S '19; Discussion. 155:3047-9 N '19
- See also United States—Mines, Bureau of—Pittsburgh station
- Mining rights.** See Mining law

**Mining schools and education**

Carnegie institute recasts course in mining engineering. *Coal Age* 16:112-13 J1 17 '19  
 Educational methods at the Copper Queen. C. F. Willis. *Il Am Inst Min Bul* 151:1099-1106 J1 '19; Discussion. 156:3190-2 D '19  
 Practical miners' course of the University of Kentucky. *Il Coal Age* 15:624 Ap 3 '19  
 Texas state school of mines. W. D. Hornaday. *Il Eng & Min J* 105:994 Je 1 '18

**Mining terms**

Abstracts of current decisions on mines and mining reported from May to August, 1917. J. W. Thompson. *U S Bur Mines Bul* 159:13-15 '17

Abstracts of current decisions on mines and mining reported from September to December, 1917. J. W. Thompson. *U S Bur Mines Bul* 164:22 '18

Vein, seam, horizon, blanket or bed? *Coal Age* 14:72 J1 13 '18

**Mining towns**

Fireco—a new mining town in West Virginia. *Il Coal Age* 14:493-6 S 12 '18

Life of a mining community. C. F. Willis. *Il Eng & Min J* 106:731-3 O 26 '18

Plan your town as carefully as you would your plant. G. H. Miller. plan map *Coal Age* 14:130-2 J1 20 '18

Strong background for community work is formed by bathhouses and laundries. D. J. Baker. *Il Coal Age* 16:634-7 O 16 '19

See also Miners' houses; Mining camps

**Minneapolis, Minnesota****Churches**

Construction of a lantern and fleche, Hennepin avenue church, Minneapolis. *Il diags plans Am Arch* 114:469-75 O 16 '18

**Rapid transit**

City constructs railway to convey employees and freight to its filtration plant. *Eng & Contr* 49:277-8 Mr 13 '18

Minneapolis arbitration award announced. *Elec Ry J* 51:382 F 23 '18

Service-at-cost franchise proposal. *Elec Ry J* 51:719 Ap 13 '18

**Water supply**

Four years' operating results of Minneapolis water purification plant. F. W. Cappelen. *Eng & Contr* 50:347-8 O 9 '18

**Minnesota**

Engineering activities of the Twin Cities. F. C. Shenehon. *Eng N* 82:1251-4 Je 26 '19

See also Iron mines and mining—Minnesota; Mines and mineral resources—Minnesota; Roads—Minnesota; Water power—Minnesota

**Minnesota electrical association**

11th annual convention, Minneapolis, March 11-13. *Elec R* 72:459, 518 Mr 16-23 '18; *Elec W* 71:579 Mr 16 '18

12th annual convention, St Paul, Minn., March 18-20. *Elec R* 74:511-13 Mr 29 '19

Minnesota surveyors' and engineers' society Annual meeting, Duluth, Feb. 21-23. *Eng N* 80:430 F 28 '18

**Minot, North Dakota****Water supply**

New well supply of Minot. A. Hunt. *Eng & Contr* 52:301 S 10 '19

**Mints**

Melting silver, nickel, and bronze alloys by electricity. *Eng & Min J* 107:323-4 F 15 '19

Metal melting as practiced at the Royal mint, Birmingham, England. W. J. Hocking. *Il diags plan Metal Ind* 15:348-9, 382-5 Ag-S '17; Same cond. Foundry 45:191-3 My '17; Abstract, with discussion. *Engineer* 123:311 Ap 6 '17

**Mirage**

Optics of the air. W. J. Humphreys. *Il diags J Fr Inst* 188:457-62 O '19

**Mirrors**

English architectural decoration; overmantels and mirrors. A. E. Bullock. *Il Arch Rec* 46:220-36 S '19

How can mirrors be refinished? *Bldg Age* 40:312 Je '18

Reflecting power of stellite and lacquered silver. W. W. Coblenz and H. Kahler. *U S Bur Stand Sci Pa* 342:215-17 '19

See also Reflectors

**Mississippi river**

Government's Mississippi barge fleet now building. B. L. Brown. *Eng N* 81:621 O 3 '18; Same. *Ry R* 63:564 O 19 '18; Same. *Sci Am S* 86:333 N 23 '18

Ice gorges on river sink many vessels. W. H. Bixby. *Eng N* 80:526-7 Mr 14 '18

Lower Mississippi as an arm of the sea; potential value to the new American merchant marine. M. von Pagenhardt. *Int Marine Eng* 23:59-61 F '18

New Mississippi. *Il Sci Am* 118:561+ Je 22 '18

Revival of Mississippi river traffic. M. von Pagenhardt. *Il Int Marine Eng* 24:80-2, 160-5, 295-7 F-Ap '19

Waterway plans of the Mississippi valley outlined at annual meeting of the Mississippi valley waterways' association. *Ry R* 64:617-18 Ap 26 '19

**Bibliography**

Improvement of the upper Mississippi river. W. Gregory. *Minn Affiliated Eng Soc Bul* 3:218-40 '18 (Reprint)

**Mississippi valley**

Economics of transportation in the Mississippi valley. J. R. Bibbins. map *Eng N* 82:971-3 My 15 '19; Same. *Sci Am S* 87:406-7 Je 28 '19

**Mississippi valley waterways' association**

Organization. *Am Lumberman* 2279:58-9 Ja 18 '19

Waterway plans of the Mississippi valley outlined at annual meeting. *Ry R* 64:617-18 Ap 26 '19

**Missouri****Industries and resources**

Milling practice and operating costs in the Joplin district. H. W. Kitson. flow sheet *Il map Eng & Min J* 105:727-34 Ap 20 '18

See also Lead mines and mining—Missouri

Missouri, Kansas & Texas railroad Report for 1917. map *Ry Age* 65:287-8 Ag 16 '18

**Missouri master plumbers' association**

Annual convention, Kansas City, Mo., March 11-12. *Dom Eng* 82:418-19 Mr 16 '18

**Missouri Pacific railroad**

1st annual report for year ended December 31, 1917. map *Ry Age* 64:1264-5, 1305-6 My 24 '18

**Missouri river**

Chaining the Missouri; tubular concrete pile used to check the river's inroads on its banks. H. T. Dobbins. *Il Sci Am* 121:306+ S 27 '19

Mitchel, John Purroy, 1879-1918

Appreciation. *Eng N* 81:101-2 J1 11 '18

Mixers, Concrete. See Concrete mixers

**Mobile, Alabama****Harbor**

Port enlargement. *Eng N* 80:920 My 9 '18

Proposed harbor development at Mobile. W. T. Donnelly. *Int Marine Eng* 24:758 N '19

**Mobile & Ohio railroad**

Reclamation plant of the Mobile & Ohio R. R., Murphysboro, Ill. *Ry R* 62:516-17 Ap 6 '18

**Model towns**

First war emergency government towns, Atlantic Heights, N.H. *Il diags plans Am Inst Arch J* 6:427-34 S '18

Gulf Coast shipyard solves housing problem. *Il Int Marine Eng* 23:129-30 Mr '18

Housing at Tyrone, New Mexico. C. F. Willis. *Il Chem & Met Eng* 19:626-9 O 15 '18

**Model towns—Continued**

- Indian Hill: a model industrial village. C. S. Anderson. *Am Soc M E J* 40:pt 1, 557-8 J1 '18
- Making good with tradition discarded; foundry of the American cast iron pipe co., Birmingham, Ala. A. O. Backert. *il diags plans Iron Tr R* 62:95-106 Ja 3 '18; Same. Foundry 46:115-27 Mr '18
- Mill village of Victoria mills, Rock Hill, S. C. plans Textile World 53:4235+ Mr 16 '18
- Mill village planning for southern mills. E. S. Draper. Textile World 53:2489+ D 15 '17
- Morgan Park, Minn.; industrial suburb for the Minnesota steel company. *il plans Am Arch* 113:743-58+ Je 5 '18
- Union Park gardens; a model garden suburb for shipworkers at Wilmington, Del. W. E. Groben. *il diags plans map Arch Rec* 45:44-64 Ja '19
- Workmen's colony, East Youngstown, O. F. J. Herding. *il diags plans Am Arch* 114:383-98 O 2 '18

See also Pullman, Illinois

**Modeling**

- Stone manufacture. P. H. Beatty. *il Concrete* 13:17 J1 '18

**Models**

- How the sun, earth and moon move; illustrated by an ingenious mechanical model. *il diags Sci Am S* 84:380-1 D 15 '17
- Model explains water filter to visitors. *il Eng N* 82:923 My 8 '19
- Model making in the drafting room. R. Rook. *il Am Arch* 114:247-52 Ag 28 '18
- Model of complicated form makes considerable saving in cost. T. M. Lauridsen. *il Eng N* 80:731-2 Ap 11 '18; Same abr. Concrete 13:94 S '18; Same abr. Eng & Contr 50:380 O 23 '18
- Models of structures in the Catskill aqueduct system. *il Am Water Works Assn J* 6:9-14 Mr '19
- Preservation of architectural models. *Am Arch* 114:252 Ag 28 '18
- Purpose of models in interchangeable manufacturing. E. Buckingham. *Mach* 26:129-30 O '19
- Thirteen-foot model of the world's most active volcano; reproduction of the Kilauea district in Hawaii on a scale of 1-1500. R. A. Daly. *il Sci Am* 118:132+ F 9 '18
- Tiny town; experiments of Springfield, Mo., evolves method of promoting ideals of citizenship. W. H. Johnson. *il Am Arch* 116:439-43 O 1 '19
- Unit house building. *il Am Lumberman* 2268:31+ N 2 '18
- Weighing a 2,000-ton coke pile with postal scales. R. W. Bumstead. *il Factory* 23:1053-4 N '19
- World in miniature; why models are built and how they are built. *il Sci Am* 118:168-9+ F 23 '18

**Models, Mine. See Mine models****Moisture**

- Moisture content of textiles and some of its effects; abstracts. W. D. Hartshorne. *diag Am Soc M E J* 39:905-12 N '17; Textile World 53:3107+ Ja 12 '18; Discussion. *Am Soc M E J* 40:155-6 F '18

**Moisture of the air. See Humidity****Molasses**

- Composition and calorific value of sirups and molasses derived from sugar cane. C. A. Browne. *Am Chem Soc J* 41:1432-40 S '19
- Details of the failure of a 90-foot molasses tank. B. S. Brown. *il diags plan Eng N* 82:974-6 My 15 '19
- Disastrous explosion of a tank of molasses. *il Sci Am* 120:39 F 1 '19
- Notes on the analysis of molasses. H. S. Walker. *J Ind & Eng Chem* 10:198-202 Mr '18
- Recovery of potash from molasses fermentation liquors. E. Humboldt. *il Chem & Met Eng* 20:55 Ja 15 '19
- Reporters' chemistry. *Sci Am* 120:252 Mr 15 '19

**Molding (clay, plaster, etc.). See Modeling****Molding (metal). See Foundry practice****Molding machines**

- Champion roll-over molding machines. *il Foundry* 46:287 Je '18
- Cope and drag made simultaneously. *il Iron Tr R* 65:1118-19 O 23 '19
- Hints for molding machine operators. *Iron Tr R* 62:322 Ja 31 '18
- How brass carburetors are molded and cast. *il Foundry* 46:464-9 O '18
- Large molding machine for railroad work. *il Foundry* 46:591 D '18
- Molding facilitated; cope-handling and pattern-drawing equipment that may be applied to any pneumatic crosshead squeezer. *il Foundry* 46:88-90 F '18
- Molding machine that throws sand. P. Dwyer. *il Foundry* 47:535-8 Ag 15 '19; Same. *Iron Tr R* 65:567-70 Ag 28 '19
- Molding machines facilitate the production of castings for tractors. *il Foundry* 46:230-3 My '18
- New type of Dayton molding machine. *il Foundry* 47:670 S 15 '19
- Pouring system for modern foundries. M. P. Ohlsen. *il Iron Age* 102:1203 N 14 '18

**Molding sand. See Sand, Foundry****Moldings**

- Patterns for raking molding with 90-deg. turn. diags plans Metal Work 90:527-8 N 8 '18
- Profiles and materials. W. L. Mowll. *Arch Rec* 45:142-7 F '19
- Raking molding return pattern problems. diags plan Metal Work 90:660-1 D 13 '18

**Molds (botany)**

- Deterioration of manufactured cane sugar by molds. N. Kopeloff and L. Kopeloff. *J Ind & Eng Chem* 11:845-50 S '19
- Membranes made from skins of mould. *Sci Am* 118:345 Ap 13 '18

**Molecular association**

- Molecular association and chemical combination. F. Michaud. *Sci Am S* 87:247+ Ap 19 '19

**Molecular compounds**

- Unsaturation and molecular compound formation. O. Maass and J. Russell. *diags Am Chem Soc J* 40:1561-73 O '18

**Molecular movements. See Brownian movements****Molecular rearrangement. See Stereochemistry****Molecules**

- Arrangement of electrons in atoms and molecules. I. Langmuir. diags *Am Chem Soc J* 41:868-934 Je '19; Same. *Gen Elec R* 22:505-16, 587-600, 789-804 J1-Ag, O '19; Abstract. *Mech Eng* 41:772-3 S '19
- Atoms and molecules. J. Becquerel. *il diags Sci Am S* 88:260-3 N 8 '19
- Beyond the microscope. F. Rowlinson. *Sci Am S* 85:174 Mr 16 '18
- Langmuir postulates. E. Hendrick. diags *Chem & Met Eng* 21:73-81 J1 15 '19; Same. *Sci Am S* 88:210-11, 246-7+ O 11, 25 '19
- Life and the structure of molecules. A. Picotet. *Sci Am S* 87:50-1+ Ja 25 '19
- Molecular heat of gases. W. C. M. Lewis. *Sci Am S* 85:240 Ap 18 '18
- Molecular mechanism of colloidal behavior. R. C. Tolman and A. E. Stearn. *Am Chem Soc J* 40:264-72 Ja '18
- Molecular mechanism of colloidal behavior; the chemical nature of the adsorption of acids and alkalies by the protein molecule. R. S. Bracewell. *Am Chem Soc J* 41:1511-15 O '19
- Molecular mechanism of colloidal behavior; the swelling of fibrin in alkalies. R. C. Tolman and R. S. Bracewell. *Am Chem Soc J* 41:1503-10 O '19
- Non-molecular structure of solids. A. H. Compton. diags *J Fr Inst* 185:745-74 Je '18
- Phenomenon of optimum fluorescence in relation to molecular transformation. J. Perrin. *Sci Am S* 87:162-3, 187 Mr 15-22 '19
- See also Atoms; Optical rotation; Stereochemistry



**Moline, Illinois****Water supply**

Operation of the Moline filtration plant. A. E. Anderson. *Am Water Works Assn J* 6: 238-42 Je '19

Poor filter operation accountable for typhoid outbreaks. *diag Eng N* 82:1264-5 Je 26 '19

Typhoid fever at Moline. M. C. Sjoblom. *Am Water Works Assn J* 6:230-5; Discussion. 235-7 Je '19

**Moline plow company**

Moline plow tractor. P. M. Heldt. *il plan Automotive Ind* 40:1384-8, 1444-8 Je 19-26 '19

**Mollusks**

Shell builders. R. W. Shufeldt. *il Sci Am S* 87:308-10, 348-9, 380-1 My 17, 31, Je 14 '19

*See also* Oncidium

**Molybdenite**

Concentration of molybdenite ores in Ontario. A. L. Parsons. *Eng & Min J* 105:880-1 My 11 '18

Identification of molybdenite. F. C. Fuchs. *Eng & Min J* 105:991 Je 1 '18

Molybdenite near Falcon lake, Manitoba. C. L. Bruce. *Eng & Min J* 106:856 N 16 '18

Molybdenite operations at Climax, Colorado. D. F. Haley. *Am Inst Min E Bul* 140:1183-8 Ag '18; Same cond. *Eng & Min J* 106:394 Ag 31 '18

Pegmatitic origin for molybdenite ores. E. Thomson. *il Econ Geol* 13:302-13 Je '18

Some optical and photoelectric properties of molybdenite. W. W. Coblenz and H. Kahler. *diags U S Bur Stand Sci Pa* 338: 121-62 '19

**Molybdenum**

Chemical reactions at low pressures; the clean-up of nitrogen by a heated molybdenum filament. I. Langmuir. *Am Chem Soc J* 41:167-94 F '19

Determination of molybdenum. C. S. Epperson. *Eng & Min J* 107:242 F 1 '19

Electrometallurgy of molybdenum; abstract. J. Escard. *Chem & Met Eng* 20:645 Je 15 '19

Ilsemanite; results of a study of a blue, water-soluble molybdenum compound occurring in Utah. H. F. Yancey. *Chem & Met Eng* 19:186-90 Ag 15 '18

Manufacture of tungsten and molybdenum. P. McJunkin. *Am Mach* 50:99-100 Ja 16 '19

Metals required for the German steel industry. *Eng & Min J* 108:141 Ji 26 '19

Molybdenum and the mines control bill. M. Fishback. *Eng & Min J* 105:966 My 25 '18

Molybdenum content of ores and concentrates. H. C. Mabey. *Eng & Min J* 105:836-7 My 4 '18

Molybdenum industry in Norway. *map Eng & Min J* 105:499-502 Mr 16 '18

Molybdenum mining at Climax, Colorado. H. L. Brown and M. W. Hayward. *il Eng & Min J* 105:906-7 My 18 '18

Molybdenum ore market. C. Hardy. *Eng & Min J* 107:83 Ja 11 '19

Molybdenum ores in 1918. *Eng & Min J* 107: 82-3 Ja 11 '19

Molybdenum production. flow sheet *Chem & Met Eng* 19:654-5 N 1 '18

Molybdenum statistics. C. Hardy. *Eng & Min J* 105:92 Ja 12 '18

Notes on the metallurgy of wulfenite. J. P. Bonardi. *Chem & Met Eng* 21:364-9 S 15 '19

Preliminary determination of the thermal expansion of molybdenum. L. W. Schad and P. Hidnert. *U S Bur Stand Sci Pa* 332:31-40 '19

Use of molybdenum during the war. G. O. Smith. *Eng & Min J* 107:501-2 Mr 15 '19

**Molybdic acid**

Recovery of molybdic acid for steel mills. W. H. Lynas. *Chem & Met Eng* 19:169 Ag 15 '18

**Moments of inertia**

Continuous girder of constant moment of inertia. E. A. Kunze. *diags Am Arch* 113:513-18 Ap 24 '18

Graphical method of finding moments in continuous frames of a girder and two fixed columns. W. S. Wolfe. *diags Eng & Contr* 49:76-8 Ja 23 '18

Moments of inertia and center of gravity. *diags Locomotive* 32:234-9 O '19

Tabular method for calculating moment of inertia. W. J. Meyer. *diag Ry Mech Eng* 92: 261-2 My '18

**Monel metal**

Monel metal. H. R. Williams. *Sci Am S* 88: 98-9 Ag 16 '19

Monel metal and its uses. H. R. Williams. *Iron Age* 103:1703-4 Je 26 '19

Monel metal as carbureter needle valve material. J. E. Schipper. *il diag Automotive Ind* 38:736-7 Ap 11 '18

Monel metal sheets and their characteristics. H. R. Williams. *Metal Work* 92:93-5 Ji 25 '19

Some facts about monel metal. H. R. Williams. *Power* 50:14-16 Ji 1 '19

What monel metal is and how it is used. C. Vickers. *Foundry* 47:173-4 Ap 1 '19

Working monel metal. H. R. Williams. *diags Am Mach* 51:509-11 S 11 '19

**Money**

Application of the index number of commodity prices in adjustments of gas rates a way out of a vicious cycle. W. S. Blauvelt. *Am Gas Eng J* 111:313-14 O 11 '19

Case for the adoption of the metric system (and decimal coinage) by Great Britain. A. J. Stubbs. *Inst E E J* 56:129-35 F '18

Currency: expansion and inflation in the U.S. G. H. Curtis. *Am Ind* 18:10 Mr '18

Decimal coinage. G. Lowthian. *Engineer* 125: 412 My 10 '18

Decimal money in England. T. McKenna. *Sci Am S* 85:125 F 23 '18

Falling dollar; how shall we arrest the decline of its purchasing power? A. J. Lotka. *Sci Am* 121:133+ Ag 9 '19

Inflation, expansion, and the high cost of living. R. H. Tingley. *Am Ind* 18:34-5 D '17

Japanese weights, measures and money, with English and French equivalents. *Eng & Min J* 105:1075 Je 15 '18

Plan to stabilize the dollar in purchasing power. I. Fisher. *Automotive Ind* 40: 1005-6+ My 8 '19

Pros and cons of the metric system. L. B. Atkinson. *Inst E E J* 56:121-8 F '18

Should accounts reflect the changing value of the dollar? L. Middleditch, jr. *J Account* 25:114-20 F '18

Sidelights on the zone fare—the problem of currency. W. Jackson. *Elec Ry J* 53:921-2 My 10 '19

Silver exchange for New York. S. R. Wagel. *Eng & Min J* 108:301-4 Ag 23 '19

Wages problem in Mexico. *Eng & Min J* 105: 557-8 Mr 23 '18

*See also* Banks and banking; Bimetal-  
lism; Coins; Credit; Foreign exchange;  
Gold as money; Investments; Mints;  
Prices

**Money, international**

Is an international coinage and currency possible? R. H. Tingley. *Am Ind* 19:21 D '18

Possible international coinage. I. W. Sylvester. *Am Ind* 19:38 Mr '19

World currency; now the time for its creation. I. W. Sylvester. *Am Ind* 20:39 Ag '19

**Monitors (warships). See Warships****Monkeys. See Apes****Monongahela river**

Monongahela river navigation. H. W. Stickla. *il Eng Soc W Pa* 34:245-66; Discussion. 267-77 Ap '18

**Monoplanes. See Airplanes****Monopolies**

Consolidated statements. S. Walton. *J Account* 25:225-237 Mr '18

*See also* Restraint of trade; Trusts, Industrial

**Montauk Point, New York**

Montauk terminal folly. *Sci Am* 121:276 S 20 '19

**Montclair, New Jersey****Water supply**

Unfiltered water ordered shut off. Eng N 80: 432-3 F 28 '18

**Montezuma, Iowa****Sewerage**

Sewage treatment plant at Montezuma. J. H. Dunlap. II diag plan Munic Eng 57:218-22 N '19

**Montreal****Railroads**

Catenary overhead construction. W. C. Lancaster. II Elec Ry J 50:1024-9 D 8 '17

Electrification of the Montreal tunnel zone. W. G. Gordon. II Am Inst E E Pro 37:1285-96 D '18; Abstract. Elec Ry J 52:962-5 N 30 '18

Montreal terminal tunnel from an economic point of view. H. K. Wicksteed. II plan Ry R 65:145-51 Ag 2 '19

Montreal tunnel zone electrification. W. G. Gordon. II Elec Ry J 52:962-5 N 30 '18

**Rapid transit**

Electric railway power at Montreal. II map Elec Ry J 51:72-4 Ja 12 '18

Montreal cost-of-service plan. J. E. Hutcherson. diag Elec Ry J 54:sup24-6 O 11 '19

Power distribution for the Montreal tramways. II diag plans Elec Ry J 51:448-52 Mr 9 '18

Six-motor multiple-unit trains for Montreal. K. MacLeod. II diag Elec Ry J 51:402-4 Mr 2 '18

**Water supply**

Headgates combined with bridge over aqueduct canal. II diag plan Eng N 83:610-11 S 25 '19

**Moon**

Craters of the moon. F. Slocum. II Sci Am 121:114+ Ag 2 '19

Lunar theories; a heliocentric suggestion. J. Hardcastle. Sci Am S 87:190-1 Mr 22 '19

**Moonshiners. See Distilling, Illicit****Moraine City, Ohio****Schools**

Building a school on a business basis; Moraine Park school. R. I. Clegg. II Iron Age 102: 1392-3 D 5 '18

**Morgan, J. P. & company**

Help establish acceptance market. Am Ind 19:27-9 S '18

**Moriand, Samuel**

Links in the history of engineering; an old engineering price list: Sir Samuel Moriand's pumps. Engineer 127:536-7 My 30 '19

**Moropus**

Horse with claws. II Sci Am 118:89 Ja 26 '18

**Morrow, J. D. A.**

Sketch. por Coal Age 13:290 F 9 '18

**Mortality**

Interpretation of death rate by climographs. E. Huntington. charts Metal Work 92: 198-5, 251-3+, 306-8+ Ag 15, 29, S 12 '19

Medicine and the military death rate. W. Hutchinson. Sci Am S 85:105 F 16 '18

Mortality from respiratory diseases in dusty trades. F. L. Hoffman. U S Bur Labor Statistics Bul 231:1-458 '18

Sanitation and municipal death rates. G. A. Soper. Munic J 47:9-10 Jl 5 '19; Same abr. Eng & Contr 52:198-9 Ag 13 '19

Ventilating equipment reduces mortality during winter. E. V. Hill. Dom Eng 89:167-8 O 25 '19

See also Infant mortality

**Mortar**

How lime affects strength of cement mortar. M. O. Fuller. Concrete 13:83 S '18; Same. Am Arch 115:152-3 Ja 22 '19

How to get good results when coating concrete with cement. A. M. Wolf. Bldg Age 40:353 Jl '18

Limestone rock asphalt produces good mortar. J. R. Nash. Eng N 82:903 My 8 '19

New elements in mortar. Sci Am S 87:84 F 8 '19

Pressing out mix water adds to cement mortar strength. C. T. Wiskocil. diag Eng N 83:130-2 Jl 17 '19

Setting process in lime mortars and Portland cements. C. H. Desch. Eng & Contr 50: 407-8 O 30 '18

See also Cement; Concrete; Lime; Masonry

**Testing**

Some compression tests of Portland cement mortars and concrete containing various percentages of silt. A. C. Alvarez and J. R. Shields. Univ of Cal Pub in Engineering v 2, no 3:119-30 '18

Tests of the influence of grading on the value of fine aggregates for concrete road work. F. H. Jackson. Good Roads n s 14:329-31+ D 29 '17

Mortgage banks

Federal aid to home building. F. R. Howe. Arch Forum 30:137-40 My '19

Mortgages

How lake banks finance ships. J. W. Hill. Marine R 49:499-502 N '19

Making ship securities popular. V. G. Iden. II Marine R 49:536-9 N '19

Mortising machine

Improved key-seating and mortising machine. II diag Engineer 128:416-17 O 24 '19

Novel mortising machine. F. C. Perkins. II Sci Am 121:348 O 4 '19

Mosque of Sta Sophia. See Constantinople—Mosque of Sta Sophia

Mosquitoes

Carrier of malaria. II Sci Am 120:622-3 Je 14 '19

Fishes for exterminating mosquitoes. II Munic J 47:132-3 Ag 30 '19

Fleet corporation fights mosquito pest. Eng N 31:513 S 12 '18

Let the water dog chase the mosquitoes. A. C. Chandler. II Sci Am 121:15 Jl 5 '19

Malaria control at nitrate plant. W. G. Stromquist. II map Eng N 82:718-20 Ap 10 '19

Malaria-control engineering in Texas increases labor efficiency. C. Saville and H. W. Van Hovenberg. II Eng N 80:176-8 Ja 24 '18

Methods of eradicating mosquitoes in malarial control campaign. C. N. Harrub. Eng & Contr 50:344-5 O 9 '18; Same. Eng & Min J 106:1064-5 D 21 '18

Mosquito control for the municipality. W. A. Hardenbergh. II diag map Munic J 47:236-40 O 18 '19

Mosquito control in ponds by means of fishes. S. F. Hildebrand. Eng & Contr 51: 274-5 Mr 12 '19

Mosquito question; migration as a factor in control. T. J. Headlee. Sci Am S 85:214-15 Ap 6 '18

New method of destroying mosquitoes. Sci Am 118:246 Mr 16 '18

Novel observation upon mosquitoes; their flight through horizontal water pipes. W. W. King. Sci Am S 87:186 Mr 22 '19

Preventing malaria around Camp Bowie, Texas. W. A. Hardenbergh. Munic J 45:54-5 Jl 20 '18; Excerpts. Eng & Contr 50:260-1 S 11 '18

Problem in anopheles elimination. diag Munic J 46:353-5 My 17 '19

Two New Jersey counties wage war on the mosquito. Eng N 81:646 O 3 '18

Moss supercharger

Boosting the ceiling of the airplane. II Sci Am 121:481+ N 15 '19

Moss supercharger for airplane engines; abstract. L. V. Spencer. II Mech Eng 41: 616 Jl '19

Motion. See Mechanics; Rolling

Motion, Perpetual. See Perpetual motion

Motion pictures. See Moving pictures

Motor boats

Coastal motor boats for the navy. II diag Engineer 127:369-71, 380 Ap 18 '19

**Motor boats—Continued**

- Combination land and water vehicle. *Il Sci Am* 118:162 F 16 '18  
 Fast boat for shoal waters. *Il Sci Am* 121:518 N 22 '19  
 Motor boats sink battleships; how two motor boats penetrated a screen of destroyers and sank Austrian dreadnoughts. *Il Sci Am* 118:581+ Je 29 '18  
 Sea sled. *Il Sci Am* 121:342+ O 4 '19  
 Small concrete motor boat. *Il Engineer* 125:391 My 3 '18

*See also* Motor ships; Submarine chasers

**Motor bus companies****Wages**

- Credit system of wage payments in Chicago. *Elec Ry J* 51:89-90 Ja 12 '18

**Motor buses**

- Coal gas for motor vehicles in England. *Sci Am S* 87:10 Ja 4 '19  
 Coming of the self-propelled and trackless street car. W. J. Locke. *Eng & Contr* 52:73-4 Jl 16 '19  
 Eighty-passenger trailer bus. *Il Sci Am* 121:487 N 15 '19  
 Entz magnetic transmission on Fifth Avenue bus. *Automotive Ind* 39:373 Ag 29 '18  
 Fifty-mile motor interurban service operated. *Il Eng N* 81:281-2 Ag 8 '18  
 Fuel economy ace has arrived; rivalry of 250 New York bus drivers for title. *Il Motor Age* 34:20-1 Ag 29 '18  
 Interurban bus that pays. *Il Elec Ry J* 52:328-9 Ag 24 '18  
 London's tubes and buses. W. Jackson. *Il diags map Elec Ry J* 54:708-14, 816-23 O 11, N 1 '19  
 Motor bus for city traffic. *Eng N* 83:399 Ag 28 '19  
 Municipal auto bus traffic feeders at San Francisco. N. A. Eckart. *Il diags Elec Ry J* 51:327-8 F 16 '18  
 San Francisco buses a costly accommodation. *Elec Ry J* 52:378 Ag 31 '18  
 Yankee tram makes its appearance; new type bus in New York. *Il Elec Ry J* 52:926 N 23 '18

*See also* Electric buses; Jitney buses

**Motor cars. See Automobiles; Electric vehicles; Motor trucks****Motor cars (railroad)**

- Armored motor cars for the U.S. army. *Il Ry R* 64:938-9 Je 21 '19  
 Branch line operation with self-propelled motor cars. H. W. Protzeller. *Il Elec Ry J* 53:1149-51 Je 14 '19  
 Gasoline motor section cars decrease labor and cost of track maintenance. C. A. El-Hott. *Il Elec Ry J* 52:428 S 7 '18  
 Gasoline railway cars will displace steam engines and cars for light passenger traffic. *Eng & Contr* 49:472-3 My 15 '18  
 Home-made gasoline motor car for auxiliary service. *Il Elec Ry J* 52:342 Ag 24 '18  
 Interurban motor section cars. *Il diags Elec Ry J* 53:590 Mr 22 '19  
 Mudge cars a help to loggers. *Il Am Lumberman* 2235:54 Mr 16 '18  
 Relative economy of freight transport by railway and by motor truck. C. W. Baker. *Eng N* 83:65-7 Jl 10 '19  
 Use of tar oil in internal combustion engines. A. W. H. Griep. *Il diags Gas Age* 41:348-50 Ap 15 '18

**Steam**

- Steam-driven passenger and baggage car for railway operation. *Il plan Elec Ry J* 53:1233-4 Je 21 '19  
 Steam vs. gasoline. R. F. Mirick. *Eng N* 79:1214-15 D 27 '17  
 Unit steam railway motor car. *Il plans Ry R* 64:892-3 Je 14 '19

**Storage battery**

- Storage battery cars for Mexican railroad. *Il Ry Age* 66:1015-16 Ap 18 '19  
 Storage battery cars for use in Yucatan. *Il Ry Mech Eng* 93:247-8 My '19

**Motor cars (street railroad)**

- Gasoline vs. electric motor for street railway service. N. W. Storer. *Elec Ry J* 54:sup27-9 O 11 '19  
 Why gasoline can't compete in city service. F. Kingsley. *Elec Ry J* 53:829-31 Ap 26 '19

**Motor cycles**

- Aircraft engine makers to manufacture motorcycles. W. F. Bradley. *Il Automotive Ind* 41:461 S 4 '19  
 Demountable wheels for motorcycles. *Automotive Ind* 38:135 Ja 10 '18  
 Development of Harley-Davidson parcel car design. *Il Automotive Ind* 38:911 My 9 '18  
 Engine of the side car motorcycle. E. Caudwell. *diags Automotive Ind* 40:842-4, 911-13 Ap 17-24 '19  
 Harley-Davidson co. brings out sport model. *Il Automotive Ind* 40:362-4 F 13 '19  
 Harley-Davidson motorcycle. *Il diags plan Automotive Ind* 37:913-17 N 22 '17  
 Motorcycle and the city's light. *Il Am Gas Eng J* 109:323 O 5 '18  
 Motorcycle exports covering six years. *Automotive Ind* 40:108-9 Ja 16 '19  
 Motorcycle transmission; diagrams. *Automotive Ind* 41:523 S 11 '19  
 Motorcycle with sidecar vs. cheap automobile. A. W. S. Herrington. *Automotive Ind* 41:219 Jl 31 '19  
 Motorcycles used by Swedish mail carriers. *Sci Am* 121:400 O 18 '19  
 Probable advances in motorcycle design. *Automotive Ind* 38:37 Ja 3 '18  
 S. A. E. Standards committee in busy session. *Automotive Ind* 38:138+ Ja 10 '18  
 Steam motorcycle. *Am Soc M E J* 40:200 F '18  
 Two new demountable motorcycle wheels. *diags Automotive Ind* 39:461 S 12 '18  
 Two-stroke engines for motorcycles. E. Tilton. *diags Automotive Ind* 40:1304-5 Je 12 '19

**Bibliography**

- List of books on automobiles and motorcycles. A. R. Blessing. 79p '18 H. W. Wilson co., 958-964 University av. N.Y.

**Manufacture**

- Motorcycle production has peculiar problems. P. M. Heldt. *Il Automotive Ind* 41:259-64 Ag 7 '19  
**Motor cycles, Military**  
 Electric lighting system for U.S.A. motorcycles. P. M. Heldt. *Il Automotive Ind* 38:627-30 Mr 28 '18  
 Motorcycle standardization carried ahead. *Automobile* 37:579 O 4 '17  
 Q. D. wheel for U.S.A. motorcycle. *Il diags Automotive Ind* 38:690-1 Ap 4 '18  
 Standard motorcycle wheel. *diags Automotive Ind* 37:866-7 N 15 '17  
 U.S.A. motorcycle engine completed. P. M. Heldt. *Il diags Automotive Ind* 38:575-9 Mr 21 '18

**Motor express. See Motor trucks in freight service****Motor fire apparatus. See Fire apparatus, Motor****Motor generators. See Electric motor generators****Motor omnibuses. See Electric buses; Motor buses****Motor ships**

- American Diesel-engined motorship. *Il Int Marine Eng* 24:208-11 Ap '19  
 Crude-oil motors vs. steam engines in marine practice. J. W. Morton. *Mech Eng* 41:609-12 Jl '19; Excerpt. *Int Marine Eng* 24:703-5 O '19; Discussion. *Mech Eng* 41:679-81+ Ag '19  
 Design and construction of producer gas power lighter. F. S. Nock. *Il diags plan Int Marine Eng* 24:36-7 Ja '19  
 Diesel engines and the merchant marine. *Mech Eng* 41:377-8 Ap '19; Same. *Int Marine Eng* 24:549-51 Ag '19  
 Diesel-motor ship Trefoil and her propelling engines. *Il diags Engineer* 128:198-200 Ag 29 '19  
 Economical motorships on the Pacific. C. W. Geiger. *Il Int Marine Eng* 24:129-33 Mr '19

**Motor ships—Continued**

- Ferro-concrete shipbuilding in Norway. R. G. Skerrett. *Int Marine Eng* 23:14-17 Ja '18
- Full-powered motorship Alabama, of 3,600 tons d.w., completed on Pacific coast. *Int Marine Eng* 23:361 Je '18
- Internal combustion engine on the Pacific coast. G. Dow. *Il J Elec* 43:27-9 Ji 1 '19
- Italian motorship Ansaldo San Giorgio. A. Benington. *Il Int Marine Eng* 24:525-9 Ag '19
- Large motor passenger vessel. A. R. Jackson. *diag Int Marine Eng* 23:232 Ap '18
- Motor fishing vessels use oil engine. *Sci Am* S 85:87 F 9 '18
- Motor ship Glenapp. *diag Engineer* 127:612-13 Je 20 '19
- Motorship Mount Baker. *Il Int Marine Eng* 24:624-5 S '19
- Motorships and their propelling machinery. J. M. Watts. *Il diag plans Int Marine Eng* 23:201-6 Ap '18
- Propeller efficiency of motorship. *Int Marine Eng* 24:367 My '19
- Shallow draft motorships for use on the Volga river designed by American naval architect for Russian owners. *diag plans (supp) Int Marine Eng* 23:9-11 Ja '18
- Some aspects of large Diesel cargo ships. H. R. Setz. *Il diag plans Int Marine Eng* 24:212-19+ Ap '19
- When coal oil Johnny goes to sea. E. N. Hurley. *Power* 49:380-1 Mr 11 '19
- World's largest motorship. H. H. Dunn. *Il Marine R* 49:430 S '19
- See also Diesel engines, Marine; Gas and oil engines, Marine; Motor boats*
- Motor spirit.** *See Gasoline*
- Motor tractors.** *See Tractors*
- Motor transport corps.** *See United States—Army—Motor transport corps*
- Motor truck drivers**
- Bonus plans for motor truck operators. H. P. Gould. *Eng & Contr* 52:231-2 Ag 20 '19
- Putting truck drivers in business for themselves. J. L. O'Brien. *Il Factory* 21:424-5 S '18
- Motor truck driving**
- Pinching fuel pennies and wasting truck tire dollars. A. F. Masury. *Il Munic Eng* 56: sup28+ Je '19; Same. *Eng N* 82:1262-4 Je 26 '19; Same. *Am Lumberman* 2306:64-5 Ji 26 '19; Same cond. *Concrete* 15:29-31 Ji '19
- Motor truck industry and trade**
- Address before Ways and means committee. G. M. Graham. *Automotive Ind* 38:1232-3 Je 20 '18
- Argentine market for motor vehicles. D. Beecroft. *Il U S Bur For & Dom Com misc ser* 62:1-27 '17
- Buyers' guide to 1918 gasoline trucks; tabulation. *Automotive Ind* 37:792-5 N 1 '17
- Combination sales and service plan. *plans Motor Age* 36:26-7 Ji 31 '19
- Exports of cars, trucks and parts for 4 years. *Automotive Ind* 37:1148 D 27 '17
- Exports of commercial vehicles for six years. *Automotive Ind* 40:130-1 Ja 16 '19
- 4,941,276 cars and trucks in the United States. *maps Automotive Ind* 38:534-8+ Mr 14 '18
- How selling trucks by trades increases sales. R. W. Hutchinson, jr. *Il Horseless Age* 44: 20-1 My 1 '18
- How to sell trucks and farm tractors; prize essays. *Il Horseless Age* 44:26-8+ My 1 '18
- Is your truck or tractor barred in these countries? *Automotive Ind* 41:530-1 S 11 '19
- It's trucks and tractors, not cars, that Mexico needs. H. Dunn. *Il Automotive Ind* 41: 321-3 Ag 14 '19
- Post-war status of motor truck industry. H. W. Perry. *Il Sci Am* 119:520+ D 28 '18
- Priorities regulation of truck manufacture. *Munic J* 45:179 Ag 31 '18
- Reasonable steel supply is assured truck makers. *Motor Age* 34:17-19 Ji 25 '18
- Reshaping automotive industries. E. L. Shaner. *Il Iron Tr R* 62:79-83 Ja 3 '18

Secrets of motor truck industry. *Automotive Ind* 41:201 Ji 31 '19

Truck production for 1918 is 250,000. *Automotive Ind* 40:128-9 Ja 16 '19

Trucks are the salvation of America's transport. *Automotive Ind* 37:820-1 N 8 '17

War influence in motor vehicle industries; 1917 in review. *Automotive Ind* 37:1125-6 D 27 '17

*See also Automobile industry and trade*

**Directories**

Directory of motor truck makers. *Automotive Ind* 37:789-91 N 1 '17

1919 directory of the truck makers. *Motor Age* 35:43 Ja 23 '19

**Service**

General motors truck co. believes in looking service in the face. *Motor Age* 34:21 Ag 29 '18

N.A.C.C. truck service policy; responsibility of maker, distributor and dealer to user. *Motor Age* 35:29+ Je 26 '19

Time-saving truck service; rental parts a business asset. *Motor Age* 35:28-9 Je 26 '19

**Motor truck manufacturers' convention**

Truck makers war convention. *Horseless Age* 43:43 Ja 15 '18; *Automotive Ind* 38: 144-5+ Ja 10 '18

**Motor truck owners conference, Inc.**

Truck owners conference. *Munic J* 45:132 Ag 17 '18

**Motor truck trailers**

Adjustable reach logging trailer. *Il Am Lumberman* 2295:63 My 10 '19

Adjustable reach trailer. *Il Am Lumberman* 2252:58 Ji 13 '18

Automatic hitch Troy trailers. *Il Automobile* 37:674 O 18 '17

Axle for four-wheel steer trailer. *diag Automotive Ind* 39:196 Ag 1 '18

Case line of trailers. *Il Automotive Ind* 39: 426 S 5 '18

Design of several trailer types standardized by Quartermaster department. *Automotive Ind* 37:1085+ D 20 '17

Development of the trailer. *Il Sibley J* 32: 180-3 S '18

Europe's aviation truck design. W. F. Bradley. *Automotive Ind* 37:1133 D 27 '17

Fifth wheel trailer control. *diag Iron Age* 102:210 Ji 25 '18

Fruehauf trailers. *Automotive Ind* 37:869 N 15 '17

Gasoline locomotive of the highways. H. W. Perry. *Il diag Sci Am* 121:514-15+ N 22 '19

Grant company making three ordnance trailers; types adapted for use as cargo carriers, gun platforms and shops. *Il Automotive Ind* 39:458-9 S 12 '18

Hauling overcapacity loads. *Il Factory* 20: 470+ Mr '18

Heavy trailers for war department. *Il Automotive Ind* 39:138-9 Ji 25 '18

How six factories cut hauling costs with trailers. *Il Factory* 21:644 O '18

How trailer increases efficiency. *Il Am Lumberman* 2261:56 S 14 '18

Improvement for trailers in lumber hauling. *Il Am Lumberman* 2240:58 Ap 20 '18

Morris tractor-trailer equipped with refrigerating system. *Il Motor Age* 34:41 Ji 18 '18

Motor truck road, latest addition to logging engineering. *Il diag Am Lumberman* 2235: 38 Mr 16 '18; *Excerpts. Eng N* 80:629 Mr 28 '18

Novel electrical control for a train of motor trucks or other vehicles. *Il diag Sci Am* 120:317 Mr 29 '19

Redden adds truck maker and trailer. *Il Motor Age* 34:40 Ji 18 '18

Sell your mules or horses and buy motor trucks. *diag plan Am Lumberman* 2236:57 Mr 23 '18

Tale of a trailer. R. B. Alexander. *Il Sci Am* 118:503 Je 1 '18

Tractor and trailer for road work. *Il Sci Am* 117:479 D 22 '17

Trailer lessons from the allied army service. W. F. Bradley. *Il diag Automotive Ind* 41: 354-9 Ag 21 '19

**Motor truck trailers—Continued**

Trailers and trucks for highway hauling. H. W. Perry. *Il Good Roads* n s 18:41-4 J1 23 '19  
Trailers increase truck capacity greatly. *Il Sci Am* 119:134 Ag 17 '18  
Trailers reduce transport costs. *Il Sci Am* 121:164 Ag 16 '19  
Truck trail wagon has bottom dump. *Il Eng N* 79:1084 D 6 '17  
Types of ordnance vehicles. *Il Automotive Ind* 38:1249-50+ Je 27 '18  
U.S.A. ambulance and trailer. *Il Automotive Ind* 39:148-9 J1 25 '18  
Warner heavy duty truck trailer. *Il Eng & Contr* 49:121-2 Ja 30 '18

**Motor trucks**

Ace truck follows modern practice. *Il Motor Age* 36:26 O 23 '19  
Acme adds 5-ton model to line. *Il Motor Age* 34:40 N 21 '18  
Adapting motor trucks to desert work. E. H. Warner. *Eng N* 77:143 Ja 25 '17; Same. *Eng & Contr* 49:sup28 F 6 '18  
Adapts Ford truck to long body. *Il Automotive Ind* 38:783 Ap 18 '18  
Af-Ford-Able truck attachment. *Il Motor Age* 35:45 F 6 '19  
Auto-tower truck with engine-raised tower. S. L. Foster. *Il Elec Ry J* 51:281-2 F 9 '18  
Boston safety service; modern equipped emergency truck. *Il Gas Age* 44:433 N 1 '19  
British idea of a truck that will meet the widest demand. *Il Automotive Ind* 41:164-6 J1 24 '19  
Caterpillar mountings for highway motor trucks proposed. W. L. Thompson. *Eng N* 81:594-5 S 26 '18  
Chevrolet company adds light truck. *Il Automotive Ind* 38:233 Ja 24 '18  
Collier assembling 1500-lb. wagon. *Il Automotive Ind* 38:647 Mr 28 '18  
Columbia 1-ton truck. *Il Motor Age* 35:47 Ap 24 '19  
Concrete roadway system in a shop yard. C. E. Parks. *Il Ry Age* 64:111-14 Ja 11 '18  
Defiance trucks. *Automotive Ind* 37:1140 D 27 '17  
Delivery ready on Bethlehem line; three models are offered in 1½, 2½ and 3½-ton capacity. *Il Motor Age* 34:38-9 J1 25 '18  
Distribution of truck weights. P. M. Heldt. *Automotive Ind* 39:47-8+ J1 11 '18  
Dodge issues light commercial car. *Il diag Automotive Ind* 37:911 N 22 '17  
Dorris two-ton truck model K-4. *Il Automotive Ind* 39:508-9 S 19 '18  
Douglas 1½-ton truck for farm work. *Il Motor Age* 35:48 F 20 '19  
Emergency auto-ladder truck used in San Francisco. S. L. Foster. *Il diag Elec Ry J* 52:294-5 Ag 17 '18  
Engineering features of a popular British truck; product of the Guy motors co. M. W. Bourdon. *Il diag Automotive Ind* 41:662-5 O 2 '19  
Engineering on saner lines. *Automotive Ind* 37:747-8 N 1 '17  
Floating bearing for propeller shafts. *Il diag Automotive Ind* 38:865 My 2 '18  
Fulton truck triply heats fuel. *Il Motor Age* 35:42-3 Ja 2 '19  
Garford adds 1½-ton truck to line. *Il Motor Age* 36:45 S 4 '19; *Munic Eng* 57:sup26-8 S '19  
Garford adds second 3½-ton truck. *Il Motor Age* 36:80-1 N 6 '19  
Gas driven industrial truck. *Il Ry Age* 66:1822-3 Je 27 '19  
Graham truck attachment includes body. *Il Automobile* 37:637 O 11 '17  
Graham universal truck-unit. *Il Horseless Age* 44:52 Ap 15 '18  
How to buy motor trucks. H. P. Branstetter. *Am Lumberman* 2261:56 S 14 '18  
Making automobiles work for the gas business. J. E. Bullard. *Il Gas Age* 43:264-5 Mr 1 '19  
Master adds 5-ton model to truck line. *Il Motor Age* 36:47-8 O 2 '19  
Maxwell worm-drive truck. *Il Horseless Age* 43:41 Mr 15 '18

Merchant & Evans tractor truck. *Il Munic Eng* 54:39 Ja '18  
Moreland auto-rail truck. *Il Ry Age* 63:1188 D 28 '17  
Motor truck haulage for farmers. *Il Good Roads* n s 17:163-4 Ap 12 '19  
Motor truck on the farm. *Il Sci Am* 118:76+ Ja 19 '18  
Motor truck with front wheels on runners pushes snow plow. *Il Eng & Contr* 49:sup24 Ap 17 '18  
Motor trucks for textile mill service. W. W. Scott. *Il Textile World* 53:4027+, 4591+, 5229+ Mr 2, Ap 6, My 4 '18  
Nash brings out new 2-ton truck. *Il Automobile* 37:623 O 11 '17  
N.A.C.C. truck convention. *Automotive Ind* 40:352-3 F 13 '19  
Nelson bros. manufacture Jumbo 2½ ton truck. *Il Horseless Age* 44:42 Ap 15 '18; *Automotive Ind* 38:910 My 9 '18; *Motor Age* 34:41 J1 25 '18  
New engineering features at Chicago truck show. *Il Automotive Ind* 40:296-7 F 6 '19  
New traffic truck. *Il Horseless Age* 44:39 Ap 15 '18  
New truck has air suspension. *Il diag Automotive Ind* 37:827-8 N 8 '17  
1½-ton Defiance truck. *Automotive Ind* 37:1140 D 27 '17; *Motor Age* 34:40 J1 4 '18  
One truck for road and field. *Il Sci Am* 121:374 O 11 '19  
Palge-Detroit brings out 2-ton truck. *Il Automotive Ind* 39:833 N 14 '18  
Palge offers its first truck. *Il Motor Age* 34:40 N 7 '18  
Redden adds truck maker and trailer. *Il Motor Age* 34:40 J1 18 '18  
Remodeled Ford cars for industrial trucking purposes. *Il diag Ry R* 62:53-4 Ja 12 '18; Same. *Eng & Contr* 49:480-1 My 15 '18  
Sales possibilities in trucks. L. R. Smith. *Horseless Age* 43:49 Ap 1 '18  
Selden adds two new trucks to line. *Il Motor Age* 36:49 Ag 21 '19  
Selden extension adapts Ford truck to long body. *Il Automotive Ind* 38:1197 Je 20 '18  
Selecting the right motor truck for the job. S. V. Norton. *Il Factory* 20:425-6 Mr '18  
Seven-day conference on motor transportation. *Eng N* 81:1003 N 28 '18  
Summary of truck engineering. C. T. Myers. *Automotive Ind* 40:349-50 F 13 '19  
Teaming industries improve service by adopting motor trucks. *Il Eng N* 82:1203 Je 19 '19  
Technical details of the Redden universal attachment designed to convert passenger car into motor truck. *diag Automotive Ind* 39:322-3 Ag 22 '18  
3½-ton Jumbo truck. *Il Motor Age* 36:27-8 N 20 '19  
3½-ton model Little giant truck. *Il Eng & Contr* 49:129 Ja 30 '18  
Traction unit that converts automobile into commercial vehicle. *Il Eng & Contr* 49:98 Ja 30 '18  
Tractor truck designed especially for traveling over rough ground. *Il Eng & Contr* 52:26 J1 2 '19  
Transforming used passenger cars into trucks; prize essays. *diag Horseless Age* 43:29-31 Mr 1 '18  
Transport 2½-ton truck on market. *Il Motor Age* 35:42 Ja 2 '19  
Triangle 1½-tonner. *diag Motor Age* 34:41 J1 4 '18  
Truck attachments for other than Ford cars. *Il Automotive Ind* 38:497 Mr 7 '18  
Truck that collects deposits after banking hours. *Il Sci Am* 118:364 Ap 20 '18  
Trucks show few mechanical changes. *Automotive Ind* 40:110-11 Ja 16 '19  
Unusual material in Riker truck. *diag Automotive Ind* 37:829-33 N 8 '17  
Use of loading devices adds greatly to motor truck operating efficiency and economy. *Il Munic Eng* 57:sup24+ O '19  
White trucks with double-reduction axles. *Il Automotive Ind* 39:623-4 O 10 '18

See also Automobiles; Electric trucks; Motor truck driving; Motor truck industry; Motor truck trailers; Motor trucks, Steam; Tires, Automobile; Tractors

## Motor trucks—Continued

## Accounting

Cost keeping system of Seattle street and sewer department for motor truck operation. Eng & Contr 50:154-5 Ag 7 '18  
 Cost system for any make of truck. Dom Eng 87:104-5 Ap 19 '19  
 Drivers and garage clerks keep contractor's motor truck costs. Eng N 81:589-90 S 26 '18  
 Items which must be considered in calculating cost of truck operation. J. Husson. Eng & Contr 51:597 Je 4 '19  
 Keeping costs on the motor truck. Factory 21:496+ S '18  
 Seattle keeps accurate records of auto trucks and automobile operations. C. A. Osler. II Eng N 80:655-6 Ap 4 '18  
 Simple and accurate cost keeping system for motor truck operation. Eng & Contr 50:sup 36 JI 3 '18  
 Standard system for motor truck operating costs. S. V. Norton. Eng & Contr 49:sup24+, sup28+ F 6, Je 19 '18; Excerpts. Elec R 72:304 F 16 '18

## Axles

Axle for four-wheel steer trailer. diags Automotive Ind 39:196 Ag 1 '18  
 Baker two-speed axle. diag Automotive Ind 40:1229 Je 5 '19  
 Design of military truck axles. G. W. Carlson. diags Automotive Ind 38:172-5+ Ja 17 '18  
 Double reduction rear axles. P. M. Heldt. diags Automotive Ind 37:770-3+ N 1 '17  
 Liberty worm-driven truck axles. diag Automotive Ind 38:222 Ja 24 '18  
 Maintenance of internal gear drive axle. II diag Motor Age 35:26 Je 26 '19  
 Parker silent internal gear axle. II diag Automotive Ind 40:308-6 F 6 '19  
 Systematizing parts manufacture; plant of Torbensen axle co. H. Markt. II plan Iron Tr R 62:1105-9 My 2 '18  
 Testing machine for truck axles. L. L. Lee. II Am Mach 48:975 Je 6 '18  
 Three designs of LM double reduction truck axle. II diags Automotive Ind 41:462-5 S 4 '19; Motor Age 36:46 S 11 '19  
 Timken solving difficult production problem. J. E. Schipper. II Automotive Ind 40:685-8, 748-50 Mr 27-Ap 3 '19  
 Torbensen producing 3½-ton axle. II diags Automotive Ind 38:918-19 My 9 '18  
 Truck axle with power shaft in hollow carrying member. II diags Automotive Ind 41:512-13 S 11 '19  
 Unusual types of axles on the German war trucks. A. J. Slade. II diags Automotive Ind 41:457-61 S 4 '19

## Bodies

Combination elevating rear delivery and semi-dump truck body. II Eng & Contr 49:sup27 Ap 17 '18  
 Inner body on rollers converts fixed-body truck into dump truck. C. F. Lewis. II Eng N 81:956 N 21 '18  
 Motor truck is only as efficient as its body. Eng & Contr 51:538-9 My 21 '19; Same. Am Lumberman 2314:62-3 S 20 '19  
 Republic all-purpose farm truck body. II Automotive Ind 40:1075 My 15 '19

## Chassis

Chassis flexibility studied. II Automotive Ind 37:759-60 N 1 '17  
 Daimler post-war English truck chassis. M. W. Bourdon. II diags Automotive Ind 41:720-3 O 9 '19

## Cleaning

See Automobiles—Cleaning

## Clutches

Hillhard clutch for trucks and tractors. II diag Automotive Ind 40:841 Ap 17 '19

## Cost of operation

Adjustable reach logging trailer. II Am Lumberman 2295:63 My 10 '19

Comparative haulage costs by trucks and horse drawn vehicles. Eng & Contr 49:sup30 Ap 17 '18

Comparison of short-haul truck and rail shipments; abstracts. W. J. L. Banham. Eng N 82:903-4 My 8 '19; Eng & Contr 51:498 My 7 '19

Cost and charges of motor truck service. II Ry R 63:805-10 D 7 '18

Cost and working data of steam motor wagons in England. Eng & Contr 50:160 Ag 7 '18

Cost of automobile and motor truck operation at San Diego, Cal. Eng & Contr 49:sup26 Ap 17 '18

Cost of hauling paving materials with motor truck. II Eng & Contr 49:32 Ja 2 '18

Cost of motor truck operation for refuse collection. Eng & Contr 52:11-13 JI 2 '19

Cost of operating 541 motor trucks. Eng & Contr 49:sup29 My 1 '18

Cost of operating trucks on highway maintenance in Illinois. B. H. Piepmeyer. Eng N 82:1074 My 29 '19; Same. Concrete 18:28-9 JI '19

Costs of operating gas company motor vehicles. J. E. Bullard. II Gas Age 43:314-16 Mr 15 '19

Delivery costs. Am Lumberman 2226:55 Ja 12 '18

Drivers and garage clerks keep contractor's motor truck costs. Eng N 81:589-90 S 26 '18

Economic operation of Smith form-a-truck in public service work. II Eng & Contr 49:32 Ja 2 '18

Efficiency of the motor truck in terms of cost per ton-mile. R. E. Chamberlain. Good Roads n s 15:111-12 F 23 '18; Same. Eng & Contr 49:sup30, 32+ Mr 6 '18; Abstract. Munic J 44:186 Mr 2 '18

Figuring the cost of haulage by motor trucks. Eng & Contr 49:sup22 F 6 '18

Horses vs. motor trucks in refuse collection. Munic J 47:110-11, 119-20 Ag 16-23 '19

How one company reduces delivery costs. II Am Lumberman 2226:55 Ja 12 '18

Keeping account of trucking costs. C. L. Cadle. Elec Ry J 52:698-9 O 19 '18

Long-distance motor-truck haulage costs in Ohio. M. W. Boyle. Eng N 82:717 Ap 10 '19

Motor truck costs much higher than generally assumed. Eng N 82:438-9 F 27 '19; Discussion. E. N. Bryan. Eng N 82:786 Ap 17 '19

Motor truck freight and operating costs. R. E. Fulton. Munic Eng 57:sup30 Ag '19; Same. Textile World 56:1393 S 6 '19

Motor truck hauling in Black Hawk county, Iowa. W. H. Root. Good Roads n s 16:133-4 O 5 '18

Motor truck operation and accounting. C. A. Dickens. II Munic Eng 49:46-9, 130-6, sup 25+, sup23+, 50:sup23+, sup23+, sup23+, sup23+, sup23+, 51:sup23+, sup 23+, sup23+, sup23+, sup23+, 52:sup49+, sup83+, sup145+, sup213+, sup 277+, sup23+, 53:sup21+, sup21+, sup21+, sup27+, sup27+, sup27+, 54:sup15+, 55:sup13+, sup13+, sup12+, 56:sup12+, sup 20+, sup20+, sup20+, sup20+, 57:sup18+, sup18+ Ag. O 15-S, N 17-Ja, Je, S-O, D '18, F-Ag '19

Motor truck vs. teams for local hauling around the mine. II Coal Age 12:1006-7 D 15 '17

Motor trucks aid war time steel production. D. M. Avey. II Iron Tr R 62:907-12 Ap 11 '18

Motor trucks cheaper than teams on hauling gravel. F. P. Scott. Eng N 80:958-9 My 16 '18

Motor vehicle operating costs of water department of Pasadena, Cal. Eng & Contr 49:sup26 F 6 '18

Nebraska studies truck operation. Automotive Ind 41:237 JI 31 '19

Operating cost of motor trucks. C. L. Cadle. Eng & Contr 50:492 N 20 '18

Operating cost of motor trucks. R. W. Horne. Eng & Contr 49:sup26+ Mr 6 '18

Operating cost of small trucks in maintaining state aid roads in Illinois. E. H. Piepmeyer. II diag Eng & Contr 49:243 Mr 6 '18

Operating cost of truck and trailer. Eng & Contr 51:590 Je 4 '19

**Motor trucks—Cost of operation—Continued**

- Operating costs for 3½ ton truck. C. E. Stone. Eng & Contr 52:173 Ag 6 '19
- Operating costs of government owned motor trucks in postal service. Eng & Contr 49:sup26 Ap 17 '18
- Operating costs of tractor, trucks and sand screen and loader in road maintenance. J. E. Maloney. Eng & Contr 51:19-20 Ja 1 '19
- Philadelphia's new ash trucks. J. Muncie J 45:426-7 N 30 '18
- Possibilities of further economies in road transport. T. Clarkson. Engineer 128:445-7 O 31 '19
- Relative economy of freight transport by railway and by motor truck. C. W. Baker. Eng N 83:56-62 Jl 10 '19
- Saving in cost of garbage collection at Saskatoon, Canada, by use of motor trucks. Eng & Contr 49:sup26 F 6 '18
- Ton-mile cost of motor truck haulage. R. C. Barnett. Good Roads n s 15:129 Mr 2 '18
- Truck transportation of laborers and materials. W. E. Hardenburg. Muncie J 46:229-30 Mr 29 '19
- Using the ton-mile as a basis for cost figures. Bldg Age 40:172-3 Mr '18
- What it costs to operate trucks of the May lumber co. Am Lumberman 2321:55 N 8 '19
- What motor trucks cost to operate. Am Lumberman 2233:58 Mr 2 '18
- Working costs of municipal motor ash trucks at Nottingham, England. J. Terry. Eng & Contr 50:103 Jl 31 '18
- See also* Electric trucks—Cost of operation; Motor trucks—Accounting; Motor trucks—Records

**Design**

- Probable effects of war motor apparatus on commercial design. Automotive Ind 39:905-6+ N 28 '18
- Simplicity found in latest trucks. B. M. Ikert. II Motor Age 35:18-22 F 13 '19
- Simplicity in design of Hebb trucks. II Motor Age 34:39 N 7 '18
- Visualizing the future truck. Automotive Ind 40:1432-5+ Je 26 '19

**Electric equipment**

*See* Automobiles—Electric equipment

**Engines**

*See* Automobile engines

**Exhibitions**

- Engineering refinement evident at New York motor truck show. II Automotive Ind 40:354-5 F 13 '19
- New York truck show success. II Motor Age 35:26+ F 20 '19

**Fuel**

*See* Automobile engines—Fuel

**Gearing**

- Analysis of the Hotchkiss drive. O. M. Burkhardt. diag Automotive Ind 40:206-8 Ja 23 '19
- Analysis of the Hotchkiss drive. A. W. Hapfel. Automotive Ind 40:428-9 F 20 '19
- Campbell all-in-mesh gearset. II diag Automotive Ind 40:596+ Mr 13 '19; Motor Age 35:42-3 Mr 6 '19
- Cotta adds 4-speed transmission. II Automotive Ind 41:205 Jl 31 '19
- Elbertz positive drive differential. II diag Automotive Ind 40:1153 My 29 '19
- Four wheel drive trucks. G. Dunham and L. C. Freeman. Automotive Ind 40:1156-7 My 29 '19
- Heat-treating gears for army trucks in the electric furnace. D. D. Miller. II Am Mach 49:461-4 S 12 '18
- Hotchkiss drive almost universal. II Automotive Ind 37:753+ N 1 '17
- Parker silent internal gear axle. II diag Automotive Ind 40:305-6 F 6 '19
- Reducing internal gear limitations. R. Trautschold. diag Automotive Ind 41:724-7 O 9 '19

- Williams internal gear. R. Trautschold. diag plan Am Mach 51:255-8 Ag 7 '19; Discussion. L. D. Hayes. Am Mach 51:527-8 S 11 '19
- Worm gear efficiency. C. H. Calkins. diag plan Automotive Ind 40:786-7 Ap 10 '19

**Inspection**

- Beneficial truck service. H. C. Skinner. Motor Age 35:24 Je 19 '19
- Profitable truck service. Motor Age 36:76-9 N 6 '19

**Laws and regulations**

- Colorado proposes establishing rates for motor truck carriers. C. E. Nell. Eng & Contr 51:8 Ja 1 '19
- Economic limit to motor truck weights. R. C. Barnett. Eng & Contr 51:6-7 Ja 1 '19
- Five-ton capacity truck should be the heaviest allowed. T. S. Scanlon. Eng N 81:1141-2 D 19 '18
- Massachusetts drastic license fees. Motor Age 35:11 Ja 9 '19
- Motor-vehicle license fees and speeds in Iowa. Eng N 83:279 Ag 7 '19
- Regulation of speed, weight, width and height of motor trucks discussed. G. M. Graham. Eng N 81:1109-12 D 19 '18; Same cond. Good Roads n s 17:30-2 Ja 25 '19; Same abr. Eng & Contr 51:10-11 Ja 1 '19

**Lighting**

*See* Automobiles—Lighting

**Load**

- Classification of truck load capacities. Horseless Age 44:43 My 1 '18
- Don't overload motor trucks. Textile World 54:1621 O 5 '18
- Length of motor-truck stop varies inversely as braked load. Eng N 81:799-800 O 31 '18
- Weights of materials commonly hauled by motor trucks. Eng & Contr 50:sup42 Jl 3 '18
- What overloading does to a motor truck. II Factory 20:704+ Ap '18

**Loading**

*See* Loading and unloading

**Management**

- Curbing waste in motor trucking. II map Iron Tr R 62:976-8 Ap 18 '18
- Dixie dealers must organize. B. M. Ikert. II Motor Age 35:20-1 Ap 24 '19
- Experience in managing motor trucks. P. F. O'Shea. II Factory 23:1054-6 N '19
- Getting the cooperation of the man who drives your truck. S. V. Norton. II Factory 20:242-4 F '18
- Getting the most out of motor trucks. II Factory 22:452 Mr '19
- Hauling empties back. Factory 20:454+ Mr '18
- Loading the truck quickly. II Factory 20:458+ Mr '18
- Motor cycle obsolete in transportation system of Des Moines company. D. P. Allen. II Am Gas Eng J 110:507-10, 512-18 Je 14 '19
- Patrol system maintains motor truck efficiency. II Eng N 81:650 O 3 '18
- Putting truck drivers in business for themselves. J. L. O'Brien. II Factory 21:424-5 S '18
- Truck triangle: operating costs of the single truck owner versus those of the fleet owner. J. S. Harwhite. diag Sci Am 119:516+ D 28 '18
- Two rules which resulted in a truck fleet that paid. A. Van Vlissingen, Jr. Factory 21:850 N '18
- What one big business didn't know about its motor transportation. II Am Gas Eng J 110:213-15 Mr 8 '19; Same. Textile World 55:2087+ Ap 5 '19; Same cond. Iron Age 103:693-4 Mr 13 '19
- What one manufacturer learned about motor transportation. F. G. Kane. II Am Mach 50:941-3 My 15 '19
- See also* Motor trucks—Records

## Motor trucks—Continued

## Manufacture

Assembling the Liberty truck. M. E. Hoag. *Il Am Mach* 49:813-15 O 31 '18  
 Quantity production in lorry building. *Il Engineer* 126:290-1 O 4 '18  
 Some details of motor-truck building. F. H. Colvin. *Il Am Mach* 51:817-19 N 6 '19  
 Special parts for four-wheel drive trucks. H. C. Satterthwaite. *Il diag Am Mach* 50:691-8 Ap 10 '19

## Performance

Auto tower versus horse-drawn tower. S. L. Foster. *Elec Ry J* 51:143-4 Ja 19 '18  
 Federal climbs 35 percent grade. *Il Am Lumberman* 2234:59 Mr 9 '18  
 Long distance hauling by motor trucks. P. E. Beam. *Eng & Contr* 49:sup30+ My 1 '18  
 Mileage, speed, and oil and gasoline consumptions on Goodyear trucks using giant pneumatic tires. *Eng & Contr* 49:sup34-5 Je 19 '18  
 Motor truck in county culvert and road work. *Il Eng & Contr* 49:36 Ja 2 '18  
 Motor truck operation and accounting. C. A. Dickens. *Il Munic Eng* 54:sup27+; 55:sup 13+; 57:sup18+, sup20+, sup18+ Ja, Ag '18, S-N '19  
 Motor truck would be paying addition to pipe line constructor's plant. E. Dean. *Am Gas Eng J* 108:104-5 F 2 '18  
 Motor trucks for snow removal superior to teams; abstracts. W. J. Galligan. *Eng N* 80: 617-19 Mr 28 '18; *Eng & Contr* 49:334 Ap 3 '18  
 Steam shovel carried 38 miles on 5-ton motor truck. S. Bent. *Il Eng N* 80:787-8 Ap 18 '18  
 Truck efficiency graphically shown. F. W. Davis. *Automotive Ind* 38:33-6 Ja 3 '18  
 Using trucks to haul stock. *Il map Motor Age* 34:20-1 Ag 15 '18

## Price lists

Tonnage classification of commercial vehicles for 1918; tabulation. *Sci Am* 118:34+ Ja 5 '18

## Radiators

See Automobiles—Radiators

## Records

Charting motor truck performance. Textile World 53:5901+ Je 1 '18; Same cond. *Eng & Contr* 49:sup34 Je 19 '18  
 Curbing waste in motor trucking. *Il map Iron Tr R* 62:976-8 Ap 18 '18  
 Delivery record. *Am Lumberman* 2274:29 D 14 '18  
 Device for recording the movements of motor trucks. *Il diag Munic Eng* 55:155 O '18; *Concrete* 13:170 N '18  
 Keeping auto service records. J. E. Bullard. *Gas Age* 44:80+ Jl 15 '19  
 Keeping score of the motor truck. *Il diag Sci Am* 119:134 Ag 17 '18  
 National standard truck cost system. *Good Roads n s* 16:134-5 O 5 '18  
 Truck running time record. chart *Good Roads n s* 17:249 Je 7 '19

See also Motor trucks—Accounting

## Repair

Camp Holabird—largest truck overhaul depot. *Il Automotive Ind* 39:1052-5 D 19 '18  
 French transport service highly organized. W. F. Bradley. *Automobile* 37:497, 548-50 S 20-27 '17  
 Keeping 40,000 army trucks running. G. E. Randles. *Automotive Ind* 40:350 F 13 '19  
 Maintenance of internal gear drive axle. *Il diag Motor Age* 35:26 Je 26 '19  
 Removing truck wheels. *diags Motor Age* 35:29 Ap 17 '19

See also Automobiles—Repair

## Safety devices

Cammen carsafe load governor. *diags Automotive Ind* 40:1165 My 29 '19

## Specifications

Buyer's guide to 1919 gasoline trucks. *Motor Age* 35:46-9 Ja 23 '19  
 Chassis design of the class B truck. C. T. Myers. *diags plan Automotive Ind* 38:323-6 F 7 '18  
 Detailed technical specifications of gasoline motor trucks for 1919. *Automotive Ind* 40: 112-27 Ja 16 '19  
 Motor age monthly guide to truck specifications. *Motor Age* 36:46-9 N 13 '19  
 Signal corps' heavy truck details. *Automobile* 37:578 O 4 '17  
 Specifications for assembly of U.S. quarter-master corps trucks. *Automotive Ind* 37: 1049 D 13 '17  
 Specifications for class B chassis assemblies. *Automotive Ind* 38:264+ Ja 31 '18  
 Technical specifications of gasoline commercial vehicles for 1918; tabulation. *Automotive Ind* 37:796-809 N 1 '17; Same cond. *Horseless Age* 44:38-42 My 1 '18

## Springs

Supplemental springs for metal tired German trucks. A. J. Slade. *Il diags Automotive Ind* 41:409-12 Ag 28 '19

## Standards

Opposition to standardized trucks. *Automotive Ind* 38:447-8 F 28 '18

## Stopping

Distances required for emergency stops for trucks and passenger cars. F. E. Ertzman. *Good Roads n s* 16:45 Ag 3 '18  
 Length of motor-truck stop varies inversely as braked load. *Eng N* 81:799-800 O 31 '18

## Tires

See Tires, Automobile

## Transmission

Power transmission groups of the German trucks. A. J. Slade. *Il Automotive Ind* 41: 666-9 O 2 '19  
 Transmissions for the U.S. class B war truck. A. W. Copland. *diags plan Automotive Ind* 38:327-9 F 7 '18

See also Automobiles—Transmission

## Wheels

Electric steel castings. *Il Chem & Met Eng* 20:190-1 F 15 '19  
 Extension rims for sand. *Il Sci Am* 120: 516 My 17 '19  
 Making cast steel wheels for U.S. army trucks at Dayton steel foundry. *Il diag Foundry* 46:396-401 S '18  
 Making quad wheels in a tractor foundry. *Il Foundry* 47:157-61 Ap 1 '19  
 Manufacture of cast steel road wheels. *Il Engineer* 128:5-6 Jl 4 '19  
 Pinching fuel pennies and wasting truck tire dollars. A. F. Masury. *Il Munic Eng* 56:sup26+ Je '19; Same. *Eng N* 82:1262-4 Je 26 '19; Same. *Am Lumberman* 2306:64-5 Jl 26 '19; Same cond. *Concrete* 15:29-31 Jl '19  
 Sewell cushion wheel in quantity production. *Il Automotive Ind* 38:963 My 16 '18  
 Steel wheel on wood wheel lines. *diags Automotive Ind* 37:1015 D 6 '17  
 Turret lathe practice. E. Oberg. *Il diags Mach* 26:107-9 O '19  
 See also Motor trucks—Axles; Tires, Automobile

## Weight

See Motor trucks and roads

## Motor trucks, Care of

Helpful hints for truck operators in hot weather. A. F. Masury. *Dom Eng* 88:55 Jl 12 '19  
 How to avoid winter truck repair expense. *Am Lumberman* 2280:78 Ja 25 '19

## Motor trucks, Military

Army motor-transport vehicles. J. Younger. *Il Mech Eng* 41:859-63+ N '19  
 Army motor truck and passenger car standardization. *Good Roads n s* 16:53 Ag 10 '18



**Motor trucks, Military—Continued**

Army motor trucks carry water purification plant. R. K. Tomlin, Jr. II diag plan Eng N 81:458-60 S 5 '18; Same. Chem & Met Eng 19:678-80 N 1 '18

Army transportation. L. B. Moody. II Am Soc M E J 40:31-2 Ja '18

Army truck service pooled in France. A. Sinshelmer. Automotive Ind 38:427-8 F 21 '18

Army well equipped with motor vehicles. Automotive Ind 38:652-3 Mr 28 '18

Assembling the Liberty truck. M. E. Hoag. II Am Mach 49:813-15 O 31 '18

Automotives in the great war; a review of what the United States is doing. C. F. Clarkson. Am Mach 48:153-5 Ja 24 '18; Same. Sci Am S 85:54-5 Ja 26 '18

Building trucks for the aviation service. M. E. Hoag. II diag Am Mach 49:1048-4, 1089-92 D 5-12 '18

Chart for specification tests on class B military trucks. Automotive Ind 38:342 F 7 '18

Chassis design of the class B truck. C. T. Myers. diag plan Automotive Ind 38:323-6 F 7 '18

Class A Liberty truck. II Sci Am 117:460+ D 15 '17

Class A truck ready December 10. A. L. Clayden. Automotive Ind 37:910-11 N 22 '17

Class A trucks ready for the road. II Automotive Ind 37:1086-8 D 20 '17

Clean-up details of standard trucks. A. L. Clayden. Automobile 37:486-7+ S 20 '17

Complete design of class AA truck. Automotive Ind 37:1084-5 D 20 '17

Contracts for class B trucks. Automotive Ind 38:599-600 Mr 21 '18

Design of military truck axles. G. W. Carlson. diag Automotive Ind 38:172-5+ Ja 17 '18

Designs completed for government trucks. Eng & Contr 49:32+ Ja 2 '18

Details of construction of the class AA military trucks; illustrations. Automotive Ind 38:318-21 F 7 '18

Europe's aviation truck design. W. F. Bradley. II Automotive Ind 37:1132-3 D 27 '17

Extremely heavy frames for German military trucks. A. J. Slade. diag Automotive Ind 41:360-3 Ag 21 '19

First class AA  $\frac{1}{2}$ -ton military trucks practically ready. Automotive Ind 38:317+ F 7 '18

First class B military trucks on the road. A. L. Clayden. II Automobile 37:617-20 O 11 '17

First Liberty truck convoy arrives in Baltimore. II Automotive Ind 38:698-9 Ap 4 '18

Greatest achievement of industry seen in war truck. II Automotive Ind 37:764-5 N 1 '17

Machine shop trucks reclaim guns. II Iron Tr R 64:376-80 F 6 '19

Military truck discussion. A. P. Brush. Automotive Ind 40:1217 Je 5 '19

Motor trucks in the war. II Sci Am 119:125+ Ag 17 '18

No standardization of parts of the German army trucks. A. J. Slade. II Automotive Ind 41:307-11 Ag 14 '19

Opposition to war truck is acute. II Automotive Ind 38:531-3 Mr 14 '18

Power plants of the German war trucks. A. J. Slade. II Automotive Ind 41:814-21 O 23 '19

President Wilson inspects war trucks. II Automobile 37:706-7 O 25 '17

Prominent details of war truck. II Automotive Ind 37:766-9 N 1 '17

Reasons behind the class B engine. A. F. Milbraith. diag Automotive Ind 38:169-71 Ja 17 '18; Abstract. Am Soc M E J 40:184 F '18

Signal corps' heavy truck details. Automobile 37:578 O 4 '17

Special motor truck for moving troops. II Sci Am 118:364 Ap 20 '18

Specifications for assembly of U.S. quartermaster corps trucks. Automotive Ind 37:1049 D 13 '17

Specifications for class B chassis assemblies. Automotive Ind 38:264+ Ja 31 '18

Specifications of 1 $\frac{1}{2}$ -ton aviation truck. A. L. Clayden. Automobile 37:534 S 27 '17

Standard truck not fully commercial. G. D. Smith. Automotive Ind 37:1092-3+ D 20 '17

Standardize war truck repair work. Automotive Ind 38:4-5 Ja 3 '18

Supplemental springs for metal tired German trucks. A. J. Slade. II diag Automotive Ind 41:409-12 Ag 28 '19

Transmissions for the U. S. class B war truck. A. W. Copland. diag plan Automotive Ind 38:327-9 F 7 '18

20,000 war trucks to be ordered. Automotive Ind 38:833 Ap 25 '18

Two sizes of standardized signal corps trucks. II Automotive Ind 37:961 N 29 '17

Types of ordnance vehicles. II Automotive Ind 38:1249-50+ Je 27 '18

United States places contracts for 10,000 B trucks. Automotive Ind 37:1062 D 13 '17

Unusual types of axles on the German war trucks. A. J. Slade. II diag Automotive Ind 41:457-61 S 4 '19

See also Motor trucks in war and army service; United States—Army—Motor transport corps

**Motor trucks, Municipal**

Motor truck operation and accounting. C. A. Dickens. II Munic Eng 53:sup27+; 55:sup 13+ D '17, Ag '18

Seattle keeps accurate records of auto trucks and automobile operations. C. A. Osler. II Eng N 80:655-6 Ap 4 '18

See also Street cleaning apparatus, Motor

**Motor trucks, Steam**

Coke fuel steam motor. II diag Engineer 126:101-2+ Ag 2 '18; Automotive Ind 39:919-22+ N 28 '18

New steam motor truck. diag Sci Am 117:458 D 15 '17

Royal agricultural show. II diag Engineer 128:9 Ji 4 '19

Six-ton steam wagon made by Atkinson & co. II diag Engineer 124:494-6 D 7 '17

Steam and the truck. Motor Age 35:22 F 13 '19

**Motor trucks and roads**

Character and cost of highways for motor truck use. S. Whinery. Eng N 83:77-8 Ji 10 '19; Discussion. J. Wilkes. 83:829-30 O 30 '19

Combining road materials to withstand forces incident to motor haulage. II Munic Eng 53:230-1 D '17

Considerations affecting design of heavy traffic highways in Ontario. W. A. McLean. Munic Eng 56:157-8 Ap '19

Discussion has failed to reach bottom of highway-truck problem. W. E. Weller. Eng N 82:107-8 Ja 9 '19; Discussion. C. F. Dingman. 82:343 F 13 '19

Economic highway transportation. R. C. Barnett. diag Good Roads n s 15:241-5 My 11 '18

Economic limit to motor truck weights. R. C. Barnett. Eng & Contr 51:6-7; 52:374-80 Ja 1, O 1 '19; Discussion. 52:523-4 N 5 '19

Effect of impact of trucks. diag Munic J 47:162-4 S 13 '19

Effects of heavy traffic. Munic J 46:154-60 F 22 '19

Excessive speeds of ponderous vehicles damaging to roads. A. J. Marshall. Elec R 73:425-6 S 14 '18

Factors which will govern future road-surface design. E. L. Viets. II Eng N 81:970-5 N 28 '18

Gasoline consumption tests demonstrate value of hard, smooth-surfaced roads. A. N. Johnson. II Eng N 81:843-50 N 7 '18

Hauling over the highways with motor trucks. II Good Roads n s 18:46-9 Ji 23 '19

Heavy motor truck traffic on Lincoln highway. S. W. Jackson. Eng N 80:916 My 9 '18

Heavy motor trucks and the highways. Eng N 81:142-3, 462, 595 Ji 18, S 5, 26 '18

Heavy traffic highways. Good Roads n s 16:224-5 D 7 '18

Highways and the duty of their builders. S. M. Williams. II Good Roads n s 18:35-7 Ji 23 '19

Highways and truck loads they can economically sustain. H. E. Breed. Eng N 81:975-7 N 28 '18

**Motor trucks and roads—Continued**

- Impact tests of auto trucks on roads. E. B. Smith and J. T. Pauls. *diag Eng & Contr* 52:390-2 O 1 '19; *Abstract. Eng N* 83:573-5 S 18 '19
- Influence of motor traffic on road design. A. H. Blanchard. *Good Roads n s* 18:50-2 J1 23 '19
- Limit truck capacity or build better roads. *Eng N* 81:233-5 Ag 1 '18
- Limitations to be placed on trucks, from user's viewpoint. G. H. Pride. *Eng N* 81: 968-70 N 28 '18
- Motor-truck impact on roads five times dead load. E. B. Smith and J. T. Pauls. *diag Eng N* 83:573-5 S 18 '19
- Motor truck operation and accounting. *il Munic Eng* 56:sup12+, sup12+ Ja-F '19
- Motor truck traffic and highway construction. H. E. Breed. *Eng & Contr* 49:sup36 My 1 '18
- Motor truck traffic demands thicker road slabs. *Concrete* 12:162-3 My '18
- National highways and motor trucks. E. A. Rossiter. *Eng & Contr* 51:3-4 Ja 1 '19
- Performance of New Jersey highways under heavy motor truck traffic. W. G. Thompson. *Munic Eng* 56:28-9 Ja '19
- Postal motor trucks; how they can be made to pay for the roads on which they will run. C. H. Claudy. *Sci Am* 119:127+ Ag 17 '18
- Procedure in making tests of effect of motor truck traffic on road surfaces. A. T. Goldbeck. *Munic Eng* 57:64 Ag '19
- Proposed solution of highway transportation problem. H. W. Skidmore. *Eng N* 81:416 Ag 29 '18
- Relation of highways to freight transportation. W. A. Alsdorf. *Sci Am* S 86:18-19 J1 13 '18
- Relation of highways to motor transport efficiency. A. H. Blanchard. *Munic Eng* 56:190-1 My '19
- Results of heavy traffic; tabulation. *Munic J* 46:287-9 Ap 19 '19
- Road destruction by heavy vehicles. *Engineer* 127:189 F 21 '19; *Same. Eng & Contr* 51:448-9 Ap 30 '19
- Road impact tests. *Munic Eng* 57:196-7 N '19
- Road locomotives and heavy motor cars. *Eng & Contr* 52:114-15 J1 30 '19
- Road maintenance and automobile fees. *diag Munic J* 44:332 Ap 20 '18
- Some motor truck economics. *il Sci Am* 119: 514+ D 28 '18
- Stresses in concrete road slabs from wheels of heavy trucks. A. T. Goldbeck. *Eng & Contr* 52:165-6 Ag 6 '19
- Traffic control on feeder highways. *Eng N* 83:251 Ag 7 '19
- Traffic laws and highway maintenance and construction. C. C. Brown. *Munic J* 44:325-6, 344-5 Ap 20-27 '18
- Views of a motor truck manufacturer on restrictions on highway transportation and causes of damage to highways. R. E. Fulton. *Munic Eng* 57:sup28-9 S '19
- Wider pavements needed by motor vehicles at curves. G. S. Eaton. *diag Eng N* 82: 461-2 Mr 6 '19
- See also* Motor trucks—Laws and regulations
- Motor trucks in construction work**
- Brockway highway truck with divided body to save handling and measuring materials. *il Munic J* 47:273 N 1 '19
- Concrete material for army base hauled by motor trucks. *il Eng N* 82:366-8 F 20 '19
- Delivery of sand and builders' supplies by motor trucks. *Eng & Contr* 50:sup40 J1 3 '18
- Direct method of handling concrete aggregates with trucks. *Eng & Contr* 50:234 S 4 '18
- Distribute subway track material by motor truck in New York. *il Eng N* 80:857-9 My 2 '18
- Expediting construction work at army cantonments with motor trucks. *il Sci Am* 118: 236+ Mr 16 '18
- Heavy construction hauling practice modified by war conditions. G. H. Pride. *Eng N* 81: 405-6 Ag 29 '18
- How motor trucks saved \$15,000 for contractor on building excavation. *il Munic Eng* 55:76 Ag '18
- Motor equipment for highway maintenance work. W. R. Farrington. *il diag Eng N* 80: 669-70 Ap 4 '18
- Motor truck dumps five batches in succession into mixer skip. *Eng N* 79:1217 D 27 '17
- Motor truck haulage saves about \$1,000 per mile in gravel road construction. *il Eng & Contr* 51:492 My 7 '19
- Motor truck hauling in Black Hawk county, Iowa. W. H. Root. *Good Roads n s* 16:133-4 O 5 '18
- Motor truck on county road and culvert work. N. B. Barber. *il Eng & Contr* 49:sup 30 Mr 6 '18
- Motor truck operation and accounting. C. A. Dickens. *il Munic Eng* 54:sup27+, sup25+, sup25+, sup25+, sup15+, sup15+; 55: sup13+; 56:sup20+ Ja-J1 '18, Je '19
- Motor trucks cheaper than teams on hauling gravel. F. P. Scott. *Eng N* 80:958-9 My 16 '18
- Motor trucks essential in building subway. *il Sci Am* 119:132 Ag 17 '18
- Motor trucks hauling building materials. G. E. Dale. *Concrete* 14:236-7 Je '19
- Special motor equipment used on road maintenance. D. H. Winslow. *il diag plan Eng N* 82:771-2 Ap 17 '19
- Uses of the motor truck in highway work. *il Good Roads n s* 18:44-5+ J1 23 '19
- Motor trucks in freight service**
- B trucks move Shipping board equipment from Washington to Philadelphia. *il Automotive Ind* 38:1108 Je 6 '18; *Same. Motor Age* 33:23 Je 6 '18
- Car shortage and its relation to highway work. C. M. Upham. *Eng N* 79:1099-1100 D 13 '17
- Chicago to New York truck line of Master truck transportation co. *Automotive Ind* 38: 382 F 14 '18
- Comparison of short-haul truck and rail shipments; abstracts. W. J. L. Banham. *Eng N* 82:903-4 My 8 '19; *Eng & Contr* 51: 498 My 7 '19
- Connecticut eliminates dead truck mileage by return loads bureaus. *map Automotive Ind* 38:479-80 F 28 '18
- Contract let for motor-truck transportation of coal in Birmingham, Ala. *Eng N* 81:647 O 3 '18
- Deliveries by auto truck. *il Gas Age* 41:428 My 1 '18
- Delivery of the motor truck from the factory to the seaboard under its own power. R. Beck. *Good Roads n s* 15:101-2 F 16 '18
- Department of agriculture co-operates with motor truck operators. *Concrete* 13:137 O '18
- Developing freight routes on highways with motor trucks and trailers in Ohio. *il Eng N* 81:106 J1 11 '18
- Development of rural motor express; abstracts. F. W. Fenn. *Good Roads n s* 17: 248-9 Je 7 '19; *Munic Eng* 57:sup28-30, 32 J1 '19; *Eng & Contr* 52:171-2 Ag 6 '19
- Express service over the road by motor truck. J. Husson. *il map Automotive Ind* 38:456-60 F 28 '18
- Facilitating motor freight haulage. M. C. Boyd. *il Munic Eng* 54:116-17 Mr '18
- First motor truck train completes trip from Detroit to Baltimore. *Automotive Ind* 38:49 Ja 3 '18
- Freight and package delivery by express. A. J. Marshall. *Elec R* 72:812-13 My 11 '18
- Freight haulage by fleets of motor trucks. *il Eng & Contr* 49:30 Ja 2 '18
- Getting express speed at the cost of freight. J. Heywood. *Factory* 20:840-1 My '18
- Growth of rural motor express. F. W. Fenn. *il Motor Age* 35:26-7 Ap 3 '19
- Hauling freight over the highways. *il Good Roads n s* 15:1-2 Ja 5 '18
- Hauling over the highways with motor trucks. *il Good Roads n s* 18:46-9 J1 23 '19
- Highway between Baltimore and Belair, Md., carries twelve times as much local freight as railroad. *Eng N* 81:224-6 Ag 1 '18

**Motor trucks in freight service—Continued**

- Highway freight trains—Akron & Boston express. *Il* Munic J 43:557-8 D 6 '17; Munic Eng 53:257 D '17
- Highway: its relation to transportation. S. M. Williams. *Good Roads* n s 15:95-6, 104 F 16 '18; Excerpt. Eng & Contr 49:sup35-+ Mr 6 '18
- Highways to relieve railroads—plans worked out by the Quartermaster department and the Highways transport committee. Munic J 43:610 D 22 '17
- Highways transport committee for New York. *Good Roads* n s 18:77-80 Ag 6 '19
- How return loads bureaus aid shippers. *Metal Work* 39:815 Je 21 '18
- How the American railway express co. secures greater service from its motor trucks. B. K. Rhoads. Eng & Contr 52:340-1 S 17 '19
- How the problem of motor transportation will be solved. R. E. Fulton. *Il* Good Roads n s 17:209-11 My 17 '19
- How to organize a motor truck company for overland haulage. Eng & Contr 49:574 Je 5 '18
- Importance of highways. R. D. Chapin. Eng N 80:778 Ap 18 '18
- Important part played by motor trucks. S. Sayward. *Il* Textile World 55:488-9+ Ja 11 '19
- Industry's use of highways and motor trucks to relieve freight congestion. Eng N 79:1032-3, 1048-9 N 29-D 6 '17
- Interurbans have not done duty. C. J. Laney. *Elec Ry J* 52:954-5 N 30 '18
- Kansas City studies transportation by motor truck. *Il* map Motor Age 34:28-9 D 19 '18
- Long distance motor transportation. *Il* Sci Am 120:516+ My 17 '19
- Long-distance motor trucking. C. E. Stone. *Il* Munic Eng 54:118-19 Mr '18
- Milwaukee as return loads hub. *Il* map Motor Age 33:20-1 Je 20 '18
- Motor freight highways will aid in solution of transportation problem. Munic Eng 54:36-7 Ja '18
- Motor freight trucks on highways. A. Turner. *Ry Age* 63:1067 D 14 '17
- Motor truck freight and operating costs. R. E. Fulton. Munic Eng 57:sup30 Ag '19; Same. *Textile World* 56:1393 S 6 '19
- Motor truck operation and accounting. C. A. Dickens. *Il* Munic Eng 54:sup25+, sup25+, sup25+, sup25+; 55:sup13+, sup13+, sup12+, sup12+ F-My. S-D '18
- Motor truck return loads in Connecticut, New Jersey and New York. *Textile World* 55:5593+ My 18 '18
- Motor truck tonnage increases 131 per cent in ten months. Eng N 80:1090-1 Je 6 '18
- Motor-truck transportation. W. P. Kennedy. *Am Soc M E J* 40:29-31 Ja '18; Same. Eng & Contr 49:28-9+ Ja 2 '18
- Motor truck transportation growing rapidly. *Il* map Ry R 63:763-9 N 30 '18
- Motor truck transportation must be developed. A. C. Bedford. Eng N 80:777-8 Ap 18 '18
- Motor trucks aid war time steel production. D. M. Avey. *Il* Iron Tr R 62:907-12 Ap 11 '18
- Motor trucks and highway transportation. M. B. Greenough. *Good Roads* n s 15:15-16+ Ja 12 '18; Excerpt. Eng & Contr 49:157-8 F 6 '18; Excerpt. Munic J 44:52-3 Ja 19 '18
- Motor trucks and the problem of efficient marine freight terminal operation. M. C. Horine. *Il* Int Marine Eng 24:518-24, 632-7, 696-703 Ag-O '19
- Motor trucks in inter-city business increase 400 per cent on coast. *Il* Motor Age 34:22 Ag 29 '18
- Motor trucks in the textile industry. S. Sayward. *Il* Textile World 53:3193-5+ Ja 12 '18
- Need for organized trucking. W. C. Nisbet. *Ind Management* 56:334-6 O '18
- Overland truck transport service from Detroit to Atlantic coast. Eng & Contr 49:34+ Ja 2 '18
- Plans for the extension of rural motor express. *Good Roads* n s 17:269-70 Je 21 '19
- Recent developments in motor truck hauling. *Il* Good Roads n s 14:317-18 D 22 '17
- Recent motor freight line development. *Ry R* 64:552-3 Ap 12 '19
- Relation of highways to freight transportation. W. A. Alsdorf. *Sci Am* S 86:18-19 JI 13 '18
- Relative economy of freight transport by railway and by motor truck. C. W. Baker. Eng N 83:52-67 JI 10 '19
- Relying on trucks when freight cars fail. *Il* Sci Am 119:54 JI 20 '18
- Return load bureaus already established. Eng N 80:1252 Je 27 '18; Abstract. *Good Roads* n s 15:326 Je 29 '18
- Return load bureaus and motor truck transportation; abstracts. Eng & Contr 49:sup34 My 1 '18; *Good Roads* n s 15:233-4 My 4 '18; *Am Lumberman* 2242:62 My 4 '18
- Return load motor truck scheme of Connecticut state council of defense. Eng & Contr 49:sup32 Ap 17 '18
- Return loads bureau. Munic J 44:331-2 Ap 20 '18
- Return loads in Connecticut; state-wide organization for stimulating motor truck freight handling. Munic J 44:229 Mr 16 '18
- Roads plus trucks move crops. R. E. Jones. *Il* Motor Age 35:28-31 F 27 '19
- Rural express possibilities; Maryland has twenty-two routes. *Il* map *Automotive Ind* 38:604-5 Mr 21 '18
- Rural motor express. *Good Roads* n s 15:312+ Je 22 '18
- Rural motor truck express lines; Council of national defense urges state organizations to promote use of motor truck in rural districts. *Good Roads* n s 15:236-7 My 4 '18
- Systematize motor truck express lines to reduce high cost of living. E. A. Williams, jr. Munic Eng 57:171-2 O '19
- Transportation surveys for rural motor express routes. J. A. Collins. *Good Roads* n s 17:212+ My 17 '19; Same. Eng & Contr 51:602-3 Je 4 '19
- Trucking freight over Gobi desert. *Sci Am* 121:164+ Ag 16 '19
- Trucks as efficient as their bodies. *Il* Concrete 14:232-3 Je '19
- Trucks solve transportation problems. *Il* Good Roads n s 15:121-3 Mr 2 '18
- Via motor truck; P. E. Beam's motor truck transportation system. *Il* Sci Am 119:124+ Ag 17 '18
- Wanted: rural motor express in the state of New York. J. E. Boyle. *Good Roads* n s 17:212+ My 17 '19; Same. Eng & Contr 51:610 Je 4 '19
- Will link all of New England with many return load bureaus. *Automotive Ind* 38:847-8 Ap 25 '18
- Motor trucks in lumber handling**
- Auto truck in logging. S. W. Barker. *Il* Am Lumberman 2319:70-1 O 25 '19
- Delivery costs. *Am Lumberman* 2226:55 Ja 12 '18
- Demonstrating Duplex trucks. *Il* Am Lumberman 2246:63 Je 1 '18
- How one company reduces delivery costs. *Il* Am Lumberman 2226:55 Ja 12 '18
- Kissel trucks do not wear out. *Il* Am Lumberman 2252:58 JI 13 '18
- Logging truck. *Il* Sci Am 121:395 O 18 '19
- Modern motor delivery system. *Il* Am Lumberman 2262:61 S 21 '18
- Motor truck in the lumber field. *Am Lumberman* 2315:62 S 27 '19
- Motor truck versus the mule. R. E. Montgomery. *Am Lumberman* 2238:60 Ap 6 '18
- Motor trucks and plank roads help to get out airplane spruce. *Il* Eng N 81:1164-6 D 26 '18
- Motor trucks for a lumber yard. N. H. Cartin-hour. *Am Lumberman* 2231:67 F 16 '18
- Motor trucks haul spruce logs for airplane stock. *Il* Eng N 81:1166-7 D 26 '18
- Motor trucks perform varied service. *Il* Am Lumberman 2287:79 Mr 15 '19
- Motors, tires and methods for an ideal lumber retail trucking proposition. *Am Lumberman* 2308:67 Ag 9 '19
- Proper size truck for your business is an important factor in economical operation. C. J. Thompson. *Bldg Age* 40:270 My '18
- Reducing the delivery costs 40 per cent by trucks. *Il* Am Lumberman 2301:60 Je 21 '19

**Motor trucks in lumber handling—Continued**

Sell your mules or horses and buy motor trucks. diag plan Am Lumberman 2236:57 Mr 23 '18  
 Special truck for lumbermen. il Am Lumberman 2247:54 Je 8 '18  
 Teaming handicap that proved a help. C. R. Blades. il Factory 21:1051 D '18  
 Truck and trailer great cost reducer. il Am Lumberman 2276:59 D 28 '18  
 Truck saves \$8.36 a thousand feet. il Am Lumberman 2244:58 My 18 '18  
 What experience in truck operation shows. il Am Lumberman 2300:62 Je 14 '19  
 What you want—when you want it. il Am Lumberman 2238:60 Ap 6 '18  
 Where a truck should be used. Am Lumberman 2248:52 Je 15 '18  
 Where the logging truck is coming into its own. il Am Lumberman 2290:60-1 Ap 5 '19  
 Winch for motor trucks. il Am Lumberman 2233:58 Mr 2 '18

**Motor trucks in postal service**

Aerial and motor truck mail service development. Automotive Ind 39:1034-5 D 12 '18  
 Development of the motor truck parcel post after the war. J. I. Blakslee. Good Roads n s 16:189-91 N 16 '18; Excerpts. Munic J 45:406-7 N 23 '18; Abstract. Eng & Contr 50:527 D 4 '18  
 Mail trucks earn four times their cost. Automotive Ind 39:1120 D 26 '18  
 Motor truck parcel post. il Good Roads n s 15:175-6 Mr 30 '18  
 Motor trucks for rural mail service. J. I. Blakslee. Automotive Ind 38:660 Mr 28 '18  
 Motorizing the mails. J. R. Eustis. il Sci Am 119:518+ D 28 '18  
 Operating costs of government owned motor trucks in postal service. Eng & Contr 49:sup26 Ap 17 '18  
 Parcel post routes by motor trucks to be extended. Ry Age 64:104 Ja 11 '18; Excerpts. Eng & Contr 49:41 Ja 9 '18  
 Postal motor trucks; how they can be made to pay for the roads on which they will run. C. H. Claudy. Sci Am 119:127+ Ag 17 '18  
 Reports show results of motor parcel post service. map Eng N 81:90-2 Jl 11 '18  
 \$20,000,000 expenditure proposed for construction and maintenance of highways for motor truck parcel post service. Eng & Contr 50:23-4 Jl 3 '18  
 U.S. post office favors better roads and use of motor vehicles. J. I. Blakslee. Eng & Contr 49:sup36 My 1 '18

**Motor trucks in war and army service**

Army truck service pooled in France. A. Sinsheimer. Automotive Ind 38:427-8 F 21 '18  
 Army truck trains. il Sci Am 119:132+ Ag 17 '18  
 Automobile electric kitchen. A. S. Rice. il diag plan Gen Elec R 21:277-80 Ap '18  
 Automotives in the great war; a review of what the United States is doing. C. F. Clarkson. Am Mach 48:153-5 Ja 24 '18; Same. Sci Am S 85:54-5 Ja 26 '18  
 Equipping motor trucks for war service. il Automotive Ind 38:960 My 16 '18  
 Extremely heavy frames for German military trucks. A. J. Slade. diags Automotive Ind 41:360-3 Ag 21 '19  
 First standardized repair depot for quartermaster mechanical transport. A. Sinsheimer. il Automotive Ind 38:552-3 Mr 14 '18  
 French transport service highly organized. W. F. Bradley. Automobile 37:494-7, 548-50 S 20-27 '17  
 How the German trucks were surrendered to U.S. army. A. J. Slade. il Automotive Ind 41:247-52 Ag 7 '19  
 In Serbia with a workshop truck. W. F. Bradley. il Motor Age 33:5-7 Je 20 '18  
 Italy's war vehicles traveled to France by own motor power. W. F. Bradley. il Automotive Ind 40:795 Ap 10 '19  
 Motor equipment of the United States army engineer corps. il Eng N 82:1052-4 My 29 '19  
 Motor kitchen; Ford touring car and Smith Form-A-truck attachment. il Motor Age 33:42 Je 20 '18

M. T. C. salvage park in France. W. F. Bradley. il Automotive Ind 40:860-3, 902-5 Ap 17-24 '19

Motor trucks in the great war. H. L. Horn- ing. il Sci Am 118:308+ Ap 6 '18

Motor trucks in the war. il Sci Am 119:125+ Ag 17 '18

Motor trucks under quartermaster. Auto- motive Ind 39:470 S 12 '18

No spares on French war trucks. W. F. Brad- ley. Automotive Ind 38:229-30 Ja 24 '18

Organization and work of the Motor trans- port corps. W. F. Bradley. il chart Auto- motive Ind 40:52-6 Ja 9 '19; Same. Motor Age 35:7-8 Ja 9; 18-19 Ja 16 '19

Organization of the French army automobile service. W. F. Bradley. il Automotive Ind 39:1093-5 D 26 '18

Portable repair shops for the army. H. S. Lord. il Am Mach 51:317-22 Ag 14 '19

Repair truck generating unit; machine shop on U. S. artillery repair truck operated by independent motors supplied by generator. il Automotive Ind 39:418-19 S 5 '18

Smith Form-A-truck army kitchen. il Auto- motive Ind 38:551 Mr 14 '18

Special army trucks for hauling fresh meat. il Sci Am 118:562 Je 15 '18

Steam army kitchen. il Automobile 37:498 S 20 '17; Same. Sci Am 117:273 O 13 '17

Troop movement by motor truck. W. F. Bradley. il Automobile 37:671-4 O 18 '17

What the war taught us about motor trucks. V. W. Page. il diags Sci Am 121:508-9 N 22 '19

When motor trucks saved Verdun. W. F. Bradley. Automotive Ind 40:638-9 Mr 20 '19

See also Motor trucks, Military; United States—Army—Motor transport corps

**Motor trucks on rails**

Linking up isolated mineral districts by the loco-tractor transport system. F. Dutton. il Eng & Min J 107:313-14 F 15 '19

Motorized railways. il Sci Am 119:129 Ag 17 '18

Pole road plan with adapted truck promises economy. diags Am Lumberman 2261:46 S 14 '18

**Motor vehicles**

Cars and trucks in United States, July 1, 1918. chart map Automotive Ind 39:308-11+ Ag 22 '18

Competition of motor vehicles. L. S. Storrs. Elec Ry J 54:184-5 Jl 26 '19

Federal control of motor vehicles. Good Roads n s 16:33 Jl 27 '18

How gas companies use motor vehicles. J. E. Bullard. il Gas Age 43:556-9 Mr 15 '19

Is rust-proofing for trucks practical? E. T. Birdsall. Automotive Ind 41:24-5 Jl 3 '19

Motor vehicles in Pennsylvania for the year 1919. Eng N 83:312 Ag 14 '19

1919 directory of 232 manufacturers of gaso- line, steam, electric and the electric in- dustrial vehicles. Motor Age 35:44-5 Ja 23 '19

See also Ambulances; Automobiles; Elec- tric trucks; Electric vehicles; Fire appar- atus, Motor; Jitney buses; Motor boats; Motor buses; Motor cars (railroad); Motor cycles; Motor ships; Motor trucks; Trac- tors; Unicycle

**Exhibitions**

Twin Cities stage first automotive show. D. Beecroft. il Automotive Ind 38:349-50 F 14 '18

**Licenses**

Michigan to regulate all drivers in state. Motor Age 35:19 Je 12 '19

**Taxation**

License fees for motor vehicles and drivers. H. E. Breed. Eng N 81:1117-20 D 19 '18; Same. Good Roads n s 17:15-16+ Ja 11 '19; Same. Eng & Contr 51:144-5 F 5 '19

Motor vehicle license fees in Massachusetts. Eng N 83:431 Ag 28 '19

Motor vehicle taxes now part of law. Motor Age 35:18 Mr 6 '19

**Motor vehicles—Taxation—Continued**

**Motor vehicles operating as common carriers** are licensed in Maryland. M. Schuyler. Eng N 80:827-8 Ap 25 '18  
Revenue law interpreted. Motor Age 35:12-13 Mr 13 '19

**Motor vessels.** See **Motor ships**

**Motorcycles.** See **Motor cycles**

**Motormen.** See **Electric railroads—Employees**

**Motors.** See **Airplane engines; Automobile engines; Electric motors; Turbines; Wind-mills**

**Motors Airplane.** See **Airplane engines**

**Motors, Electric.** See **Electric motors**

**Moulding (metal).** See **Foundry practice**

**Mouldings.** See **Moldings**

**Mount Lyell mining and railway company**

Reports and statements of accounts for the year ended Sept. 30, 1918. Eng & Min J 107:325 F 15 '19

**Mountain railroads**

Kalka-Simla railway and rolling stock. Il diag plans Engineer 126:455-8 N 29 '18  
Railroading two miles above sea level. Il maps Ry Age 65:1157-60 D 27 '18

**Mountain roads**

Concrete pavements for mountain roads. diags Eng & Contr 51:337 Ap 2 '19  
Mountain highway reconnaissance. T. A. Bedford. Eng & Contr 52:13 Jl 2 '19  
Road-construction problem in West Virginia mountains. M. A. Rogers. Il Eng N 83:90-2 Jl 10 '19

**Mountaineering clubs of North America, Associated.** See **Associated mountaineering clubs of North America**

**Moving**

**Factory moving.** L. J. Hengesbach. diags Mach 24:999-1002 Jl '18

Transportable rigging support for rapid movement of heavy apparatus. diags Elec R 73:467 S 21 '18

Why our factory moving day went well. L. J. Cleary. Il Factory 23:1310-11 D '19  
See also **Moving of structures**

**Moving and talking pictures**

Recording sound on motion-picture film. Il Sci Am 117:473+ D 22 '17

**Moving of buildings.** See **Moving of structures**

**Moving of structures**

Distribution of line expense in house moving. Elec W 72:19 Jl 6 '18

Electric hoists pull 3000-ton building 450 feet. Il diags Eng N 83:706-7 O 9 '19  
House that was cut in half and moved. R. H. Moulton. Il Bldg Age 40:237 My '18

How a steel stack was removed from old power plant and reinstalled in a new one. C. A. Elliott. Il Elec Ry J 53:580 Mr 22 '19; Same. Power 49:573 Ap 15 '19

How heavy structures are moved. Il Iron Tr R 62:535-6 F 28 '18

Moving reinforced concrete building to a new site. J. L. Schnitz. Il diag Concrete 15:60-2 Ag '19

Moving three large steel tanks 150 miles by water. A. J. Taylor. Il Eng N 83:226-7 Jl 31 '19

Steel tanks transported by water. Il Sci Am 121:445 N 1 '19

See also **Boilers—Moving; Bridge moving; Rollers**

**Moving picture machines**

Making a moving picture machine. M. E. Hoag. Il Am Mach 49:666-8, 718-20, 759-61 O 10-24 '18

Motion picture machine as an engineering instrument. J. C. Marsh. Ry Age 67:292 Ag 15 '19

**Moving picture photography**

Building a moving-picture camera. E. H. Williamson, jr. Il diags Sci Am S 84:396-3 D 22 '17

Camera for filming rapidly-moving objects. Sci Am 120:315 Mr 29 '19

Filming marine life; how curator Dittmars makes motion-picture studies of aquaria for the screen. Il Sci Am 119:10+ Jl 6 '18

How moving photomicrographs are taken. Il Iron Age 102:323-5 Ag 8 '18

Motion-picture camera that is different. Il Sci Am 118:194 Mr 2 '18

Motion-picture portrait photography. Il Sci Am 119:28+ Jl 13 '18

Portable apparatus for developing motion-picture film at normal and at high temperatures. J. I. Crabtree. J Fr Inst 186:631-2 N '18

Projecting larger pictures with the standard motion-picture film. Il Sci Am 118:85 Ja 26 '18

**Moving picture studios**

Electricity in the making of moving pictures. C. M. Heintz. Il J Elec 43:9-11 Jl 1 '19

Motion-picture colony under one roof. Il Sci Am 120:651 Je 21 '19

**Moving picture theaters**

Arcadia theater, Philadelphia, Pa. Am Arch 113:pl 213-14 Je 12 '18

Modern electrical equipment in a picture theater. Il Elec R 73:299 Ag 24 '18

Stillman theatre, Cleveland, Ohio. W. S. Wagner. Il plans Arch Rec 43:309-21 Ap '18

**Heating and ventilation**

How rheostat for motion-picture machine may serve as heater in ticket booth. T. J. Coghlan. diags Elec R 71:1071-2 D 22 '17

Ventilation of the Rivoli theatre, New York. Arch & Bldg 50:17 Ja '18

See also **Theaters—Heating and ventilation**

**Lighting**

Interior lighting for motion-picture theaters. Il Elec W 73:1041 My 17 '19; Same. Am Arch 116:344 S 10 '19

Outside lighting of cinema halls by gas. Illum Engr 10:294 N '17

See also **Theaters—Lighting**

**Moving pictures**

American motion picture in European theaters. Sci Am 118:526 Je 8 '18

Cine-motor—touring movies equipment of the British government. F. A. Talbot. Il Sci Am 119:93+ Ag 3 '18

Electric movie for show windows. Il Elec W 72:234 Ag 3 '18

G. E. compensarc for Mazda projection lamps. Elec R 72:655 Ap 13 '18

G. E. compensarc for motion-picture projection. Il Elec R 73:142-3 Jl 27 '18

G. E. compensarc set for changing alternating to direct current for picture projecting. Il Elec R 72:352 F 23 '18

Light projection with gas-filled lamps. R. P. Burrows and J. T. Caldwell. Il diags Elec W 71:766-9 Ap 13 '18; Abstract. Sci Am 118:235 Mr 16 '18

Mazda C lamps for motion picture projection. A. R. Dennington. Il diag Elec J 16:201-4 My '19

Mazda lamps for motion picture projection. L. C. Porter. Il diags Gen Elec R 22:556-9 Jl '19

Mazda lamps for motion-picture projectors. L. C. Porter. Il diags Gen Elec R 20:979-83 D '17; Abstract. J Fr Inst 186:118 Ja '18; Abstract. Illum Engr 11:167-8 Je '18

Micro-photoplays; staging motion-picture productions with the aid of the microscope. A. C. Lescarboua. Il Sci Am 118:72-3 Ja 19 '18

Motion picture projection with tungsten filament lamps. J. T. Caldwell and others. Il diags Illum Eng Soc 13:232-48; Discussion. 248-55 no 4 '18

Multiplying the average motion-picture screen by six. Il Sci Am 121:159 Ag 16 '19

New cycle in motion-picture projection. Il Sci Am 118:259+ Mr 23 '18

Romance of invention. C. H. Claudy. Il Sci Am 121:252+ S 13 '19

Toyland in the films; where dolls, as movie actors, rival living stars. R. H. Moulton. Il Sci Am 117:496-7 D 29 '17

See also **Moving and talking pictures; Moving picture machines; Moving picture photography; Moving picture studios; Moving picture theaters**

**Moving pictures—Continued****Laws and regulations**

Film exchange regulations; with Chicago code. *Il plan Am Arch* 114:88-94 *Jl* 17 '18  
 Motion picture exchange regulations. *Arch & Bldg* 51:9 *F* '19

**Moving pictures, Talking.** See **Moving and talking pictures**

**Moving pictures in education**

Free education from the film. *Sci Am* 121:316 *S* 27 '19

Motion pictures in the training of the chemist. A. C. Neish and O. Byron. *J Ind & Eng Chem* 11:699-700 *Jl* '19

**Moving pictures in industry**

Cinema service for manufacturers. D. McFall. *Sci Am* 120:652 *Je* 21 '19

Commercial motion picture in South America. H. G. Plimpton. *Am Ind* 18:16-17 *Mr* '18

Electrical phenomena illustrated by motion-picture films. *diags Elec R* 73:365 *S* 7 '18

How movies can be used to popularize gas. H. Levey. *Il Gas Age* 43:214-15 *F* 15 '19; Same *abr. Textile World* 55:1347 *F* 22 '19

How to use the movies to boom business. C. C. Sherlock. *Bldg Age* 41:20-1 *Ja* '19

Making a moving picture machine. M. E. Hoag. *Il Am Mach* 49:666-7 *O* 10 '18

Motion-picture advertising for electrical dealers. E. A. Dench. *Elec R* 72:296 *F* 16 '18

Motion picture and its relation to industrial problems. E. A. Dench. *Am Mach* 49:552-4 *S* 26 '18

Securing gas help by moving picture slides. E. A. Dench. *Am Gas Eng J* 108:598 *Je* 22 '18

Sending motion pictures after the South American trade. H. Levey. *J Elec* 43:404-5 *N* 1 '19

Training your employees by motion-pictures. E. A. Dench. *Am Gas Eng J* 107:575-4 *D* 22 '17; Same. *Inland Ptr* 61:317-19 *Je* '18

Using motion pictures to get South American trade. H. Levey. *Am Ind* 20:42 *S* '19

Using moving pictures for education; coal mining. *Coal Age* 14:177 *Jl* 25 '18

Vision in advertising. *Sci Am* 119:456 *D* 7 '18

Western Electric provides motion pictures to promote sales. *Elec R* 73:55 *Jl* 13 '18

**Moving pictures in research**

Motion pictures of metal stresses. *Il Sci Am* 119:329 *O* 26 '18

Photography in research. A. G. Eldredge. *Il diags Chem & Met Eng* 20:506-10 *My* 15 '19; Same. *Sci Am S* 88:72-3-4 *Ag* 2 '19

Photography in research. N. C. Johnson. *Il Chem & Met Eng* 20:612-13 *Je* 15 '19

**Moving pictures in safety work**

Review of motion picture. Preventable accidents in the lumber industry. J. C. Bennett. *Il Cal Safety News* 2:3-12 *Ap* '18

Safety first instruction through moving pictures. E. A. Dench. *J Elec* 43:15-16 *Jl* 1 '19

**Moving pictures in science**

Filming a lens in action. C. F. Propson. *Il Sci Am* 121:359 *O* 11 '19

Usefulness of a movie camera for photographing phenomena of solar eclipses. E. B. Frost. *Sci Am S* 86:413 *D* 28 '18

**Moving platforms**

Continuous trains for Forty-second street transit, New York. H. B. Seaman. *Il diags plan Eng N* 82:1248-50 *Je* 26 '19

Moving platform for the vehicular tunnel. J. P. B. Casgrain; C. N. Tousley. *Sci Am* 121:365 *O* 11 '19

**Mowra flowers**

Mowra flowers of India and their economic value. *Sci Am S* 84:412 *D* 29 '17

**Mud volcanoes**

Mud volcanoes of Colombia, South America. S. C. Herold. *Il Am Inst Min Bul* 151: 1025-7 *Jl* '19

**Mufflers, Automobiles.** See **Automobile mufflers****Muffles, Electric.** See **Electric muffles****Mummies**

Remarkable mummy found in New Mexico. *Sci Am S* 85:237 *Ap* 13 '18

**Municipal accounting**

Capital accounts of a municipality. H. B. Fernald. *J Account* 26:269-77 *O* '18

Cost keeping system of Seattle street and sewer department for motor truck operation. *Eng & Contr* 50:154-5 *Ag* 7 '18

Municipal accounts. O. Lyon. *J Account* 27: 125-33 *F* '19

See also **Municipal finance**

**Municipal automobiles.** See **Automobiles, Municipal****Municipal; Motor trucks, Municipal****Municipal bonds**

Needed revision of public improvement bond laws. I. E. Dierdorff. *Eng & Contr* 51:179 *F* 12 '19

Why cities should issue bonds for sewers and other public works rather than pay as they go. *Eng & Contr* 52:288 *S* 10 '19

**Municipal buildings**

Municipal building, Plainfield, New Jersey. C. M. Price. *Il plans Arch Forum* 31:123-4, pl 59-64 *O* '19

Town hall, Weston, Mass.; views and plans. *Am Arch* 114:pl 172-5 *D* 4 '18

Town halls as war memorials. *Il Am Arch* 115:607-8 *Ap* 30 '19

See also **Community centers**; **Fire houses**; **Public buildings**; **Public comfort stations**; **Schoolhouses**; **Social centers**

**Municipal centers.** See **City planning**; **Community centers****Municipal construction.** See **Public works****Municipal corporations**

Cleaning streets and removing garbage; liability of municipalities for damage or other torts committed in connection with such service. J. Simpson. *Munic J* 45:126-8 *Ag* 17 '18

Municipal partnership in public improvement. J. Simpson. *Munic J* 45:182-5 *S* 7 '18

See also **Municipal finance**; **Municipal government**

**Municipal electric plants.** See **Electric plants, Municipal****Municipal electricians, International association of.** See **International association of municipal electricians****Municipal engineering**

American society for municipal improvements 24th convention, Buffalo, N.Y. *Munic J* 45: 277-80 *O* 12 '18

Applied geology in municipal engineering. H. Lapworth. *Eng & Contr* 50:132 *Jl* 31 '18

British engineers' reconstruction problems. E. J. Elford. *Good Roads* 18:23-5 *Jl* 16 '19; Same *abr. Eng & Contr* 52:512-13 *O* 29 '19

How American cities are meeting war problems. *Eng N* 81:33-9 *Jl* 4 '18

Municipal and hydraulic engineering in Washington's day. C. B. Burdick. *W Soc E J* 24:323-7 *My* '19

Municipal engineering and the war. *Munic J* 44:7-8 *Ja* 5 '18

Planning of residential suburbs with special reference to engineering features. F. L. Olmsted. *Munic Eng* 57:161-4 *O* '19

Problems confronting municipal engineers in England. C. Brownridge. *Munic Eng* 57:172-3 *O* '19

Some engineering problems of regional planning. M. Knowles. *Eng N* 82:1173-5 *Je* 12 '19

See also **Ash collection**; **City planning**; **Drainage**; **Parks**; **Pavements**; **Public comfort stations**; **Public works**; **Refuse collection**; **Refuse disposal**; **Sanitary engineering**; **Sewage disposal**; **Sewerage**; **Street cleaning**; **Street lighting**; **Streets**; **Water purification**; **Water supply**; **Water supply engineering**

**Bibliography**

**Municipal index.** Published in the *Municipal Journal*, the second issue of each month

**Municipal engineers**

Education and training of municipal and county engineers; discussion. *Eng & Contr* 51:447-8 *Ap* 30 '19

**Municipal engineers—Continued**

Improving the status of municipal engineers. E. R. Conant. *Munic Eng* 56:179 My '19

Status of public-works engineers should be changed. F. A. Churchill. *Eng N* 83:37-8 JI 3 '19

Training of a municipal engineer. F. Wilkinson. *Eng & Contr* 51:470 Ap 30 '19

**Municipal finance**

Advantages of the executive budget. *Munic J* 45:91-2 Ag 3 '18

Common errors in municipal finance. A. R. Hebenstreit. *Eng & Contr* 52:363 S 24 '19; Same. *Munic Eng* 57:164-5 O '19

Finances of cities for 1917. *Am Ind* 19:20 Ag '18

How to finance public improvements in Illinois villages. W. Artingstall. *Munic Eng* 57:188-92 O '19

Increasing municipal revenue. *Munic J* 46:127-30 F 15 '19

Municipal revenues and expenditures. *Il Munic J* 45:8-9 JI 20 '18

Why municipal expense and income data are usually deceptive. *Eng & Contr* 52:454 O 22 '19

*See also* Municipal accounting; Municipal bonds; Municipal government

Municipal franchises. *See* Electric utilities—Franchises; Street railroads—Franchises

Municipal garages. *See* Garages, Municipal

**Municipal government**

Wartime reorganization reduces overhead in public works department. *Eng N* 81:590 S 26 '18

*See also* Fire departments; Municipal bonds; Municipal corporations; Municipal finance; Municipal ownership; Municipal supplies; Police

**City manager plan**

Commission-manager form of city government does not eliminate politics. T. V. Stephens. *Eng N* 80:398-9 F 28 '18

Engineers help frame model charter for Boulder, Colorado. *Eng N* 80:114-15 Ja 17 '18

Facts and figures on city manager government. *Eng & Contr* 52:171 Ag 6 '19

New York city manager law held constitutional. *Munic J* 44:24-5 Ja 5 '18

Progress, prospects and pitfalls of the new profession of city manager. O. E. Carr. *Eng & Contr* 50:487-9 N 20 '18

Unification of local governments and the city manager plan for Chicago. G. C. Sikes. *W Soc E J* 23:192-6; Discussion. 196-204 Mr '18

Why the commission-manager form is preferable to the commission form of government. R. E. Bosshard. *Eng & Contr* 51:173-4 F 12 '19

**Commission plan**

Advantages and limitations of commission government. *Munic J* 47:214 O 4 '19

Commission-manager form of city government does not eliminate politics. T. V. Stephens. *Eng N* 80:398-9 F 28 '18

Engineers help frame model charter for Boulder, Colorado. *Eng N* 80:114-15 Ja 17 '18

**Municipal Index.** Published in the *Municipal Journal*, the second issue of each month

**Municipal laboratories.** *See* Laboratories, Municipal

**Municipal markets.** *See* Markets, Municipal

**Municipal motor trucks.** *See* Motor trucks, Municipal

**Municipal ownership**

Marine terminals as municipal investments. H. M. Harding. *Int Marine Eng* 24:480-2 JI '19

More opinions on public ownership. *Elec Ry J* 52:891-2 N 16 '18

Municipal ownership as a threat to the permanence of our democracy. W. Clark. *Am Gas Eng J* 110:335-6, 340-3 Ap 19 '19; Excerpts. *Gas Age* 43:639-41 Je 16 '19

Ownership or control of utilities. A. E. Winchester. *Munic J* 46:370 My 24 '19

Results of journal canvass of opinion on Mortimer resolution. *Elec Ry J* 52:837-9 N 9 '18

San Francisco municipal ownership gains. *Elec Ry J* 53:932-3 My 10 '19

Solving the traction problem. D. F. Wilcox. *Elec Ry J* 53:1220-1 Je 21 '19

Some fallacious arguments for municipal ownership. G. C. Long. *Eng & Contr* 52:86-7 JI 23 '19

*See also* Asphalt plants, Municipal; Blacksmith shops, Municipal; Electric plants, Municipal; Garages, Municipal; Government ownership; Government regulation of industry; Markets, Municipal; Municipal government; Public utilities—Regulation; Repair shops, Municipal; Saw mills, Municipal; Street railroads—Municipal ownership; Street railroads, Municipal; Wharves, Municipal

**Municipal printing.** *See* Printing, Municipal

**Municipal railroads.** *See* Railroads, Municipal

**Municipal street railroads.** *See* Street railroads, Municipal

**Municipal supplies**

Columbus board of purchase. *Munic J* 46:311-12 Ap 26 '19

**Municipal wharves.** *See* Wharves, Municipal

**Municipal work.** *See* Public works

**Munition factories**

Adapting munitions plant to peace-time work. *Il* diag plan *Elec W* 74:620-6 S 20 '19

Birmingham and the production of munitions. *Il Engineer* 125:398-9, 406 My 10 '18

Converting a factory for munitions manufacture. J. S. Holbrook. *Am Soc M E J* 40:pt 1, 540-2 JI '18

Converting an automobile assembly room for shell manufacturing. *Il Automotive Ind* 39:156-7 JI 25 '18

Co-ordination in munition work. *Sci Am S* 86:146-7 S 7 '18

Extemporised munition factory. *Il Engineer* 125:314-15, 318, 326-8, 379-80, 384 Ap 12-19, My 3 '18

From engines of war to instruments of peace. W. H. Lloyd. *Il Iron Tr R* 65:974-81 O 9 '19

From jewelry to munitions. N. Tiptaft. *Factory* 21:840 N '18

Germany's contribution to our war preparation; Bridgeport projectile co., financed by German government has now become the Liberty ordnance co. *Il Iron Age* 101:28-9+ Ja 3 '18

Great New Jersey shell-loading plant. *Il Am Mach* 49:125-8 JI 18 '18

Hot water heating by forced circulation. *Il diag Metal Work* 89:539-43 Ap 26 '18

Human problem thought of paramount importance in Paris shrapnel plant. R. K. Tomlin, jr. *Il Eng N* 80:813-16 Ap 25 '18

Modern gun manufacturing plant; Symington-Anderson co., Rochester, N. Y. *Il plan Iron Tr R* 62:368-72 F 7 '18

Narrow-gage railway operation at munition plant. J. A. Silsbee. *Eng N* 83:127-8 JI 17 '19

Ordnance factory 710 x 140 feet built in three months at East Moline, Ill. H. Greenleaf. *Il Eng N* 80:317-18 F 14 '18

Organization of a munition plant; Buffalo Pitts co., Buffalo, N.Y. G. A. Neubauer and E. Oberg. *Il Mach* 25:208-12 N '18

Planning for war work; making estimates for manufacturing for the government and equipping a factory for war work. A. Spangenberg. *Mach* 24:789-90 My '18

Practical wartime shell making. L. I. Yeomans. *Am Soc M E J* 39:378-80 My '17;

Same. *Am Mach* 46:865-6 My 17 '17; Abstract. *Mach* 24:278 N '17; Abstract. *Sci Am S* 84:398 D 22 '17; Discussion. *Am Soc M E J* 39:613-14 JI '17

Remarkable progress on sixteen plants with government help. *Iron Age* 102:283 Ag 1 '18

**Munition factories—Continued**

- Sanitation for government munition plants. Metal Work 91:681-2 My 30 '19
- Skoda works—Austria's great munitions factory. Sci Am S 87:115 F 22 '19
- United States explosives plant C, Nitro, West Virginia. Arch & Bldg 51:70-1, pl 133-4 S '19
- Winning the war; making munitions at the front. J. F. Duffy. Sci Am 119:293 O 12 '18
- See also* Guns (ordnance)—Manufacture; Munition workers; Munitions of war; Nitrate plants (federal); Vauxhall ordnance factory
- Munition workers**
- Answering the war labor question; how the Rochester plan was shaped to meet the emergency of procuring maximum war production with a minimum of available munition workers. J. T. Hutchings. Iron Tr R 63:150-1 J1 18 '18; Same cond. Elec W 71:1255 Je 15 '18
- Coventry strike. Engineer 124:501 D 7 '17
- Daughters of France in war plants promote victory. F. Miltoun. Il Iron Tr R 63:375-8 Ag 15 '18
- Dilution of labor. Iron Age 101:864 Ap 4 '18
- Employment of women in munition factories. O. E. Monkhouse. Sci Am S 85:282-3 My 4 '18; Excerpts. Engineer 125:249 Mr 22 '18; Excerpts. Eng & Contr 50:135-6 J1 31 '18; Abstract. Iron Age 102:90, 743 J1 11, S 26 '18; Discussion. Engineer 125:246-7 Mr 22 '18
- Factors concerned in the causation of industrial accidents. H. M. Vernon. Automotive Ind 39:916-18 N 28 '18; Abstract. Sci Am S 86:107 Ag 17 '18
- How we trained 5000 women to do precision work on fuses and instruments. C. U. Carpenter. Il Ind Management 55:353-7 My '18; Abstracts. Iron Age 101:1057 Ap 25 '18; Am Gas Eng J 108:419 My 4 '18
- Industrial health and efficiency. Il diag plans U S Bur Labor Statistics Bul 249:1-374 '19
- Labor conditions in munitions plants. Iron Tr R 62:725 Mr 21 '18
- Labor problem of a great French shell factory. R. K. Tomlin, Jr. Il Am Mach 49:22-4 J1 4 '18
- Solving New Haven's man-power problem. C. L. Edholm. Il Am Mach 49:721-3 O 17 '18
- Special machines for producing 9.2-inch shells operated by women. Il diag Engineer 125:190-1 Mr 1 '18
- Training munition workers in England. H. Schofield. Il Mach 25:222-6 N '18
- Training 150 operators per week; vestibule school of the Remington arms co. plan Automotive Ind 39:277-80 Ag 15 '18
- Women in British munition manufacture. Ind Management 55:413 My '18
- Women in British munitions factories. Il Sci Am S 86:8 J1 6 '18
- Women in munition factories. G. F. Kellaway. Engineer 126:30 J1 12 '18
- Women industrial workers in France. M. Conyngton. Automotive Ind 39:411 S 5 '18
- Women munition workers in France. Metal Ind 16:467 O '18
- Women workers in French factories. E. Chouanard and G. H. Brigham. Mach 24:1062-3 J1 '18
- Women workers of Canada; personal experiences in a Canadian rifle factory. M. J. Huestis. Il Sci Am 118:52 Ja 12 '18
- Women's labor in British war industries. L. H. Quin. Il Iron Age 101:206-10 Ja 17 '18
- Workpeople's welfare at a French explosives factory. diag Engineer 125:25-6 Ja 11 '18
- Munitions of war**
- Achievements of the Ordnance bureau. S. McRoberts. Iron Age 101:686-9 Mr 14 '18
- Authorized list of U.S. government purchasing agents. Am Mach 49:79-81 J1 11 '18; Same cond. Iron Tr R 63:99-100 J1 11 '18
- Conditions and requirements of warfare. J. E. Cassidy. Am Soc M E J 40:pt 1, 551-3 J1 '18

- Directory of government departments in Washington charged with making purchases of war materials. Am Lumberman 2226:46 Ja 12 '18; Same. Iron Tr R 62:222-3 Ja 17 '18; Excerpts. Foundry 46:57-8 F '18
- Getting together with Uncle Sam; organization of manufacturers in northern Ohio and western Pennsylvania. map Iron Tr R 62:1258-60 My 16 '18
- How ordnance production has gone forward. Iron Age 101:1468-70 Je 6 '18
- Inventions which meet the needs of modern warfare. Il Sci Am 117:480 D 22 '17
- War department centralizes purchasing control. Eng N 81:246 Ag 1 '18; Am Mach 49:274-5 Ag 8 '18; Chem & Met Eng 19:174 Ag 15 '18
- Work of the Ordnance department. Ry R 63:237 Ag 17 '18
- See also* Ammunition; Armor plate; Automobiles in war; Cartridge cases; Grenades; Shells (projectiles); Shrapnel shells

**Contracts**

- What has been done in the Ordnance department to reduce government outlay on war work. Iron Age 101:1002-3 Ap 18 '18

**Inspection**

- How designs, specifications and inspection affect production of munitions. Am Mach 48:533-4 Mr 28 '18; Discussion. 49:120 J1 18 '18

**Manufacture**

- Birmingham and the production of munitions. Engineer 125:270-2, 288-9 Mr 29-Apr 5 '18
- Brass for fuses and other munition products; a description of methods employed in England for the production of war-time alloys. A. E. Tucker. Metal Ind 16:212-14 My '18
- British munitions. C. H. Claudy. Il Sci Am 120:375+ Ap 12 '19
- District production chiefs. Am Mach 49:46 J1 4 '18
- Effect of air conditioning upon munitions manufacture. J. I. Lyle. Il charts diag Am Soc Heat & V E 23:383-92 '17
- Huge explosive industry; American manufacturers' co-operation in war. Iron Tr R 65:563-4 Ag 28 '19
- Low phosphorus limit required by government in acid castings impossible to meet because of limited supply of raw material. Iron Tr R 62:385 F 7 '18
- Making shrapnel balls somewhere in France. Il Am Mach 48:36-7 Ja 3 '18
- Munitions you can make with the equipment you have. R. Trautschold. Factory 19:197-8 Ag '17
- Producing bitter pills for Fritz. G. Satterthwaite. Iron Tr R 63:384-8 Ag 15 '18
- Rethreading fixture for fuses. L. M. Thorn. diag Am Mach 48:119 Ja 17 '18
- Screw-thread tolerances for munitions. diag Am Mach 48:135-6 Ja 24 '18
- Ten munition districts established. Am Mach 48:639-40 Mr 28 '18; Same cond. Iron Age 101:718 Mr 14 '18
- U.S. munition output. Am Soc M E J 40:856-7 O '18
- War industries regional representatives. Am Mach 49:230a Ag 1 '18
- See also* Guns (ordnance)—Manufacture; Munition factories; Munition workers; Shells (projectiles)—Manufacture

**Specifications****Bibliography**

- Specifications for munitions, prepared by Engineering societies library. Am Soc M E J 40:109 Ja '18
- Munsell, Albert Henry, 1858-1918
- Need of standardization of color terms—work of A. H. Munsell. E. C. Andrews. Inland Ptr 62:409-10 Ja '19
- Muntz metal
- Typical cases of the deterioration of Muntz metal (80:40 brass) by selective corrosion. H. S. Rawdon. Il diag U S Bur Stand Tech P 103:1-28 '17; Abstracts. J Fr Inst 184:569 O '17; Metal Ind 16:122-5 Mr '18



**Mural painting and decoration**  
 Architectural wall painting. C: H. Moore.  
 Arch Rec 43:46-51 Ja '18  
 Library decorations in Blake school, Minneapolis, Minn. C: J. Connick. II Am Arch 114:607-10 N 20 '18

See also Stucco; Tapestry; Wall board

**Murman railroad.** See Railroads—Russia

**Murray, W. J., 1852-1918**

W. J. Murray. F. W. Parsons. por Coal Age 14:643 O 3 '18

**Muscle Shoals, Alabama**

Cost of the Muscle Shoals nitrate plant. B. Crowell. Elec W 73:281 F 8 '19

Electricity for government nitrate plants; two plants now in process of erection in Alabama. II map Elec W 71:1353-9 Ja 29 '18

Muscle Shoals dam to be constructed. Elec W 71:475 Mr 2 '18

Muscle Shoals district. map Met & Chem Eng 18:505-7 My 15 '18

Muscle Shoals nitrate plant. A. M. Fairlie. II Chem & Met Eng 20:8-17 Ja 1 '19

Nature's gift to the electrochemist at Muscle Shoals. W. G. Waldo. II Met & Chem Eng 18:444-6 My 1 '18

Power project is suspended. B. Crowell. Elec W 72:367 Ag 24 '18

United States nitrate plant no. 2 at Muscle Shoals. C: H. Bromley. II diag Power 49: 424-31, 482-8 Mr 25-Ap 1 '19

**Museum of the American Indian**

Museum of the American Indian, New York city; views. Arch & Bldg 50:pl 38-9 F '18

New and noteworthy anthropological institution. T. de Booy. II Sci Am S 85:232-4 Ap 13 '18

**Museums**

Art of perpetuation; museums the result of man's acquisitiveness. B. Cummings. Sci Am S 85:330-1 My 25 '18

Museum of decorative design at Cooper Union. Am Inst Arch J 7:124 Mr '19

See also Natural history museums; also Museum of the American Indian; Southwest museum

**Muscle, Indian.** See Indians of North America—Music

**Musical instruments**

Music and morale in British dominions. Sci Am 119:154 Ag 24 '18

See also Cymbals; Organ; Violin

**Musical sands.** See Singing sands

**Musk**

Musk: its origin and export. A. J. Clements. Sci Am S 88:226-7 O 11 '19

**Mussels**

Federal government's mussel farm. II Sci Am 119:316 O 19 '18

**Mustard gas**

Continuous vacuum still for mustard gas. E. D. Streeter. diag J Ind & Eng Chem 11: 292-4 Ap '19

Development of mustard gas. Am Mach 49: 1199-1200 D 26 '18

Development of mustard gas. F. M. Dorsey. II diag J Ind & Eng Chem 11:287-91 Ap '19

Effect of moisture content on the permeability of fabrics to mustard gas. G: H. Clowes and others. diag J Ind & Eng Chem 11: 1016-19 N '19

Ethylene chlorohydrin and  $\beta,\beta$ -dichloroethyl-sulfide. M. Gomborg. Am Chem Soc J 41: 1414-31 S '19

**Mustard oils**

Addition of sodium acetoacetic ester to the aromatic mustard oils. D: E. Worrall. Am Chem Soc J 40:416-23 F '18

**Mutarotation**

Mutarotation of gelatin and its significance in gelation. C. R. Smith. Am Chem Soc J 41: 135-50 F '19; Abstract. J Fr Inst 187:503-A Ap '19

Mutarotation of glucose and fructose. J. M. Nelson and F. M. Beegle. Am Chem Soc J 41:559-75 Ap '19

**Mutual adjustment bureau of the cloth and garment trades**

Organization. Textile World 55:1559+ Mr 8 '19

**Mutual benefit societies.** See Benefit societies

**Mycology.** See Fungi

**Myxomycetes**

Plant or animal? S. L. Bastin. II Sci Am S 86:149 S 7 '18

## N

**N C boats.** See Flying boats

**Nail handling**

Handler hammering. II Sci Am 120:208 Mr 1 '19

**Nails**

Links in the history of engineering; the slitting mill. Engineer 125:445-6, 486+ My 24-Je 7 '18

Nails made from tin scrap. M: Harris. diag Am Mach 51:665 O 2 '19

**Nameplates**

How to cast name plates successfully. Foundry 46:576 D '18

**Names**

See Warships—Names; also subdivision Terminology under various subjects, e.g. Aeronautics—Terminology

**Naphthalene**

Abrupt condensation of naphthalene. Gas Age 42:430 N 15 '18

Naphthalene; discussion. Met & Chem Eng 17:570, 661 N 16, D 15 '17

Solubility of naphthalene in ammonia. Gas Age 41:28-30 Ja 1 '18

Standardized method for the determination of solidification points, especially of naphthalene and paraffin. R. M. Wilhelm and J. L. Finkelstein. diag U S Bur Stand Sci Pa 340:185-97 '19

Use of crude naphthalene as fuel for internal combustion engines. Sci Am S 86:206 S 28 '18

**Narrow gage railroads.** See Railroads, Narrow gage

**Nashville, Tennessee**

**Architecture**

Architecture of Nashville. II Am Inst Arch J 7:159-70 Ap '19

Views of Nashville, Tenn. Am Inst Arch J 7:251-8 Je '19

**Natalite**

Natalite fuel. H. A. Findley. Automotive Ind 40:59 Ja 9 '19

New engine fuels. Sci Am 119:194 S 7 '18

**National academy of design**

Leadership in art. H. R. Butler. Am Arch 115:341-2 Mr 5 '19

**National Acme company, Cleveland, Ohio**

New National Acme screw products plant. II Mach 26:120-2 O '19

**National advisory committee for aeronautics.** See United States—National advisory committee for aeronautics

**National alliance of employers and employed.** Reconstruction. A. H. Paterson. Engineer 125: 215 Mr 8 '18

**National association building.** See Office buildings

**National association of box manufacturers**

19th annual convention. Am Lumberman 2236: 50 Mr 23 '18

**National association of brass manufacturers**

Annual meeting. New York city, Dec. 12-13 Dom Eng 81:507 D 22 '17

Spring meeting, French Lick, Ind., March 27-28. Metal Ind 16:235 My '18

**National association of builders' exchanges**

Annual convention, Pittsburgh, Feb. 5-7. Bldg Age 40:162-3 Mr '18

- National association of corporation schools**  
Industrial democracy. F. C. Henderschott.  
Eng & Min J 108:267 Ag 16 '19  
Purpose of the association. Power 46:849 D  
18 '17  
Survey on plans for improving industrial  
relations. Elec R 75:202-3 Ag 2 '19
- National association of cotton manufacturers**  
Address. W. F. Shove. Textile World 54:2296-  
8 N 9 '18  
Annual convention, New York, April 23-25.  
2496-8+ Ap 26 '19  
Boston convention. Textile World 54:2294-8+  
N 9 '18  
Business meeting, May 3. Textile World 53:  
5144e+ My 4 '18  
Combined gathering of cotton manufacturers.  
Textile World 53:5137-40+ My 4 '18  
Completes organization. Textile World 53:5563  
My 18 '18  
Conference on war problems in the textile  
industry, Boston, Jan. 18. Textile World  
53:3449-50+ Ja 26 '18  
New president and directors; portraits. Tex-  
tile World 53:5134 My 4 '18  
New work of association. R. R. Willson. Tex-  
tile World 53:2960 Ja 12 '18  
Reports of permanent committees. Textile  
World 53:5144i+ My 4 '18  
Reports of permanent committees on indus-  
try. Textile World 54:2309+ N 9 '18  
Some present activities. R. R. Willson. Textile  
World 55:221+ Ja 11 '19
- National association of electrical contractors  
and dealers**  
Annual convention, Milwaukee, July 16-18.  
Elec R 75:144-8 J1 26 '19  
1st meeting under the new form of organiza-  
tion, Cleveland, July 17. Elec W 72:124,  
173-4 J1 20-27 '18; Elec R 73:134-6 J1 27 '18  
Organization of contractor-dealer association  
perfected. Elec R 72:158-9 Ja 26 '18
- National association of electrical inspectors**  
Questions on the National electrical code, with  
replies by members of the executive com-  
mittee of the National association of elec-  
trical inspectors. Elec R 72:251-2, 531-2 F 9,  
Mr 23 '18  
Reconstruction convention, Springfield, Mass.,  
Oct. 13-15. Elec W 74:848 O 18 '19; Elec  
R 75:705-8 O 25 '19
- National association of employment managers**  
Convention, Cleveland, Ohio, May 21-23. Iron  
Age 103:1442-4 My 23 '19; Am Mach 50:1103-  
4 Je 5 '19; Ind Management 57:489-503f Je  
'19
- National association of garment manufacturers**  
19th semi-annual convention, Chicago, May  
14-17. Textile World 53:5569+ My 18 '18
- National association of general contractors**  
Proposed constitution. Eng & Contr 50:388 O  
23 '18
- National association of hosiery and underwear  
manufacturers**  
4th annual meeting of the western members,  
Chicago, Dec. 12. Textile World 54:3093-4 D  
21 '18  
14th annual meeting, Philadelphia, May 20-23;  
list of those present. Textile World 53:5713-  
18+ My 25 '18  
15th annual convention, Philadelphia, June  
3-5. Textile World 55:3459-60+ Je 7 '19  
Knitting arts exhibition in Philadelphia. II  
Textile World 53:5751-66 My 25 '18  
List of exhibitors at the exhibition in Phil-  
adelphia. plans Textile World 53:5566-8 My  
18 '18
- National association of manufacturers**  
23d annual convention, May, 1918, with ab-  
stracts of reports. Am Ind 18:7-19 Je '18  
24th annual convention, New York city, May  
19-21. Am Ind 19:7-17 Je '19
- National association of master plumbers**  
Message to the master plumbers of the  
United States. F. B. Lasette. Dom Eng  
88:310-11 Ag 16 '19  
36th annual convention, St Louis, Mo., June  
4-6. Dom Eng 83:364-77 Je 8 '18; Metal  
Work 89:780-93 Je 14 '18
- 37th annual convention, Atlantic City, N. J.,  
June 17-19. Dom Eng 87:566-85, 583-96  
Je 28 '19; Metal Work 91:841-7 Je 27 '19
- National association of master steam and hot  
water fitters. See Heating and piping con-  
tractors' national association**
- National association of owners of railroad  
securities**  
Committee hearings on railway legislation.  
Ry R 65:263 Ag 23 '19  
Security owners' counsel replies to Judge  
Lovett's criticism. Ry R 65:185-90 Ag 9  
'19
- National association of purchasing agents**  
Annual convention, Detroit, Sept. 23. Auto-  
motive Ind 39:532-3 S 26 '18  
Pittsburgh convention, J. E. Schipper. Auto-  
mobile 37:675-6 O 18 '17
- National association of railroad tie producers**  
Organization. Ry Age 66:343-8 F 7 '19; Ry R  
64:178-9, 233-4 F 1-8 '19; Am Lumberman  
2282:51 F 8 '19
- National association of railway and utilities  
commissioners**  
30th annual convention, Washington, Nov. 12.  
Ry Age 65:351-8 N 15 sec 1 '18; Ry R 63:  
737-43 N 23 '18  
31st annual convention, Indianapolis, Ind.,  
October 14-16. Ry Age 67:981-9 N 7 '19;  
Elec Ry J 54:824-6 N 1 '19
- National association of real estate boards**  
12th annual convention, Atlantic City, June.  
D. K. Boyd. Arch Forum 31:51-2 Ag '19
- National association of sheet metal contractors**  
Activities of apprenticeship committee. Metal  
Work 89:72-3 Ja 11 '18  
14th annual convention, Milwaukee, June 11-  
14. Metal Work 89:820-33 Je 21 '18  
15th annual convention, Columbus, Ohio,  
June 10-13. Metal Work 91:795-801 Je 20  
'19
- National association of stationary engineers**  
Convention of the New England States asso-  
ciation, Bridgeport, Conn., July 10-13.  
Power 48:138-9 J1 23 '18  
Ohio state association annual convention, Cin-  
cinnati, Sept. 8-9. Power 48:472 S 24 '18  
36th annual convention, Cincinnati, O., Sept.  
9-13. Power 48:468-70 S 24 '18  
37th annual convention, Huntington, W. Va.,  
Sept. 2. Power 50:484 S 16 '19
- National association of stove manufacturers**  
47th annual meeting, New York, May 6-9.  
Metal Work 89:643-6 My 17 '18
- National association of waste material dealers**  
6th annual meeting, New York, March 18-19.  
Metal Ind 17:163 Ap '19
- National association of wool manufacturers**  
Annual meeting, Boston. Textile World 55:  
1036-7+ F 8 '19  
53d annual meeting, New York, Feb. 6. Tex-  
tile World 53:3694 F 9 '18
- National association of woolen & worsted  
overseers**  
37th semi-annual meeting, Philadelphia,  
June 7. Textile World 55:3656 Je 14 '19
- National association of worsted and woolen  
spinners**  
Annual meeting, New York, May 9. Textile  
World 53:5409 My 11 '18  
Second annual meeting, New York. Tex-  
tile World 55:2987 My 17 '19
- National automobile chamber of commerce**  
Annual convention of service managers, De-  
troit. Motor Age 36:7-12 N 20 '19  
Annual meeting, New York, June 6-7. Motor  
Age 33:18 Je 13 '18  
Convention, Feb. 11. Automotive Ind 40:352-3  
F 13 '19  
Truck makers war convention. Horseless Age  
43:43 Ja 15 '18; Automotive Ind 38:144-5+ Ja  
10 '18
- National automobile dealers' association**  
Annual convention, Chicago, Feb. 4-5. F. M.  
Loomis. Motor Age 35:7-10 F 6 '19

- National board of fire underwriters**  
Education to minimize electrical fire losses; fire-prevention manual for school children. Elec R 72:1006-7 Je 15 '18
- National bureau of wholesale lumber distributors**  
Organization. Am Lumberman 2244:42 My 18 '18
- National capital building commission**  
National capital building commission report. Am Arch 113:65 Ja 16 '18
- National cash register company**  
58,000 square feet of floor space in 30 days. II Ind Management 56:134 Ag '18
- National characteristics**  
Have Americans national characteristics? Sci Am 119:308 O 19 '18
- National coal association**  
Activities of the association during 1918. J. D. A. Morrow. Coal Age 15:111-13 Ja 16 '19  
Annual meeting, Philadelphia, May 28. Coal Age 13:1015-17 Je 1 '18; Power 47:891-2 Je 18 '18  
Meeting, Chicago, May 22-24. Coal Age 15:1000-1 My 29 '19  
National organization for coal operators. J. D. A. Morrow. Coal Age 13:114 Ja 19 '18  
Planning for peace activities. Coal Age 15:149-50 Ja 16 '19
- National coal jobbers' association**  
2d annual convention, Buffalo, N. Y., June 4-5. Coal Age 13:1110 Je 15 '18
- National commercial gas association**  
Plans for amalgamation of the American gas institute and the National commercial gas association rapidly approaching completion. Am Gas Eng J 108:235-6, 365-9 Mr 9, Ap 20 '18; Gas Age 41:423-4 My 1 '18
- National committee of the confederated supply associations**  
Meeting, Cleveland, O., May 15. Metal Work 89:658-9 My 24 '18
- National committee on gas and electric service**  
Report of recent activities. Elec R 71:1061-2; 72:558-9 D 22 '17, Mr 30 '18; Elec W 71:428, 688, 739 F 23, Mr 30-Apr 6 '18  
Review of the committee's achievements. Elec R 72:990-1 Je 15 '18
- National conference for good city government**  
26th conference, New York, June 5-7. Munic J 44:499+ Je 15 '18
- National conference of tractor manufacturers**  
Manufacturers of tractors organize. Automotive Ind 38:612 Mr 21 '18
- National conference on Americanization in industries**  
Meeting, Boston, June 23-24. Am Ind 19:17-18 Jl '19
- National conference on city planning**  
11th meeting, Niagara Falls and Buffalo, May 26-28. Eng N 82:1133-4 Je 5 '19; Munic J 47:60+ Jl 26 '19
- National conference on war economy**  
Conference considers ways and means for securing greater economy and efficiency in public expenditures. Eng N 80:1151+ Je 13 '18
- National council for industrial defense**  
1st meeting of the newly appointed Advisory committee. Am Ind 18:13-14 Mr '18
- National council of American cotton manufacturers**  
Co-operative war work of cotton associations. W. D. Adams. Textile World 55:289+ Ja 11 '19  
Members; portraits. Textile World 53:5136 My 4 '18
- National council of lighting fixture manufacturers**  
Representatives of fixture and illuminating glassware manufacturers' organize at Pittsburgh. Elec R 74:311 F 22 '19
- National defense, Council of. See Council of national defense**
- National district heating association**  
Cooperation between the National district heating association and the American society of heating and ventilating engineers. D. L. Gaskill. Am Soc Heat & V E 23:585-90; Discussion. 591-4 '17  
Meeting of executive committee takes place of annual convention. Heat & Ven 15:61-2 S 18 '18  
10th annual meeting, Pittsburgh, June 10-13. Dom Eng 87:487, 530-2 Je 14-21 '19; Heat & Ven 16:38-54 Jl '19; Metal Work 91:811-13 Je 20 '19; Power 49:892-3 Je 24 '19
- National editorial association**  
Annual convention, Little Rock and Hot Springs, Arkansas, June 3-8. Inland Ptr 61:509-12 Jl '18
- National electric light association**  
Abstracts of committee reports and papers presented at the annual convention, Atlantic City, May 20-22. Elec R 74:849-59 My 24 '19  
Activities of the N.E.L.A. R. H. Ballard. Elec R 75:527-8 S 27 '19  
Annual convention; Pacific Coast section meets with the Pacific division of the Electrical supply jobbers' association and the California association of electrical contractors and dealers. II Elec W 71:1036-40 My 18 '18  
Committees on water power and co-operation; personnel. Elec R 75:954 D 6 '19  
East and West meet. Elec W 73:1256-7 Je 14 '19  
Epitomizes electric power situation at its annual convention, Atlantic City. Elec Ry J 53:999-1004 My 24 '19  
42nd annual convention, Atlantic City, May 19-22. Elec R 74:775-82 My 17 '19; Elec Ry J 53:1053-5 My 31 '19; Elec W 73:1076-1101 My 24 '19; Power 49:834-6 My 27 '19; J Elec 42:596-9 Je 15 '19  
Large plans for commercial section work. plan Elec W 74:486-7 Ag 30 '19  
Meeting of the Executive committee, New York city, Sept. 13. Elec R 73:502 S 28 '18  
Meeting of the Executive committee of the Commercial section, Association Island, N.Y. Elec R 75:405-6 S 6 '19  
Michigan section 6th annual convention, Ottawa Beach, Aug. 26-28. Elec R 75:359-60 Ag 30 '19  
N.E.L.A. administration commences active work. Elec W 74:313-14 Ag 9 '19  
N.E.L.A. lamp committee report; review. G. F. Morrison. II Gen Elec R 22:767-75 O '19  
N.E.L.A. lighting exhibit. G. F. Morrison. II Gen Elec R 22:776-82 O '19  
Plans of Advertising and publicity bureau. N. E. L. A. plan Elec R 75:573-4 O 4 '19  
Program for 42d annual convention, Atlantic City, N.J., May 19-22. Elec W 73:802-3 Ap 19 '19; Same. Elec R 74:680-2 Ap 26 '19  
Re-awakening of the electrical industry under the leadership of the National electric light association. R. H. Ballard. Elec R 74:982-4 Je 14 '19  
Southeastern section, Asheville, N.C., annual convention, Sept. 17-19. Elec W 74:719-21 S 27 '19  
Telegraphic report of proceedings of the fifteen sessions of the Atlantic City convention. Elec R 74:831-45 My 24 '19  
3rd annual convention of the Pacific coast section, Coronado Beach, California, April 30-May 2. Elec W 73:903, 947-50 My 3-10 '19; Elec R 74:753-7 My 10 '19; J Elec 42:475-91 My 15 '19  
34th annual meeting and 41st convention, Atlantic City, N.J., June 13-14. Elec R 73:992-8 Je 15 '18; Elec Ry J 51:1180-3 Je 22 '18; Elec W 71:1248-53 Je 15 '18; Power 47:926-8 Je 25 '18; Munic J 45:42+ Jl 13 '18  
Three and one-half years of achievement. A. E. Wishon. J Elec 43:109-10 Ag 1 '19  
War convention of New England section, Springfield, Mass., Sept. 27-28. Elec W 72:656-9 O 5 '18; Elec R 73:540 O 5 '18
- Public policy committee**  
Report of Public policy committee. J. A. Britton. J Elec 42:479-83 My 15 '19
- National electrical code**  
Changes in electrical committee in charge of code. Elec R 73:215 Ag 10 '18

**National electrical code—Continued**

- Combined electrical fire and safety code. M. G. Lloyd. Elec R 74:178-80 F 1 '19
- Devereux's list of changes in the 1918 edition of the National electrical code. Elec R 73: 902-4, 945-7 D 7-14 '18; Correction. Elec W 73:1342 Je 21 '19
- Discussion of code rule on interbuilding connections. H. S. Wynkoop. Elec R 75:882-3 N 22 '19
- Discussion of code rules on high-potential systems. G. S. Lawler. Elec R 75:822-4 N 15 '19
- Electrical code covering both fire and accident prevention. Elec R 73:629-30 O 19 '18
- Electrical committee of the National fire protection association expands its organization for revision of National electrical code. Elec R 74:428-7 Mr 15 '19
- Questions on the National electrical code, with replies by members of the executive committee of the National association of electrical inspectors. Elec R 72:251-2, 531-2 F 9, Mr 23 '18
- Report of committee. Elec R 74:180-1 F 1 '19
- Revision of code rules on motors and related subjects. Elec R 74:1092 Je 28 '19; Same. Elec W 73:1405 Je 28 '19
- Structural service department. Am Inst Arch J 6:315 Je '18
- Suspension of the rule calling for marking of wires to facilitate polarity identification. Elec W 72:268 Ag 10 '18; Same. Elec R 73: 222 Ag 10 '18
- See also National electrical safety code
- National electrical contractors and dealers' association
- Standardized accounting system. chart J Elec 43:168-70 Ag 15 '19
- National electrical contractors' trading association
- Electrical contractors' association of England forms separate corporation to guarantee work of its members. Elec R 72:207 F 2 '18
- National electrical credit association
- 20th annual meeting, Cincinnati, June 13-14. Elec R 74:1039-40 Je 21 '19
- National electrical proving house, Great Britain
- Scheme for an electrical proving house. Inst E E J 56:26-7 Je '18
- National electrical safety code
- Combined electrical fire and safety code. M. G. Lloyd. Elec R 74:178-80 F 1 '19
- Electrical code covering both fire and accident prevention. Elec R 73:629-30 O 19 '18
- Is the National electrical safety code suitable for California? E: B. Rosa. J Elec 43:57-9 J1 15 '19
- National electrical safety code. G: E. Quinan. J Elec 43:54-7 J1 15 '19
- Proposed changes in part I, National electrical safety code. Elec R 75:580-1 O 4 '19
- Proposed changes in part II, National electrical safety code. Elec R 75:944-8, 982-6 D 6-13 '19
- Rules for the installation and maintenance of electrical utilization equipment. Elec R 72: 467-71, 527-8, 566-9, 607-8, 639-41, 689-91 Mr 16-Apr 20 '18
- Safe installation of electrical utilization equipment. Elec R 72:434-5 Mr 9 '18
- Scope and application. U S Bur Stand Circ 72:1-84 '18
- Structural service department. Am Inst Arch J 6:315-16 Je '18
- Year's progress in electrical safety work. M. G. Lloyd. Elec R 72:33-5 Ja 5 '18
- National engineering council
- Scheme of organization for National engineering council suggested. L. B. Smith. Eng N 83:190 J1 24 '19
- National fire protection association
- Important matters discussed at 23rd annual meeting, Ottawa, Ontario, Canada, May 6-8. Am Arch 115:814 Je 11 '19
- Meeting, New York, March 4-5. Elec W 73: 542-3 Mr 15 '19
- Personnel of Underwriters' electrical committee. Elec W 72:218 Ag 3 '18

22d annual convention, Chicago, May 7-9. Am Lumberman 2243:49 My 11 '18; Munic J 44:460+ Je 1 '18

**National foreign trade council**

Delegates from iron, steel, machinery and allied trades at 1918 convention. Iron Age 101:1118-19 Ap 25 '18

5th annual convention, Cincinnati, April 18-20. Am Lumberman 2240:37; 2241:46-7 Ap 20-27 '18; Automotive Ind 38:805-6 Ap 25 '18; Iron Age 101:1068-72+ Ap 25 '18; Iron Tr R 62:1059-62 Ap 25 '18; Ry Age 64:1061-3 Ap 26 '18

Less government interference is the demand of foreign trade convention. A. Sinsheimer. Automotive Ind 40:935-41 My 1 '19

6th National foreign trade convention, Chicago, April 24-26. Ry Age 66:1087-90 My 2 '19; Iron Age 103:1161-8 My 1 '19

**National forests. See Forest reserves****National founders' association**

22d annual convention, New York, Nov. 13-14. Iron Age 102:1280-1 N 21 '18; Iron Tr R 63:1189-91 N 21 '18

**National gas safety code**

Work of U.S. Bureau of standards in gas field told in annual report. S. W. Stratton. Am Gas Eng J 110:24-5 Ja 11 '19

**National good roads show**

10th show, New York, Feb. 25-28. 11 plan Good Roads n s 17:108-10+ Mr 8 '19

**National guard (United States). See United States—Militia****National hardware association**

7th annual meeting, Pittsburgh, May 24-25. Iron Age 101:1418-19 My 30 '18; Metal Work 89:717-20 My 31 '18

**National hardwood lumber association**

21st annual convention, Chicago, June 20-21. Am Lumberman 2249:38-41+; 2250:47-53 Je 22-29 '18

22d annual convention, Chicago. Am Lumberman 2301:55-8; 2302:51-5 Je 21-28 '19

**National highway traffic association**

Annual meeting, New York, May 14. Good Roads n s 17:217 My 17 '19; Eng N 82:1036 My 22 '19

**National industrial council for waterworks undertakings**

Inaugurated, April 3rd, 1919. A. B. Pilling. Engineer 128:28, 30 J1 11 '19

**National industrial traffic league**

Annual convention, Cincinnati, Nov. 20-21. Ry Age 65:963-6 N 29 '18

Annual meeting, Chicago, Nov. 12-13. Ry Age 67:1013-14 N 21 '19

Meeting, Buffalo, N.Y., Aug. 29-30. Ry Age 65: 453-5 S 6 '18

Spring meeting, Chicago, March 21-22. Ry Age 64:792-3 Mr 29 '18

Spring meeting, New Orleans, March 11-12. Ry Age 66:837-8 Mr 28 '19

**National labor board. See United States—National war labor board****National lime association (formerly National lime manufacturers association)**

Reorganization. Concrete 15:sup74 N '19

National lime manufacturers association

16th annual meeting, Cleveland, O., June 19-20. Concrete 13:sup6 J1 '18

**National lumber manufacturers' association**

Opportunity. W. Compton. Am Lumberman 2292:49-50 Ap 19 '19

16th annual meeting, Chicago, May 20-22. Am Lumberman 2245:44-54 My 25 '18

**National machine tool builders' association**

Annual meeting, New York, Dec. 10-11. Am Mach 49:1149-50 D 19 '18

18th annual convention, New York, Oct. 15-16. Iron Tr R 65:1136-7 O 23 '19; Iron Age 104:1078-9 N 27 '19; Mach 26:275 N '19

Semiannual convention, Atlantic City, N. J., May 16-17. Iron Age 101:1330-4+ My 23 '18; Iron Tr R 62:1331-3 My 23 '18; Am Mach 48:959-67 Je 6 '18

- National machine tool builders' assn.—Cont.**  
Semi-annual meeting, Atlantic City, May 12-13. Am Mach 50:1004-5 My 22 '19; Iron Age 103:1290-2 My 15 '19; Mach 25:924-5 Je '19
- National merchant marine association**  
Organized as a result of a convention held in Washington on Jan. 23-24. Marine R 49:149 Mr '19
- National metal trades association**  
20th annual convention, New York, April 24-25. Iron Age 101:1136-41+ My 2 '18; Iron Tr R 62:1126-7 My 2 '18
- 21st annual convention, New York, April 23-24. Am Mach 50:871-2 My 1 '19; Iron Age 103:1153-7 My 1 '19; Iron Tr R 64:1157-9 My 1 '19
- National non-partisan league**  
Farmers' non-partisan league. F. G. R. Gordon. Am Ind 18:14-15 F '18  
Menace of the Non-partisan league. W. H. Barr. Iron Age 101:1141+ My 2 '18
- National parks**  
See Forest reserves; Zion national monument
- National physical laboratory, Great Britain**  
National industrial research laboratory. R. Glazebrook. Engineer 125:180-1 Mr 1 '18; Same. Eng & Contr 50:423-5 O 30 '18  
Scheme for an electrical proving house. Inst E E J 56:26-7 Je '18
- National pipe and supplies association**  
9th annual convention, Cleveland, O., May 13-14. Dom Eng 83:255-7 My 18 '18; Iron Age 101:1351 My 23 '18; Metal Work 89:680-3 My 24 '18
- 10th annual convention, Pittsburgh, Pa., May 12-13. Dom Eng 87:297-9 My 17 '19; Metal Work 91:621-3 My 16 '19
- National railway appliances association**  
Exhibition in Chicago. Iron Tr R 62:734-5 Mr 21 '18  
10th annual meeting, Chicago, March 19. Ry R 62:443-4 Mr 23 '18
- National research council**  
Annual meeting division of chemistry and chemical technology. J Ind & Eng Chem 11:481-3 My '19  
Council made permanent. Eng N 80:1017 My 23 '18  
Division of engineering of the National research council. G. H. Clevenger. Mech Eng 41:631 Jl '19  
International research; work of American and British societies on steel-flakes in gun steel. H. M. Howe. Iron Age 103:1710 Je 26 '19  
Meetings of the executive committee of the division of chemistry and chemical technology. J Ind & Eng Chem 11:694-7 Jl '19  
National engineering societies and the National research council. G. E. Hale. Am Inst E E Pro 37:1223-36 O '18; Same. Am Soc M E J 40:825-9 O '18; Excerpts. Am Inst Min E Bul 142:sup38-42 O '18  
National research council. Mech Eng 41:559 Je '19  
Organization of research work on a national scale. Eng & Min J 105:1136-7 Je 22 '18; Same. Chem & Met Eng 19:335 S 15 '18  
Organizing America's research work on a national scale. C. W. Baker. Eng N 80:1079-80 Je 6 '18  
Permanent organization. Mech Eng 41:485-6 My '19  
Reconstruction problems to be studied. Eng N 81:511 S 12 '18  
Report of pyrometer committee of National research council. G. K. Burgess. diags Am Inst Min Bul 153:sup2271-2300 S '19; Discussion. 156:3194-8 D '19  
Research of America. R. A. Millikan. Illum Eng Soc 13:533-5 no 9 '18  
Stimulation of research. Sci Am 120:518-19+ My 17 '19  
To be made permanent body; executive order of President Wilson. Am Inst E E Pro 37:sup 189 Je '18; Am Inst Min E Bul 139:sup 6 Jl '18; Am Mach 48:1116 Je 27 '18
- War activities of our technical societies. C. W. Rice. Sci Am 118:586+ Je 29 '18  
War activities of the National research council. G. E. Hale. Am Inst E E Pro 37:909-34 Jl '18; Same cond. Am Inst Min E Bul 140:sup39-45 Ag '18  
Work of the National research council. H. M. Howe. Iron Age 102:1023-5 O 24 '18; Same abr. Am Inst Min E Bul 144:1715-19 D '18
- National retail coal merchants' association**  
2nd annual convention, Buffalo, May 14-16. Coal Age 15:951-2 My 22 '19
- National retail lumber dealers' association**  
2d annual meeting, Chicago, Sept. 18-19. 11 Am Lumberman 2262:46c-48+ S 21 '18  
3d annual meeting, Detroit, Mich. Am Lumberman 2314:53-5 S 20 '19
- National roads.** See Roads, National
- National safety council**  
History. Coal Age 14:484-5 S 12 '18  
7th annual congress, St Louis, Sept. 16-20. Am Lumberman 2262:52-3+ S 21 '18; Coal Age 14:502-3 S 12 '18; Iron Age 102:748-9 S 26 '18; Iron Tr R 63:732-4 S 26 '18; Ry Age 65:589-92 S 27 '18; Ry R 63:423-6, 463-5 S 21-23 '18  
8th annual meeting, Cleveland, Oct. 1-4; with abstracts of papers. Elec Ry J 54:790-4 O 25 '19  
8th annual safety congress, Cleveland, Oct. 1-4. Coal Age 16:444 S 11 '19; Eng & Min J 108:557-8 S 27 '19; Iron Tr R 65:987-8 O 9 '19; Foundry 47:747-8 O 15 '19; Am Arch 116:595-6 N 5 '19; Ry Age 67:1019-22 N 21 '19; Iron Age 104:1183-6 D 11 '19  
8th annual safety congress, Cleveland, Oct. 1-4. R. D. Hall. Coal Age 16:618-23 O 9 '19  
Need for a definite technical service in the mining section of the National safety council. B. T. Tillson. Coal Age 16:645-8 O 16 '19  
Work of the organization. Eng & Min J 106:471-2 S 14 '18
- National security league**  
Congress on national service held by National security league. G. L. Alexander. Gen Elec R 21:281-3 My '18
- National service, Congress on.** See Congress on national service
- National sheep and wool bureau of America**  
Annual meeting, Chicago, June 17. Textile World 53:6211+ Je 22 '18
- National sheep conference**  
Wool conference; second national conference at Philadelphia, April 29-30. Textile World 55:2707 My 3 '19
- National supply and machinery dealers' association**  
Triple convention of supply and machinery trades of the United States, Cleveland, O., May 15. Iron Age 101:1346-51 My 23 '18; Am Mach 48:1095-9 Je 27 '18
- National transportation conference**  
National transportation conference. Ry R 65:127-31 Jl 26 '19
- National war labor board.** See United States—National war labor board
- National war savings committee**  
Procedure followed by divisional chairmen. Power 47:347 Mr 5 '18
- National warm air heating and ventilating association**  
Meeting, Milwaukee, June 12. Metal Work 89:834-7 Je 21 '18  
6th annual meeting, Columbus, O., June 11. Heat & Ven 16:65-6 Jl '19; Metal Work 91:801-3 Je 20 '19
- National wholesale dry goods association**  
Annual convention, New York, Jan. 16-17. Textile World 53:3362+ Ja 19 '18  
Jobbers confer on price fixing; hear government's side and present their own problems. Textile World 54:293 Jl 20 '18
- National wholesale lumber dealers' association**  
Committees for the current fiscal year. Am Lumberman 2243:47 My 11 '18  
26th annual convention, New York, March 27-28. Am Lumberman 2237:48-5+ Mr 30 '18

**Natural gas. See Gas, Natural**

**Natural gas association of America**  
Ten vital points for gas association work.  
E: C. Jennings. *Il Gas Age* 44:305 O 1 '19  
13th annual convention, Pittsburgh, Pa., May  
22-23. *Am Gas Eng J* 108:501-2 My 25 '18;  
*Gas Age* 41:495-500 Je 1 '18

**Natural history museums**

Popularizing anthropology; what museums are  
doing to make science attractive. E: H.  
Brush. *Il Sci Am S* 84:408-11 D 29 '17

**Natural monuments**

Temple of the Gods in Utah. L. Jeffers. *Il Sci  
Am* 119:267 O 5 '18

*See also* Canyon de Chelly

**Natural resources**

Energy resources of the United States: a  
field for reconstruction. C. G. Gilbert and  
J. E. Pogue. *Il charts diagrs map U S Na-  
tional Museum Bul* 102, v 1:1-182 '19

*See also* Coal; Conservation of resources;  
Forests and forestry; Gas, Natural; Geol-  
ogy; Mineral lands; Mines and mineral  
resources; Ores; Petroleum; Reclamation  
service; Water power

**Natural selection**

Role of selection in evolution. W. E. Castle.  
*Sci Am S* 87:66-7, 90-1 F 1-8 '19

**Natural steam. See Steam, Natural****Naturalization**

Americanization of our industrial aliens. *Am  
Arch* 113:239 F 27 '18

**Nature photography**

Cloud negatives. *Sci Am S* 88:131 Ag 30 '19

**Naval air service. See United States—Navy**  
—Air service

**Naval aircraft factory, Philadelphia**

Employment problem of the U.S. Naval air-  
craft factory. F: G. Coburn. *Il Ind Man-  
agement* 57:359-65 My '19

Making naval plane builders. *Il Motor Age*  
34:21+ O 31 '18

Naval aircraft factory. *Il Am Soc M E J* 41:  
142-6 F '19

Naval aircraft factory. *Il Aviation* 6:28-30 F  
1 '19

Our navy's winged destroyers. A. C. Lescar-  
bours. *Il Sci Am* 119:480-1+ D 14 '18

Problems of the Naval aircraft factory dur-  
ing the war. F: G. Coburn. *Il Am Mach*  
51:413-19 Ag 28 '19

**Naval architects, Institution of. See Institution**  
of naval architects

**Naval architecture**

Cycle in naval architecture. *Engineer* 124:431-2  
N 16 '17; Same. *Sci Am S* 85:6 Ja 5 '18

Duct keel in sea-going steamers. E. F. Span-  
ner. *Sci Am S* 87:16 Ja 4 '19

Full-sized ship experiments. *Sci Am S* 86:395  
D 21 '18

Investigation of shearing force and bending  
moment on ship structures. A. M. Robb.  
*diagrs Int Marine Eng* 23:592-3, 637-42 O-N  
'18

Marine use of concrete. *Il Sci Am* 118:81+ Ja  
26 '18

Power, speed and dead-weight carrying capa-  
city of screw steamers. H. P. Frear. *Sib-  
ley J* 32:168-70 Ag '18

Problem of the unsinkable ship. *Il diagrs plans*  
*Sci Am* 118:206, 215 Mr 9 '18

Ship within a ship. *Il diag Sci Am* 118:161 F  
23 '18

Straight lined and fabricated ships. J: A.  
McAleer. *Il diagrs Int Marine Eng* 23:234-6  
Ap '18

*See also* Barges; Boat building; Bulk-  
heads (naval architecture); Colliers; Freight  
ships; Hospital ships; House boats; Launch-  
ing; Light ships; Marine engineering; Mo-  
tor boats; Motor ships; Propellers; Rudders;  
Salvage ships; Ship resistance; Shipbuild-  
ing; Ships; Ships, Concrete; Ships, Iron and  
steel; Steamboats; Submarine boats; Sub-  
marine chasers; Tank ships; Torpedo boat  
destroyers; Torpedo boats; Towboats; War-  
ships

**Bibliography**

**Naval architecture and shipbuilding. R. A.  
Sawyer, Jr. N Y Pub Lib Bul 23:13-50, 73-94  
Ja-F '19**

**Designs and plans**

Australian built fleet auxiliary. *diagrs En-  
gineer* 128:154-5 Ag 15 '19

Ballin composite ships of 4,400 tons d. w. *Il  
diagrs plans (supp) Int Marine Eng* 24:  
680-4 O '19

Best fore-and-aft position of parallel middle  
body in single-screw cargo ship. W: Mc-  
Entee. *diag Int Marine Eng* 24:18-23 Ja '19

Commonwealth standard 5,500-ton ship;  
plate. *Int Marine Eng* 24:484a Jl '19

Concrete ship of 3,500 tons deadweight de-  
signed by Emergency fleet corporation.  
*diagrs plans Int Marine Eng* 23:446-9 Ag '18

Deck plans of redesigned ship built for the  
Emergency fleet corporation by the New  
York shipbuilding corp.; combination pas-  
senger and cargo ship. *Marine R* 49:326  
Jl '19

Design and construction of self-propelled re-  
inforced concrete sea-going cargo steamers  
now building in Great Britain. T. G. O.  
Thurston. *diagrs plans Int Marine Eng* 23:  
465-64 Ag '18

Development of longitudinals. *diagrs Int Ma-  
rine Eng* 23:656-7 N '18

Drifters and trawlers. *Il diagrs plans Int Ma-  
rine Eng* 24:665-8 O '19

8,800-ton steel freighter built in thirty-  
seven days. *Int Marine Eng* 24:484b Jl  
'19

Experiments on simplified ship forms. H. C.  
Sadler and T. Yamamoto. *plans Int Ma-  
rine Eng* 24:140-4 Mr '19

Five thousand-ton deadweight fabricated  
steel cargo steamer for Emergency fleet.  
*diagrs plans 2 pls Int Marine Eng* 23:194-8  
Ap '18

Internal boosing for cargo vessels. E. De  
Brinja. *diagrs Int Marine Eng* 24:762-4 N  
'19

Large programme of river and canal vessel  
construction now under way. *diagrs Int Ma-  
rine Eng* 24:670-8 O '19; Same cond. *Ma-  
rine R* 49:460-3 O '19

Laying down a ship. *Il diag plans Sci Am S*  
86:164 S 14 '18

Modern steel freight steamship. D. D.  
Thomas. *Il diagrs plans (supp) Int Marine  
Eng* 24:592-600 S '19

Most suitable sizes and speeds for general  
cargo steamers. J: Anderson. *diagrs Int  
Marine Eng* 23:506-11 S '18

Motorships and their propelling machinery.  
J. M. Watts. *Il diagrs plans Int Marine Eng*  
23:201-6 Ap '18

Naval construction during the war. E. T.  
D'Eyncourt. *Il diagrs (supp) Engineer* 127:  
358-62 Ap 11 '19; Same. *Int Marine Eng*  
24:384-93, 495-6, 559-61 Je-Ag '19

New Pacific Coast steam schooners. *Il diagrs  
plans Int Marine Eng* 23:280-4 My '18

9,600-ton deadweight cargo vessel. *Il diag  
plans Int Marine Eng* 24:200-2 Ap '19

Ocean-going tugs built at the Moore plant  
of the Bethlehem shipbuilding corporation,  
Ltd. *Il diagrs plans Int Marine Eng* 24:587-  
91 S '19

Oil tank steamer of 10,100 tons d. w. *diag  
plans Int Marine Eng* 24:196-8 Ap '19

Oil tanker of 10,000 tons deadweight adopted  
as standard by Shipping board. *Il diagrs  
plans Int Marine Eng* 23:107-13 Mr '18

Plans for Hog Island steel cargo ship. *diagrs  
plans Int Marine Eng* 24:71-4 F '19

Profile, deck and hold plans of the 13,000-ton  
American-built passenger ship. *Marine R*  
49:328 Jl '19

Proportions of ideal cargo vessel. *Int Marine  
Eng* 23:544-5 S '18

Reinforced concrete shipbuilding in Dorset-  
shire. *Il (supp) diagrs map plans Engineer*  
126:408-10, 416 N 15 '18

Reinforced concrete vessels. W. Pollock. *diagrs  
plans Engineer* 125:278-80 Mr 29 '18; Same.  
*Eng & Contr* 50:409-13 O 30 '18; Excerpts.  
*Int Marine Eng* 23:512-17 S '18

- Naval architecture—Designs and plans—Cont.**  
 Richborough transportation depot and train ferry terminus; barges and seaplane towing lighter. *Il* *diags* *Engineer* 127:147-50, 154, 169-72, 219-20, 226 F 14-21, Mr 7 '19  
 Robert Dollar type of cargo vessel. *diag* plans *Int Marine Eng* 24:204-6 Ap '19  
 Shallow draft motorships for use on the Volga river designed by American naval architect for Russian owners. *diags* plans (supp) *Int Marine Eng* 23:9-11 Ja '18  
 Ships of the British navy on August 4th, 1914. P. Watts. *diags* (supp) plan *Engineer* 127:447-50 My 9 '19  
 Shipyard of Columbia engineering works. *Il* *diags* plans *Int Marine Eng* 23:294-300 My '18  
 Shooters Island shipyard and its standard cargo ships. *Il* *diag* plans *Int Marine Eng* 23:191-3 Ap '18  
 Standard cargo ships. G. Carter. *diags* plan *Int Marine Eng* 23:407-11+ JI '18; Same cond. *Engineer* 125:257-9 Mr 22 '18  
 S.S. Poughkeepsie, standard 8,800-ton dead-weight cargo vessel built by Newburgh shipyards, inc. *Il* *diags* plans (supp) *Int Marine Eng* 24:530-5 Ag '19  
 Stresses in ships. S. V. James. *diags* plans W Soc E J 23:356-76 My '18  
 System for the design of ships with straight-lined sections. C. W. Bion. *diags* *Int Marine Eng* 23:335-8 Je '18  
 Twin-screw shallow-draft steamer Shuhun. *Int Marine Eng* 24:394 Je '19  
 Twin-screw troopship of 13,000 tons d. w. *diags* plans *Int Marine Eng* 24:192-6 Ap '19  
 United States 110-foot submarine chasers. R. P. Sanborn. *Il* *diags* plans *Int Marine Eng* 24:337-43 My '19  
 Unsinkable freight ship of French design. *diag* plan *Int Marine Eng* 23:576-8 O '18  
 War's influence on naval design. *Sci Am* 120: 112 F 8 '19
- Study and teaching**  
 Education and training of a naval architect. L. B. Chapman. *Int Marine Eng* 24:223-7 Ap '19  
 Engineering education as applied to naval architecture and marine engineering. H. A. Everett. *Int Marine Eng* 23:339-42 Je '18  
 Pratt school of naval architecture. C. H. Peabody. *Il* plans *Int Marine Eng* 24:220-3 Ap '19
- Naval art and science**  
*See* Camouflage; European war—Naval operations; Gunnery; Hospital ships; Marine engineering; Mines; Submarine; Navies; Navigation; Sea power; Shipbuilding; Submarine boats; Submarine detectors; Submarine warfare; United States—Navy; Warships
- Naval artillery.** *See* Naval guns
- Naval consulting board.** *See* United States—Naval consulting board
- Naval engineering.** *See* Marine engineering
- Naval guns**  
 Armament and ammunition for British naval craft. *Il* *Iron Age* 103:1087 Ap 24 '19  
 Battleship guns on the western front. C. L. McCrea. *Il* *Sci Am* 120:123+ F 8 '19  
 British and German naval ordnance. *Engineer* 125:90-1, 111, 140 F 1-15 '18  
 Field mount for the 7-in. navy gun. C. L. McCrea. *Il* *Am Mach* 51:523-7 S 11 '19  
 14-in naval railway batteries. C. L. McCrea. *Il* *diags* plan *Am Mach* 50:141-9 Ja 23 '19  
 Guns of the Queen Elizabeth; the 15-inch piece that bombarded Gallipoli. *Il* *Sci Am* 118:344-5 Ap 13 '18  
 Heavy naval gun is given field mounting. C. L. McCrea. *Il* *Iron Tr R* 64:707-9 Mr 13 '19  
 Long-range heavy navy guns with railway mount. D. C. Buell. *Il* *Am Soc M E J* 41:25-7 Ja '19  
 Making naval gun mounts. F. D. Jones. *Il* *diags* plan *Mach* 25:485-92, 600-5, 745-9 F-Ap '19  
 Most powerful gun in existence. *Il* *Sci Am* 120:461 My 3 '19
- Our new 16-inch naval gun. *Sci Am* 118:66 Ja 19 '18  
 Re-gunning a battleship's turrets. *Il* *Sci Am* 121:161+ Ag 16 '19  
 Steel castings for our first line of defense. W. S. Doxsey. *Il* *diags* Foundry 47:367-72 Je 15 '19  
 Year's developments in naval ordnance. *Iron Age* 100:1486-7 D 20 '17  
*See also* Guns, Anti-aircraft
- Naval history**  
 Naval forces of old Poland. Z. Komorowski. *Sci Am S* 87:178-9 Mr 22 '19
- Naval stores**  
 What are naval stores? *Sci Am* 121:328 S 27 '19
- Naval training station, Great Lakes, Illinois.**  
*See* United States Naval training station, Great Lakes, Illinois
- Navies**  
 Battleship strength of the five leading naval powers. map *Sci Am* 120:52-3+ Ja 18 '19  
 Fighting ships of the world. *Sci Am* 120:536 My 24 '19  
 To the Secretary of the navy. *Sci Am* 120:48 Ja 18 '19  
*See also* Coaling stations; Hospital ships; Navy yards; Sea power; Submarine boats; Warships; also subdivision Navy under names of countries, e.g. Great Britain—Navy, United States—Navy
- Navigation**  
 Rise of navigation. R. H. Curtiss. *Sci Am S* 86:370-1+ D 14 '18  
 Wake-stream and suction. C. H. Holst. *diags* *Sci Am S* 86:172-3 S 14 '18  
*See also* Aeronautics; Beacons; Buoys; Compass; Convoy; Fog signals; Harbors; Latitude; Launching; Lifeboats; Light-houses; Motor boats; Rivers; Rudders; Safety at sea; Ship propulsion; Ship railroads; Ship resistance; Shipbuilding; Shipping; Ships; Shipwrecks; Steamboats; Stowage; Submarine boats
- Navy steam engineering school.** *See* United States navy steam engineering school
- Navy yards**  
 Simplify office work of handling emergency building program at navy yard. *Eng N* 80: 959-60 My 16 '18  
 Use of acetylene in navy yards. H. G. Knox. *Il* plan *Int Marine Eng* 24:720-7 N '19; Same cond. *Am Mach* 51:661-4 O 2 '19
- NC boats.** *See* Flying boats
- Neale, James Brown, 1872-**  
 Sketch. por *Coal Age* 14:897 N 14 '18
- Nebraska**  
*See also* Irrigation—Nebraska
- Industries and resources**  
 Nebraska potash industry. E. E. Thum. *Il* map *Met & Chem Eng* 17:693-8 D 15 '17  
 Origin of the Nebraska potash lakes. W. A. Norris. *Met & Chem Eng* 18:281 Mr 15 '18
- Nebraska, University**  
 University of Nebraska; dedication of the new chemistry hall. W. L. Sibert. *Il* plans *J Ind & Eng Chem* 11:671-4 JI '19
- Nebulae**  
 Are spiral nebulae external galaxies? *Sci Am* 118:376 Ap 27 '18  
 Evidence of matter in space obstructing the passage of light. W. W. Campbell. *Sci Am S* 85:57 Ja 26 '18
- Nebular hypothesis**  
 Present position of the nebular hypothesis. J. H. Jeans. *Sci Am S* 88:214-15 O 11 '19
- Needles, Knitting.** *See* Knitting needles
- Negligence**  
 Fires caused by chimney sparks. C. C. Sherlock. *Power* 49:147 Ja 28 '19  
 Fixing responsibilities for accidents. C. C. Sherlock. *Iron Tr R* 64:702-3 Mr 13 '19  
 Legal questionnaire. *Dom Eng* 88:109-10 JI 19 '19  
*See also* Damages; Employers' liability

**Negotiable Instruments**

Commercial paper situation. F. C. Schwedtman. *Am Ind* 19:34-5 J1 '19  
 When checks and notes are lost or stolen. R. H. Butz. *Dom Eng* 85:229- N 9 '18  
*See also* Acceptances; Bills and notes; Bonds; Checks; Kiting; Promissory notes

**Negroes****Employment**

Making up the labor shortage. D. N. Crowthait, Jr. *Ind Management* 55:412-13 My '18  
 Negro and his opportunity. R. W. Immel. *Ind Management* 58:75-6 J1 '19  
 Negroes a source of industrial labor. D. T. Farnham. II charts *Ind Management* 56:123-9 Ag '18  
 Psychology of the negro workingman. E. K. Jones. *U S Bur Labor Statistics Bul* 247:101-5 '19

**Segregation**

Housing and race friction. E. K. Jones. *Am Arch* 116:445-6 O 1 '19

**Neighborhood houses.** *See* Social settlements

**Nelson cell.** *See* Electrolytic cells

**Neon**

Measurements of wave lengths in the spectrum of neon. K. Burns, W. F. Meggers and P. W. Merrill. *U S Bur Stand Bul* 14:765-75 J1 12 '19

Neon lamps. *Sci Am S* 86:85 Ag 10 '18

Neon lamps for direct current; abstract. F. Schroter. *Elec W* 73:899 My 3 '19

**Nephelometry (photometric analysis)**

Technical applications of nephelometry. P. A. Kober. II diag *J Ind & Eng Chem* 10:556-63 J1 '18

**Nervous system****Diseases**

Nerves of a soldier. A. Salisbury. II *Sci Am* 118:14+ Ja 5 '18

Pathology of war neuroses. J. S. Bury. *Sci Am S* 86:226-7 O 12 '18

Rapid cure of hysterical symptoms in soldiers. A. F. Hurst and J. L. M. Symms. *Sci Am S* 86:304 N 9 '18

War psycho-neurosis; the psychology of soldiers' dreams. F. W. Mott. *Sci Am S* 85:162-3, 183 Mr 16-23 '18

*See also* Hysteria; Neurasthenia

**Nervous system (animals)**

Chemical differentiation of the central nervous system in invertebrates. A. R. Moore. *Sci Am S* 84:389 D 22 '17

**Netherlands**

As it is in Holland; war time conditions. Y. Brouwers. *Power* 47:738 My 21 '18

Holland seeks a new province. H. M. Allen. II map *Sci Am S* 86:392-3 D 21 '18

**Industries and resources**

Holland's third industries fair. plan *Engineer* 127:244-5, 272-3, 295-6, 323-4 Mr 14-Apr 4 '19

**Navy**

New Dutch cruisers. *Engineer* 125:213-14 Mr 8 '18

**Nettles**

Fabrics from nettle and hemp. II *Textile World* 55:1441+ Mr 1 '19

German textile use of nettles. *Am Soc M E J* 40:420 My '18

Use of nettle fiber in Germany. J. A. Hunter. *Textile World* 53:3703 F 9 '18

**Neurasthenia**

Neurasthenia a growing disease in engineering work. C. C. Sherlock. *Eng N* 82:918 My 8 '19

*See also* Nervous system—Diseases

**Neurosis. See Nervous system—Diseases****Nevada**

*See* Copper mines and mining—Nevada; Geology—Nevada; Gold mines and mining—Nevada; Mines and mineral resources—Nevada

**Nevada consolidated copper company**

Annual report, 1917. *Eng & Min J* 105:1092 Je 15 '18

Total plant costs as of Dec. 31, 1917. L. H. Goodwin. *Eng & Min J* 106:905-6 N 23 '18

**New Bedford gas & Edison light company**

Annual meeting. *Am Gas Eng J* 109:215 Ag 31 '18

**New England association of gas engineers**

48th annual meeting, Boston, Feb. 20-21. *Am Gas Eng J* 108:187-8 F 23 '18; *Gas Age* 41:203-4 Mr 1 '18

49th annual meeting, Feb. 19-20. *Gas Age* 43:258-9 Mr 1 '19

**New England coal dealers' association**

Annual meeting, Springfield, Mass., March 20-21. *Coal Age* 13:586-7 Mr 30 '18

Victory convention, Worcester, Mass., Mar. 19-20. *Coal Age* 15:616-17 Ap 3 '19

**New England electric freight association**

Annual meeting, Worcester, Mass., April 10. *Elec Ry J* 53:863 My 3 '19

Freight agents of New England electric railway properties have organized. *Elec Ry J* 51:176 Ja 26 '18

**New England power company**

Increasing facilities to meet war-time demands. *Elec W* 71:1384-5 Je 29 '18

**New England water works association**

Meeting, Boston, Sept. 11-12. *Eng N* 81:556 S 19 '18; *Munic J* 45:260 S 28 '18; *Power* 48:470-1 S 24 '18

38th annual convention, Albany, Sept. 30-Oct. 3. *Munic J* 47:215-17 O 4 '19

**New Haven, Connecticut****Sewerage**

Miles acid process for recovery of sewage grease with special reference to sewage. C. E. A. Winslow and F. W. Mohlman. *Munic Eng* 55:173-6 N '18

**Streets**

National pavement in New Haven. II *Munic J* 45:143-5 Ag 24 '18

National pavement in New Haven. II *Good Roads n s* 16:55-7 Ag 17 '18

**New Hebrides****Commerce**

Trade in the New Hebrides. *Am Ind* 19:25 My '19

**New Jersey. See Roads—New Jersey****New Jersey chemical society**

Meeting, Newark, Oct. 28. *Chem & Met Eng* 19:728 N 15 '18

**New Jersey zinc company**

Library service of the New Jersey zinc company. L. A. Tafel. *J Ind & Eng Chem* 11:586-7 Je '19

**New Mexico**

*See also* Roads—New Mexico

**Antiquities**

Lost city. C. d'Emery. II *Sci Am S* 87:216-17 Ap 5 '19

Prehistoric Pueblo Indian ruin near Astec. II *Sci Am S* 86:4-5 J1 6 '18

**Description**

Archaic architecture. W. T. Johnson. II *Am Inst Arch J* 7:65-70 F '19

**New Mexico (United States steamship)**

Electric drive of the U. S. S. New Mexico. II diag *Elec W* 73:780-3 Ap 19 '19

Electric propulsion as developed on battleship New Mexico. II *Elec R* 74:579-84 Ap 12 '19

Electric propulsion with special reference to U. S. S. New Mexico. II diag plan *Gen Elec R* 22:219-301 Ap '19; *Excerpts (Generators)*. *Sci Am S* 87:356-8 Je 7 '19; *(Motors)* 87:396-7 Je 21 '19; *(Main control equipment)* 87:408-10 Je 28 '19

Electrical equipment of the U.S.S. New Mexico. diag *Engineer* 128:204-6, 234-6 Ag 29-S 5 '19

Electrically driven battleship. C. M. Ripley. II diag *J Elec* 43:246-7 S 15 '19

Interesting electrical features of the battleship New Mexico. II *Elec R* 75:398-9 S 6 '19



New Mexico (United States steamship)—*Cont.*  
United States battleship New Mexico. S. M.  
Robinson. II diags Int Marine Eng 24:322-  
34 My '19

New Orleans, Louisiana  
After-war problems of New Orleans. H. H.  
Dunn. II Marine R 49:158-9 Mr '19

#### Architecture

Creole architecture of old New Orleans. N. C.  
Curtis. II map Arch Rec 43:435-46 My '18

#### Harbor

Concrete construction on the Mississippi sands.  
R. Gotthold. II Sci Am 121:532-3+ N 29 '19  
New Orleans army base improves facilities  
of the port. G. H. Davis. II diags plan Eng  
N 82:823-6 Ap 24 '19

New Orleans builds inner harbor and navi-  
gation canal. II diags map Eng N 81:304-7  
Ag 15 '18

Proposed New Orleans industrial canal and  
lock. H. Eggleston. map Munic Eng 54:168-9  
Ap '18

Transportation efficiency for the war; what  
New Orleans has accomplished. E. Amberg.  
II Int Marine Eng 56:72-4 F '18

#### Public buildings

Early building methods in New Orleans; cus-  
tom house. K. H. Pullen. II Bldg Age 39:  
425-6 Ag '17; Same. Arch & Bldg 49:103 N  
'17

#### Sanitary affairs

Unique features of unified operation of water,  
sewerage and drainage facilities. G. G.  
Earl. II Munic Eng 56:121-9 Ap '19

#### Sewerage

Electrically operated pumping system. II Elec  
R 71:1047-9 D 22 '17

#### Streets

Experience with granite block pavements in  
New Orleans. J. C. Bartley. Munic Eng 57:  
112-15 S '19

#### Water supply

Electrically operated pumping system. II Elec  
R 71:1047-9 D 22 '17  
Service connections in New Orleans. Munic J  
45:210 S 14 '18

#### New York (city)

Building situation in New York. Am Arch 114:  
320-1 S 11 '18

Food wastes—some causes and remedies. L. P.  
Brown. II diags J Fr Inst 185:585-610 My '18  
Housing crisis in New York city. C. S. Stehn.  
Am Inst Arch J 7:220-1 My '19

How a city's housing shortage is estimated.  
Am Arch 116:77-8 JI 16 '19

Indictment which must be examined; letter  
to the directors of the title and mortgage  
companies of New York. Am Inst Arch J  
6:79-81 F '18

West Side report ready. Elec Ry J 51:287 F  
9 '18

*See also* Harlem river, New York

#### Architecture

Bush terminal sales building. II Arch & Bldg  
50:59+, pl 154-60 D '18

National association building. plan Am Arch  
116:334-5, pl 95-102 S 10 '19

Office building of Gaston, Williams & Wig-  
more, inc., on lower Broadway. II plans  
Arch Rec 45:356-65 Ap '19

Suggestion for a war memorial on Riverside  
Drive. D. Barber. II plan Am Arch 114:320a-  
320b, pl 81 S 11 '18

*See also* New York (city)—Churches; New  
York (city)—City hall; New York (city)—  
Hotels

#### Bridges

Arched steel cantilevers used in Park Avenue  
viaduct. H. W. Levy. II diags Eng N 81:81-  
8 JI 11 '18

Bridge versus ice blockade. Sci Am 118:226  
Mr 16 '18

Hell Gate arch, the first bridge on which  
strain gages were used to determine dead  
load stresses. Eng & Contr 49:208 F 27 '18

High bridge on the Harlem river. Am Arch  
116:41 JI 9 '19

Railway terminal problem at the port. II Sci  
Am 120:266 Mr 15 '19

Relative efficiency of bridge and tunnels. Sci  
Am 120:248 Mr 15 '19

Stress measurement experimental tests built  
Hell Gate arch bridge. diags Engineer 128:  
125-6 Ag 8 '19; Excerpt. Eng & Contr 52:  
506-8 O 29 '19

Tunnels vs. bridges. Sci Am S 85:317 My 18  
'18

*See also* Brooklyn bridge

#### Central park

Repaving Central Park transverse roads.  
D. B. Goodsell. II map Good Roads n s 15:  
151-4 Mr 16 '18

#### Churches

Church of St Vincent Ferrer, New York  
city. B. G. Goodhue. II Arch & Bldg 51:  
54-7, pl 104-6 JI '19

What a church is doing for art. Am Arch  
116:82 JI 16 '19

#### City Hall

City Hall and its setting. Sci Am 121:28 JI  
12 '19

Restored tower of the New York City Hall. II  
Arch & Bldg 51:6+, pl 26-7 Ja '19

#### Clubs

Cosmopolitan club. L. V. Solon. II plan Arch  
Rec 46:18-28 JI '19

#### Description

##### Views

Lithographs by Chesley Bonestell. Am Inst  
Arch J 7:13-16 Ja '19

#### Fire department

New York fire alarm telegraph. II Munic J  
44:53-4 Ja 19 '18

#### Fire service

Leaks from high pressure fire service mains.  
H. B. Machen. Am Water Works Assn J  
5:44-8 Mr '18; Same cond. Eng & Contr 50:  
256 S 11 '18

#### Galleries and museums

*See* Museum of the American Indian; New  
York (city)—Metropolitan museum

#### Harbor

Central control of the port of New York. Sci  
Am 121:384 O 18 '19

Improvement program for port of New York.  
M. Hulbert. Ry R 63:718-19 N 16 '18

Improving the port of New York. Sci Am 119:  
401 N 16 '18

Neglected port. Sci Am 120:480 My 10 '19

New ocean freight terminal started on Staten  
Island. diags Eng N 80:120-3 Ja 17 '18; Dis-  
cussion. F. E. Pratt. 80:426-7 F 28 '18

Port of New York capable of expansion.  
W. R. Willcox. Int Marine Eng 23:501 S '18

Progress of New York harbor investigation.  
Ry R 63:277-9 Ag 24 '18; Same cond. Eng N  
81:397-9 Ag 29 '18

Protection for the port of New York. Sci Am  
118:100 F 2 '18

Sewage and dissolved oxygen in New York  
harbor. K. Allen. diags Eng N 83:228-9  
JI 31 '19; Abstract. Eng & Contr 51:33 Ja  
8 '19; Same. Munic Eng 56:172-3 My '19

Terminal on the Jersey flats. II Sci Am 121:  
103+ Ag 2 '19

#### Health department

Proposed reorganization of health department.  
Sci Am 118:376 Ap 27 '18

#### Hotels

Allerton house, New York city. Arch & Bldg  
51:51-2, pl 90-3 Je '19

The Commodore—a new hotel on Pershing  
square. plans Am Arch 115:337-8, pl 69-77  
Mr 5 '19

Design and decoration of the public rooms  
in Hotel Pennsylvania. G. A. Holmes. II  
Arch Forum 30:105-8 Ap '19

**New York (city)—Hotels—Continued**

- Electric and elevator equipment of the Hotel Pennsylvania. C: E. Knox. *il* Power 49: 708-12 My 13 '19; Excerpts. Arch & Bldg 51:26-6 Mr '19
- Electric service in world's largest hotel; the Pennsylvania. *il* diag Elec W 73:940-3, 1159-63 My 10, 31 '19
- Electricity in the world's largest hotel; the Pennsylvania. W: H. Easton. *il* plan Elec J 16:288-94 J1 '19
- Hotel Commodore. *il* Arch & Bldg 51:29-35, pl 57-71 Ap '19
- Hotel Pennsylvania. *il* plans Am Arch 115: 297-306, pl 63-8 F 26 '19; Ry R 64:409 Mr 15 '19
- Hotel Pennsylvania. C: W. Hastings. *il* plans Arch & Bldg 51:17-24, pl 39-56 Mr '19
- Hotel Pennsylvania, New York city. *il* diag plans Arch Forum 30:95-104, pl 49-58 Ap '19
- Mechanical equipment of a modern hotel; Hotel Pennsylvania. *il* diag plans Power 49:230-3 F 18 '19
- New York's newest hotel; the Commodore. *il* Ry R 64:612-13 Ap 26 '19

**Metropolitan museum**

- Coöperation of a museum with manufacturers. Sci Am 119:410 N 23 '18
- Museum as a laboratory. Sci Am S 87:117 F 22 '19
- Seventeenth and eighteenth century design books; exhibition at the Metropolitan museum of art. C: O. Cornelius. Arch Rec 45: 573-4 Je '19
- Views. Arch Rec 44:65-8 J1 '18

**Monuments**

- Arch of Victory on Fifth avenue, opposite Madison square. Am Arch 115:pl 140-2 Ap 30 '19
- Gateway of the nation. *il* diag Am Arch 115: 602-6 Ap 30 '19

**Public works**

- Coördination of engineering work in New York city. L: L. Tribus. Eng N 80:134 Ja 17 '18

**Railroads**

- Conveyor scheme for handling New York city's package freight. diag plan Ry Age 65:455-6 S 6 '18
- Grand Central terminal handled 189,838 passengers. *il* Ry Age 67:366-7 Ag 22 '19
- New approach to the Grand Central depot; hauling 75-ton girders through the streets. *il* Sci Am 119:378+ N 9 '18; Eng N 81:824-5 O 31 '18
- New York city's transportation requirements. Ry R 62:402-3 Mr 16 '18
- Railway terminal problem at the port. *il* Sci Am 120:266 Mr 15 '19

**Rapid transit**

- City transit concentration. Eng N 82:1241 Je 26 '19
- Connecting Staten Island with Manhattan. Sci Am 120:545+ My 24 '19
- Continuous trains for Forty-second street transit. H: B. Seaman. *il* diag plan Eng N 82:1248-50 Je 26 '19
- Cost of erecting structural steel for Manhattan Elevated railway improvements. Eng & Contr 49:90-1 Ja 23 '18
- Discussion by mayor, railroad executive and commissioners follows 6-cent fare appeal. Elec Ry J 51:628 Mr 30 '18
- Features of New York city's new rapid transit system. R. Ridgway. *il* diag Boston Soc C E J 5:193-225 My '18
- History of the Manhattan railway company's system. F. W. Gardiner and S. Johansson. J Fr Inst 185:437-9 Mr '18
- New York inquiry begun; city commission asks surface railways for data to permit inquiry. Elec Ry J 52:257 Ag 10 '18
- New York lines need money. T. H. Whitney. Elec Ry J 52:669 O 12 '18
- Rebuilding an elevated railway under regular schedule traffic. F. W. Gardiner and S. Johansson. map Elec Ry J 51:320-2 F 16 '18

- Six years of rapid-transit progress. D. L. Turner. diag maps Eng N 82:865-9 My 1 '19

- Yankee tram makes its appearance; new type bus in New York. *il* Elec Ry J 52:926 N 23 '18

See also Hudson river tunnels; New York (city)—Subways

**Sanitary affairs**

- New York city has largest and best garbage-reduction works. H. V. Schliefer. *il* diag Eng N 80:555-61 Mr 21 '18

See also New York (city)—Sewerage; New York (city)—Water supply

**Sewerage**

- Grit chamber and fine screens for part of New York sewage. C: E. Gregory. *il* diag plan Eng N 82:672-4 Ap 3 '19
- Methods of estimating and measuring sewage flow. W. S. McGrane. Munic J 44:261-2 Mr 30 '18; Same. Eng & Contr 49:600-1 Je 12 '18
- Sewage and dissolved oxygen in New York harbor. K. Allen. diag Eng N 83:228-9 J1 31 '19; Abstract. Eng & Contr 51:33 Ja 8 '19; Same. Munic Eng 66:172-3 My '19
- Sewage disposal for a New York area—Brooklyn and Queens. map Munic J 43:578-80, 600-1 D 15-22 '17

**Streets**

- Contracts for snow removal in New York. Munic J 43:637-8 D 29 '17
- Heavy traffic on streets. C. M. Pinckney. Sci Am 120:404 Ap 19 '19
- Highway work in four New York boroughs. *il* Good Roads n s 17:69-71+ F 22 '19
- Municipal traffic problem. R. E. Enright. Good Roads n s 16:11-12 J1 13 '18
- Novel automobile roadway proposed for New York city. Good Roads n s 15:142 Mr 9 '18
- Park Avenue improvement in New York. *il* Am Arch 115:756-8 My 28 '19
- Park Avenue viaduct from Fortieth street. Arch & Bldg 51:pl 86-8 My '19
- Segregating traffic; regulations adopted and modifications recommended. Munic J 46:72 Ja 25 '19
- Street work in Manhattan. *il* Good Roads n s 17:67-8+ F 22 '19
- To prevent street littering. Munic J 47:183-4 S 20 '19
- Ultimate costs of bituminous and water-bound macadam nearly equal in New York. D. P. Babcock. Eng N 81:87-90 J1 11 '18
- Why not double-decked streets for New York city? C. S. Rindsfoos. Eng N 80:674-5 Ap 4 '18

**Subways**

- Architectural treatment of stations on the dual system of rapid transit in New York city. S. J. Vickers. *il* Arch Rec 45:15-20 Ja '19
- Broadway subway opened. Elec Ry J 51:100 Ja 12 '18
- Difficult subway work under land and water. *il* diag Sci Am 119:209 S 14 '18
- Distribute subway track material by motor truck in New York. *il* Eng N 80:857-9 My 2 '18
- H system troubles. maps Elec Ry J 52:300 Ag 17 '18
- New York subway cave-in kills three. diag Eng N 80:972 My 16 '18
- New York subway extension. *il* Ry R 63:587-8 O 19 '18
- New York subways must be readjusted. Sci Am 120:22 Ja 11 '19
- Open H system of New York city transit lines. Eng N 81:289+ Ag 8 '18
- Opening a new link of New York's vast subway system. *il* Sci Am 119:71+ J1 27 '18
- Park Place subway station escalators. *il* Sci Am 120:567 My 31 '19
- Solving construction problems in Canal street subway. A. J. Mayell. *il* diag plan Eng N 82:650-2 Ap 3 '19
- Temporary inspection facilities in New York. J. Glaser. *il* Elec Ry J 53:184-5 Ja 25 '19
- Times Square tangle becomes a reality. Eng N 81:255 Ag 8 '18

**New York (city)—Continued****Tunnels**

**Tunnels vs. bridges.** Sci Am S 85:817 My 18 '18  
*See also* Hudson river tunnels

**Water supply**

Chloramine process as applied to the Catskill (Esopus) water. F. E. Hale. Am Water Works Assn J 6:804-17 N '19; Excerpts. Eng & Contr 51:262-4 Mr 12 '19; Discussion. Am Water Works Assn J 6:818-22 N '19  
 How the water supply for 6,000,000 people is made safe. W. W. Brush. Il map Munic Eng 57:81-6 Ag '19  
 Study of water supply for budget purposes. W. W. Brush. Am Water Works Assn J 6: 60-6 Mr '19  
 Water supply of New York. diagrs map Engineer 126:109-11, 131-3 Ag 9-16 '18  
*See also* Catskill aqueduct

**New York (state)**

*See also* Mines and mineral resources—New York; Roads—New York

**Highway department**

Roads of New York. E. A. Bonney. Il chart map Good Roads n s 17:73-6+ F 22 '19

**New York Central railroad**

Annual report. Ry Age 66:1568-70 Je 20 '19  
 New York Central relocates lines to cross barge canal at the Tonawandas. B. S. Voorhees. maps Eng N 81:893-6 N 14 '18  
 New York Central safety-first department. Ry Age 64:1575-8 Je 28 '18  
 Report. map Ry Age 66:1344-5 Je 6 '19  
 Report for the year ended December 31, 1917. map Ry Age 64:1155-7, 1204-6 My 10 '18  
 Statistics, year 1917. Ry R 62:822-3 Je 8 '18

**New York Connecting railroad**

Electrification of New York Connecting railroad. Il map Ry Age 64:1367-70 Je 7 '18; Same. Ry R 62:779-85 Je 1 '18  
 11,000-volt overhead on the New York Connecting railroad. Il diagrs map Elec Ry J 51: 1042-7 Je 1 '18

**New York electric railway association**

37th annual meeting. Lake George, June 7. Elec Ry J 53:1173-6 Je 14 '19

**New York International exposition**

Behind the scenes of an exposition; activities at the New York International exposition before opening the doors. A. C. Lescarbours. Il Sci Am 118:524-5+ Je 8 '18

**New York, New Haven and Hartford railroad**

Annual report, 1917. map Ry Age 64:1364-5 Je 7 '18

**New York railroad club**

New York railroad club has foreign night. Ry Age 66:1257-62 My 23 '19

**New York railways**

Comparative income statement of New York railways for years ended June 30, 1917 and 1918. Elec Ry J 53:112 Ja 11 '19  
 Statement of capitalization. Elec Ry J 52: 171-2 Jl 27 '18

**New York state association of architects**

Outline plans and purposes of New York state association. Am Arch 116:146-7 Jl 30 '19

**New York state barge canal**

Barge canal promises rapid lumber movement. Am Lumberman 2233:49 Mr 2 '18  
 Canal as a carrier of coal. W. W. Wotherpoon. map Coal Age 13:402-6 Mr 2 '18; Discussion. 13:938-9, 1075-6, 1172; 14:835-6 My 18, Je 8, 22, O 31 '18  
 Canal in the problem of transportation. G. P. Gleason. Il Sci Am S 87:168-70 Mr 15 '19  
 Canal taken by government. Eng N 80:836-7 Ap 25 '18  
 Canals ready to help handle freight traffic. Eng N 80:488-9 Mr 7 '18  
 Completing a great waterway from the lakes to the Atlantic. D. B. La Du. Il map Sci Am 118:56-7+ Ja 12 '18  
 Concrete barges designed for New York state canal. diagrs plan Eng N 81:271-2 Ag 8 '18; Int Marine Eng 23:586-8 O '18

Effect of war conditions on New York state barge canal construction. F. M. Williams. Eng & Contr 49:381 Ap 17 '18

Erie barge canal finished after 13 years at a cost greatly in excess of the estimate. Eng & Contr 49:607 Je 19 '18

G. A. Tomlinson made federal director. Eng N 80:880 My 2 '18

New York barge canal terminals. Int Marine Eng 23:305 My '18

New York barge canal's first operating season. Eng N 82:370-2 F 20 '19

New York state barge canal. Il map Engineer 126:49-51, 54, 90-3, 98 Jl 19, Ag 2 '18

Opened to through traffic, May 15. Iron Age 101:1355 My 23 '18

Railways, waterways and highways. E. A. Bradford. Il Ry R 62:935-8 Je 29 '18

Use of New York barge canal hindered by operation of Federal railroad administration. Il Marine R 49:475-8 O '19

**New York state conference of mayors and other city officials**

Annual convention, Newburgh, N.Y. Munic J 45:63-4 Jl 20 '18

**New York steam company**

In receivers' hands. Heat & Ven 15:76-7 S '18  
 New York steam company's rates reviewed by Public service commission. Heat & Ven 15: 56 Ja '18

**New York typographical society**

Great society of printers. Inland Ptr 61:328 Je '18

**New York zoological park**

Where our birds come from. L. S. Crandall. Sci Am S 86:37 Jl 20 '18  
 World's horned heads. W. T. Hornaday. Il Sci Am 121:338-9 O 4 '19

**New Zealand**

*See also* Hydroelectric plants—New Zealand

**Commerce**

Agricultural implements and machinery in Australia and New Zealand. J. Homs. Il U S Bur For & Dom Com 166:1-195 '18

Railway materials, equipment and supplies in Australia and New Zealand. R. Rhea. Il U S Bur For & Dom Com 156:1-164 '18; Same (conclusions). Ry Age 64:697-702 Mr 22 '18

**Industries and resources**

Gathering Kauri gum in New Zealand. H. J. Shepstone. Il Sci Am S 85:360-1 Je 8 '18

*See also* Iron mines and mining—New Zealand

**Public works**

Longest suspension bridge in New Zealand. O. Johnson. Il Eng N 83:263-4 Ag 7 '19

Town-planning in New Zealand. A. G. Waller. Am Inst Arch J 6:567-77 D '18

**New Zealand Institute of architects**

Profession of architecture. W. Beauchamp-Platts. Am Inst Arch J 7:22-4 Ja '19

**Newark, New Jersey****Rapid transit**

Zone-mile system of the Public service railway. Il Elec Ry J 54:637-44 S 27 '19

**Sanitary affairs**

Street cleaning and refuse collection in Newark. Il Munic J 47:180-2, 200-2 S 20-27 '19

**Streets**

Asphalt-covered napped-block pavement. Munic J 47:32-4 Jl 19 '19

**Newcomen engine**

Links in the history of engineering. R. Jenkins. Engineer 127:471 My 16 '19  
 Two Newcomen engines. Il diagrs Engineer 127:621-3, 632 Je 27 '19

**Newell, Frederick H.**

President of American association of engineers. por Munic Eng 56:228 Je '19  
 Receives Cullom medal. Am Soc M E J 40:480 Je '18

- Newlands, Francis Griffith, 1848-1917**  
 Sketch. por Ry R 61:794 D 29 '17; Ry Age 63:  
 1185 D 28 '17  
 Tribute to Newlands as friend of engineers.  
 F. H. Newell. Eng N 80:53 Ja 3 '18  
**Newlands Investigation.** See Railroads and state  
 —United States  
**Newman, W. H., 1847-1918**  
 Sketch. por Ry Age 65:310 Ag 16 '18  
**Newport, Rhode Island**

#### Streets

- Street work. Munic J 45:150 Ag 24 '18  
**Newspapers**  
 Cash or three months' credit. Inland Ptr 62:  
 204-5 N '18  
 Country editor—yesterday and today. M. M.  
 Jackson. Inland Ptr 63:39-40 Ap '19  
 Farmer and his newspaper. W. P. Kirkwood.  
 Inland Ptr 60:789-90 Mr '18  
 First newspapers. Inland Ptr 61:720 S '18  
 Giving away newspaper space. W. H. Mayes.  
 Inland Ptr 60:623-4 F '18  
 Modern newspaper plant—the home of the De-  
 troit news. A. G. Brenton. Inland Ptr  
 60:525-8 Ja '18  
 Newspaper circulations. G. L. Caswell. Inland  
 Ptr 62:561 F '19  
 Newspaper English. F. H. Teall. Inland Ptr  
 60:632 F '18  
 Newspaper work. See monthly numbers of In-  
 land printer  
 Newspapers are likely customers for indus-  
 trial fuel gas. H. L. Wolfe. Inland Ptr  
 J 109:178-9+ Ag 24 '18  
 Our largest newspaper presses. Inland Ptr  
 120:451+ My 3 '19  
 Paper consumption in newspaper pressrooms.  
 F. Milne. Inland Ptr 62:314-16 D '18  
 Review of newspapers and advertisements.  
 J. L. Frazier. See monthly numbers of In-  
 land printer  
 Rural scouts. E. White. Inland Ptr 62:571-2  
 F '19  
 Variety, the spice of business. W. H. Mayes.  
 Inland Ptr 63:635-7 S '19  
 What do you like to read? E. White. Inland  
 Ptr 61:183-4 My '18  
 Without a vision, business perishes. W. H.  
 Mayes. Inland Ptr 62:515-17 F '19  
 See also European war—Trench news-  
 papers; Foreign language press; House or-  
 gans; Trade journals

#### Accounting

- Use care in bookkeeping. G. L. Caswell. In-  
 land Ptr 61:369-70 Je '18  
 What the cost system has done for one  
 newspaper. M. J. McGowan. Inland Ptr 63:  
 395-8 Jl '19  
**Newton, Sir Isaac, 1642-1727**  
 Newton and the colors of the spectrum. R. A.  
 Houstoun. diags Sci Am S 87:236-7 Ap 12  
 '19  
**Newton, Massachusetts**

#### Water supply

- Newton, Mass., water-works reservoir. E. H.  
 Rogers. Inland Ptr 61:349-56 S '18;  
 Same. Munic Eng 54:239-40 Je '18  
**Newts**  
 Let the water dog chase the mosquitoes.  
 A. C. Chandler. Inland Ptr 121:15 Jl 5 '19  
**Niagara Falls**  
 Canada's new Niagara development. A. C.  
 Carty. Inland Ptr 61:412-13+ N 23 '18  
 Flood lighting of Canadian falls at Niagara.  
 Inland Ptr 61:412-13+ N 23 '18  
 Inland Ptr 61:412-13+ N 23 '18  
 Mobilizing Niagara to aid civilization. C. P.  
 Steinmetz. Inland Ptr 61:399 F 23 '18  
 Niagara Falls a war-load center. maps Elec  
 W 73:996-1000 My 17 '19  
 Niagara power in war industries. Elec W  
 72:109-11 Jl 20 '18; Same (tables). Chem &  
 Met Eng 19:120 Ag 1 '18; Excerpt. Power  
 48:177-8 Jl 30 '18  
 Relation of the chemical industry of Niagara  
 Falls to the water works. J. A. Kienle. Inland  
 Ptr 61:412-13+ N 23 '18  
 Discussion. 514-17 S '19

- Structural details of plant extension at Ni-  
 agara Falls. Inland Ptr 61:412-13+ N 23 '18  
 Suggestion to develop Niagara falls' full effi-  
 ciency. Inland Ptr 61:412-13+ N 23 '18  
 Two million more horse power from the Ni-  
 agara river. R. G. Skerrett. Inland Ptr 61:412-13+  
 N 23 '18  
 Waste of power at Niagara. Inland Ptr 61:412-13+  
 N 23 '18  
 Water power—our electrochemical salvation.  
 C. A. Winder. Inland Ptr 61:412-13+ N 23 '18

#### Niagara Falls power company

- Features of mammoth waterwheel generator.  
 Inland Ptr 61:412-13+ N 23 '18  
 32,500-kva. waterwheel generator. R. B. Wil-  
 liamson. Inland Ptr 61:412-13+ N 23 '18

#### Niagara river

- Taking soundings above Niagara falls from  
 the shore. L. R. Brown. Inland Ptr 61:412-13+  
 N 23 '18

#### Nicaragua

- Improved railway conditions in Nicaragua. W.  
 H. Holmes. Inland Ptr 61:412-13+ N 23 '18

#### Nichols, William H., 1852-

- Leader in chemical industry. C. F. Chandler.  
 Inland Ptr 61:412-13+ N 23 '18

#### Nichols medal

- Medal awarded to Dr Treat B. Johnson. J Ind  
 & Eng Chem 10:305-12 Ap '18; Excerpt. Met  
 & Chem Eng 18:287-8 Mr 15 '18

#### Nickel

- Brief history of the nickel industry. F. J.  
 Dickie. Metal Ind n s 15:26 Ja '17  
 Cooking utensils of pure nickel. Sci Am 118:  
 435 My 11 '18  
 Deterioration of nickel spark-plug terminals  
 in service. H. S. Rawdon and A. I. Kry-  
 nitzky. Inland Ptr 61:412-13+ N 23 '18  
 Driver-Harris pure sheet nickel. Am Mach  
 48:559 Mr 28 '18  
 Electrochemical behavior of nickel. Sci Am  
 S 87:135 Mr 1 '19  
 Manufacture of nickel anodes. L. J. Krom. Inland  
 Ptr 61:412-13+ N 23 '18  
 Melting nickel for casting purposes. Foundry  
 46:220 My '18  
 Physical properties of nickel. D. H. Browne  
 and J. F. Thompson. Am Inst Min Bul 153:  
 sup2693-2720 S '19; Discussion. 155:3040-2;  
 156:3151-3 N-D '19  
 Properties of pure nickel. Am Arch 114:586-7  
 N 13 '18; Same. Metal Work 91:783 Je 20  
 '19  
 Pure sheet nickel. S. M. Tracy. Iron Age 101:  
 690 Mr 14 '18; Same. Metal Work 90:278 S 6  
 '18  
 Report of the Royal Ontario nickel commis-  
 sion; review. E. Howe. Econ Geol 13:227-32  
 My '18  
 Slagging of nickel during the poling of cop-  
 per to a set condition; abstract. W. Stahl.  
 Met & Chem Eng 18:313 Mr 15 '18  
 Story of nickel. W. F. Sutherland. Inland Ptr  
 61:412-13+ N 23 '18  
 See also Nickel steel

#### Nickel alloys

- Manufacture and electrical properties of  
 constantan. F. E. Bash. Inland Ptr 61:412-13+  
 N 23 '18  
 Bul 153:sup2409-30 S '19; Abstract. Chem &  
 Met Eng 21:554-5 O 29 '19  
 Metallography applied to nonferrous metals.  
 E. J. Davis. Inland Ptr 61:412-13+ N 23 '18  
 New alloy that does not oxidize or change its  
 form at high temperatures. Inland Ptr 61:412-13+  
 N 23 '18  
 New high speed alloy of nickel-zirconium.  
 Iron Age 101:662 Mr 7 '18  
**Nickel metallurgy**  
 Electrometallurgical treatment of nickel ores  
 in New Caledonia; abstract. M. Sabathier.  
 Chem & Met Eng 20:646 Je 15 '19  
 International nickel company's refining works  
 at Port Colborne, Ontario. W. L. Wether-  
 spoon. Inland Ptr 61:412-13+ N 23 '18

**Nickel metallurgy—Continued**

Treatment of low-grade nickel ores. C. W. Davis. J Ind & Eng Chem 11:644-8 JI '19

**Nickel ores****Ontario**

Genesis of the Sudbury nickel-copper ores as indicated by recent explorations. H. M. Roberts and R. D. Longyear. II diags maps Am Inst Min E Bul 134:555-84 F '18; Discussion. 136:848-58 Ap '18  
Magmatic ore deposits, Sudbury. A. M. Bateman. Econ Geol 12:391-426 Ag '17; Discussion. W. H. Goodchild. 13:137-43 Mr '18  
Quantitative measurements of minerals of the nickel-eruptive at Sudbury, Ontario. M. A. Dresser. II diags Econ Geol 12:563-80 O '17

**Nickel plating**

Barrel plating; some information relating to the rapid nickel-plating of stove castings. T. C. Eichstaedt. II Metal Ind 15:338-9 Ag '17  
Black finish on zinc. Metal Ind 17:120 Mr '19  
Black nickel solutions. Metal Ind 17:17 Ja '19  
Deposition of nickel upon cast iron from a hot electrolyte. R. F. Clark. Metal Ind 16:309 JI '18

Government specifications for copper and nickel plating. C. H. Proctor. Metal Ind 16:407 S '18

Improving the luster on nickel-plated stove castings. E. P. Later. Foundry 47:311 My 15 '19

Mechanical plating; nickel plating by the barrel process. D. W. Robinson. II Metal Ind 15:61-4 F '17

Methods of rapid nickel plating. Sci Am S 86:301 N 9 '18

Nickel-plating aluminum. Metal Ind n s 15:14 Ja '17

Nickel plating cast or sheet aluminum. Metal Ind 17:25 Ja '19

Nickel-plating shears. Metal Ind 16:549 D '18  
Preparation and use of rapid nickel baths. E. P. Later. Foundry 46:23-5 Ja '18

Rapid nickel adventures; a comparison of results obtained with specially prepared and home-made plating salts. T. Brown. Metal Ind n s 15:8-9 Ja '17

Re-nickeling of surgical instruments. J. Haas, Jr. Metal Ind 17:364-5 Ag '19

Single or double nickel plating salts, which? J. Haas, Jr. Metal Ind 15:389 S '17

Use of sodium sulpho-cyanide in black nickel solutions. C. H. Proctor. Metal Ind 16:26 Ja '18

What is the matter with my nickel solution? E. P. Later. Foundry 46:213-15 My '18

Nickel silver. See German silver

**Nickel steel**

Fatigue tests of nickel steel and chrome-nickel steel; abstracts. H. F. Moore and A. G. Gehrig. Eng & Contr 52:97-3 JI 23 '19; Eng N 83:82-3, 389 JI 10, Ag 21 '19

Flakes in alloy steel; divergent views of Howe, Clayton, Rawdon, Foley and Laney. II Chem & Met Eng 20:216-19 Mr 1 '19

Flakes in nickel steel gun forgings. R. A. Hayward. charts Chem & Met Eng 21:116 Ag 1 '19

Flaky and woody fractures in nickel-steel gun forgings. C. Y. Clayton, F. B. Foley and F. E. Laney. II Am Inst Min E Bul 146:203-37 F '19; Same abr. Iron Age 108:761-3 Mr 20 '19; Discussion. Am Inst Min Bul 149:792-804; 150:969-79 My-Je '19

Hardening and tempering of steel. C. A. Edwards. Engineer 125:161-2 F 22 '18

Microstructural features of flaky steel. H. S. Rawdon. II Am Inst Min E Bul 146:183-201 F '19; Same cond. Iron Age 108:759-61 Mr 20 '19

Nicu steel and its manufacture. G. M. Colvocoresses. Chem & Met Eng 20:88 Ja 15 '19

Standard specifications for structural nickel steel: English and Spanish. diags U S Bur For & Dom Com Ind Stand 34:1-21 '19

**Night work**

Economy of the night shift. S. Dean. Mach 25:1157 Ag '19

Give the night shift ample light. A. L. Powell. II Iron Tr R 63:260-3 Ag 1 '18

**Nimmons, George C.**

Summer home at Flossmoor, Illinois. II plans Arch Rec 45:290-302 Ap '19

**Nineteen hundred seventeen**

Retrospect of the year 1917. Sci Am 118:6-7 Ja 5 '18

**Nipa palm**

Nipa palm, new source of alcohol. J Ind & Eng Chem 10:313 Ap '18

Niter. See Saltpeter

**Niter cake**

Discussion on niter cake. J Ind & Eng Chem 10:572 JI '18

Nitre cake for pickling metal. G. P. Butler. Metal Ind 16:418 S '18

Pickling with nitre cake. Automotive Ind 39:1102-3 D 26 '18

Pickling with nitre cake. Iron Tr R 62:153 Ja 10 '18

Recrystallization of niter cake. B. Saxton. J Ind & Eng Chem 10:897-901 N '18

Removing oxide scale by pickling. E. E. Corbett. Iron Tr R 64:564-8 F 27 '19

Sodium sulphide and other products from nitre cake. H. F. Bassett. Chem & Met Eng 19:709 N 15 '18

Summary of the literature on the solubility of systems related to niter cake. H. W. Foote. J Ind & Eng Chem 10:896-7 N '18

Summary of the proposals for the utilization of niter cake. J. Johnston. J Ind & Eng Chem 10:468-71 Je '18

Treatment of cuprodesclizite for extraction and recovery of vanadium, lead and copper. J. E. Conley. Chem & Met Eng 20:465-9 My 1 '19

Utilization of nitre cake. J Ind & Eng Chem 10:228 Mr '18

Utilization of niter cake. E. Hart. J Ind & Eng Chem 10:238 Mr '18

**Nitraniline red**

Toners for para-nitraniline. H. Herlinger. Color Tr J 5:16-19 JI '19

Nitrate of soda. See Saltpeter, Chile

**Nitrate plants (federal)**

Electricity for government nitrate plants; two plants now in process of erection in Alabama. II map Elec W 71:1358-9 Je 29 '18

Features of Muscle Shoals station. E. R. Welles and W. A. Shoudy. diags plan Elec W 73:729-33 Ap 12 '19

Muscle Shoals (Ala.) district. map Met & Chem Eng 18:505-7 My 15 '18

Muscle Shoals nitrate plant. A. M. Fairlie. II Chem & Met Eng 20:3-17 Ja 1 '19

Power needs of United States nitrate plants. E. R. Welles and C. T. Mitchell. II Elec W 73:677-9 Ap 5 '19

United States ammonium nitrate plant, Perryville, Md. II Chem & Met Eng 20:320-6 Ap 1 '19

U.S. nitrate plant no. 1. E. R. Welles and C. T. Mitchell. II Power 49:962-6 Je 24 '19

United States nitrate plant, no. 2, at Muscle Shoals, Ala. C. H. Bromley. II chart diags plan Power 49:424-31, 482-8, 558-61 Mr 25- Ap 1, 15 '19

United States nitrate plant no. 2, Muscle Shoals, Alabama. Arch & Bldg 51:71-2, pl 137-40 S '19

United States nitrates plant no. 2, Muscle Shoals, Ala.—station heat balance. E. R. Welles and H. C. Lockwood. Power 49:802-5 My 27 '19

**Cost of construction**

Cost of the Muscle Shoals nitrate plant. B. Crowell. Elec W 73:281 F 8 '19

**Costs**

Notes and data on fixed nitrogen plants. Chem & Met Eng 21:66-7 JI 15 '19

**Nitrates**

Accurate determination of soil nitrates by phenol disulfonic acid method. H. A. Noyes. J Ind & Eng Chem 11:213-18 Mr '19

Determination of nitrates in caliche and its products. J. E. Clennell. Eng & Min J 106:660-3 O 12 '18

**Nitrates—Continued**

- Electricity releases chemistry's power. J. M. Matthews. *II Gen Elec R* 21:727-30 N '18  
 Electrolysis of neutral solutions of the nitrates of the rare earths. L. M. Dennis and A. B. Ray. *Am Chem Soc J* 40:174-81 Ja '18  
 Nitrate for farmers at cost. *Sci Am* 118:119 F 2 '18  
 Production of nitrogenous compounds synthetically in the United States and Germany. R. E. McConnell. *II J Ind & Eng Chem* 11:837-41 S '19

See also Saltpeter; Saltpeter, Chile

**Nitration**

- Continuous nitration of hydrocarbides. *II Sci Am* 120:31 Ja 11 '19  
 Graphic method for fortification of the spent acids used in making nitrating mixed acids. D. Lopez and A. A. Swanson. *charts Chem & Met Eng* 19:816-21 D 15 '18  
 Para-cymene; nitration, mononitrocymene, 1-CH<sub>3</sub>, 2-NO<sub>2</sub>, 4-CH<sub>3</sub>(CH<sub>3</sub>)<sub>2</sub>. C. E. Andrews. *J Ind & Eng Chem* 10:453-6 Je '18

**Nitric acid**

- Ammonium nitrate from coal gas. *Sci Am S* 86:231 O 12 '18  
 Cost of synthetic nitric acid in France. *Elec W* 73:232 F 1 '19  
 Development in nitric acid manufacture in the United States since 1914. E. J. Franke. *Chem & Met Eng* 19:399-6 S 25 '18; Same. *J Ind & Eng Chem* 10:830-2 O '18; Same. *Gen Elec R* 21:804-6 N '18  
 Effect of acetylene on oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *diag J Ind & Eng Chem* 10:457-9 Je '18  
 Effect of phosphine and hydrogen sulfide on the oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *J Ind & Eng Chem* 11:27-8 Ja '19  
 Electric power for nitrogen fixation. E. K. Scott. *diag Am Inst E E Pro* 37:779-92 J1 '18; Same cond. *Chem & Met Eng* 19:411-14 S 26 '18  
 Erection of huge sulphuric, nitric, mixed acid and denitrating plant under war pressure. H. E. Hollister and C. E. Hollister. *II plan Chem & Met Eng* 20:406-12 Ap 15 '19  
 Graphic method for fortification of the spent acids used in making nitrating mixed acids. D. Lopez and A. A. Swanson. *charts Chem & Met Eng* 19:816-21 D 15 '18  
 Manufacture of nitric acid. E. Hart. *diags Met & Chem Eng* 18:534-6 My 15 '18  
 Nitric acid and copper ore. G. C. Westby. *II diag Met & Chem Eng* 18:290-6 Mr 15 '18  
 Nitric acid as a by-product of internal combustion engines. A. W. H. Griepe. *diags Am Gas Eng J* 109:487-9+ N 23 '18  
 Nitric acid from nitrogen oxide. *Sci Am S* 86:245 O 19 '18  
 Production of nitric acid from nitrogen oxides. G. B. Taylor, J. H. Capps and A. S. Coolidge. *diag J Ind & Eng Chem* 10:270-5 Ap '18  
 Solvent action of dilute citric and nitric acids on rock phosphate. J. A. Stenius. *J Ind & Eng Chem* 11:224-7 Mr '19

**Nitridation**

- Behavior of the hydronitrogens and their derivatives in liquid ammonia: electrolytic nitridation of various anodes in a solution of ammonium trinitride. A. W. Browne, M. E. Holmes and J. S. King. *Am Chem Soc J* 41:1769-76 N '19

**Nitriles**

- Glacial acetic acid as a solvent for prussic acid; benzalhydrasinophenylacetonitrile and some derivatives. J. R. Bailey and R. H. Pritchett. *Am Chem Soc J* 40:1230-5 Ag '18  
 Preparation of aromatic nitriles by catalytic dehydration. A. Mailhe. *Met & Chem Eng* 18:545 My 15 '18  
 Preparation of fumaric nitrile; the action of hydroxylamine on fumaric nitrile. L. McMaster and F. B. Langreck. *Am Chem Soc J* 40:970-3 Je '18

**Nitrites**

- Determination of nitrous acid and nitrites. J. S. Laird and T. C. Simpson. *Am Chem Soc J* 41:524-31 Ap '19

**Nitro, West Virginia**

- Government to sell big city. *Munic J* 47:172 S 13 '19

**Nitro-arsonic acids**

- Nitro- and aminoaryl arsonic acids. W. A. Jacobs, M. Heidelberger and I. P. Rolf. *Am Chem Soc J* 40:1580-90 O '18

**Nitro-compounds**

- Nitro compounds from tar oils; patent. *Met & Chem Eng* 18:484-5 My 1 '18

**Nitrocyclopropanes**

- Studies in the cyclopropane series; nitro-cyclopropane derivatives. E. P. Kohler and others. *Am Chem Soc J* 41:1644-55, 1697-1704 O '19

- Studies in the cyclopropane series; nitro-cyclopropanes. E. P. Kohler and H. F. Engelbrecht. *Am Chem Soc J* 41:1379-84 S '19

**Nitrogen**

- Agricultural fertilizers; the raw materials, their source and characteristics. *Sci Am S* 87:174-6 Mr 15 '19

- Ammonia and nitric nitrogen determinations in soil extracts and physiological solutions. B. S. Davison. *diags J Ind & Eng Chem* 10:600-5 Ag '18

- Analytical method for determining efficiency of ammonia oxidation. D. P. Gaillard. *diag J Ind & Eng Chem* 11:745-7 Ag '19

- Cause of and remedy for certain inaccuracies in Hausmann's nitrogen distribution method. S. L. Jodidi and S. C. Moulton. *Am Chem Soc J* 41:1526-31 O '19

- Chemical reactions at low pressures; the clean-up of nitrogen by a heated molybdenum filament. I. Langmuir. *Am Chem Soc J* 41:167-94 F '19

- Commercial oxidation of ammonia to nitric acid. C. L. Parsons. *II diags J Ind & Eng Chem* 11:541-52 Je '19; Abstract. *Chem & Met Eng* 20:502-3 My 15 '19

- Comparison of percentages of nitrogen in tops and roots of head lettuce plants. H. A. Noyes. *J Ind & Eng Chem* 10:621-4 Ag '18

- Determination of loosely bound nitrogen as ammonia in eggs. N. Hendrickson and G. C. Swan. *diags J Ind & Eng Chem* 10:614-17 Ag '18

- Determination of total nitrogen including nitric nitrogen. B. S. Davison and J. T. Parsons. *diag J Ind & Eng Chem* 11:806-11 Ap '19

- Effect of hydrochloric acid on the nitrogen-hydrogen equilibrium. E. B. Ludlam. *Met & Chem Eng* 18:208 F 15 '18

- Effect of prolonged acid hydrolysis upon the nitrogen distribution of fibrin with especial reference to the ammonia fraction. R. A. Gortner and G. E. Holm. *Am Chem Soc J* 39:2736-45 D '17

- Electric power for nitrogen fixation. E. K. Scott. *diag Am Inst E E Pro* 37:779-92 J1 '18; Same cond. *Chem & Met Eng* 19:411-14 S 25 '18; Abstract. *Elec W* 71:1368 Je 29 '18

- Electrolytic and electrothermic processes and products. *Gen Elec R* 21:763-4 N '18

- Equilibrium studies upon the Bucher process. J. B. Ferguson and P. D. V. Manning. *diag J Ind & Eng Chem* 11:946-9 O '19

- Fixation of atmospheric nitrogen; abstract. *Elec W* 71:1095-6 My 25 '18

- Fixation of nitrogen. H. Leffmann. *J Fr Inst* 185:852-3 Je '18

- Forms of nitrogen in protein-free milk. C. Kennedy. *Am Chem Soc J* 41:388-93 Mr '19

- Genesis of petroleum as revealed by its nitrogen constituents. C. F. Mabery. *Am Chem Soc J* 41:1690-7 O '19

- Germany's great progress in nitrogen fixation from the air. *Sci Am* 118:204 Mr 2 '18

- How the nitrogen problem has been solved. H. J. M. Creighton. *II diags J Fr Inst* 187:377-408, 599-610, 705-35 Ap-Je '19

- Important developments in nitrogen fixation. *Met & Chem Eng* 18:1-2 Ja 1 '18

- Micro-organisms in plant chemistry and nitrogen fixation. E. Hendrick. *II Chem & Met Eng* 19:574-6 O 1 '18

- Mineral resources from a military standpoint. J. E. Pogue. *Sci Am* 118:147 F 16 '18

**Nitrogen—Continued**

- Muscle Shoals nitrate plant. A. M. Fairlie. *Il Chem & Met Eng* 20:3-17 Ja 1 '19
- Nitrification of the soil by electricity. R. D. McCreery. *J Fr Inst* 185:647-8 My '18; *Elec R* 72:932 Je 1 '18
- Nitrogen distribution in protalbinic and lysalbinic acids. C. Kennedy and R. A. Gortner. *Am Chem Soc J* 39:2734-6 D '17
- Nitrogen fixation furnaces. E. K. Scott. *diags Chem & Met Eng* 19:710-15, 757-61 N 15-D 1 '18; Same cond. *Gen Elec R* 21:793-804 N '18
- Nitrogen generator for laboratory use. W. L. Badger. *diag J Ind & Eng Chem* 11:1052-3 N '19
- Nitrogen problem, communicated by the Ministry of munitions. *Engineer* 124:472 N 30 '17
- Nitrogen problem in relation to the war. A. A. Noyes. *Sci Am S* 86:98-9 Ag 17 '18
- Nitrogenous auxoamylases. E. W. Rockwood. *Am Chem Soc J* 39:2745-52 D '17
- Nitrogen's part in nature. F. Rowlinson. *Sci Am S* 85:115 F 23 '18
- Oxidation of ammonia. W. S. Landis. *diags Chem & Met Eng* 20:470-7 My 1 '19
- Potash, nitrogen and grease from sewage; Miles process; abstract. X. H. Goodenough and H. W. Clark. *Met & Chem Eng* 18:314 Mr 15 '18
- Present status of nitrogen fixation. A. H. White. *J Ind & Eng Chem* 11:231-7 Mr '19; *Excerpts. Sci Am S* 87:330-1 My 24 '19
- Production of nitric acid from nitrogen oxides. G. B. Taylor, J. H. Capps and A. S. Coolidge. *diag J Ind & Eng Chem* 10:270-5 Ap '18
- Recent chemical and metallurgical patents. *Chem & Met Eng* 20:431 Ap 15 '19
- Soft corn—its chemical composition and nitrogen distribution. G. Spitzer, R. H. Carr and W. F. Epple. *diags Am Chem Soc J* 41:1212-21 Ag '19
- Technical utilization of nitrogen oxides formed from the air by means of the arc; abstract. H. Andriessens. *Elec W* 74:368 Ag 16 '19
- Uniform nitrogen determination in cottonseed meal. J. S. McHargue. *J Ind & Eng Chem* 10:533-5 Jl '18
- Use of sodium sulfate in the Kjeldahl-Gunning method. C. T. Dowell and W. G. Friedeman. *J Ind & Eng Chem* 10:599-600 Ag '18
- War and the nitrogen industry. W. S. Landis. *Chem & Met Eng* 19:828-30 D 15 '18
- War minerals nitrogen fixation and sodium cyanide. V. H. Manning. *U S Bur Mines Bul* 178-B:54-61 '19
- Work of the British nitrogen products committee; plans under way for cyanamide, ammonia, oxidation, and experimental synthetic ammonia plants. *Met & Chem Eng* 18:77-81 Ja 15 '18
- See also Alkaloids; Nitrates; Nitrification
- Bibliography**
- Bibliography of literature on and relating to nitrogen fixation, and the oxidation of ammonia. *J Fr Inst* 187:716-35 Je '19
- Cost**
- Notes and data on fixed nitrogen plants. *Chem & Met Eng* 21:66-7 Jl 15 '19
- Nitrogen compounds**
- Space representation of organic nitrogen compounds. P. Neogi. *diags Am Chem Soc J* 41:622-39 Ap '19
- Nitrogen lamps.** See Electric lamps, Tungsten
- Nitroglycerin**
- Manufacture of glycols. H. Hibbert. *Il Chem & Met Eng* 19:571-3 O 1 '18
- Nitro-glycerine and the oil industry. *Il Sci Am* 121:163-4 Ag 16 '19
- Shooting water wells with nitroglycerine. T. M. Knight. *Il Eng & Contr* 51:172 F 12 '19
- Nitromalonic aldehyde**
- Condensation of amino compounds with nitromalonic aldehyde. W. J. Hale and E. M. Honan. *Am Chem Soc J* 41:770-6 My '19

Condensation of  $\beta$ -amino-propiofenone with nitromalonic aldehyde. W. J. Hale and E. C. Britton. *Am Chem Soc J* 41:1020-7 Je '19

**Nitroso-triphenylamine**

Nitroso-triphenylamine and colors of the second order. J. Piccard and M. Kharasch. *Am Chem Soc J* 40:1074-9 Jl '18

**Nitrosyl chloride**

New reaction of paraffin hydrocarbons. E. V. Lynn. *Am Chem Soc J* 41:368-70 Mr '19

**Nitrotoluene**

Binary systems of a nitrotoluene and symmetrical trinitrometoxylene. J. M. Bell and J. P. Sawyer. *diags J Ind & Eng Chem* 11:1025-8 N '19

Binary systems of the components *p*-nitrotoluene, 1,2,4-dinitrotoluene, 1,2,4,6-trinitrotoluene. J. M. Bell and C. H. Herty, jr. *diags J Ind & Eng Chem* 11:1124-8 D '19

Bromination of *p*-nitrotoluene. J. F. Brewster. *Am Chem Soc J* 40:406-7 F '18

Refractive indices of mixtures of *p*-nitrotoluene, 1,2,4-dinitrotoluene and 1,2,4,6-trinitrotoluene. J. M. Bell and E. O. Cummings. *diag J Ind & Eng Chem* 11:1028-9 N '19

Study of side chain oxidations with potassium permanganate. L. A. Bigelow. *Am Chem Soc J* 41:1559-81 O '19

Three-component system: *p*-nitrotoluene, 1,2,4-dinitrotoluene, 1,2,4,6-trinitrotoluene. J. M. Bell and C. H. Herty, jr. *diags J Ind & Eng Chem* 11:1128-30 D '19

**Nitrotrichloromethane.** See Chloropicrin

**Nitrous acid**

Determination of nitrous acid and nitrites. J. S. Laird and T. C. Simpson. *Am Chem Soc J* 41:524-31 Ap '19

**Nocturnals**

Nocturnals of the renaissance and their decorations. J. T. Perry. *Il Sci Am S* 86:412-13 D 28 '18

**Noise**

Protection against noise and vibration. *Sci Am S* 85:57 Ja 26 '18

See also Locomotive whistle; Sound-proof construction

**Non-conductors.** See Dielectrics; Insulation

**Non-partisan league.** See National non-partisan league

**Norcross flat-slab patent.** See Concrete, Reinforced—Patents

**Norfolk & Western railway**

Financial statistics. *map Ry Age* 66:928-30 Ap 11 '19

Norfolk & Western electrification; fifty per cent increase in the mountain grade capacity has saved millions of tons of coal. *Il map Elec Ry J* 52:322-5 Ag 24 '18; *Abstract. Eng N* 81:499 S 12 '18

Report for 1917. *map Ry Age* 64:1059-60 Ap 26 '18

**North Carolina.** See Roads—North Carolina

**North Carolina cotton manufacturers' association.** See Cotton manufacturers' association of North Carolina

**North Carolina good roads association**

Annual convention, Wrightsville, Aug. 7-9. *Munic J* 45:140 Ag 17 '18

20th annual convention, Harbor Island, Wrightsville Beach, Aug. 13-15. *Good Roads n s* 18:126 S 3 '19

**North-East coast institution of engineers and shipbuilders**

Presidential address. A. E. Doxford. *Engineer* 128:471 N 7 '19

Victory meeting. *Engineer* 128:39, 53-5 Jl 11-18 '19

**North Island aviation school**

San Diego aviator factory. E. C. Crossman. *Sci Am* 118:431-4 My 11 '18

**North sea**

British close the North sea. *map Sci Am* 118:501 Je 1 '18

**North sea—Continued**

Closing the North sea. Sci Am 118:496 Je 1 '18  
 Latest North sea mine field. map Sci Am 118:523 Je 8 '18

**North star mines company**

1918 report. Eng & Min J 108:61 Jl 12 '19

**Northern California power company**

California-Oregon power co. and Northern California power co. W: M. Shepard. Il Am Inst E E Pro 37:1327-30 D '18

**Northern hemlock & hardwood manufacturers' association**

Annual meeting, Milwaukee, Wis., Jan. 31-Feb. 1. Am Lumberman 2229:69; 2230:48-9 F 2-9 '18  
 Mid-summer meeting. Am Lumberman 2307:52-3 Ag 2 '19

**Northern logging congress**

Four associations unite. Am Lumberman 2238:52-3 Ap 6 '18  
 Proceedings of the annual congress, Milwaukee, Wis., Sept. 20. Am Lumberman 2263:52-3 S 28 '18

**Northern lumbermen's salesmanship congress**

1st annual meeting, Antigo, Wis., Sept. 26-28. Am Lumberman 2316:47-51 O 4 '19

**Northern Pacific railway**

Flathead valley branch, Northern Pacific Ry. Il Ry R 65:443-4 S 27 '19  
 Statistics, 1916-1917. map Ry Age 65:421-2 S 6 '18

**Northern pine manufacturers' association**

13th annual meeting, Minneapolis, Minn., Jan. 22. Am Lumberman 2228:48 Ja 26 '18

**Northern white cedar association**

22d annual meeting, Minneapolis, Minn., Jan. 22-23. Am Lumberman 2229:70-1 F 2 '18  
 23d annual meeting, Minneapolis, Minn., Jan. 21-22. Elec R 74:186 F 1 '19; Elec Ry J 53:232 F 1 '19

**Northern wholesale hardwood lumber association**

1st annual meeting, Milwaukee, Wis., Feb. 19. Am Lumberman 2232:56 F 23 '18

**Northwest electric light and power association**

11th annual convention, Portland, Ore., Sept. 13. Elec R 73:456-7 S 21 '18  
 12th annual convention, Seattle, Sept. 24-27. J Elec 43:344-6 O 15 '19  
 12th annual convention, Seattle, Sept. 24-27. W. A. Scott. Elec R 75:615-19 O 11 '19

**Northwest mining association**

9th annual convention, Spokane, Wash. Eng & Min J 105:460 Mr 9 '18

**Northwestern commission on land settlement for returning soldiers**

Commission on land settlement for soldiers. Munic J 45:311 O 19 '18

**Northwestern lumbermen's association**

28th annual convention, Minneapolis, Minn., Jan. 15-17. Am Lumberman 2227:45-7 Ja 19 '18

**Norton grinding company**

Employment methods as followed by the Norton companies. E. H. Fish. Am Soc M E J 40:pt 1, 558-9 Jl '18

Training men and boys in a shop school. A. N. Hook. Am Mach 49:567-9 S 26 '18

Training men instead of stealing them. F. H. Colvin. Il Am Mach 48:1035-9 Je 20 '18

Vestibule schools, with special reference to the Norton grinding company's training department; abstracts. J. C. Spence. Iron Age 101:1541 Je 13 '18; Am Soc M E J 40:pt 1, 559-60 Jl '18; Am Ind 18:24-5 My '18; Automotive Ind 39:5-7 Jl 4 '18; Mach 24:1161 Ag '18

**Norway****Commerce**

American cash registers for Norway. Sci Am 121:400 O 18 '19

**Industries and resources**

Industrial development. Engineer 126:530 D 20 '18

Notation. See Symbols

Notation, Octaval. See Mathematical notation

**Notches**

Static, dynamic, and notch toughness. S: L. Hoyt. Il Am Inst Min E Bul 146:339-51 F '19

**Note books**

My traveling companion—my note book. C. L. Pool. Factory 22:254-5 F '19

Notes. See Bills and notes; Promissory notes

**Nova Scotia****Railroads**

See Railroads—Nova Scotia

**Nozzles**

Cooling of water for power-plant purposes; abstracts. C. C. Thomas. Il diags Am Soc M E J 39:977-80 D '17; Elec R 71:1111-13 D 29 '17; Elec Ry J 51:48-9 Ja 5 '18; Discussion. Am Soc M E J 40:137-41 F '18  
 Divergence of steam nozzles. G. Stoney. Am Soc M E J 40:202-3 F '18  
 Fire streams from small hose and nozzles. V. R. Fleming. diags Il U Eng Exp Sta Bul 105:45-60 '18  
 Jig for drilling a nozzle. T: I. Krauska. diags Mach 25:346-7 D '18  
 Nozzle characteristics; abstract. G. Flügel. Am Soc M E J 40:111 Ja '18  
 Nozzle for cleaning surface condenser tubes. Elec W 71:204 Ja 26 '18  
 Testing discharge of sprinkling filter nozzles. W. E. Weiler. diags Munic Eng 57:203-4 N '19  
 Yarrow adjustable spray head. Il diags Power 47:910-11 Je 25 '18

**Nucleic acid**

Nucleic acid and its analytical examination. A. C. Chapman. Sci Am S 87:355 Je 7 '19

Nuisances. See Sanitation; Smoke prevention; Whistles

**Nutcrackers, Mechanical**

What machinery is doing for the walnut industry. H. C. Kegley. Il Sci Am 120:51+ Ja 18 '19

**Nutrition**

Balanced rations from restricted sources. E. B. Hart and others. Sci Am S 87:302 Mr 29 '19  
 Food chemistry in the service of human nutrition. H. C. Sherman. bibliog J Ind & Eng Chem 10:343-90 My '18  
 Scientific basis of rationing. Sci Am S 86:35 Jl 20 '18  
 Specific nutritive values. Sci Am S 88:122-3+ Ag 23 '19  
 See also Proteins; Vitamines

**Nuts**

Edible litchi nut (litchi chinensis). B. E. Read. Am Chem Soc J 40:817-22 My '18  
 New oil nuts, Tucan kernels. J Ind & Eng Chem 10:313 Ap '18  
 Nuts from the forests. Sci Am S 85:336 My 25 '18  
 Plant nut and timber trees. F. W. Buffum. Am Lumberman 2271:60 N 23 '18  
 Nuts (machinery). See Bolts and nuts

**Oak**

Developing the individuality of oak. H. R. Churchill. Am Arch 113:324-5, 829-30 Je 19 '18

Mill scale study of red and white oak. D: G. White. Il Am Lumberman 2265:47-50; 2266:48-9 O 12-19 '18

Shrinkage of red oak. Am Lumberman 2231:31 F 16 '18

Story of the Bartram oak. A. Hollick. Il Sci Am 121:422+ O 25 '19

**Oak Park, Illinois****Streets**

Procedure in office of construction engineer, employing small staff, supervising expenditure of \$2,000,000 for new improvements. H. W. Skidmore. Munic Eng 54:170-3 Ap '18



**Oakland, California****Streets**

Oil construction for the streets. C. W. Gelger. *Il Munic J* 46:380-1 My 31 '19

**Oberlin college, Ohio**

Dudley Peter Allen memorial art building, Oberlin. I. T. Frary. *Il diag plans Arch Rec* 44:98-111 Ag '18

**Obsolescence. See Valuation****Occupational diseases. See Diseases, Industrial****Occupational therapy**

Agricultural labor to cure cripples. *Sci Am* 120:342 Ap 5 '19

Human reconstruction. *Il Sci Am* 120:172-3 F 22 '19

**Occupations****Bibliography**

Occupations; short lists of books in the public library of the city of Boston. (Brief Reading Lists no 9) 14p '19 Public Lib., Boston

**Classification**

Human parasitism or service. H. Emerson. *chart Ind Management* 57:257-62 Ap '19

**Occupations, Dangerous**

Dangers in the manufacture and industrial uses of wood alcohol. *Il N Y Dept Labor Sp Bul* 86:1-17 '17

Dope poisoning. *Automotive Ind* 38:493-5, 511 Mr 7 '18

Hygiene for lead workers. H. C. Ernst. *Eng & Min J* 105:384 F 23 '18

Mortality from respiratory diseases in dusty trades. F. L. Hoffman. *U S Bur Labor Statistics Bul* 231:1-458 '18

Safeguards against poisoning by TNT. *Eng & Min J* 105:432 Mr 2 '18

*See also* Accidents, Industrial; Diseases, Industrial; Employers' liability; Lead poisoning; Lumbering; Mine accidents; Railroads—Accidents; Stone cutting; Workmen's compensation

**Occupations for the disabled. See Cripples; Disabled, Occupations for; Soldiers, Disabled****Ocean**

Changes of ocean level. W. M. Davis. *Sci Am S* 87:294 My 10 '19

Deep of the Pacific. V. McCaughey. *Il map Sci Am S* 85:338-90 Je 22 '18

Oceanographic work of the Royal Italian committee. *Sci Am S* 86:118-19 Ag 24 '18

*See also* Hydrography; Marine fauna; Sea walls; Sea water; Tide power

**Ocean Beach, New York****Sewerage**

Some unusual sewerage problems and how they were solved at Ocean Beach. A. J. Provost, jr. *Il diag Munic Eng* 56:203-5 Je '19

**Ocean temperature**

Changes in oceanic and atmospheric temperatures and their relation to changes in the sun's activity. F. Nansen. *Sci Am S* 86:42 Jl 20 '18

Ocean temperatures and seasonal weather in southern California. W. E. Ritter and G. F. McEwen. *Sci Am S* 87:224 Ap 5 '19

Ocean temperatures in long-range forecasting. C. F. Brooks. *Sci Am S* 87:166-7 Mr 15 '19

**Ocean terminals. See Terminals****Octaval notation. See Mathematical notation****Octavia Hill association**

Noteworthy housing development in Philadelphia. F. C. Feld. *Il Am Inst Arch J* 6:77-8 F '18

**Odometer**

Investigation of stench and odors for industrial purposes. V. C. Allison and S. H. Katz. *diag J Ind & Eng Chem* 11:336-8 Ap '19

**Odors**

Causes of offensive odors from sewers and remedial measures. E. B. Savage. *Eng & Contr* 52:511-12 O 29 '19

Distribution and characters of some of the odorous principles of plants. F. B. Power. *J Ind & Eng Chem* 11:344-52 Ap '19

Investigation of stench and odors for industrial purposes. V. C. Allison and S. H. Katz. *diag J Ind & Eng Chem* 11:336-8 Ap '19

Measurement of odors. S. H. Katz and V. C. Allison. *Chem & Met Eng* 19:747 D 1 '18

Measuring odors. V. H. Gootschalk. *Chem & Met Eng* 19:700 N 15 '18

*See also* Perfumery

**Office appliances**

Arrangement of equipment in engineer's office. H. P. Farrow. *Il Eng N* 83:502-3 S 11 '19

Back up efficient coal-mining apparatus with efficient office equipment. G. W. Laine, jr. *Coal Age* 15:816-18 My 1 '19

Mechanical devices for disbursement accounting; report of railway accounting officers' committee. A. P. Disbrow. *Ry Age* 64:1433-6 Je 14 '18; *Same. Ry R* 62:924-9 Je 22 '18

Notes on office equipment and methods. C. M. Ripley. *Il plans Gen Elec R* 21:710-22 O '18

Waterworks office appliances. *Munic J* 46:422 Je 7 '19

*See also* Addressing machines

**Office boys**

Training the office boy. R. M. Robinson. *Am Arch* 113:856-8 Je 26 '18

**Office buildings**

Altering old office building requires heavy underpinning. *Il diag plans Eng N* 81:610-13 O 3 '18

Building for the New Jersey zinc company, 160 Front street, New York city. *Arch & Bldg* 51:14-15, pl 29-31 F '19

Business building of attractive architecture. *Il diag plans Bldg Age* 40:248-51 My '18

Concrete offices with forty-two acres of floor to be built in Washington. *Eng N* 80:479-80 Mr 7 '18

Cunard building in New York. *Il plans Am Arch* 116:336-8+ S 10 '19

Elliman building, New York city. *Il Arch & Bldg* 51:65, pl 127 Ag '19

Equitable trust building, New York; views and plans. *Am Arch* 114:pl 147-50 N 13 '18

Furness house, Baltimore. E. H. Glidden. *Am Arch* 115:272, pl 56-9 F 19 '19

Furness house, Pearl and Whitehall streets, New York city; views. *Arch & Bldg* 50:pl 113-17 Je '18

Group of administrative offices to hold 10,000 government employees. *diag plan Eng N* 80:350-3 F 21 '18

Home office building of S. F. Bowser & co., Ft. Wayne, Ind. *Il Ry R* 64:157-8 Ja 25 '19

How office building managers have met war conditions. E. S. Jewell. *Am Arch* 115:19-20 Ja 1 '19

Hurley-Wright building, Washington, D.C.; views and plans. *Am Arch* 116:321-4, pl 90-4 S 3 '19

Investment problem in office buildings. E. A. Renwick. *Am Arch* 114:69-73 Jl 17 '18; *Excerpt. Eng & Contr* 50:217 Ag 28 '18

Main office building, Southwestern Bell telephone co., Kansas City, Mo.; views and plans. *Am Arch* 116:pl 123-7 O 1 '19

National association building. *plan Am Arch* 116:334-5, pl 95-102 S 10 '19

New office building of Perkins, Fellows & Hamilton, Chicago. *Il plans Arch Rec* 42:558-67 D '17

Notes on office building design. E. A. Renwick. *Eng & Contr* 50:220 Ag 28 '18

Office building for Couden & co., Tulsa, Okla.; view and plans. *Am Arch* 115:pl 212-15 Je 25 '19

Office building for Walter Baker co., ltd., Dorchester, Mass.; views and plans. *Am Arch* 116:pl 85-9 S 3 '19

Office building for Woman's benefit association of the Maccabees, Port Huron, Mich. *Arch Forum* 30:31, pl 4-8 Ja '19

Office building of Gaston, Williams & Wigmore, inc., on lower Broadway, New York city. *Il plans Arch Rec* 45:356-65 Ap '19

**Office buildings—Continued**

- Office building on Cadillac square, Detroit, Mich.; views and plans. Am Arch 115:pl 123-32 Ap 18 '19
- Office building outlook. W: M. Ellis. Am Arch 115:17-19 Ja 1 '19
- Office building. Whiting foundry equipment company, Harvey, Ill.; views and plans. Arch Forum 31:pl 14 J1 '19
- Offices of Eastman, Gardner & co., Laurel, Miss.; views and plan. Am Arch 113:pl 154-8 My 1 '18
- Operating expense of office buildings. Am Arch 114:212-14 Ag 14 '18
- Phoenix insurance co's building, Hartford, Conn.; views and plan. Arch & Bldg 49:pl 160-2, detail sheets 16-17 N '17
- Placing an old building on a new financial basis. H. C. Severance. Il diags plans Am Arch 116:221-6 Ag 13 '19
- Railway station of Illinois Central railroad is combined with tall office building. diags plan Eng N 80:181-2 Ja 24 '18
- Shoring and replacing columns under a 15-story office building. Il diags plans Am Arch 114:121-5 J1 24 '18
- Tower of the Travelers' insurance co., Hartford, Conn. Il Am Arch 114:front, 256+, pl 69-73 Ag 28 '18
- Wurlitzer building, New York city. Arch & Bldg 51:71, pl 135-6 S '19

See also Office lighting; Printing offices

**Electric equipment**

- Electricity in a large office building. Il J Elec 42:150-1 F 15 '19

**Heating and ventilation**

- Air supply for a large general office building; Swift & co., Chicago, S: R. Lewis. Il diags plans Heat & Ven 15:21-36 D '18
- Providing heat and power for the modern office building. O. B. Goldman. J Elec 42: 583-5 Je 15 '19
- Remodeling a heating system. H. R. Innis. diag Heat & Ven 16:30-2 O '19

**Office buildings, Temporary**

- Architect in war work illustrated by views and plans of groups of temporary office buildings. W. B. Wood. Il diags plans map Am Arch 114:630-44, pl 161-8 N 27 '18

**Office furniture**

- Argentina likes our office furniture. Sci Am 120:124 F 8 '19

**Office lighting**

- Fundamentals of illumination design; appendix of illustrative examples. W. Harrison. Il plans Gen Elec R 21:535-8 Ag '18
- Lighting of offices and drafting rooms. W. Harrison. Il Elec R 72:825-8, 864-7 My 18-25 '18

- Modern office lighting; lighting system for new office building of Edison lamp works. A. L. Powell. Il Elec W 73:316-20 F 15 '19
- Modern practice in office lighting. A. Wise. Il diags Illum Engr 12:27-39; Discussion. 39-51 F '19

- Office lighting. Illum Engr 12:21-2 F '19

**Office management**

- Calculating machines in railroad offices. C. E. Parks. Ry R 64:759-61 My 24 '19
- Cutting costs in the factory office. Factory 21: 728+; 22:292+, 1226+; 23:200+, 686+, 1088+, 1462+ O '18, F, Je-J1, S, N-D '19
- Labor saving devices in railroad offices. Il Ry R 64:215-18, 245-8, 347-50 F 8-15, Mr 8 '19
- More work from your clerks; route boards. Il Factory 19:248+ Ag '17

- Notes on office equipment and methods. C. M. Ripley. Il plans Gen Elec R 21:710-22 O '18

See also Architects' offices; Printing offices—Management

**Office workers**

- Simple tests for office applicants. G. W. Greenwood. Ind Management 57:377-8 My '19

**Offices****Lighting**

See Office lighting

**Ohio**

- Manufacturers of northern Ohio make industrial survey. map Eng N 80:1127-8 Je 13 '18

See also Mines and mineral resources—Ohio

**Ohio automobile trade association**

- War savings meeting of the O. A. T. A. Horseless Age 43:22 F 15 '18

**Ohio electric light association**

- 24th annual convention, Cedar Point. July 10-12. Elec R 73:95-7 J1 20 '18; Elec W 72:126-7 J1 20 '18; Munic J 45:138+ Ag 17 '18
- 25th annual meeting, Cedar Point. Elec W 74:148-9 J1 19 '19

**Ohio technical societies, Association of. See Association of Ohio technical societies****Oil. See Oils and fats; Petroleum****Oil analysis**

- Determination of essential oils in non-alcoholic flavoring extracts. F. M. Boyles. J Ind & Eng Chem 10:537-9 J1 '18

- Determination of the hexabromide and iodine numbers of salmon oil as a means of identifying the species of canned salmon. H. S. Bailey and J. M. Johnson. J Ind & Eng Chem 10:999-1001 D '18

- Report of the committee on the analysis of commercial fats and oils. W. D. Richardson. J Ind & Eng Chem 11:69 Ja '19

- Solubility of paraffins, aromatics, naphthenes and olefins in liquid sulphur dioxide. R. J. Moore, J. C. Morrell and G. Egloff. diag Met & Chem Eng 18:396-403 Ap 15 '18

- Standard methods for the sampling and analysis of commercial fats and oils. diags J Ind & Eng Chem 11:1161-8 D '19

- Tentative standard methods for the sampling and analysis of commercial fats and oils. diags J Ind & Eng Chem 10:315-20 Ap '18

**Oil as fuel**

- Advantages offered by the oil-fired cupola. W. S. Dickson. diag plan chart Foundry 46: 331-2 Ag '18

- Burning fuel oil. Power 48:97, 394-5 J1 16, S 10 '18

- Burning oil in cupolas. J: H. Hall. Iron Age 102:1142-3 N 7 '18; Same. Foundry 46:558 D '18; Same. Iron Tr R 64:326-7 Ja 30 '19

- Coal or oil fuel? A. Walton. Il diag Textile World 56:2007+ O 4 '19

- Coal producers fear competition of fuel oil. C. E. Backus. Elec W 74:88 J1 12 '19

- Color of flame for efficient oil burning. T. Haight; J. R. Thomas. Power 48:961 D 31 '18

- Comparison of oil and coal as fuel. Power 49: 126 Ja 28 '19

- Connecting an oil line to a fuel-oil tank. R. Lewis. diags Power 49:541 Ap 8 '19

- Conservation of fuel oil. Ry R 63:261 Ag 17 '18

- Crude oil and kerosene burners. Heat & Ven 16:62-3 N '19

- Distillate as automobile fuel. L. R. Smith. Horseless Age 43:46 F 15 '18

- Economical method of burning fuel oil. Il Int Marine Eng 23:348-51 Je '18

- Economy in industrial fuel oil furnaces. M. Sklovsky. Il diags Am Mach 51:495-500 S 11 '19

- Economy of Arizona power plants using oil fuel. C. R. Weymouth. Mech Eng 41:523-6 Je '19; Same. J Elec 43:124-8 Ag 1 '19; Same cond. Power 50:30-2 J1 1 '19; Abstract. Elec W 74:76-7 J1 12 '19; Discussion. Mech Eng 41:661-2 Ag '19

- Efficiency in the use of oil fuel; a handbook for boiler-plant and locomotive engineers. J. M. Wadsworth. diags pls U S Bur Mines 82p '18

- Emergency substitutes for coal. J. F. Springer. diag Am Ind 18:22-4 Ja '18

- Emergency war foundry; how special conditions in the war area were met with oil-fired furnaces. A. E. Plant. Iron Age 103:1134 My 1 '19

- Facts on fuel oil competition. Gas Age 44:180-1 Ag 15 '19

- Fuel administration's fuel-oil rules. H. A. Garfield. Power 47:528-9 Ap 9 '18

- Fuel oil and its applications. M. Meredith. Coal Age 15:571-2 Mr 27 '19

**Oil as fuel—Continued**

- Fuel oil burners. Metal Work 89:424 Mr 29 '18  
 Fuel-oil conservation meeting at Chicago. Power 48:684-5 N 5 '18  
 Fuel-oil distribution system. diag Eng & Min J 107:997 Je 7 '19  
 Fuel oil situation. M. L. Requa. Ry Mech Eng 92:355 Je '18  
 Fuel-oil situation; abstracts. A. C. Bedford. Am Soc M E J 40:pt 2, 606-7 Jl '18; Power 48:177 Jl 30 '18  
 Fuel oil: what it is and where it comes from. R. T. Strohm. Il Power 50:56-9 Jl 8 '19  
 Fuel supplies for the new American oil burning ships. Eng & Min J 108:695 O 25 '19  
 Future requirements of oil. D. M. Folsom. Mech Eng 41:266 Mr '19  
 Hydroelectric energy as a conservator of oil. H. F. Jackson and F. E. Hoar. Gen Elec R 21:68-70 Ja '18  
 Influence of load on pressures of oil and atomizing steam in oil burners. C. R. Weymouth. chart J Elec 43:218-19 S 1 '19  
 Kilowatt hours per barrel of oil; what does it mean? S. J. Lisberger. J Elec 42:363-5 Ap 15 '19  
 Liners converted into oil burners. V. G. Iden. Il diag Marine R 49:231-3 My '19  
 Maximum efficiency in burning fuel oil. F. W. Small. Il Elec W 70:1197 D 22 '17  
 Methods employed to aid fuel conservation. Ry R 62:718-20 My 18 '18  
 Oil and coal as rivals. J. T. Smith. Il Sci Am S 88:116, 119 Ag 23 '19  
 Oil as an auxiliary fuel. M. Meredith. Ry R 64:828 Je 7 '19  
 Oil fuel in merchant ships. Engineer 127:107-8 Ja 31 '19  
 Oil fuel in New England power plants; abstracts. H. W. Ballou. diag map Am Soc M E J 40:450-2 Je '18; Power 47:886-7 Je 18 '18  
 Oil fuel v. coal. Engineer 127:183-4 F 21 '19  
 Oil gains importance as ship fuel. V. G. Iden. Il Marine R 49:321-4 Jl '19  
 Preventing waste of fuel oil. R. T. Strohm. Power 48:636 O 29 '18  
 Problems in the utilization of fuels. R. F. Bacon and W. A. Hamor. Sci Am S 88:222-3, 254-6 O 11, 25 '19  
 Results obtained by use of fuel-oil regulator. Il Elec W 71:204 Ja 26 '18  
 Rules for conserving fuel oil. Elec R 73:627 O 19 '18  
 Stoking through a pipe. J. F. Springer. Il Factory 23:1059-61 N '19  
 Tamarack mills power plant. C. H. Bromley. Il diag Power 47:426-30 Mr 26 '18  
 To what extent is fuel oil likely to be used as a substitute for coal; symposium. Am Soc M E J 40:pt 2, 613-19 Jl '18; Same cond. Power 48:26-30 Jl 2 '18; Excerpt. Iron Tr R 63:665-7 S 19 '18  
 Use of fuel oil house-heating boilers. Il Heat & Ven 16:47-8 S '19  
 Waterworks management; use of oil fuel. Il diag Munic J 45:345-6 N 2 '18  
 What substitution of oil for coal can do. Il Elec W 71:711-14 Ap 6 '18  
 When coal oil Johnny goes to sea. E. N. Hurley. Power 49:880-1 Mr 11 '19  
*See also* Gas and oil engines—Fuel; Gasoline; Kerosene; Oil burners
- Oil burners**  
 Anderson fuel-oil burner. diag Power 47:614 Ap 30 '18  
 Burning oil or tar in combination with coal. diag Power 47:261-2 F 19 '18  
 Coleman oil burner for foundry use. Il Foundry 46:91 F '18; Met & Chem Eng 18:156 F 1 '18  
 Efficiency in the use of oil fuel. J. M. Wadsworth. Il diag U S Bur Mines p 45-8 '18  
 Influence of load on pressures of oil and atomizing steam in oil burners. C. R. Weymouth. chart J Elec 43:218-19 S 1 '19  
 Johnson crude oil burner. Il Power 47:578 Ap 23 '18  
 Lindsay low-pressure oil burner. diag Power 47:804 Je 4 '18  
 Lockett flat-flame oil burner. diag Power 50:297 Ag 19 '19

- Modern equipment to burn fuel oil. Il diag Marine R 49:492-3 O '19  
 Oil firing for domestic purposes. Il Engineer 126:445 N 22 '18  
 Portable ladle heaters. Il Foundry 46:548 N '18  
 Ray fuel-oil burner. Il Power 48:167 Jl 30 '18; Elec W 72:235 Ag 3 '18; Elec R 73:268-9 Ag 17 '18  
 Regulating fuel-oil burners. F. Drynan. Power 46:599 O 30 '17; Discussion. 46:807; 47:229-30 D 11 '17, F 12 '18

**Oil cans**

- Oil can that is different. Il Sci Am 119:340 O 26 '18  
 Syphon oiler. Il Power 48:837 D 10 '18  
 Oil circulating system for indirect heating. Il Chem & Met Eng 19:733-5 N 15 '18

**Oil coolers**

- Dex oil cooler. diag Power 50:240-1 Ag 5 '19  
 Increasing transformer capacity by circulating oil. C. H. Shepherd. Il plan Elec W 71:560-2 Mr 16 '18  
 Merry-go-round oil cooler. Il Sci Am 118:592 Je 29 '18  
 Multiwhirl oil cooler. Il Power 48:489 O 1 '18  
 Oil engines. See Gas and oil engines

**Oil films**

- Filming the sea with oil to beat the U-boat. D. F. Zook. Sci Am 118:167 F 23 '18  
 Lubricating and other properties of thin oily films. J. W. S. Rayleigh. Sci Am S 87:170-1 Mr 15 '19

**Oil filters**

- Easily made oil filter. J. C. Hawkins. diag Power 49:141-2 Ja 28 '19  
 Easily made oil filters. J. E. Noble. diag Power 48:173 Jl 30 '18  
 Efficient oil filter. J. C. Kahl. diag Power 50:195 Jl 29 '19  
 Electrically heated simplex oil filter. Il Elec R 75:213 Ag 2 '19  
 Emergency method of treating transil oil. M. S. Montgomery. diag Elec R 72:386 Mr 2 '18  
 Homemade oil filter. J. L. Ball. diag Coal Age 13:659 Ap 13 '18  
 Nugent automatic-alarm oil filter. Il Power 50:510 S 23 '19  
 Nugent gravity filter for large plants. Il Power 47:13 Ja 1 '18  
 Removing oil from condensation. C. L. Hubbard. diag Dom Eng 88:301-3+ Ag 16 '19  
 Sand filter for used oil. J. E. Person. diag Power 47:923 Je 25 '18  
 System of filtering dirty transformer oil. diag Elec W 74:760 O 4 '19

**Oil fires**

- Extinguishing and preventing oil and gas fires. C. P. Bowie. bibliog Il diag U S Bur Mines Bul 170:1-45 '18; Abstract. Mech Eng 41:436-7 My '19  
 Extinguishing oil fires with foam. Engineer 123:109-10 Ag 1 '19

- When oil tanks burn. Factory 28:1080+ N '19

**Oil flow**

- Intermittent-oil-feed investigation. Il diag Mech Eng 41:892-4 Ap '19

**Oil fuel.** See Oil as fuel**Oil-grooving machine**

- Fischer oil-grooving machine. Il diag Mach 25:662 Mr '19

**Oil handling**

- Apsco pressure system. diag Automobile 37:481-2 S 13 '17  
 Handling coconut oil in bulk. Sci Am 120:205 Mr 1 '19  
 Handling vegetable oils at Pacific coast port terminals. Il plan Eng N 83:204-7 Jl 31 '19  
 Oil handled by air pressure. C. J. Domville. diag Power 49:907 Je 10 '19  
 Saving oil in the shop. Il Elec Ry J 54:582 S 20 '19

*See also* Gasoline handling

**Oil heating**

- Oil circulating system for indirect heating. Il Chem & Met Eng 19:733-5 N 15 '18

**Oil insulation. See Insulation****Oil lands**

- Carranza's oil-lands policy. Eng & Min J 107:871 My 17 '19  
 Geologic factors in oil prospecting. F. H. Lahee. diags Econ Geol 14:480-90 S '19  
 Mexican oil law redrafted. Eng & Min J 106:987 D 7 '18  
 Oil-land development. D. M. Folsom. Eng & Min J 107:329-30 F 15 '19  
 Search for new oil pools in the United States. D. Hager. map Eng & Min J 105:11-12 Ja 5 '18  
 To develop new oil lands. V. H. Manning. Automotive Ind 39:560 S 26 '18

**Valuation**

- Decline and ultimate production of oil wells, with notes on the valuation of oil properties; with bibliography. C. H. Beal. ii charts maps U S Bur Mines Bul 177:1-215 '19  
 Essential factors in valuation of oil properties. C. H. Beal. Am Inst Min Bul 153:sup 2219-27 S '19  
 Methods of valuing oil lands. M. L. Requa. Am Inst Min E Bul 134:409-28 F '18; Same, without tables. Eng & Min J 105:544-8 Mr 23 '18; Discussion. Am Inst Min E Bul 136:837-41; 137:1014-19 Ap-May '18

**Oil pipe lines**

- Oil pipe lines. S. A. Sulentic. Mech Eng 41:883+ N '19  
 Pipe-line across Scotland. ii Sci Am 121:518+ N 22 '19  
 Planning work expedites casing of pipe line with concrete. ii diag Eng N 82:725-7 Ap 10 '19

**Oil properties. See Oil lands; Petroleum industry****Oil reclamation**

- Bowser cutting oil reclaiming system. diag Ind Management 55:417-18 My '18  
 Centrifugal oil reclaimers. ii diag Engineer 125:540-1 Je 21 '18  
 De Laval method of oil reclamation. ii Int Marine Eng 23:720 D '18  
 Eliminating a railroad waste. ii Sci Am 120:176+ F 22 '19  
 Gas burners underneath and a gas-flame torch playing on the agitated mixture from above reclaims \$12,000 worth of contaminated lubricating oil. ii Am Gas Eng J 110:397-8 My 10 '19  
 Industrial waste products—methods of reclamation. Sci Am S 87:103 F 15 '19  
 90-95 per cent lubricating oil reclaimed by army emergency process. W. F. Bradley. Automotive Ind 40:422-3+ F 20 '19  
 Rag washing and oil reclaiming. Am Mach 48:662 Ap 18 '18  
 Reclaiming oil from metal turnings. C. L. Smith. ii Iron Age 102:558-9 S 5 '18  
 Reclaiming waste and oil. J. E. Coleman. diags Mach 26:132-3 O '19

**Oil refineries**

- Conversion of a brewery into an oil refinery. diags Chem & Met Eng 19:753-6 D 1 '18  
 Electrically equipped oil refinery at East Chicago ready to operate. Elec R 72:269 F 16 '18  
 Total output of refineries in the United States for 1917 and for first eleven months of 1918. Automotive Ind 40:443 F 20 '19

**Oil separators**

- Ammonia oil separator explodes. Power 47:674-5 My 7 '18  
 Eliminating cylinder oil from exhaust steam. W. H. Wakeman. diag Power 49:365 Mr 11 '19; Discussion. Power 49:700 My 6 '19  
 Home-made oil and water separator. C. Cozens. diag Power 48:606 O 22 '18  
 Oil separators and their connection with heating systems. C. L. Hubbard. ii diags Dom Eng 88:206-8+ Ag 2 '19  
 Summerscales oil separator. diag Engineer 126:39 Jl 12 '18; Same. Power 48:567 O 15 '18  
 Ten Winkle oil reclaimer. diag Power 45:833 Je 19 '17; Same. Coal Age 12:1025 D 15 '17

**Oil shales**

- Commercial possibilities of oil shale. H. J. Wolf. ii Eng & Min J 107:217-19 F 1 '19  
 Commercial status of American oil-shales. R. F. Bacon and W. A. Hamor. Sci Am S 88:223 O 11 '18  
 Destructive distillation of oil shales. J. C. Morrell and G. Egloff. Chem & Met Eng 19:90-6 Jl 15 '18  
 Economic position of oil shales. J. C. Morrell and G. Egloff. map Met & Chem Eng 18:601-7 Je 1 '18; Discussion. L: Simpson. 19:112 Ag 1 '18  
 Future oil supply probably assured by resources of shale deposits. Eng N 81:sup197 O 17 '18  
 Future sources of oil and gasoline. M. A. Allen. ii Gen Elec R 21:73-7 Ja '18  
 Investigation of the oil-shale industry. Eng & Min J 108:480 S 13 '19  
 Manufactured gas used to produce oil; still will extract oil from shale at a low cost. J. E. Darst. Am Gas Eng J 111:184 Ag 30 '19  
 Oil from shale. L: Simpson. Sci Am 121:57 Jl 19 '19  
 Oil from shale rock. Eng & Min J 106:419 Ag 31 '18  
 Oil shales. L: Simpson. Chem & Met Eng 21:176-8 Ag 15 '19  
 Oil-shales. D. E. Winchester. J Fr Inst 187:689-703 Je '19  
 Possibilities of the oil-shale industry. H. M. Roeschlaub. ii Eng & Min J 108:572-6 O 4 '19  
 Present status of oil shales. ii Chem & Met Eng 20:28-31 Ja 1 '19; Discussion. L: Simpson. 20:204-5 Mr 1 '19  
 Shale oil as a business proposition. H. L. Wood. Sci Am 120:484+ My 10 '19  
 Southern California's burning canyon. ii Sci Am 120:629 Je 14 '19  
 Treatment of oil shale in Colorado. F. A. Wadleigh. ii Eng & Min J 105:917 My 18 '18  
 Utah shale beds provide large oil supply. Automotive Ind 39:581 O 3 '18  
 Value of American oil-shales. C: Baskerville. Am Inst Min Bul 150:957-60 Je '19; Discussion. 156:3115-18 D '19

See also Petroleum

**Oil ships. See Tank ships****Oil storage**

- Buried storage tanks. H: P. Kahn. diag Power 48:540 O 8 '18  
 Calculating the contents of oil tanks. R. T. Strohman. diags Power 47:123-4 Ja 22 '18; Discussion. W: C. Strott. 47:482 Ap 2 '18  
 Changes in oils upon storage. H: A. Gardner. J Ind & Eng Chem 11:759-61 Ag '19  
 Concrete fuel-oil tank design and construction. H. B. Andrews. Eng N 83:322-3 Ag 14 '19; Same. Eng & Contr 52:254-5 Ag 27 '19  
 Concrete oil storage tanks for industrial plants. J. E. Freeman. ii diags plans Concrete 13:141-3 N '18  
 Concrete storage structures for oil. Concrete 15:170-1 O '19  
 Concrete tank and reservoirs for oils. W. T. Straus. Concrete 14:154 Ap '19  
 Concrete tanks for oil storage. T: Moore; M. O. Strauss. Concrete 14:235-6 Je '19  
 Converting a small gas holder into a gas oil tank. A. C. Howard. diag Am Gas Eng J 108:225 Mr 9 '18  
 Design and construction features of concrete oil storage tanks. C. W. Van Dyke. ii diag Eng & Contr 51:304-5 Mr 26 '19  
 Fire hazards met in storage of fuel oil. J. W. Lord. Eng N 83:415-16 Ag 28 '19  
 Fire protection for oil tanks. ii Eng & Min J 108:350-1 Ag 30 '19  
 Fireproof terminal oil house. A. P. Sharp. ii diags plans Ry Mech Eng 93:579-80 O '19  
 Gaging and storage of oil in the mid-continent field. O. U. Bradley. diags Am Inst Min E Bul 135:677-86 Mr '18  
 Gasoline storage on the farm. P. B. Potter. ii diag Sci Am 118:193 Mr 2 '18  
 Gravity storage of oil. P: F. O'Shea. ii Am Mach 51:328 Ag 14 '19

**Oil storage—Continued**

- Heating, ventilating and plumbing equipment for a garage. C. L. Hubbard. *diags Dom Eng* 83:282-4 My 25 '18
- Losses of crude oil in steel and earthen storage. O. U. Bradley. *Am Inst Min E Bul* 159:1135-9 J1 '18
- Oil fuel reservoir at Rosyth. *Il Engineer* 127:324-5 Ap 4 '19
- Oil storage tanks. Concrete 15:44-5 J1 '19
- Oil-storage tanks and reservoirs. C. P. Bowie. *Il diags plans U S Bur Mines Bul* 155:1-76 '18; *Abstract. Eng & Contr* 49:485-6 My 15 '18
- Oil tank that can be towed anywhere. *Sci Am* 120:226 Mr 8 '19
- Safety gasoline storage and supply system. *diag Automotive Ind* 37:884 N 15 '17
- Storing fuel oil underground. *Il Factory* 23:1298-9 D '19
- Storing gasoline in closed tanks. *Il Sci Am* 118:24-5 Ja 5 '18
- Tests of concrete tanks for oil storage. J. C. Pearson and G. A. Smith. *Eng N* 83:16 J1 3 '19
- Two fuel oil tanks of concrete. H. B. Lachov. *diags plans Concrete* 14:88-9 Mr '19
- U.S. bunker facilities expand. *Il maps (supp)* Marine R 49:533-5 N '19
- Wayne oil tank & pump co. storage systems for lubricating oils. *Il Ry Mech Eng* 93:373 Je '19
- See also Oil fires*
- Oil switches.** See Electric switches
- Oil tankers.** See Tank ships
- Oil tanks.** See Oil storage
- Oil testing**
- Better cylinder oil-testing methods needed. Power 48:644, 751-2; 49:327-8, 740; 50:314, 625 O 29, N 19 '18, Mr 4, My 13, Ag 19, O 21 '19
- Device for use in measuring dielectric strength of oils. *Il Elec Ry J* 53:325 F 15 '19
- Lubricating oil program of the Bureau of standards. *Automotive Ind* 40:1230-2 Je 5 '19
- Method of testing lubricating oils. *Sci Am* 118:381 Ap 27 '18
- Methods of analysis used in the coal-tar industry; heavy and middle oils. J. M. Weiss. *diags J Ind & Eng Chem* 10:911-16 N '18
- Petroleum refining; instruments used in testing oils. R. W. Cunningham. *diags Sci Am S* 88:268-9 N 8 '19
- Relative viscosity of oils at room temperature. C. F. Sammet. *J Ind & Eng Chem* 10:632 Ag '18
- Standard methods for the sampling and analysis of commercial fats and oils. *diags J Ind & Eng Chem* 11:1161-8 D '19
- Testing cylinder oils. W. Weaver. Power 49:256-7 F 18 '19
- Testing of switch and transformer oils; abstract. G. Shendell. *Elec W* 73:489 Mr 8 '19
- Tests for flotation oils. *Eng & Min J* 105:1043 Je 8 '18
- Westinghouse compact oil-testing cup. *Il Elec W* 73:348 F 15 '19; Power 49:370 Mr 11 '19
- Oil transportation.** See Oil pipe lines; Tank cars; Tank ships
- Oil wells.** See Petroleum
- Oiled roads.** See Roads, Oiled
- Oiled streets.** See Streets, Oiled
- Oils and fats**
- Catalytical bleaching of oils. *J Ind & Eng Chem* 10:313 Ap '18
- Chemical needs of the vegetable oil industry. D. Wesson. *J Ind & Eng Chem* 11:970-1 O '19
- Detection of foreign fats in butter fat. A. Seidenberg. *diag J Ind & Eng Chem* 10:617-21 Ag '18
- Edible fats, in war and law. D. Wesson. *J Ind & Eng Chem* 10:71-3 Ja '18
- Establishing an oil research bureau proposed. V. H. Manning. *Gas Age* 44:279-80 O 1 '19
- Extraction of grease from dried activated sludge. D. F. McFarland. *diag Eng & Contr* 52:196-7 Ag 13 '19

- Fat extraction apparatus. J. M. Pickel. *Il diags J Ind & Eng Chem* 11:1053-5 N '19
- Fats and fatty acids from petroleum. R. J. Moore and G. Eglon. *diag Met & Chem Eng* 18:308-11 Mr 15 '18; Discussion. E. T. Brooks; A. E. Outerbridge, Jr. 18:388-9 Ap 15 '18
- Fats of fighters. L. Lodian. *Il Sci Am* 118:229 Mr 16 '18
- Field for substitute oils. P. J. Hoffman. *Ry Mech Eng* 93:611 O '19
- Modification of the composition of vegetable oils, with special reference to increasing unsaturation. H. L. White. *J Ind & Eng Chem* 11:648-51 J1 '19
- Oil seeds and vegetable oils. *Sci Am S* 86:7 J1 6 '18
- Problem of top makers' oils. *Textile World* 53:2363 D 8 '17
- Process for deodorizing fatty oils. W. P. Schuck. *Met & Chem Eng* 18:608-9 Je 1 '18
- Production and conservation of fats and oils in the United States. H. S. Bailey and B. E. Reuter. *U S Agric Bul* 769:1-45 '19
- Production of oil from candel coal. *Engineer* 126:120 Ag 9 '18
- Properties of oils and their relation to lubrication. G. B. Upton. *Sci Am S* 85:348-50 Je 1 '18
- Saving fats from garbage; American chemical society offers to aid Food administration. *J Ind & Eng Chem* 10:320 Ap '18
- Specifications for shop oils. M. H. Potter. *Am Mach* 50:738 Ap 17 '19
- Study of the oil from sumac (*rhus glabra*). H. W. Brubaker. *J Ind & Eng Chem* 11:950 O '19
- Substitute for linseed oil. A. H. F. Phillips. *Ry Age* 67:550-1 S 19 '19; Same. *Ry Mech Eng* 93:610-11 O '19; Same. *Ry R* 65:663-4 N 1 '19
- Tentative standard methods for the sampling and analysis of commercial fats and oils. *diags J Ind & Eng Chem* 10:315-20 Ap '18
- Vegetable oil industry of Japan. *Sci Am S* 87:229 Ap 12 '19
- What can be done with light oil plants. W. H. Fulweiler. *Il Gas Age* 43:415-17 Ap 15 '19
- See also* Bicuiba oil; Cockle burr oil; Coconut oil; Cod liver oil; Cohune oil; Cottonseed oil; Creosote; Emulsification; Emulsions; Essential oils; Linseed oil; Lubrication and lubricants; Meprolene; Mustard oils; Oil analysis and other headings beginning Oil; Peanut oil; Petroleum; Soy bean oil; Sperm oil; Tomato seed oil; Wood oils
- Ollstones**
- How to care for ollstones. F. H. Sweet. *Bldg Age* 41:10 Ja '19
- Oklahoma**
- Capitol**
- State capitol building at Oklahoma City; views. *Arch & Bldg* 49:111, pl 165-9 D '17
- Oklahoma City**
- Water supply**
- Oklahoma City wages strenuous fight for water. *Il diags Eng N* 81:752-4 O 24 '18
- Oklahoma gas, electric and street railway association**
- 7th annual convention, Oklahoma City, April 22-24. *Elec R* 72:764 My 4 '18
- 7th annual convention, Oklahoma City, April 22-24; abstracts of papers. *Elec Ry J* 51:1051-4 Je 1 '18
- Oklmulgee, Oklahoma**
- Oklmulgee's water supply and sewerage. *Munic J* 46:338-40 My 10 '19
- Old men**
- Using the men past 45. V: T. J. Gannon. *Il Factory* 20:421-3 Mr '18
- Oleomargarine**
- Detection of added color in butter or oleomargarine. H. A. Lubs. *J Ind & Eng Chem* 10:436-9 Je '18
- Manufacture of margarine. *Engineer* 125:301-2 Ap 5 '18
- Manufacture of oleomargarine. *Sci Am S* 86:182-3 S 21 '18

- Oleomargarine—Continued**  
Modern margarine technology. W. Clayton. Sci Am S 85:134-5 Mr 2 '18
- Oliver Iron mining company**  
Adopts labor co-operation policy. Eng & Min J 105:1166-7 Je 29 '18
- Olmsted, Frederic Law**  
Work of Olmsted brothers. J. T. Boyd, jr. II plans Arch Rec 44:456-64, 502-21 N-D '18
- Olmsted, John C.**  
Work of Olmsted brothers. J. T. Boyd, jr. II plans Arch Rec 44:456-64, 502-21 N-D '18
- Oncidium**  
Homing habits of the pulmonate mollusk oncidium. L. B. Arey and W. J. Crozier. Sci Am S 87:288 My 3 '19
- One man cars. See Street cars—Safety cars**
- Ontario**  
See Geology—Ontario; Mines and mineral resources—Ontario; Nickel ores—Ontario; Roads—Ontario
- Open-air treatment**  
Origin of Camp Brooks and the open-air treatment of influenza. W. A. Brooks. II Boston Soc C E J 5:423-30 D '18
- Open and closed shops**  
Supreme court and the open shop. J. A. Emery. Am Ind 18:11-12 Ja '18
- Open hearth process**  
Acid hearth and slag; abstracts. J. H. Whitely and A. F. Hallimond. Chem & Met Eng 21:44-5 Jl 1 '19; Iron Age 104:1274-5 D 18 '19
- Automatic reverser for open hearths. II Iron Tr R 63:327-8 Ag 8 '18
- Basic refractories for the open hearth. J. S. McDowell and R. M. Howe. II Am Inst Min E Bul 146:291-309 F '19; Discussion. 149:784-6; 150:961-3 My-Je '19
- Blair removable slag pocket enables a schedule of repairs designed to make open-hearth operation continuous. diags Iron Age 103:941 Ap 10 '19
- Dimensions of open-hearth furnaces. V. Grum-Grzhimallo. table Iron Age 100:1422 D 13 '17
- Influence of lime on acid open-hearth slags. B. Yaneske. Foundry 47:373-6+ Je 15 '19; Abstract. Chem & Met Eng 21:43-4 Jl 1 '19; Abstract. Iron Age 104:230 Jl 24 '19
- New method of separating slag. diag Iron Tr R 62:1179 My 9 '18
- Open-hearth furnace doors.** W. H. Burr and H. A. Lewis. II diag Iron Age 102:80-1 Jl 11 '18; Iron Tr R 63:1064-5 N 7 '18
- Principles of open-hearth furnace design; abstracts with discussion.** C. H. F. Bagley. Engineer 126:259 S 27 '18; Iron Age 103:1219-21 My 8 '19
- Pulverized coal as open-hearth fuel; with cost tables. N. C. Harrison. Iron Tr R 64:1623-4 Je 19 '19
- Silica brick in open-hearth furnace roofs. M. Bied. Iron Age 102:270-2 Ag 1 '18
- Use of manganese alloys in open-hearth practice. S. L. Hoyt. U S Bur Mines War Minerals Investigations Ser 11:1-17 '18 (typew); Same. Am Inst Min E Bul 146:277-89 F '19; Same abr. Sci Am S 87:282-3 My 3 '19; Excerpt. Iron Age 103:1363-5 My 22 '19; Discussion. Am Inst Min Bul 148:728-35 Ap '19
- Utilisation of waste heat from open-hearth furnaces for the generation of steam; abstracts. T. B. Mackenzie. Engineer 126:259-60 S 27 '18; Iron Age 103:350 F 6 '19
- Water-cooled equipment for open-hearth steel furnaces. W. C. Coffin. diags Am Inst Min Bul 146:497-515 F '19; Same cond. Iron Tr R 64:1356-8 My 22 '19; Discussion. Am Inst Min Bul 149:778-84; 150:985-7 My-Je '19
- Water-cooled slag line of open hearths. II diag Iron Age 103:876 Ap 3 '19; Iron Tr R 64:959 Ap 10 '19
- What is future of open-hearth? H. M. Howe. Iron Tr R 65:1250-1 N 6 '19
- Open stair houses**  
War and industrial housing. H. A. Smith. II plans Am Arch 113:33-7 Ja 9 '18
- Opening and closing hours. See Staggered hours**
- Operating rooms. See Hospitals**
- Operation diagrams for the executive.** A. R. DeKuzelewski. diags Ind Management 55:180-2 Mr '18
- Oporinus, Johann, 1507-1568**  
Celebrated proofreader. H. L. Bullen. por Inland Ptr 62:647 Mr '19
- Optical-crystallographic methods of identification; abstract.** E. T. Wherry. J Fr Inst 185:561-2 Ap '18
- Optical glass. See Glass manufacture**
- Optical instruments**  
Correction of optical surfaces. A. A. Michelson. Sci Am S 86:181 S 21 '18
- Cross-hairs for optical instruments. Sci Am S 86:71 Ag 3 '18
- Mounting cross-lines in optical instruments. J. A. Widmer. diags Mach 25:180 O '18
- Optical projection apparatus for testing gauges. diags Engineer 125:346-7 Ap 19 '18
- Protection of silvered surfaces. F. Kollmorgan. J Fr Inst 188:425-6 S '19
- See also Lenses; Microscope and microscopy; Mirrors; Periscope; Polarimeter; Polariscope; Prisms; Reflection (light); Telescope
- Manufacture**
- Hainault optical works. II plan Engineer 128:434-5 O 31 '19
- Optical projection. See Lantern projection**
- Optical rotation**  
Confirmation of Van't Hoff's hypothesis; optical superposition in the metasaccharins and related bodies. E. A. Hill. Am Chem Soc J 40:764-73 My '18
- Glass polarimeter; a simple instrument for illustrating the laws of optical rotation. G. A. Shook and C. V. Kent. diags Sci Am S 85:204 Mr 30 '18
- Optically active pinene nitroschloride and synthetical active pinene. E. V. Lynn. Am Chem Soc J 41:361-8 Mr '19
- Rotatory powers of the amides of active  $\alpha$ -hydroxy acids. C. S. Hudson. Am Chem Soc J 40:813-17 My '18
- Rotatory powers of the amides of several  $\alpha$ -hydroxy acids of the sugar group. C. S. Hudson and S. Komatsu. Am Chem Soc J 41:1141-7 Jl '19
- See also Polarization (light)
- Optics**  
See Absorption of light; Color; Fluorescence; Interference (light); Light; Optical instruments; Phosphorescence; Photometry; Polarization (light); Radiation; Reflection (light); Refractive index; Spectrum analysis; Visibility
- Optics, Meteorological. See Meteorological optics**
- Orange, New Jersey**
- Railroads**
- Lackawanna improvements in Orange. II diags Ry Age 65:845-50 N 15 sec 1 '18
- Orchard heating. See Frost protection**
- Ordnance**  
Activities of the supply division of Ordnance. J. H. Van Deventer. II Am Mach 49:1107-11 D 19 '18
- Engineering division of the Ordnance department. J. H. Van Deventer. II Am Mach 49:921-31 N 21 '18
- Finding the choke points of ordnance. J. H. Van Deventer. II chart Am Mach 49:967-71 N 28 '18
- How ordnance is inspected. F. H. Colvin. II Am Mach 50:263-8, 557-68 F 6, Mr 20 '19
- Manufacture of steel for ordnance materials in England and in France. F. F. McIntosh. Eng Soc W Pa 35:140-63; Discussion. 164-70 Ap '19
- Mapping out the ordnance program. J. H. Van Deventer. II Am Mach 49:1013-17 D 5 '18
- Ordnance department work in France. P. A. Curtis. Am Mach 49:1181-2 D 26 '18

**Ordnance—Continued**

What ordnance is and does. J. H. Van Deventer. *Il supp Am Mach* 49:375-81 N 14 '18  
*See also* Artillery; Guns (ordnance); Naval guns

**Cost**

Finding the cost of ordnance. L. S. Gatter. *diags Am Mach* 50:657-60 Ap 3 '19

**Testing**

America's great effort in ordnance. *Il diags map Sci Am* 120:338-9, 432-3-4 Ap 5, 26 '19  
 History of the Aberdeen ordnance proving ground. F. P. Lindh. *Il Am Mach* 50:459-61, 509-13, 607-11 Mr 6-13, 27 '19

**Ordnance base depot (A.E.F.)**

Acres of shops to form ordnance base in France. *diags Eng N* 80:23-4 Ja 3 '18  
 Electrical preparation for ordnance base in France. *Elec W* 71:95 Ja 12 '18  
 Huge steel buildings at ordnance base depot in France. R. K. Tomlin, jr. *Il plan Eng N* 82:124-9 Ja 16 '19

Ordnance bureau. *See* United States—Ordnance, Bureau of (Navy dept.)

Ordnance department. *See* United States—Ordnance department

Ore analysis. *See* Assaying; Metallurgical analysis

**Ore bins**

Large ore storage in a limited space. F. L. Prentiss. *Il diags Iron Age* 102:1311-13 N 28 '18

Use of concrete in underground works. *diags plans Eng & Min J* 107:1071-3 Je 21 '19

Ore cars. *See* Mine cars

Ore chutes. *See* Mine timbering

Ore cleaning. *See* Ore treatment

**Ore deposits**

Amisk-Athapapuskow lake district. E. L. Bruce. *Eng & Min J* 106:997-8 D 7 '18

Anticlinal theory and some quicksilver deposits. W. H. Emmons. *diags Eng & Min J* 107:916-17 My 24 '19

Bauxite in the coastal plain of Georgia. H. K. Shearer. *diag Eng & Min J* 105:13-16 Ja 5 '18

Characteristics of zinc deposits in North America. F. L. Nason. *diags Am Inst Min E Bul* 125:799-824 My '17; Discussion. 133: 62-7 Ja '18

Chemical experiments bearing on the origin of certain uranium-vanadium ores. F. B. Notestein. *bibliog Econ Geol* 13:50-64 Ja '18

Classification of ore deposits based upon origin, deformation, and enrichment. T. T. Quirk. *diag Econ Geol* 12:607-9 O '17

Conglomerates of the Witwatersrand; discussion. J. B. Tyrrell. *Econ Geol* 12:717-21 D '17

Copper silver veins of the Telkwa district, British Columbia. V. Dolmage. *Il diags Econ Geol* 13:349-80 Jl '18

Experiments relating to the enrichment of tungsten ores. R. W. Gannett. *Econ Geol* 14:68-78 Ja '19

Further remarks on the ores of Engels, California. L. C. Graton and D. H. McLaughlin. *Econ Geol* 13:81-99 Mr '18

Genesis of the Sudbury nickel-copper ores as indicated by recent explorations. H. M. Roberts and R. D. Longyear. *Il diags maps Am Inst Min E Bul* 134:555-84 F '18; Discussion. 136:848-58 Ap '18

Geology and ore deposits of Ely, Nevada, by A. C. Spencer. Review, by C. H. Clapp. *Econ Geol* 13:400-9 Jl '18

Geology and ore deposits of the Collbran contact of the Suan mining concession, Korea. D. F. Higgins. *Il diags map Econ Geol* 13: 1-34 Ja '18

Geology and ore deposits of the Yerington district, Nevada, by A. Knopf. Review by W. H. Emmons. *diag Eng & Min J* 107: 1079-80 Je 21 '19

Geology, mineral associations and origin of California ores. C. F. Tolman, jr. *Am Inst Min E Bul* 140:sup9-13 Ag '18

Geology of the Gogebic range and its relation to recent mining developments. W. O. Hotchkiss. *Il diags map Eng & Min J* 108: 443-52, 501-7, 537-41, 577-82 S 13-O 4 '19  
 Gneissic galena ore from the Slocan district, British Columbia. W. L. Uglow. *Il diags Econ Geol* 12:643-62 D '17

Jerome district of Arizona. J. R. Finlay. *Il map Eng & Min J* 106:557-62, 605-10 S 28-O 5 '18

Limonite deposits of Mayaguez mesa, Porto Rico. C. R. Fetteke and B. Hubbard. *Il map Am Inst Min E Bul* 135:661-76 Mr '18; Same cond. *Iron Tr R* 63:210-11 Jl 25 '18

Magmatic ore deposits, Sudbury, Ont. A. M. Bateman. *Econ Geol* 12:391-426 Ag '17; Discussion. W. H. Goodchild. 13:137-43 Mr '18

Mechanics of vein formation. S. Taber. *Il Am Inst Min E Bul* 140:1189-1222 Ag '18; Discussion. 144:1768-70 D '18

Native copper and silver in the Nonesuch formation, Michigan. K. Nishio. *Il diag Econ Geol* 14:324-34 Je '19

Nature and origin of the Biwabik iron-bearing formation of the Mesabi range, Minnesota. F. F. Grout. *Il Econ Geol* 14:452-64 S '19

Notes on certain ore deposits of the Southwest. W. Tovote. *Am Inst Min E Bul* 142: 1599-1612 O '18; Discussion. 146:445-7; 148: 735 F, Ap '19

Notes on Gold Hill and vicinity, Tooele county, western Utah. J. F. Kemp and P. Billingsley. *Il diags maps Econ Geol* 13:247-74 Je '18

Occurrence of the silver halides in the oxidized zone of ore deposits. A. Knopf. *Econ Geol* 13:622-4 D '18

Ore deposition and enrichment at the Evergreen mine, Gilpin county, Colorado. D. H. McLaughlin. *Il Econ Geol* 14:465-76; Discussion. 475-9 S '19

Ore deposits of the Boulder batholith of Montana. P. Billingsley and J. A. Grimes. *bibliog diags maps Am Inst Min E Bul* 124:641-717 Ap '17; Discussion. 130:1869-70; 133:72-5 O '17, Ja '18

Ore deposits of the Yellow Pine mining district, Clark county, Nevada. F. A. Hale, jr. *Il map Am Inst Min E Bul* 134:535-53 F '18; Same cond. *Eng & Min J* 105:455-60 Mr 9 '18

Ore deposits of Utah. B. S. Butler. *Il diags map Eng & Min J* 108:605-11, 641-5 O 11-18 '19

Origin of the gold deposits of Matatchewan district, northern Ontario. H. C. Cooke. *maps Econ Geol* 14:281-301 Je '19

Present tendencies in geology: metalliferous deposits. A. Knopf. *bibliog Econ Geol* 14: 543-64 N '19

Quantitative measurements of minerals of the nickel-eruptive at Sudbury, Ontario. M. A. Dresser. *Il diags Econ Geol* 12:563-80 O '17

Relation of ore deposits to thrust faults in the Central Wasatch region, Utah. B. S. Butler. *Il diags Econ Geol* 14:172-5 Mr '19

Replacement in the Bendigo quartz veins and its relation to gold deposition. F. L. Stillwell. *Il diags Econ Geol* 13:100-11 Mr '18

Silver deposition and enrichment at Cobalt, Ont. J. A. Reid. *diags Econ Geol* 13:385-92 Jl '18

Tin deposits of Irish Creek, Virginia. H. G. Ferguson. *maps Eng & Min J* 105:5-7 Ja 6 '18

Tungsten deposit near Fairbanks, Alaska. A. M. Bateman. *Econ Geol* 13:112-15 Mr '18

Uncertainties of geological evidence. H. A. Wheeler. *Eng & Min J* 106:878-9 N 16 '18

Wisconsin zinc district. H. C. George. *diags maps Am Inst Min E Bul* 132:2045-74 D '17; Excerpt. *Eng & Min J* 105:322 F 16 '18; Discussion. *Am Inst Min E Bul* 135:702-6 Mr '18

*See also* Boulder batholith; Copper ores; Geology; Gold ores; Iron ores; Lead ores; Mines and mineral resources; Ores; Zinc ores

**Ore docks**

Duluth ore dock is the largest in the world. W. H. Hoyt. *Il diag map plans Ry Age* 67: 345-8 Ag 22 '19

**Ore docks—Continued**

Electrical equipment and practice for ore and coal docks; committee report. Ry R 63:630 N 2 '18

Extension to Superior ore dock built of concrete. *Il* diags plan Eng N 80:1213-14 Je 27 '18

Good handling equipment speeds ore dock construction. *Il* Eng N 80:1214-16 Je 27 '18

New dock for iron ore completed at Port Henry, N.Y. *Il* plan Iron Tr R 64:1279-80 My 15 '19

600 ft. reinforced concrete extension of N. P. Ry. ore dock at Superior, Wis. W. D. Engelke. *Il* diags Eng & Contr 50:52-4 J1 17 '18

Traveler handles forms and steel for ore dock. *Il* Eng N 81:768-9 O 24 '18

*See also* Ore handling

**Ore dressing. See Ore treatment****Ore drying**

Driers as applied to ore drying. L. R. Christie. Eng & Min J 107:1144-5 Je 28 '19

**Ore handling**

Automatic iron-ore unloader. *Il* Eng & Min J 108:305-7 Ag 23 '19; Same. Coal Age 16:188-90 J1 31 '19; Same. Elec R 75:56-9 J1 12 '19; Same. cond. *Int* Marine Eng 24:735-7 N '19; Abstract. J Elec 43:235-6 S 1 '19

Bethlehem ore bridge built in 65 days. *Il* Iron Age 102:441-2 Ag 22 '18; Same. Iron Tr R 63:502-3 Ag 29 '18

Electricity as applied to loading and unloading coal and ore boats. R. H. McLain. *Il* diag Gen Elec R 22:352-65 My '19

Handling iron ore at the head of the Great Lakes. G. H. Herrold. *Il* Eng N 82:1119-20 Je 5 '19

Large ore storage in a limited space. F. L. Prentiss. *Il* diags Iron Age 102:1311-13 N 28 '18

Loading a stockpile with a scraper. D. E. A. Charlton. *Il* Eng & Min J 108:554 S 27 '19

New equipment used on lakes. F. B. Jacobs. *Il* diags plan Marine R 49:506-12 N '19

Plant to transfer coal and ore mechanically. *Il* diags Ry Age 64:569 Mr 15 '18

Safety device for dumping ores into skips. A. C. Bigley. diags plan Eng & Min J 108:621-2 O 11 '19

Study of shoveling as applied to mining. G. T. Harley. *Il* Coal Age 15:314-22, 356-64 F 13-20 '19; Abstract. Eng & Min J 107:481-5, 520-2 Mr 15-22 '19; Summary. Am Inst Min E Bul 146:571-3 F '19; Summary. Eng & Contr 51:187 F '19

Tod-Stambaugh ore loaders. Iron Tr R 61:1281 D 13 '17

Variable-speed apron feeder. diag Eng & Min J 106:993 D 7 '18

*See also* Ore docks

**Ore pulp**

Methods for determining the capacities of slime-thickening tanks. R. T. Mishler. Am Inst Min E Bul 123:333-54 Mr '17; Discussion. 133:117-18 Ja '18

**Ore sampling**

Application of air drills to mine sampling. J. H. Eggers. Eng & Min J 108:358-60 Ag 30 '19

Automatic ore-pulp sampler. diags Eng & Min J 107:412 Mr 1 '19

Carrier for mill sample pans. R. H. Poston. diags Eng & Min J 108:402 S 6 '19

Importance of particle-size reduction before sampling for assay. A. W. Allen. Eng & Min J 106:1103-5 D 28 '18

Mine sampling and mining method. Eng & Min J 106:537, 671-2 S 21, O 12 '18

Panning as a guide to sampling. Eng & Min J 106:1085 D 21 '18

Sampling of mine floors. A. G. Wolf. Eng & Min J 104:1111-12 D 29 '17

Sampling practice at Independence mill. C. T. Rice. *Il* Eng & Min J 107:641-4 Ap 12 '19

**Ore sorting. See Ore treatment****Ore transportation**

All forces united in moving Lake Superior ore. F. L. Prentiss. Iron Age 101:11-12 Ja 3 '18

How Lake trade will be handled. Iron Tr R 62:934-5 Ap 11 '18

Modern barge line transports ore. *Il* Iron Tr R 63:1127-8 N 14 '18

Ore carriers for ocean service. V. G. Iden. *Il* diags plans Marine R 49:420-3 S '19; Excerpts. Iron Tr R 65:1258-60 N 6 '19

*See also* Mine haulage; Ore handling

**Ore treatment**

Bunker Hill & Sullivan mining and concentrating co. report with unit costs of exploration, mining and milling. Eng & Min J 106:268-9 Ag 10 '18

Burro Mountain concentrator. flow sheet diag Met & Chem Eng 18:8 Ja 1 '18

Changes in Alaska Juneau mill. Eng & Min J 106:352-3 Ag 24 '18

Coal and iron deposits of the Pen-hai-hu district, Manchuria. C. F. Wang. Am Inst Min E Bul 134:245-6 F '18; Same. Iron Age 101:387 F 7 '18

Comparative friability of ores. Eng & Min J 106:638-9 O 5 '18

Concentration experiments with the siliceous red hematite of the Birmingham district. Alabama. J. T. Singewald, jr. map U S Bur Mines Bul 110:1-91 '17

Concentration of molybdenite ores in Ontario. A. L. Parsons. Eng & Min J 105:880-1 My 11 '18

Concentration practice in southeast Missouri. A. P. Watt. *Il* flow sheets diags maps Am Inst Min E Bul 130:1475-1563 O '17; Discussion. 133:1-8 Ja '18

Control of ore-dressing operations. G. J. Young. Eng & Min J 107:907-8 My 24 '19

Crushing resistance of various ores. L. W. Lennox. diags Am Inst Min E Bul 140:1255-64 Ag '18; Excerpts. Chem & Met Eng 19:284-5 S 15 '18; Discussion. Am Inst Min E Bul 142:1564-6 O '18

Determining copper minerals in partly oxidized ores. F. Cremer. Met & Chem Eng 18:644-6 Je 15 '18

Determining flow sheets in new mills. A. Schwarz. Eng & Min J 105:792-3 Ap 27 '18

Dry-concentration plant in Arkansas. T. Shiras. *Il* diag Eng & Min J 106:909-10 N 23 '18

Dry sizing as a means of preparing feed for concentration. G. V. Bland. flow sheets Eng & Min J 105:908-11 My 18 '18

Economics of concentration. R. S. Handy. flow sheet Eng & Min J 107:1146-8 Je 28 '19

Economics of concentration. A. P. Watt. *Il* Eng & Min J 107:775-9 My 3 '19

Estimating screen efficiency. W. O. Borchardt. diags Eng & Min J 107:651-3 Ap 12 '19; Discussion. R. T. Hancock. 108:561-2 S 27 '19

Experimental treatment of complex ore. Eng & Min J 107:913 My 24 '19

Formation of quicklime in roasting ores from Manhattan. Nev. W. S. Palmer. Eng & Min J 104:525-6 S 22 '17; Discussion. 104:883-4, 1087 N 17, D 22 '17

Formulas for ore sorting. G. Luna. Eng & Min J 105:1178 Je 29 '18

Hand-sorting of mill feed. R. S. Handy. Am Inst Min E Bul 136:913-17; Discussion. 917-26 Ap '18

Hazards and safeguards in ore-dressing plants. J. S. McKaig. *Il* Eng & Min J 106:897-9 N 23 '18

Iron-ore concentration on the Mesabi range. F. A. Kennedy. flow sheets *Il* diag Eng & Min J 107:688-8 Ap 19 '19

Magnetic concentration of pyrrhotite ores. J. P. Bonardi. Chem & Met Eng 20:266-70 Mr 15 '19

Manganese concentrator at Philipsburg, Montana. Met & Chem Eng 18:625 Je 15 '18

Manganese washing plant of the Eureka company, Arkansas. T. Shiras. *Il* Eng & Min J 105:778 Ap 27 '18

Merton roasting furnace for blende. diags Eng & Min J 106:569-70 S 28 '18

Microscope in ore-dressing. C. Y. Clayton. Chem & Met Eng 19:61-2 J1 15 '18

Middlings. Eng & Min J 106:13-14 J1 6 '18



**Ore treatment—Continued**

- Mill operations at United Eastern during 1917 and 1918. W. O. North. flow sheet diags Am Inst Min Bul 152:1171-91 Ag '19; Same cond. Eng & Min J 108:617-20 O '19; Discussion. Am Inst Min Bul 156:3175-6 D '19
- Milling calculations. R. S. Lewis. bibliog il Chem & Met Eng 20:224-33 Mr 1 '19
- Milling gold and silver ores in cyanide solution. A. W. Allen. Met & Chem Eng 18:615-19 My 15 '18
- Milling practice and operating costs in the Joplin district. H. W. Kitson. flow sheet il map Eng & Min J 105:727-34 Ap 20 '18
- Milling practice of the St Joseph lead co. L. A. Delano. flow sheets il Am Inst Min E Bul 129:1267-86 S '17; Discussion. 133:9-10 Ja '18
- Mining and concentration of carnotite ores. K. L. Kithil and J. A. Davis. flow sheet il diags plan U S Bur Mines Bul 103:61-77 '17
- Mining and milling of lead and zinc ores in the Missouri-Kansas-Oklahoma zinc district. C. A. Wright. flow sheet il diags map plan U S Bur Mines Bul 154:1-126 '18
- New lead-zinc mill in Colorado. il Eng & Min J 107:397-8 Mr 1 '19
- Nitric acid and copper ore. G. C. Westby. il diag Met & Chem Eng 18:290-6 Mr 15 '18
- Notes on ore dressing. A. W. Allen. Eng & Min J 107:100-2 Ja 11 '19
- Ore-dressing practice in the Joplin district; with mining and milling costs of a representative mine. C. A. Wright. Am Inst Min E Bul 130:1565-91 O '17; Discussion. 133:10-13 Ja '18
- Ore treatment in Colorado. map Eng & Min J 106:386-9 Ag 31 '18
- Practical notes from the Anaconda reduction works. diags Eng & Min J 106:134-5 Jl 20 '18
- Practice and philosophy of ore sorting. diag Eng & Min J 106:412 Ag 31 '18
- Progress in milling. Eng & Min J 107:1174-5 Je 28 '19
- Quicksilver in California. flow sheet il diags Chem & Met Eng 19:237-40 S 1 '18
- Re-treating zinc tailings in Wisconsin. W. F. Boericke. diags plans Eng & Min J 107:524-7 Mr 22 '19
- Sorting and washing plant for magnesite ore. Eng & Min J 107:1111 Je 28 '19
- Sorting ore for metallurgical treatment. A. W. Allen. il Eng & Min J 106:935-8 N 30 '18
- South African gravity stamp practice. Eng & Min J 108:110 Jl 19 '19
- Sunnyside mill at Eureka, Colorado. il Eng & Min J 105:193-4 Ja 26 '18
- Tin-wolfram concentrators; abstract. J. Miller. flow sheet diag Chem & Met Eng 19:261 S 1 '18
- Treatment of low-grade nickel ores. C. W. Davis. J Ind. & Eng Chem 11:644-8 Jl '19
- Triple concentration practice for tin-wolfram-lead ore. flow sheet Eng & Min J 106:530-1 S 21 '18
- United eastern mining and milling plant. O. Wartenweiler. plans Am Inst Min E Bul 131:1995-2014 N '17; Same cond. Met & Chem Eng 17:656-9 D 1 '17; Excerpts. Eng & Min J 104:1046-7, 1089-90; 105:294 D 15-22 '17, F 9 '18
- Well-constructed concentrates box. F. W. Foote and R. S. Ransom. jr. diags plan Eng & Min J 105:294 F 9 '18
- See also* Aluminum metallurgy; Classifiers; Concentrators; Copper metallurgy; Crushing; Crushing machinery; Cyanide process; Electrometallurgy; Filters and filtration (metallurgy); Flotation process; Gold metallurgy; Hardinge mill; Hydrometallurgy; Iron metallurgy; Lead metallurgy; Magnetic separation of ores; Metallurgical patents; Metallurgical plants; Metallurgy; Ore drying; Screening; Silver metallurgy; Smelting; Tailings; Tin metallurgy; Tube milling; Tungsten; Zinc metallurgy

**Ore valuation**

- Valuation of manganese ores. G. T. Holloway. Eng & Min J 105:1163-5 Je 29 '18
- See also* Mine valuation

**Oregon**

- See* Gold mines and mining—Oregon
- Oregon City, Oregon
- Floating mixer plant for construction of concrete wall. E. B. Thomson. il Eng & Contr 49:290-1 Mr 20 '18
- Water supply
- Small bypass carried water-supply after submerged break. H. A. Rands. diags Eng N 80:457-8 Mr 7 '18

**Ores**

- Electrical determination of ore beds; patent. Elec W 70:1237 D 29 '17
- Examination of ores and ore-dressing products. diags Eng & Min J 105:723 Ap 20 '18
- See also* Assaying; Carnotite; Copper ores; Geology; Gold ores; Iron ores; Lead ores; Metallurgy; Metals; Mineralogy; Mines and mineral resources; Ore deposits; Ore sampling; Ore treatment; Zinc ores

**Organ**

- Bamboo pipe organs. T. C. Welch. Sci 'Am 120:285 Mr 22 '19

**Organic acids. *See* Acids, Organic****Organic chemistry. *See* Chemistry, Organic****Organization in industry**

- Analysis of shipyards organization. F. T. Warner. Int Marine Eng 24:4 Ja '19
- Bethlehem plan of employee representation. charts Iron Age 102:1020-2 O 24 '18; Abstract. Iron Tr R 63:972-3 O 24 '18
- Charts divide work and place responsibility. il Motor Age 36:32-3 N 6 '19
- Coal company organization. W. W. Beddow. chart Coal Age 13:778-80 Ap 27 '18
- Contract organization vitally important for war work. F. Donaldson. charts Eng N 81:535-8 S 19 '18
- Co-ordination of legislative and operative functions in labor essential to success. H. Tipper. Automotive Ind 39:958-9 D 5 '18
- Co-ordination saves six weeks' construction time on big building. il diags Eng N 81:300-4 Ag 15 '18
- Dealers who have departmentized their business prove success of intensive merchandising by their books. il plan Motor Age 35:7-9 Je 19 '19
- Departmentizing a business. F. M. Loomis. Motor Age 35:23 Je 12 '19
- Effective arrangement of departments in shipyard organization. G. F. S. Mann. diag Int Marine Eng 23:615-17 N '18
- Engineering organization and routine. G. L. McCain. Automotive Ind 41:562-7 S 18 '19
- Getting plant spirit into our men. C. R. Hook. chart Factory 20:225-7 F '18
- Government concrete ships engage large organization. chart Eng N 80:450-1 Mr 7 '18
- Handling out-of-the-routine problems in a functional organization. Factory 20:632-3 Ap '18
- How labor representation operates; plan adopted by Youngstown sheet & tube co. Iron Tr R 63:1349-51 D 12 '18
- How one dealer charts province of departments. charts Motor Age 36:30-2 N 6 '19
- Importance of organization laws in this world crisis. C. E. Knoepfel. Ind Management 55:14-15 Ja '18
- Improving industrial management. M. H. Potter. Iron Tr R 65:1323-5 N 13 '19
- Industrial organization as it affects executives and workers; abstracts. C. E. Knoepfel. Am Soc M E J 40:1031-3 D '18; Iron Tr R 63:1408-11 D 19 '18
- Installing management methods in the woodworking industry. C. M. Bigelow. il chart diags Ind Management 58:1-8 Jl '19
- Laws of industrial organization. C. E. Knoepfel. Ind Management 58:265-8 O '19 (to be cont)
- Line and staff organization: the system as applied by the Burroughs adding machine co. plan Iron Age 104:594-5 Ag 28 '19

- Organization in Industry—Continued**  
 Management of a carburizing plant. C. B. Langstroth. Mach 25:43 S '18  
 Management of the Western electric co. H. A. Halligan. Iron Age 100:1415+ D 13 '17  
 Managing for maximum production. L. V. Estes. charts Ind Management 57:284-8 Ap '19  
 Military harness of industrial plants as a means towards winning the war. G. W. Hinkley. chart Sibley J 33:14-17 N '18  
 Modern industrial relations department. E. C. Gould. Iron Age 102:831-2 O 3 '18; Same cond. Iron Tr R 63:784-5 O 3 '18  
 Modern utilities organization. R. Elsmann. diag Am Gas Eng J 109:49-51, 121-3 Jl 20, Ag 10 '18  
 Nature's type of organization. H. Emerson. Ind Management 57:406-10 My '19  
 Need for organization in new chemical companies. F. Hemingway. Met & Chem Eng 18:180-1 F 15 '18  
 New Philadelphia co-operative plan. T. E. Mitten. chart Elec Ry J 52:1135-6 D 28 '18  
 Organization—a tangible asset. E. L. Van Schaick. Ind Management 58:152 Ag '19  
 Organization chart of the Foster machine co., Elkhart, Ind. O. Kylin and E. Oberg. Mach 25:609 Mr '19  
 Organization chart of the Lynite laboratories of the Aluminum castings co., Cleveland, Ohio. Iron Age 104:153 Jl 17 '19  
 Organization chart, Union gas and electric co. Power 49:859 Je 3 '19  
 Organization in Hupp motor car corporation—a material planning department. C. A. Marston and J. E. Schipper. charts Automotive Ind 37:1045-8 D 13 '17  
 Organization of a carburetor plant. F. H. Korff. Mach 25:847-50, 916-18 My-Je '19  
 Organization of a munition plant; Buffalo Pitts co., Buffalo, N.Y. G. A. Neubacher and E. Oberg. Il Mach 25:208-12 N '18  
 Organization of the Westinghouse air brake and subsidiary companies; charts. Ry R 64:832-3 Ap 26 '19  
 Organizing electrical inspection and maintenance. C. A. Cowdery. chart Elec W 74:645-9 S 20 '19  
 Organizing production to prevent internal friction. H. W. Slauson. Factory 20:246-7 F '18  
 Political plan of organization satisfactory for relatively small establishments. H. Tipper. Automotive Ind 39:1083-4+ D 26 '18  
 Power-station organization chart; Buffalo general electric company, Buffalo, New York. Power 48:87 Jl 16 '18  
 Power-station organization chart; Commonwealth Edison co. Power 48:164 Jl 30 '18  
 Power-station organization chart; Edison electric illuminating co. of Brooklyn, N. Y. Power 48:118 Jl 23 '18  
 Production control in shipbuilding. Eng & Contr 50:497-8 N 27 '18  
 Status of the engineering department. R. G. Pilkington. Am Mach 48:314-15 F 21 '18  
 Tool department of Winchester works. Iron Age 102:1129-33 N 7 '18  
 Typical shipyard organization developed for uniform cost system; chart. Int Marine Eng 24:544 Ag '19  
 Winchester plan of management. W. E. Freeland. Il plans Iron Age 101:23-7+, 189-93, 253-5, 498-502, 616-21, 1521-6 Ja 3, 17-24, F 21, Mr 7, Je 13 '18  
 Working out a theory in shop management. Am Mach 49:145-7 Jl 25 '18  
*See also* Employment management; Factory management; Industrial management
- Oriental consolidated mining company**  
 Report for the year ended June 30, 1918. Eng & Min J 106:904 N 23 '18
- Orientation (architecture)**  
 Relation of sunlight to town planning. H. L. Seymour. Eng & Contr 51:483-4 My 7 '19; Excerpt. Am Arch 116:14 Jl 2 '19
- Orientation mechanism**  
 Electric dog; use of the selenium cell to make an orientation mechanism. B. F. Miessner. Il diag plan Sci Am S 87:376-7 Je 14 '19
- Oriand irrigation project**  
 Canal over divide raises storage service factor; water supply for the East Park reservoir of the Oriand irrigation project. Il diag plan Eng N 80:1186-9 Je 20 '18
- Ornament. See** Decoration and ornament
- Ornithopter**  
 Ornithopter. H. Chatley. Sci Am S 86:136 Ag 31 '18
- Orphan asylums**  
 Cottage planned orphanage. H. C. Whitehouse. diag plan Arch Forum 30:33-9, 77-81 F-Mr '19
- Orsat apparatus. See** Carbon dioxide recorders
- Orthography. See** Spelling
- Oxazone**  
 Study of the glucosazone reaction. I. D. Gardard and H. C. Sherman. Am Chem Soc J 40:955-69 Je '18
- Osmosis**  
 Colloidal membrane. F. Tinker. Sci Am S 87:199 Mr 29 '19  
*See also* Solution (chemistry)
- Ostend**  
 Condition of the port of Ostend. Sci Am 121:354+ O 4 '19
- Our country first conference**  
 Meeting, Chicago, Sept. 8-9. Am Lumberman 2313:52-4 S 13 '19; Ry Age 67:517-18 S 12 '19
- Outlets (electric wiring). See** Electric fittings
- Ovens, Coke. See** Coke ovens
- Ovens, Electric. See** Electric ovens
- Ovens, Gas. See** Gas ovens
- Overcoats**  
 Shoddy and cotton overcoating. Il Textile World 54:2353 N 9 '18
- Overhaul specifications. See** Roads—Contracts
- Overhead expense**  
 Accurate determination of overhead in electrical estimating; with discussion. E. L. Morley. Elec R 73:943-5 D 14 '18  
 Actual cost of a contract. F. K. Armstrong. Dom Eng 81:497-8 D 22 '17  
 Checking of maintenance costs. F. T. Clapham. Engineer 125:343 Ap 19 '18  
 Cost of supervision and overhead. F. H. Colvin. Am Mach 50:1221-5 Je 26 '19  
 Cost of supervision and overhead. H. Senior. Am Mach 51:363-4 Ag 21 '19  
 Estimating contractors' overhead costs in sanitary sewer construction. S. D. Moore. Eng & Contr 49:364-5 Ap 10 '18; Same. Munic J 45:342-4 N 2 '18; Abstract. Eng N 80:715 Ap 11 '18  
 Fallacy of the 30 per cent profit. Metal Work 92:257-8 Ag 29 '19  
 Figuring a profit. Dom Eng 82:10, 173, 219-20, 335+; 83:90-1 Ja 5, F 2-9, Mr 2, Ap 20 '18  
 Figuring overhead expenses. J. A. Piepkorn. Elec R 72:1007 Je 15 '18  
 Five little plans for reducing overhead. Il Factory 22:1176-7 Je '19  
 Handling factory costs. W. R. Basset. Factory 22:138+ Ja '19  
 Machine and its overhead. A. E. McGowan. Inland Ptr 61:43-6 Ap '18  
 Methods of computing overhead expenses of electrical contractors. P. C. Burrill. Elec R 72:849-50 My 18 '18  
 Overhead charges in power plant construction. A. F. Brewer. Ind Management 58:183-4 S '19  
 Overhead distribution for cost-plus contracts. F. E. Seidman. J Account 25:161-75 Mr '18  
 Overhead expense from a new angle. H. F. Baillet. Metal Work 89:423-4 Mr 29 '18  
 Putting overhead on a scientific basis. W. L. Goodwin. Elec R 73:895-6 D 7 '18  
 Question of overhead expense. Dom Eng 87:429-30 Je 7 '19

**Overhead expense—Continued**

- Some things the road contractor often overlooks. W. F. Hildeman. *Eng & Contr* 51:153 F 5 '19
- Something on the cost of doing business. *Metal Work* 92:364-7 S 26 '19
- What you should know about overhead expense. D. Carey. *Dom Eng* 88:204-5 Ag 2 '19; Same. *Metal Work* 92:196-8 Ag 15 '19; Same cond. *Eng & Contr* 52:463-5 O 22 '19

See also Cost accounting

Overland company. See Willys-Overland company

**Overman bill**

Overman bill passes Senate. *Ry R* 62:664-5 My 4 '18

**Overtime**

Should engineers be paid overtime? *Ry Age* 67:188-9 Ag 1 '19

Owners of railroad securities, National association of. See National association of owners of railroad securities

**Oxalic acid**

- Production of oxalic acid; patent. *Met & Chem Eng* 18:154 F 1 '18
- Reaction products of alkali-sawdust fusion acetic, formic, and oxalic acids and methyl alcohol. S. A. Mahood and D. E. Cable. *J Ind & Eng Chem* 11:651-5 JI '19
- Titration of oxalic acid by the conductance method. H. S. Harned and C. N. Laird. *diags Am Chem Soc J* 40:1218-18 Ag '18

**Oxalyl chloride**

Oxalyl chloride as a reagent in organic chemistry; preparation of aromatic acid anhydrides; reaction with alcohols. R. Adams, W. V. Wirth and H. E. French. *Am Chem Soc J* 40:424-31 F '18

**Oxidases**

Role of oxidases and of iron in the color changes of sugar cane juice. F. W. Zerban. *J Ind & Eng Chem* 10:814-17 O '18

**Oxidation**

- Action of sodium hydroxide on carbon monoxide, sodium formate and sodium oxalate. M. C. Boswell and J. V. Dickson. *Am Chem Soc J* 40:1779-86 D '18
- Data on platinum gauze used as a catalyzer for the oxidation of ammonia; table of weights and active surface of platinum, air space, etc., shown for a unit of one square inch of gauze of a given mesh and diameter of wire. A. A. Campbell. *J Ind & Eng Chem* 11:468-9 My '19
- Effect of acetylene on oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *diag J Ind & Eng Chem* 10:457-9 Je '18
- Effect of phosphine and hydrogen sulfide on the oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *J Ind & Eng Chem* 11:27-8 Ja '19
- Electrometric method for the determination of ferrocyanides depending on a change in oxidation potential. G. L. Kelley and R. T. Bohn. *Am Chem Soc J* 41:1776-83 N '19
- Fusion of sodium hydroxide with some inorganic salts. M. C. Boswell and J. V. Dickson. *Am Chem Soc J* 40:1773-9 D '18
- Heat of reaction of ammonia oxidation. G. B. Taylor. *J Ind & Eng Chem* 11:1121-3 D '19
- Magnetic gas circulator. S. H. Katz. *diag Am Chem Soc J* 39:2638-9 D '17
- Oxidation in the manufacture of TNT. A. S. Eastman. *J Ind & Eng Chem* 11:1124 D '19
- Oxidation of diaminophenols. J. Piccard and L. M. Larsen. *Am Chem Soc J* 40:1079-92 JI '18
- Oxidation of ethyl alcohol by means of potassium permanganate; with discussion. W. L. Evans and J. E. Day. *diag Am Chem Soc J* 41:1267-85 Ag '19
- Oxidation of maltose in alkaline solution by hydrogen peroxide and air; the preparation and study of maltobionic acid. J. W. E. Glattfeld and M. T. Hanke. *Am Chem Soc J* 40:973-92 Je '18
- Oxidation of organic compounds with alkaline potassium permanganate. W. L. Evans and H. Adkins. *Am Chem Soc J* 41:1385-1414 S '19

Oxidation of sulfides with potassium iodate. R. S. Dean. *Am Chem Soc J* 40:619-20 Ap '18

Oxidizing action of potassium dichromate as compared with that of pure iodine. C. R. McCrosky. *diags Am Chem Soc J* 40:1662-74 N '18

Results of the test run of the direct oxidation experimental sewage treatment plant at Easton, Pa. C. A. Emerson, Jr. plan *Munic Eng* 57:70-5 Ag '19; Same. *Eng & Contr* 52:186-9 Ag 13 '19

Role of atmospheric oxygen and alkali in the oxidation of acetone with potassium permanganate, pyruvic acid as an intermediate product. E. J. Witzemann. *Am Chem Soc J* 39:2657-71 D '17

Study of side chain oxidations with potassium permanganate. L. A. Bigelow. *Am Chem Soc J* 41:1559-81 O '19

**Oxyacetylene flame**

- Cutting granite with oxyacetylene flame. *Il Eng N* 83:390-1 Ag 21 '19
- Effect of impurities in acetylene on quality and cost of welds. C. Bingham. *Mach* 25:841 D '18
- Gas welding of thin plates. J. F. Springer. *diags Ry Mech Eng* 93:268-71 My '19
- Handling acetylene welding outfits. E. Wana-maker. *Ry R* 62:869-71 D 21 '18; Same abr. *Ry Mech Eng* 93:180 Mr '19
- Modern welding and cutting; history and uses of the gas torch. E. Viell. *Il Am Mach* 50:675-9 Ap 10 '19
- Oxy-acetylene pipe welding and cutting. *Il diags Gas Age* 42:471-4, 515-16; 43:27-8, 85-8 D 2 '18-Ja 15 '19
- Oxy-acetylene welding and cutting. *Eng & Min J* 107:268-9 F 8 '19
- Oxyacetylene welding and cutting; rules for operation. *Power* 49:665-6 Ap 29 '19; Same. *Mach* 25:733-4 Ap '19; Same Abr. *Textile World* 55:2721 My 3 '19
- Oxy-acetylene welding in hull construction. C. C. Phelps. *Il Int Marine Eng* 24:727-9 N '19
- Oxy-acetylene welding problems. W. L. Bean. *Il diag Ry Mech Eng* 93:97-100 F '19; Same cond. *Ry R* 64:513-15 Ap 5 '19
- Quick method of coping steel beams. F. W. Harth. *diags Iron Age* 103:694 Mr 13 '19
- Safety and oxy-acetylene. A. C. Morrison. *Iron Age* 103:1232 My 8 '19
- Slitting and perforating pipes by the oxy-acetylene process. *Il diags Eng & Min J* 108:320 Ag 23 '19
- Steel hardening process makes substitute for manganese specials. *Elec Ry J* 52:704 O 19 '18
- Straightening castings with the torch. J. Hoffman. *diags Foundry* 47:485 JI 15 '19
- Use of acetylene in the navy yards. H. G. Knox. *Il plan Int Marine Eng* 24:720-7 N '19; Same cond. *Am Mach* 51:661-4 O 2 '19
- See also Metal cutting; Welding

**Oxygen**

- Chemical action produced by radium emanation; the combination of hydrogen and oxygen. S. C. Lind. *diag Am Chem Soc J* 41:531-51 Ap '19
- Cutting steel ingots with oxy-hydrogen. W. B. Perdue. *Il Iron Tr R* 63:504-5 Ag 29 '18
- Determination of oxygen in iron. *J Ind & Eng Chem* 10:745 S '18
- Determining dissolved oxygen in water. I. S. Guest. *Eng & Min J* 107:241 F 1 '19
- Diffusion of oxygen through stored coal. S. H. Katz. *Il diags U S Bur Mines Tech Pa* 170:1-44 '17
- Effect of oxygen upon the precipitation of metals from cyanide solutions. T. B. Crowe. *Am Inst Min E Bul* 140:1279-82 Ag '18; Abstract. *Eng & Min J* 106:413 Ag 31 '18; Discussion. *Am Inst Min E Bul* 143:1667-8 N '18
- Electricity used in oxygen and hydrogen making. *Il Elec R* 74:908-10 My 31 '19
- Growth of the oxygen industry in the United States and its relation to oxy-acetylene welding and cutting processes. H. L. Barnitz. *Am Gas Eng J* 109:434-6 N 9 '18

**Oxygen—Continued**

- International type 4-1000 oxygen-hydrogen generator. *Il Int Marine Eng* 23:48 Ja '18
- Manufacture of oxygen and its use for welding and metal-cutting. J. M. Christie. *Eng & Contr* 50:129-30 Jl 31 '18
- Modern welding and cutting; oxygen and hydrogen by the electrolytic method. E. Viall. *Il diag plans Am Mach* 50:733-7 Ap 17 '19
- Oxygen as a revolutionizer of industry; abstract. M. F. Laure. *Chem & Met Eng* 20:111 My 15 '19
- Oxygen in cast iron and its application. W. L. Stork. *Am Inst Min Bul* 150:951-6 Je '19; Same. *Iron Age* 103:1636-7 Je 19 '19; Discussion. *Am Inst Min Bul* 154:2931-4; 155:3025; 156:3143-4 O-D '19
- Oxy-hydrogen gas—its uses at the J. I. Case threshing machine company, manufacturers of tractors and farm implements. C. Kandel. *Il plan Am Gas Eng J* 111:219-22 S 13 '19
- Phenomenon of breathing and the gas industry. E. Karrer. *Am Gas Eng J* 109:148-9 Ag 17 '18
- Role of atmospheric oxygen and alkali in the oxidation of acetone with potassium permanganate, pyruvic acid as an intermediate product. E. J. Witzemann. *Am Chem Soc J* 39:2657-71 D '17
- Vertical distribution of dissolved oxygen and the precipitation by salt water in certain tidal areas. J. W. Sale and W. W. Skinner. *map J Fr Inst* 184:837-48 D '17; Abstract. *Munic J* 45:68-9 Jl 27 '18
- See also* Oxidation; Ozone
- Oxygen, Liquid**
- Liquid oxygen as an explosive. *J Fr Inst* 185:158-9 Ja '18
- Liquid oxygen explosives. *Eng & Min J* 107:667 Ap 12 '19; Same. *Eng & Contr* 51:466 Ap 30 '19; *Coal Age* 15:1002 My 29 '19
- Liquid oxygen manufacture and uses. J. Dewar. *Eng & Min J* 107:602 Ap 5 '19; Same. *Sci Am* 121:298 S 20 '19
- Oxylignite; a liquid oxygen explosive. *diag Sci Am S* 86:268-9 O 26 '18
- Progress of liquid oxygen explosives. *Engineer* 125:506 Je 14 '18
- Oxyhydrogen gas**
- Oxy-hydrogen gas—its uses at the J. I. Case threshing machine company, manufacturers of tractors and farm implements. C. Kandel. *Il plan Am Gas Eng J* 111:219-22 S 13 '19
- Oxylignite.** *See* Oxygen, Liquid
- Oysters**
- Nutrition of oysters. P. H. Mitchell. *Sci Am S* 85:173-4 Mr 16 '18
- Oyster cultivation in Holland. *Il Sci Am S* 87:164 Mr 15 '19
- Oyster feeds both man and plants. *Il Sci Am S* 87:4 Ja 4 '19
- Oysters: the food that has not gone up. H. F. Moore. *Il Sci Am S* 85:184-5 Mr 23 '18
- Study of some of the chemical changes which occur in oysters during their preparation for the market. E. E. Smith. *U S Agric Bul* 740:1-24 '19
- Zinc in oysters. R. S. Hiltner and H. J. Wichmann. *J Fr Inst* 188:136-7 Jl '19
- Ozone**
- Chemical reactions in the corona; ozone formation. F. O. Anderegg. *diag Am Chem Soc J* 39:2581-95 D '17
- Keeping swimming pools pure and wholesome. *Il Metal Work* 90:709-11 D 27 '18
- Ozone as a disinfectant in water purification. J. W. Ellms. *Munic Eng* 57:186+ O '19
- Ozone method of water treatment and some examples of recently installed industrial plants. I. D. Groak. *Il diag Munic Eng* 54:200-3 My '18
- Recent development in equipment used in ozone method of water treatment. I. D. Groak. *Il diag Munic Eng* 55:109-11 S '18

**P**

- Pacific claim agents' association**
- 9th annual convention, Portland, Ore., May 1-3. *Elec Ry J* 51:1189-95 Je 22 '18
- 10th annual convention, Oakland, Cal., June 19-21. *Elec Ry J* 54:69-70 Jl 12 '19
- Pacific coast**
- Cost of surveying Pacific Coast waters will yield 100 per cent annual profit. *Eng & Contr* 49:256 Mr 13 '18
- Highway to Alaska. A. M. Sutton. *Il diag plan map Marine R* 49:202-8 Ap '19
- Pacific development corporation**
- Organization. *Ry Age* 65:901-2 N 15 sec 2 '18
- Pacific electric railway**
- Pacific electric's new car storage and repair facilities. C. A. Elliott. *Il plans Elec Ry J* 52:914-17 N 23 '18
- Pacific gas and electric company**
- Company grows in size. *map Elec W* 73:1345 Je 21 '19
- Function of the Pacific gas and electric co. in the interconnected operation of the power companies of central and northern California. J. P. Jollyman. *map Am Inst E E Pro* 37:1322-7 D '18
- Record of power service. *Il Elec R* 73:822-3 N 23 '18
- Pacific logging congress**
- 10th annual session, Portland, Ore., Oct. 10. *Il Am Lumberman* 2318:59-65 O 18 '19
- Pacific lumber inspection bureau**
- Report for 1917. *Am Lumberman* 2235:31 Mr 16 '18
- Pacific ocean**
- American Pacific ocean; results of a comprehensive survey undertaken by the University of California. *Il Sci Am* 119:441+ N 30 '18
- Depths of the Pacific. V. McCaughey. *Il map Sci Am S* 85:388-90 Je 22 '18
- Islands of the Pacific. E. Im Thurn. *Sci Am S* 87:98-9 F 15 '19
- Problems of the Pacific; future commercial policy in view of past history. R. F. Irvine. *Sci Am S* 86:162-3 S 14 '18
- See also* Pacific coast
- Packard motor car company, Detroit, Michigan**
- Forge shop. *Il diag Am Arch* 114:30-3 Jl 3 '18
- Packard training schools for employees. D. G. Stanbrough. *Il Ind Management* 56:378-82 N '18
- Preliminary training for women workers. F. H. Colvin. *Il diag Am Mach* 49:1067-70 D 12 '18
- Packing**
- Cast iron piston rod packing. *diag Ry Mech Eng* 93:577-8 O '19
- Cast iron piston rod packing. *Il diag Ry Mech Eng* 91:711 D '17
- Development of John Crane flexible metallic packing. *Il Int Marine Eng* 23:318 My '18; *Ind Management* 55:423 My '18; *Power* 47:698 My 14 '18
- Extracts from Chordal's letters. *diag Am Mach* 50:595-6 Mr 27 '19
- Hand power lathes for rod packing. *diag Ry Mech Eng* 92:627-8 N '18
- Handy packing cutter. J. A. Lucas. *diag Power* 47:262-3 F 19 '18
- How to keep main feed pump gland tight. E. B. Dell. *diag Int Marine Eng* 23:713 D '18
- Increased car mileage per packing results from efficient saturation of waste. *Il Elec Ry J* 51:1154 Je 15 '18
- Journal box packing. *Ry Mech Eng* 93:140-1 Mr '19
- Journal box packing situation. *Ry Mech Eng* 92:567-8 O '18
- Lubrication and care of journal boxes. M. J. O'Connor. *Ry R* 64:620-1 Ap 26 '19; Same. *Ry Mech Eng* 93:253-5 My '19
- Mixtures for metallic packing. *Foundry* 46:271 Je '18
- Packing cage sections gripped packing rings. E. Pagett. *diag Power* 50:513 S 23 '19

**Packing—Continued**

- Packing notes. C. H. Willey. *diag*s Int Marine Eng 23:41-2 Ja '18
- Packing troubles. W. F. Schaphorst. Int Marine Eng 23:596-7 O '18
- Proper packings produced savings. W. Weaver. Power 49:478 Ap 1 '19
- Q & C piston rod packing and lubricator. *il* Ry Mech Eng 93:555-6 S '19
- Soft flexible metallic packing for condensers. *il* Int Marine Eng 23:662-3 N '18
- System for preparing journal box packing. *il* Ry Mech Eng 92:423 JI '18
- Triangle flap-ring packing. *diag* Power 48:808 D 3 '18
- Waste-saturating tank. G. E. Baldwin. *diag*s Am Mach 48:760 My 2 '18
- Packing for shipment**
- Better packages and how to know them. *il* Sci Am 120:546+ My 24 '19
- Boxing machinery to prevent damage. L. D. Burlingame. *il* *diag*s Ind Management 56:27-33 JI '18
- Food wastes—some causes and remedies. L. P. Brown. *il* *diag*s J Fr Inst 185:585-610 My '18
- Gospel of a good package. K. H. Gillette. Ry Age 67:70 JI 11 sec 1 '19
- Government issues specifications for baling knit goods. Textile World 53:4424 Mr 30 '18
- How to mark express containers. Iron Tr R 62:1498 Je 13 '18
- Improved methods of shipping airplanes. Automotive Ind 39:341 Ag 22 '18
- Knit goods packing. Textile World 54:1722 O 12 '18
- Knocking down a 120-ton electric locomotive for export. W. D. Bearce. *il* Gen Elec R 20:204-8 Mr '17; Same. Ry R 60:465-7 Mr 31 '17; Same cond. Eng N 77:459 Mr 22 '17; Same cond. Engineer 123:424 My 11 '17; Same cond. Iron Tr R 61:88 JI 12 '17; Same cond. Elec R & W Elec'n 70:467 Mr 17 '17; Abstract. Sci Am 118:382 Ap 27 '18
- Machine parts sent by express. Mach 24:763 Ap '18
- Manufacture of steel sheets. C. F. Poppleton. Iron Age 101:741-2 Mr 21 '18
- Marking and packing shipments for export. J. C. Harraman. map J Elec 43:396-7 N 1 '19
- New express packing rules effective in December. Dom Eng 89:283-4 N 8 '19
- Old story of packing goods for export. G. H. Curtis. Am Ind 20:39-40 S '19
- Packing and marking freight shipments. Ry R 63:92-3 JI 20 '18
- Packing conservation in knit goods. R. L. Hall. Textile World 55:651-2 Ja 18 '19
- Packing for export. J. W. Hart. *diag*s Am Mach 48:380 F 28 '18
- Packing for export. H. R. Moody. Sci Am S 87:366-7 Je 7 '19; Same cond. Am Mach 51:114-15 JI 17 '19
- Packing for shipment by express. J. C. Harraman. *il* J Elec 42:466-9 My 15 '19
- Paper bales instead of boxes. Sci Am 120:655 Je 21 '19
- Preparation and handling of package freight. A. C. Kenly. *il* Ry Age 64:1120-2 My 3 '18
- Rules for packing iron and steel products. Iron Age 101:802 Mr 28 '18
- Some problems in shipping. C. M. Ripley. *il* Gen Elec R 22:82-8 Ja '19; Same cond. Sci Am S 87:138-9 Mr 1 '19
- Specifications for packing for export; suggested guides issued by the General engineer dept. Elec W 71:328-9 F 9 '18
- Suggestions for packing machinery for export. Mach 25:35 S '18
- See also Shipment of goods
- Packing houses**
- Improved lighting of meat-packing plants. F. H. Bernhard. *il* Elec R 73:87-92 JI 20 '18
- Refrigerating troubles in a packing house plant. J. C. Moran. *diag*s Power 50:459-61 S 16 '19
- See also Packing industry
- Packing industry**
- Federal trade commission suggests railroad administration control for packers. Ry Age 65:302-4 Ag 16 '18

- Federal trade report on private car lines. Ry R 65:394-5 S 13 '19
- Synchronous motors in the meat packing industry. T. J. Byrnes. *il* Gen Elec R 22:461-4 Je '19

Page, Logan Waller, 1870-1918

- Sketch. por Eng & Contr 50:577-8 D 18 '18
- Sketch. J. M. Goodell. por Eng N 81:1095+ D 12 '18

**Paint**

- Considerations in selection of paint. G. W. Thompson. Eng & Contr 50:598-9 D 25 '18
- Discoloration of white paint. D. F. Twiss. Sci Am S 87:91 F 8 '19
- Field for substitute oils. P. J. Hoffman. Ry Mech Eng 93:611 O '19
- Hiding power of white pigments and paints. A. H. Pfund. *diag*s J Fr Inst 188:675-81 N '19
- How modern ships are painted. F. B. Jacobs. *il* Marine R 49:571-3 D '19 (to be cont)
- How much paint is needed? A. A. Kelly. Bldg Age 41:108-9 Mr '19
- How roofs and roof paints are destroyed. Metal Work 88:684 D 7 '17
- Improvement of machine lighting by the use of white paint. *diag* Illum Engr 11:241 O '18
- Lumber and paint; two indicators of business conditions. A. W. Douglas. Factory 19:190-1 Ag '17
- Meeting new demands; what the war and the airplane development mean to the paint and varnish makers. A. de Waele. Sci Am S 87:390 Je 21 '19
- Mesothorium as a radium substitute in luminous paint. Eng & Min J 106:1124-5 D 28 '18; Sci Am 119:501 D 21 '18; Automotive Ind 40:16 Ja 2 '19; Chem & Met Eng 20:168 F 15 '19; Illum Engr 12:109-10 Ap '19
- Paint affects heat radiation. Am Arch 113:806 Je 12 '18
- Paint an essential and important detail. G. B. Heckel. Am Arch 113:85-6 Ja 23 '18
- Paint and varnish. U S Bur Stand Circ 69:1-85 '17
- Paint, its history and properties. R. Job. *il* Am Arch 113:845-8 Je 26 '18
- Paint thinning calculations. Chem & Met Eng 19:260 S 1 '18
- Painting stations. G. W. Thompson. Ry Age 65:733-4 O 25 '18
- Paints that lower cost. A. A. Kelly. Bldg Age 41:189-90 Je '19
- Present day painting practice in railway field. Eng & Contr 52:429-30 O 15 '19
- Selecting an economic paint. R. Job. Eng & Contr 50:216-17 Ag 28 '18
- Selection and purchase of paint. S. E. Breese. Ry Age 67:549-50 S 19 '19; Same. Ry R 65:444-6 S 27 '19; Same. Ry Mech Eng 93:608-9 O '19
- Standardizing paints and containers in wartime. Sci Am 118:160 F 16 '18
- Substitute for linseed oil. A. H. F. Phillips. Ry Age 67:550-1 S 19 '19; Same. Ry Mech Eng 93:610-11 O '19; Same. Ry R 65:663-4 N 1 '19
- Substitute for linseed oil in paint manufacture. H. A. Gardner. Am Arch 116:29 JI 2 '19; Same. Sci Am 121:196 Ag 23 '19
- Temperature sensitive paints. W. S. Andrews. Gen Elec R 21:164 F '18; Same. Sci Am 118:245 Mr 16 '18
- Uses of mill whites. J. E. Heckel. *il* *diag* Textile World 55:2083+ Ap 5 '19
- See also Corrosion and anti-corrosives; Metal protection; Paint shops; Painting, Structural; Pigments; Red lead

**Analysis**

- Some notes on paint analysis. G. J. Hough. J Ind & Eng Chem 11:767-8 Ag '19

**Bibliography**

- Structural service department; paints and painting. Am Inst Arch J 5:647-52 D '17

**Testing**

- New paint exposure tests at Atlantic City. H. A. Gardner. *il* Am Arch 116:288-90 Ag 27 '19; Same abr. Metal Work 92:489 O 24 '19

**Paint—Testing—Continued**

Practical tests for concrete and steel paints. *Il Eng N 80:623-4 Mr 28 '18*

Preservative coatings for iron and steel; paint tests. *Int Marine Eng 24:82 F '19*

Simple tests for painting material. *Bldg Age 40:235-6 My '18*

Tests of paints for interior surface of iron standpipes. A. H. Keen; C. W. Sherman. *Eng & Contr 52:416 O 8 '19*

**Paint buckets**

Bucket to keep paint and brush in good condition. *Il Elec R 73:674 O 26 '18*

**Paint shops**

New shop of Standard steel car company. *Il diags Ry R 63:464-7 S 28 '18*

Painting. See Mural painting and decoration; Paint; Painting, Industrial; Painting, Structural

**Painting, Industrial**

Aeron paint spraying system. *Il Ry Age 64:727 Mr 23 '18*; Same. *Ry Mech Eng 92:174-5 Mr '18*

Equipment for painting with compressed air. *Il Eng & Contr 51:130-1 Ja 29 '19*; *Factory 22:570-1 Mr '19*

How to prime and paint common woods on the market to-day. A. A. Kelly. *Bldg Age 40:566-7 D '18*

Paasche air brush and portable painting equipment saves time and money. *Il Elec R 75:583 O 4 '19*

Paint gun conduces to economy in the shop. C. M. Pettinger. *Il Elec Ry J 51:464-5 Mr 9 '18*

Painting pipe wrinkle. H. H. McClintock. *diags Gas Age 41:259 Mr 15 '18*

Painting pitchy lumber. *Am Lumberman 2249: 31 Je 22 '18*

Painting the plant. *Factory 20:866-1 My '18*

Painting with a jet of air. *Sci Am 121:14 J1 5 '19*

Paints and coatings—brushed or sprayed. *Concrete 15:118-19 S '19*

White interiors cut coal consumption. G. B. Heckel. *Il Textile World 53:3167-1 Ja 12 '18*

See also Automobiles—Painting; Car painting; Gilding; House painting; Lettering; Paint; Paint shops; Painting, Structural; Varnishes and varnishing

**Painting, Structural**

Paint for iron; abstracts. J. N. Friend. *Sci Am S 86:37 J1 20 '18*; *Eng & Contr 50:434 O 30 '18*; *Mach 25:145 O '18*

Painting iron and steel standpipes! C. W. Sherman. *Munic J 47:262-3, 296-8, 313-14 N 1, 15-22 '19*

Preserving iron and steel. M. Meredith. *Int Marine Eng 23:712 D '18*

Preventing deterioration by the proper use of paint. J. Gibbons. *Ry Age 66:1834-5 Je 27 '19*

Rust prevention as a steel conservation measure. D. O'Brien. *Elec Ry J 53:243-4 F 1 '19*

Spraying paint on corrugated steel before shipment. T. M. Wheat. *Il Eng N 82:676-7 Ap 3 '19*

See also Automobiles—Painting; Bridge painting; Car painting; Ships—Painting

**Paints. See Paint****Palaces**

Palazzo Massimo alle Colonne, Rome. H. W. Germann. *Il diags Arch Forum 31:61-4 Ag '19*

**Palau**

Comparative tests of palau and rhotanium ware as substitutes for platinum laboratory utensils. L. J. Gurevich and E. Wichers. *J Ind & Eng Chem 11:570-3 Je '19*

Paleolithic period. See Stone age

**Paleontology**

California's fossil mine. *Il Sci Am 120:15 Ja 4 '19*

Fossil deposits of Nebraska. *Il Sci Am 120: 483 My 10 '19*

Fossils found in eastern Colorado. L. S. Ellis. *Il Sci Am 120:283 Mr 22 '19*

Pleistocene man of Vero, Florida. F. H. Sterns. *bibliog Sci Am S 85:354-5 Je 8 '18*

Prehistoric classification. W. J. L. Abbot. *Sci Am S 84:370-1 D 15 '17*

**Palestine****Sanitary affairs**

To make the Holy Land sanitary. *Metal Work 89:851 Je 23 '18*

**Palladium**

Occlusion of hydrogen and oxygen by metal electrodes. E. A. Harding and D. P. Smith. *diags Am Chem Soc J 40:1508-31 O '18*; *Discussion. 41:1887-98 D '19*

Platinum and palladium in Brazil. G. F. Kunz. *Il Sci Am S 88:24-5 J1 12 '19*

Reduction of dihydroxy-thymoquinone by means of palladium-hydrogen. N. A. Wakeman. *Am Chem Soc J 41:1873-5 N '19*

Palm, Carnauba. See Carnauba palm

**Palm fiber**

Palm fiber for brushes. *Sci Am 118:420 My 4 '18*

**Palm oil**

Imports of palm oil. *Sci Am S 86:135 Ag 31 '18*

See also Cohune oil

**Pamphlets**

Engineering pamphlet. R. Fleming. *Eng & Contr 51:219 F 26 '19*

**Panama canal**

Coming appropriations for electrical equipment and labor on the Panama canal. *Elec W 72:58 J1 13 '18*

Freight handling at the Panama canal. *Il Int Marine Eng 23:25-7 Ja '18*

Panama canal tolls. M. H. McAllister. *Sci Am 118:131 F 9 '18*

250-ton floating cranes at Panama. F. A. Stanley. *Il Int Marine Eng 23:74-6 F '18*

**Slides**

Panama canal slides under control. C. Harding. *Eng N 79:1207-8 D 27 '17*

**Panama Canal Zone**

Atlantic fleet and the Panama Canal. *Il Sci Am 121:209-1 Ag 30 '19*

Heavy machine equipment at Panama. R. D. Gatewood. *Il Am Mach 51:463-5 S 4 '19*

Lunch room at Balboa. R. D. Gatewood. *Il plan Am Mach 49:613-15 O 3 '18*

Our Canal-Zone dry docks and repair shops. R. D. Gatewood. *Il Am Mach 50:336-9 F 20 '19*

Pumping plant and electrical equipment at Balboa shops. R. D. Gatewood. *Il Power 49: 114-16 Ja 28 '19*

War time work at Balboa shops. R. D. Gatewood. *Il Am Mach 50:191-4 Ja 30 '19*

See also Panama canal

**Industries and resources**

Lumbermen inspect the timber of Panama. W. M. Buchanan. *Am Lumberman 2293:58 Ap 26 '19*

**Sanitary affairs**

Reduction of free carbonic acid in settled water increases length of filter runs at Panama. G. C. Bunker. *Eng & Contr 49:260-2 Mr 13 '18*

**Water supply**

Cost of grass cutting at impounding reservoirs. G. C. Bunker. *Il Eng & Contr 49:272-3 Mr 13 '18*

Maintaining reservoirs in tropical countries. *Il Munic J 44:197-200 Mr 9 '18*

Water purification in the Canal Zone. G. C. Bunker. *Munic J 44:296-7 Ap 13 '18*

**Panama hats**

Panama hats, the chief industry of southwestern Porto Rico. T. de Booy. *Il Sci Am S 85:328-9 My 25 '18*

**Pan-American aeronautical convention**

2d Pan-American exposition, Atlantic City. *Il Flying 8:420-32 Je '19*

Pan American buildings, Washington, D.C. See Washington, D.C.—Architecture

**Pan-American commercial conference**

2d Pan-American commercial conference. *Ry Age 66:1419-22 Je 13 '19*

**Panics**  
Principles for stabilizing prosperity. G. S. Small. *Ind Management* 58:24-8 J1 '19

**Paper**

Costs of job-printing—paper. R. T. Porte. *Inland Ptr* 63:51-4 Ap '19  
Materials for the household. bibliog U S Bur Stand Circ 70:163-74 '17  
Paper conservation put up to commercial printers and allied trade interests. W. Fawcett. *Inland Ptr* 61:199-200 My '18  
Paper consumption in newspaper pressrooms. F. Milne. *Inland Ptr* 62:314-16 D '18  
Place of paper in the war. *Sci Am* 118:463 My '18  
Rules stated for saving print-paper. *Inland Ptr* 62:81-3 O '18  
Saxolin, a softened and asphalted paper for wrapping. *Am Soc M E J* 40:268 Mr '18  
Yellowing of paper. A. B. Hitchins. *Sci Am* S 87:222 Ap 5 '19  
*See also* Photographic paper; Wall paper; Waste paper; Wood pulp

**Bibliography**

Literature of the paper industry. M. Hubbard. Technical Association Papers ser 2: 11-23 '19 \$2 Technical association of the pulp and paper industry, 131 E. 23d st., N.Y.

**Testing**

Constant temperature and humidity room for the testing of paper, textiles, etc. F. P. Veitch and E. O. Reed. *Ind Eng Chem* 10:38-44 Ja '18  
Estimation of fibers in paper. R. C. Griffin. *J Ind & Eng Chem* 11:968-70 O '19  
Method for determining the absorbency of paper. E. O. Reed. *J Ind & Eng Chem* 10: 44-7 Ja '18  
Paper tearing-resistance tester. H. N. Case. *Ind Eng Chem* 11:49-51 Ja '19  
Webb paper tester—a new instrument for testing corrugated fiber boards. J. D. Malcolmson. *J Ind & Eng Chem* 11:133-8 F '19

**Paper, Photographic.** *See* Photographic paper  
**Paper and pulp association, American.** *See* American paper and pulp association

**Paper containers**

Package problem. *Concrete* 11:sup53 D '17

**Paper cylinders**

Paper cylinders used for molds for concrete test pieces. W. Davis. *Ind Eng N* 83:473 S 4 '19

**Paper hanging.** *See* Wall paper

**Paper making and trade**

American decimal system of weights for paper. *Inland Ptr* 62:393-5 Ja '19  
Analysis of sulphur burner gases; abstract. F. M. Williams. *Met & Chem Eng* 18:314 Mr 15 '18  
Brazilian markets for paper, paper products, and printing machinery. R. S. Barrett. *U S Bur For & Dom Com* 171:1-77 '18  
Chilean market for paper, paper products, and printing machinery. R. S. Barrett. *U S Bur For & Dom Com* 153:1-72 '17  
Effect of varying certain cooking conditions in the production of sulphide pulp from spruce. S. E. Lunak. 12 pls *U S Agric Bul* 620:1-23 '18  
Experiments on the pulping of extracted yellow pine chips by the sulfate process. O. Kress and C. K. Textor. *J Ind & Eng Chem* 10:268-70 Ap '18  
Finland and the world's next paper supply. C. A. Player. *Sci Am* 119:411 N 23 '18  
How American industry can meet world competition after the war. W. O. Lichtner. *Ind chart plans W Soc E J* 23:243-50 Ap '18  
Is paper merchandise properly salable by printers? H. L. Bullen. *Inland Ptr* 63: 296 Je '19

Making paper by electricity. *J Elec* 42: 260-1, 472 Mr 15, My 15 '19

Making paper from dead leaves. *Sci Am* 119: 143 Ag 17 '18; Abstract. *Sci Am* S 86:185 S 21 '18

Material handling in a paper mill. H. J. Edsall. *Ind Management* 57:97-103, 183-9 F-Mr '19

Method of staining to distinguish between bleached and unbleached sulphite pulps; note. *Sci Am* S 86:283 N 2 '18

New paper-making materials. *Sci Am* S 84: 373 D 15 '17

News-print marketing conditions again under federal scrutiny. *Inland Ptr* 60:559-60 F '18

Paper-making from megass. *Sci Am* S 87:102 F 15 '19

Paper, paper products, and printing machinery in Argentina, Uruguay, and Paraguay. R. S. Barrett. *U S Bur For & Dom Com* 163:1-165 '18

Present situation as regards paper. G. Olmsted. map *Inland Ptr* 61:758-60 S '18

Universal substance numbers for the weights of paper. N. J. Werner. *Inland Ptr* 63:153-6 My '19

Use of non-financial incentives in industry. R. B. Wolf. *Am Soc M E J* 40:1085-8 D '18; Abstract. *Int Marine Eng* 24:109 F '19; Discussion. *Am Soc M E J* 41:29-30 Ja '19

*See also* Paper mills; Paper textiles; Wall paper

**By-products**

Alcohol from sulphite-pulp waste liquor. E. Hendrick. *Met & Chem Eng* 18:360-2 Ap 1 '18

Spruce turpentine. *J Ind & Eng Chem* 10:4 Ja '18

Sulphite turpentine. A. W. Schorger. *J Ind & Eng Chem* 10:258-60 Ap '18

Toluol from spruce turpentine. *Met & Chem Eng* 18:311, 338 Mr 15-Apr 1 '18

Treatment of waste liquors from paper pulp mills. *Chem & Met Eng* 20:542-3 My 15 '19

Utilizing waste sulphite liquors. *Chem & Met Eng* 19:568 O 1 '18

Waste sulphite liquor problem. B. Johnsen. *Sci Am* S 86:190-1 S 21 '18

**Regulation**

Regulations from the pulp and paper section of the War industries board regarding paper. *Inland Ptr* 61:767 S '18

**Safety devices and measures**

Safety in paper and pulp manufacturing. *Ind Am* 18:sup1-4 D '17

**Terminology**

New nomenclature proposed for printing-papers. W. Fawcett. *Inland Ptr* 63:171-2 My '19

**Paper mills**

Allen-Moore cell in the pulp and paper mill. F. H. Mitchell. *Ind Chem & Met Eng* 21:370-5 S 15 '19

Electrical equipment of a paper mill in Kalamazoo, Mich. *Elec R* 71:1106 D 29 '17

Electrification of paper mill finishing-room machinery. W. T. Edgell, jr. *Ind Eng Gen Elec R* 22:399-406 My '19

Electrified paper mill; plant of the Brown co. *Ind Elec R* 73:999-1000 D 28 '18

Features of electric drive in new paper mill. W. A. Scott. *Elec R* 74:587 Ap 12 '19

Human element in the mill. H. K. Moore. charts *Chem & Met Eng* 19:146-50 Ag 1 '18

Hydroelectric plant and paper mill at Ocean Falls, B. C. W. A. Scott. *Ind Elec R* 75: 551-4 O 4 '19

Motor drive in paper and pulp mills. C. E. Clewell. *Ind Eng Elec W* 72:152-4, 198-201 J1 27-Ag 3 '18

Old paper mill rebuilt for efficient operation. J. Meltzer. *Ind Eng plans Eng N* 80:442-8 Mr 7 '18

Paper mill installation in the Northwest. *J Elec* 42:585 Je 15 '19

*See also* Paper making and trade

**Paper money**

Making and destroying paper money. C. H. Claudy. *Ind Sci Am* S 86:200-2 S 28 '18

**Paper pipes.** *See* Pipes, Paper

**Paper products**

Japanese air-cushions of paper. *Il Sci Am* 121:463 N 8 '19

Japanese paper products. *Sci Am* 117:459 D 15 '17

Paper for bandages. *Textile World* 53:4831 Ap 20 '18

*See also* Paper containers; Paper textiles; Pertinax

**Paper textiles**

German substitutes; paper yarn being used largely in wearing apparel. *Textile World* 53:4081 Mr 2 '18

Manufacturing paper yarn and fabrics. *Sci Am* 121:122+ Ag 2 '19

Paper clothing. *Sci Am* 119:40 Jl 13 '18

Paper textiles in Europe. *Color Tr J* 4:88-91 Ap '19

Paper yarn industry of Germany. *Sci Am* 119:426 N 23 '18

Wood pulp wet spinning process. *Textile World* 56:233 Jl 12 '19

Wool product dwindling. *Il Sci Am S* 85:392-3 Je 23 '18

**Para cymene.** *See* Cymene

**Parachutes**

Air service parachute. *Il Aviation* 6:644 Jl 15 '19

Life preservers for air passengers. *Sci Am* 121:152 Ag 16 '19

Parachutes for airplanes. *Il diag Sci Am* 121:32-3 Jl 12 '19

Prize offered through aero club of America for parachute competition. *Il Flying* 7:1141-3 Ja '19

When an airman's life is worth no more than his parachute. *Il Sci Am* 119:149 Ag 24 '18

Zeppelin, aeroplane and parachute. C. Dienstbach. *Sci Am* 117:474+ D 22 '17

**Paraffin**

Case of severe third degree burns treated with ambrine; with a resumé of literature on the subject by H. R. Hosmer, C. G. McMullen. *Il Gen Elec R* 20:717-22 S '17; Same. *Sci Am S* 85:190-1 Mr 23 '18

Purifying paraffin wax. R. S. Dickie. *Engineer* 127:165 F 14 '19

Recovery of waste paraffined paper by extraction with volatile solvents. O. Kress and L. F. Hawley. *J Ind & Eng Chem* 11:227-9 Mr '19

Standardized method for the determination of solidification points, especially of naphthalene and paraffin. R. M. Wilhelm and J. L. Finkelstein. *U S Bur Stand Sci Pa* 340:194-7 '19

Treatment of burns with wax. *Coal Age* 14:989 N 28 '18

Paraffin dirt of the Gulf Coast oil fields. A. D. Brokaw. *Am Inst Min E Bul* 136:947-50 Ap '18; Discussion. 139:1148-53; 140:1158-62; 143:1674-7; 145:98-101 Jl-Ag, N '18, Ja '19

**Paraguay****Commerce**

Boots and shoes, leather, and supplies in Argentina, Uruguay, and Paraguay. H. G. Brock. *Il U S Bur For & Dom Com* 177:145-70 '19

Cooking stoves in Paraguay. *Sci Am* 118:421 My 4 '18

Paper, paper products, and printing machinery in Argentina, Uruguay, and Paraguay. R. S. Barrett. *Il U S Bur For & Dom Com* 163:1-165 '18

**Parallel operation.** *See* Electric generators; Electric plants—Parallel operation

**Parana pine**

Sawmilling in southern Brazil. E. F. Horn. *Am Lumberman* 2246:45 Je 1 '18

**Parasites**

Factors influencing the spread of parasites. *Sci Am S* 86:135 Ag 31 '18

Fish louse; argulus foliaceus L. R. Merle. *Il Sci Am S* 84:373 D 15 '17

Grapevine parasites and their treatment. *Sci Am S* 86:15 Jl 6 '18

Parasites of crops and cattle. M. C. Potter. *Sci Am S* 85:272 Ap 27 '18

*See also* Hookworm

**Paravanes**

Mysterious paravane. W. W. Nutting. *Il diag Int Marine Eng* 24:289-92 Ap '19

Paravane—a steel shark which protects vessels in mine-infested waters. *Il Sci Am* 120:91+ F 1 '19

Protection of ships against mines. *Il diag Engineer* 127:222-4, 293-4 Mr 7, 28 '19; Excerpt. *Eng & Contr* 51:440-1 Ap 30 '19

**Parcel post**

Better international parcel post facilities. *Am Ind* 19:17-18 Mr '19

Help to take the kinks out of international parcel post. F. T. Plaza. *Automotive Ind* 41:276-7 Ag 7 '19

Marketing butter and cheese by parcel post. L. B. Flohr and R. C. Potts. *Il U S Agric Farmers' Bul* 930:1-12 '18

Parcel post development must keep up with export trade. A. Sinsheimer. *Automotive Ind* 40:1389-91 Je 19 '19

Parcel post routes by motor trucks to be extended. *Ry Age* 64:104 Ja 11 '18; Excerpts. *Eng & Contr* 49:41 Ja 9 '18

Reports show results of motor parcel post service. *map Eng N* 81:90-2 Jl 11 '18

Suggestions for parcel post marketing. L. B. Flohr and C. T. More. *Il U S Agric Farmers' Bul* 703:1-20 '18

Telephone exchange by parcel post. *Il J Elec* 43:261 S 15 '19

\$20,000,000 expenditure proposed for construction and maintenance of highways for motor truck parcel post service. *Eng & Contr* 50:23-4 Jl 3 '18

**Paris**

Plan of Paris. N. Hammarstrand. *Il plan Am Inst Arch J* 6:287-98 Je '18

**Bombardment**

Paris not perturbed by bombardment. R. K. Tomlin, Jr. *Eng N* 80:1064-5 My 30 '18; Same. *Met & Chem Eng* 18:622-3 Je 15 '18

Seventy-five mile gun: a study of shell fragments recovered in the city of Paris. *Il diag Sci Am* 118:432 My 11 '18

**Rapid transit**

Paris tramways in war time. *Elec Ry J* 54:486 S 6 '19

**Streets**

American engineer in France. *Munic J* 45:227-9 S 21 '18

**Paris garter factory, Chicago**

Report on air conditions at the Paris garter factory. *Il charts plans Heat & Ven* 15:23-36 My; 37-43 Je '18

**Parish houses**

Christ church parish house, Hartford, Conn.; views and plans. *Arch Forum* 31:pl 75-7 N '19

**Park buildings.** *See* Pavilions

**Parkerizing**

Is rust-proofing for trucks practical? E. T. Birdsall. *Automotive Ind* 41:24-5 Jl 3 '19

**Parks, Charles Wellman, 1863-**

New chief of Bureau of yards and docks. *por Eng N* 79:1218 D 27 '17

**Parks**

Methods and cost of maintenance of a 27¼ acre park system. H. R. Ferriss. *Eng & Contr* 50:525-6 D 4 '18

Mill Creek Park, Youngstown, O. J. A. Schweinfurth. *Il Am Arch* 115:569-73 Je 25 '19

Reservoir park in Albany, N.Y. *Munic J* 44:510 Je 22 '18

Some bridges of Boston's park system. J. A. Schweinfurth. *Il Am Arch* 116:329-33 S 10 '19

Water works land for park purposes. *Munic J* 44:489-90 Je 15 '18

Water works parks in Fort Wayne. R. D. Evans. *Il Munic J* 44:481-2 Je 15 '18

*See also* Landscape gardening; Parkways; Playgrounds; Zoological gardens

**Lighting**

Park and boulevard lighting in Portland. F. H. Murphy. *Il Elec W* 73:889-90 My 3 '19



**Parkways**

Construction plans developed for the Bronx River parkway reservation. L. G. Holleran. 11 maps Eng N 81:899-903 N 14 '18  
Methods and cost of maintenance of a 27½ acre park system. H. R. Ferriss. Eng & Contr 50:525-6 D 4 '18

**Partition doors**

Partition doors that are concealed when closed. E. J. G. Phillips. 11 diag plans Bldg Age 41:224+ J1 '19

**Partitions**

Fireproof interior dividing partitions. 11 diag Concrete 15:212 N '19  
Partition construction. E. Drahn. diag Bldg Age 40:472-3, 519-20 O-N '18

**Partitions, Folding**

Standard school house equipment and details. diag plans Am Arch 115:657-63 My 7 '19

**Partnership**

Dissolution of partnership should be perfected with great care to prevent subsequent liability for debts contracted in name of partnership. Dom Eng 87:199-200 My 3 '19

Liability of partner. Dom Eng 83:328 Je 1 '18  
Liability of partners for wrongful acts and suits. Dom Eng 81:506 D 22 '17  
Partnership liquidation. J Account 26:61-8 J1 '18

Retiring partner must still pay firm's debts. E. J. Buckley. Metal Work 90:99 J1 28 '18  
Transactions between partner and firm. W. A. Paton. J Account 28:33-8 J1 '19  
Transactions between partner and firm. S. Walton and H. A. Finney. J Account 28:306-10 O '19  
When a partner is entitled to a salary. R. H. Butz. Dom Eng 83:218 My 11 '18; Same. Inland Ptr 61:450-1 J1 '18

See also Corporation law  
Partnership Insurance. See Insurance, Partnership

**Pasadena, California****Water supply**

Cost of water main construction at Pasadena. Eng & Contr 48:487 D 12 '17

**Passaic, New Jersey****Railroads**

Grade crossing elimination at Passaic. R. F. Odell. 11 diag plan Munic J 44:341-4 Ap 27 '18

**Passaic valley sewerage commission**

Hampered by delinquent payments. Munic J 45:113-14 Ag 10 '18

Passaic valley sewer contract suit settled by agreement. Eng N 81:191-2 J1 25 '18

**Passenger cars. See Cars****Passenger stations. See Railroads—Stations****Passes. See Railroads—Passes****Patent laws and legislation**

Approaching changes in American patent laws. E. J. Prindle. Am Ind 19:36 Je '19  
British patent bill. E. B. Marshall. Sci Am 118:386+ Ap 27 '18

Broader conditions in proposed British patent law. Automotive Ind 41:524-5 S 11 '19; Abstract. Iron Age 104:722 S 11 '19

Extensions in patent and trade mark cases. E. B. Marshall. Sci Am 118:592+ Je 29 '18

Patent and trade mark laws of the Argentine. R. W. Huntington. Automotive Ind 39:192-3 Ag 1 '18

Patent law amendment. Inst E E J 57:64-71 D '18

Patent law and the legal standard of novelty. Engineer 127:346-7 Ap 11 '19

Patent law reform. Engineer 124:521, 537; 126:438, 468-70 D 14-21 '17, N 22-29 '18

Patent ups and downs. C. A. P. Turner. Concrete 15:26-7 J1 '19

Price-cutting permitted on patented articles; decision of United States Supreme court. A. Scheible. Elec R 72:841 My 18 '18

Priorities between inventors. C. C. Sherlock. Power 50:387-8 S 2 '19

Proposed new British patent law. Mach 24:608 Mr '18

Provisions of Versailles treaty regarding foreign patents. C. J. Loftus. Iron Age 104:635 S 4 '19

Recent patent decisions. Sci Am 120:560+ My 24 '19

Reforms in the patent system. F. W. H. Clay. Sci Am S 85:86-7 F 9 '18

Registration of patents and trade marks in Japan. Am Ind 19:43 Ag '18

Relief for patentees. J. T. Cowles. Sci Am 121:9 J1 5 '19

Report of the Patent committee to the National research council. J Ind & Eng Chem 11:250-3 Mr '19; Excerpts. Chem & Met Eng 20:150-1 F 15 '19

Rights to patents and inventions. C. C. Sherlock. Am Mach 50:115-18 Ja 16 '19

Suggested British Empire patent law. Inst E E J 57:539-40 J1 '19; Same. Engineer 128:189 Ag 22 '19

United States Supreme court on patentees' rights. P. Synnestvedt. Ry Age 64:1135-6 My 3 '18

**Patent lawyers**

St Patrick in the patent office. Sci Am 119:162 Ag 31 '18

**Patent office. See United States—Patent office****Patent office society**

Society completes its first year of existence. Sci Am 118:194+ Mr 2 '18

**Patents**

American vs. British patent protection. R. A. Hadfield. Sci Am 119:523+ D 28 '18

Announcement of the Federal trade commission with regard to licenses under German dye and drug patents. J Ind & Eng Chem 10:404 My '18

Another field for patent relief. Sci Am 120:596 Je 7 '19

Enemy patent licenses issued by Federal trade commission. Chem & Met Eng 19:227 S 1 '18

Establishing the value of patents. R. H. Butz. Iron Tr R 65:1045-6 O 16 '19

Farmer and the patent system. E. J. Prindle. Sci Am 121:36+ J1 12 '19

Foreign patents in Germany. Engineer 126:183-4 Ag 30 '18

Hoist with their own petard; German patents. Sci Am 119:102 Ag 10 '18

Infringement of patents. C. C. Sherlock. Power 50:308 Ag 19 '19

Inventors and patents. G. B. Harris. Am Mach 48:65-6 Ja 10 '18

Latest patent decisions. Sci Am 120:693+ Je 28 '19

List of applications made to the Federal trade commission for licenses under enemy controlled patents pursuant to the trading with the enemy act. J Ind & Eng Chem 10:243-5 Mr '18

List of applications made to the Federal trade commission for licenses under enemy-controlled patents pursuant to the trading with the enemy act. J Ind & Eng Chem 11:704-5, 801-2 J1-Ag '19

Patent-reform prospects. Am Soc M E J 40:186 F '18

Patent situation. A. E. Parker. Textile World 53:3512-3512a Ja 26 '18

Patent situation in the United States. Am Soc M E J 41:147-9+ F '19

Patents and profits. D. T. Fisher. Sci Am 120:572+ My 31 '19

Patents and the war. Engineer 127:68-9 Ja 17 '19

Product patents. K. P. McElroy. J Ind & Eng Chem 10:257-8 Ap '18

Proposed changes in the American patent system. W. G. Carr. Elec J 16:299-300 J1 '19

Protection of our foreign patents. Sci Am 120:164 F 22 '19

Recent patent decisions. Sci Am 120:584+ My 31 '19

Reforms in the patent system. F. W. H. Clay. Sci Am S 85:86-7 F 9 '18

Restraint of trade in patent agreements. C. C. Sherlock. Am Mach 51:763-5 O 23 '19

**Patents—Continued**

Rights conferred by patents. C. C. Sherlock. Mach 26:194 O '19  
 Selling of patent rights. F. W. Harris. Mach 25:730-2 Ap '19; Same. Sci Am S 87:803-4 My 10 '19  
 Shall we have annual patent renewal fees? B. C. Hesse; H. S. Miner. J Ind & Eng Chem 11:697-8 JI '19  
 Should granted patents be subject to annual fees? B. Russell. J Ind & Eng Chem 11:1092-3 N '19  
 Symposium on annual patent renewal fees; papers before the Division of industrial chemists and chemical engineers, the Division of pharmaceutical chemistry, and the section of the dye chemistry. J Ind & Eng Chem 11:930-8 O '19; Abstract. Chem & Met Eng 21:290-2 S 15 '19  
 Time for filing patents is extended. C. J. Loftus. Iron Tr R 65:1047-8 O 16 '19  
 Use of patented inventions by the United States government. E. B. Marshall. Sci Am 119:14+ JI 6 '18  
*See also* Chemical patents; Dye patents; Inventions; Metallurgical patents; Patent laws and legislation; Trade marks; United States—Patent office; also subdivision Patents under names of articles patented, and processes patented, e.g. Flotation process—Patents  
**Patents, Metallurgical.** See Metallurgical patents  
**Patriotism**  
 Practical patriotism. E. A. Dixie. Am Mach 48:1100 Je 27 '18  
**Patrol boats**  
 P boats. II Engineer 127:513-13 My 23 '19  
**Patrolling supervision.** See Foremen  
**Pattern making**  
 Applying the premium plan to a pattern shop. D. M. Avey. diags Foundry 47:95-9 Mr '19  
 Changing patterns to the best way of molding. R. R. Clarke. diags Foundry 47:35-6 Ja '19  
 Construction of plate patterns. M. E. Duggan. diags Am Mach 48:379 F 28 '18  
 Correct way of making an engine piston pattern. F. B. Raebig. diags Foundry 46:32-3 Ja '18  
 Criticism of and by a patternmaker. M. E. Duggan. Am Mach 49:167-8 JI 25 '18  
 Cylinder patterns. J. A. Shelly. II diags Mach 26:67-70, 161-4 S-O '19  
 Double-throw eccentric pattern. F. R. Calkins. diags Am Mach 48:337 F 21 '18  
 Dowel pins for wood patterns. M. E. Duggan. diags Am Mach 48:1068 Je 20 '18  
 Efficiency in the pattern shop. M. E. Duggan. diag Foundry 46:135 Mr '18  
 Efficiency in the pattern shop. M. E. Duggan. diags Am Mach 47:1094-5 D 20 '17  
 Efficiency pattern shop methods. M. E. Duggan. diag Foundry 46:590-1 D '18  
 Efficient herringbone grate patterns. M. E. Duggan. diags Am Mach 47:636 O 11 '17; Discussion. R. W. Derby. 48:382 F 28 '18  
 Efficient pattern shop methods that save time. J. L. Gard. II diags Foundry 46:160-1 Ap '18  
 Eliminating the cope core print. M. E. Duggan. diag Foundry 47:487 JI 15 '19  
 Emergency patterns for a seven-foot gear. J. L. Gard. II Foundry 46:361+ Ag '18  
 Equipment for finishing inside of box patterns. J. W. Gerdel. II diags Mach 26:287-8 N '19  
 Examples of poor practice in patternmaking. M. E. Duggan. diags Mach 24:544 F '18  
 Finding the one best way in the pattern shop. M. E. Duggan. diag Foundry 47:165 Ap 1 '19  
 Gas trouble necessitates pattern reconstruction. M. E. Duggan. diag Foundry 46:39 Ja '18  
 Handy angle irons for the metal pattern shop. S. L. Cook. diags Foundry 47:18 Ja '19  
 How drawings influence shop efficiency. M. E. Duggan. Foundry 46:212 My '18  
 How patterns should be finished. M. E. Duggan. diags Foundry 46:281 Je '18

How to construct a pattern for a propeller. E. Leslie. diags plan Foundry 47:16-17 Ja '19  
 How to learn pattern making. J. Parker. Foundry 47:404-5 Je 15 '19  
 How to make a pattern for a furnace door. M. E. Duggan. diag Foundry 46:423 S '18  
 Interesting examples of practical patternmaking. J. L. Gard. II Foundry 46:330+ JI '18  
 Laying out of patterns. J. A. Shelly. diags Mach 25:493-7 F '19  
 Locomotive wheel pattern. II Foundry 47:529 Ag 1 '19  
 Making a large ring pattern. J. L. Gard. diags Foundry 46:280-1 Je '18  
 Making a pattern for a gas engine cylinder. F. B. Raebig. diags Foundry 46:383-5 Ag '18  
 Making a skeleton pattern for a large elbow and base. B. R. Hall. II diags Foundry 47:260-2 My 1 '19  
 Making castings used in ship construction. B. Shaw and J. Edgar. diags plans Foundry 47:251-5+, 336-9, 417-20, 597-600, 647-50, 705-8, 785-8, 832-5, 870-3 My 1, Je 1, JI 1, S 1-O 1 N 1-D 1 '19  
 Making iron castings by the lost wax process. II Foundry 47:425 JI 1 '19  
 Making of better patterns. E. Sheldon. II Am Mach 49:617-20 O 3 '18  
 Making the joints for a bevel-gear pattern. J. L. Gard. diags Foundry 47:405 Je 15 '19  
 Making the rudder pattern. B. Shaw and J. Edgar. diags plans Foundry 47:251-5+ My 1 '19  
 Methods for grinding patternmaker's tools. M. E. Duggan. II diag Foundry 47:403-4 Je 15 '19  
 Methods of gating metal patterns. L. C. Lots. diags Am Mach 51:455-6 S 4 '19  
 Molding pattern in the drag. M. E. Duggan. diag Am Mach 49:402 Ag 29 '18  
 Pattern and core for water-cooled journal box. M. E. Duggan. diag Am Mach 49:190 Ag 1 '18  
 Patternmaking and molding cast tooth gears. J. Nall. II diags Foundry 46:377-80 Ag '18  
 Pattern making for steel casting. M. E. Duggan. diag Foundry 47:228 Ap 15 '19  
 Pattern shop superintendent. P. R. Ramp. Iron Age 103:1132-3 My 1 '19  
 Pattern turning; equipment required and methods used. J. A. Shelly. II diags Mach 25:837-41, 938-43 My-Je '19  
 Patternmaking and molding tips. diags Foundry 47:486 JI 15 '19  
 Patternmaking methods. J. A. Shelly. II diags Mach 25:631-4, 722-6 Mr-Ap '19  
 Patterns and core boxes for gas engine beds. J. Horner. diags plan Foundry 46:100-3 Mr '18  
 Patterns and their relation to molding problems. J. A. Shelly. II diags Mach 25:310-14 D '18  
 Patterns for emergency repairs. F. R. Calkins. diags Am Mach 48:745-6 My 2 '18  
 Patterns for large bearing caps. A. H. Dill. diags Am Mach 47:1050-1 D 13 '17  
 Pertinent hints for practical patternmakers. M. E. Duggan. diags plans Foundry 46:386-7 Ag '18  
 Pipe molds made from rotating patterns. diags Foundry 47:810 N 15 '19  
 Plate patterns. G. Compo. diags Am Mach 48:927 My 30 '18  
 Pointers for the patternmaker and molder. M. E. Duggan. diags Foundry 47:312-13 My 15 '19  
 Practical economies in pattern building. W. R. Conover. Am Mach 48:377-8 F 28 '18  
 Propeller patterns. J. A. Shelly. II diags Mach 25:434-8 Ja '19  
 Quantity production of simple patterns solved. J. L. Gard. II Foundry 46:414 S '18  
 Rapping plates for patterns. M. E. Duggan. diags Am Mach 48:315 F 21 '18  
 Saving time in making an exhaust dome pattern. J. L. Gard. II diags Foundry 47:25-6 Ja '19  
 Taking the pattern shop out of the attic. F. L. Prentiss. II Iron Age 102:640-1 S 12 '18

**Pattern making—Continued**

Varnishing patterns to suit conditions. M. E. Duggan. Foundry 46:376 Ag '18

Wheel patterns. J. A. Shelly. diags Mach 25: 1083-6 J1 '19

Wood patterns made in a factory. II Iron Tr R 65:429-31 Ag 14 '19

See also Foundry practice; Sheet metal work—Pattern making; Templates

**Pavement gage**

Contour of pavement traced to exaggerated scale. diags Eng N 82:1026-7 My 22 '19

Pavement gage measures surface irregularities. W. M. Kinney. II Eng N 81:708-10 O 17 '18

Straight edge for testing concrete pavement joints. diags Eng & Contr 51:235 Mr 5 '19

**Pavements**

Ann Arbor's paving experience. M. Osgood. Munic J 45:229-30 S 21 '18

Burning leaves on pavements. J. S. Crandell. Good Roads n s 16:132 O 5 '18

Characteristics of pavement types and considerations affecting a choice in Kansas cities. A. P. Learned. Munic Eng 57:209-11 N '19

Choosing proper grades for various types of pavements. W. A. Brown. Munic Eng 54:186-7 My '18

Constructing pavements by halves. W. L. Hempelmann. II Good Roads n s 18:179-80 O 15 '19

Developments in the practice of laying and manufacturing paving materials. Eng N 82: 131-4 Ja 16 '19

Engineers advocate hard paving on steep-grade streets. II Eng N 81:323-5 Ag 15 '18

Hard-surfaced roads. E. J. Wulff. II Good Roads n s 18:187-8+, 195-6+ O 23-29 '19

Highway work in four New York boroughs. II Good Roads n s 17:69-71+ F 22 '19

Highways and truck loads they can economically sustain. H. E. Breed. Eng N 81:975-7 N 25 '18

Imperfect back filling cause of much damaged pavement. G. S. Nobles. Eng N 80:765 Ap 13 '18

Laying utility mains in advance of pavement construction. F. D. Howell. Eng & Contr 49:253-4 Mr 6 '18

Pavement of the future. L. E. Addis. Good Roads n s 17:245-6+ Je 7 '19

Paving of streets and aisles, Brooklyn army supply base. II diag plan Eng N 83:400-2 Ag 28 '19

Paving work in St. Louis. II Munic J 44:87-90 F 2 '18

Present need of correct interpretation of pavement behavior under constantly increasing traffic requirements. M. B. Greenough. II Munic Eng 55:92-4 S '18

Recent developments in design and construction of pavements in Chicago. H. J. Fixmer. diag plan Munic Eng 56:92-4 Mr '19

Sand spreading device of San Francisco street cleaning department. C. W. Geiger. II Eng & Contr 50:523 D 4 '18

Special underdrainage safeguards new Cleveland pavement. F. R. Williams. II Munic Eng 55:123 O '18

Street classification as an aid to pavement design. J. W. Routh. Munic J 47:148-9 S 6 '19

Superelevations and easements. G. A. Curtis. II diags Good Roads n s 17:199-201 My 10 '19; Same. Eng N 83:274-5 Ag 7 '19

See also Bridges—Floors; Curbs; Gutters; Roads; Roads, Macadamized; Sidewalks; Street openings; Streets

**Accounting**

Distribution of costs on street paving construction. R. S. Blinn. Munic Eng 55:96 S '18

**Contracts**

Gambling bids. Munic J 44:263-4 Mr 30 '18

**Cost**

Cantonment road building at Camp Lewis. U. S. Marshall. II Good Roads n s 18:127-30 S 10 '19

Cost of constructing brick and asphaltic concrete pavements in Kalamazoo, Mich. A. Lenderink. II Munic Eng 53:249-50 D '17

Experiences in force account paving in the city of St. Paul, Minn. O. Claussen. Munic Eng 56:52-4 Ag '18; Same cond. Munic J 45:103-5 Ag 10 '18; Excerpts. Eng & Contr 50:322-3 O 2 '18

Labor cost of monolithic brick pavement. Eng & Contr 50:246 S 4 '18

Paving outlook for 1919. Munic J 46:143-8, 326-8 F 22, My 3 '19

Street paving in San Francisco. II Munic J 46:1-3, 47-9 Ja 4, 13 '19

Ultimate costs of bituminous and water-bound macadam nearly equal in New York. D. P. Babcock. Eng N 81:87-90 J1 11 '18

See also Pavements—Maintenance and repair; Pavements, Concrete—Cost

**Crowns**

Method and cost of reducing excessive crown on a macadam pavement. E. E. Glass. II diag Eng & Contr 50:144-5 Ag 7 '18

Method of obtaining pavement contour without strikeboard. II diags Eng & Contr 50: 240-1 S 4 '18

Templet with adjustable edges strikes variable crown pavements. S. H. Lea. diags Eng N 81:465 S 5 '18

Why pavements are crowned. J. G. Schmidt. Eng N 80:925 My 9 '18; Discussion. R. W. Sherman. 81:96 J1 11 '18

**Cutting**

Application of pneumatic drills for making pavement cuts. H. L. Hicks. Eng & Contr 50:450 N 6 '18

Core drilling outfit for test specimens from pavements. II Eng & Contr 51:341 Ap 2 '19

Cutting asphalt pavements with hammer drills. II Eng & Contr 49:24 Ja 2 '18

Cutting paving foundation with a drop hammer. H. Kimmel. II Elec Ry J 52:976 N 30 '18

Doing away with the sledge and gad in making street openings. P. E. Chapman. II Am Gas Eng J 108:150-1 F 16 '18

Methods of breaking concrete bases of pavements for track work. G. H. McKelway. II Eng & Contr 49:484 My 15 '18

Pneumatic tools for breaking up pavement. W. P. Burn. II Elec Ry J 54:583-4 S 20 '19

**Expansion joints**

See Pavements, Concrete—Expansion joints

**Failures**

Is poor drainage the actual cause of most highway failures? J. L. Harrison. Eng N 81:464 S 5 '18

Make good on pavement construction to avoid necessity of making excuses for failure. F. A. Churchill. Munic Eng 56:72-3 F '19

Prevention of cracks in hard pavements. W. C. Perkins. diag Eng N 81:702-3 O 17 '18; Same. Good Roads n s 16:158+ O 28 '18; Same. Munic Eng 55:190-1 N '18; Same abr. Eng & Contr 50:449 N 6 '18

See also Pavements, Brick—Failures; Pavements, Wood—Failures

**Fillers**

Asphaltic filler for brick pavements. A. D. Dimmick. II Munic Eng 57:201-3 N '19

Choice of fillers for block pavements. J. S. Crandell. II Munic Eng 55:127-30 O '18

Handy mechanical device for mixing mastic pavement filler. II Eng N 83:338 Ag 14 '19

Vertical fiber brick pavement. C. R. Mandigo. Munic J 47:266-7 N 1 '19; Excerpt. Munic Eng 57:211-12 N '19

**Finance**

Argument for changing common method of financing pavement construction and renewals. C. A. Mullen. Munic Eng 54:226-7 Je '18

Financing pavement construction and renewals, as illustrated by Utica and Portland. G. C. Warren. Eng & Contr 49:148-51 F 6 '18

**Pavements—Finance—Continued**

How various cities meet repaving costs. *Munic Eng* 55:153-4 O '18  
 Paving and grading assessments on simple basis in Flint, Mich. G: H. Ruhling. *diag Eng N* 80:1049-51 My 30 '18; Discussion. R. D. Gladding. *Eng N* 83:672-3 O 2 '19  
 Practice in assessing pavement costs determined. *Eng N* 80:1223-4 Je 27 '18  
 Special assessments for local improvements. N. P. Lewis. *Eng & Contr* 51:16-17 Ja 1 '19  
 Suggested methods of financing pavement maintenance. F. C. Lohman. *Eng & Contr* 51:251 Mr 5 '19  
 Wheel taxes for road funds. *Munic J* 44:471-2 Je 8 '18  
 Who shall pay for paving? E. R. Dutton. *Good Roads n s* 16:130 O 5 '18  
*See also Roads—Finance*

**Foundations**

Bituminous pavement foundations. G: C. Warren. *il Munic J* 44:228-9 Mr 16 '18  
 Considerations affecting the design of pavement foundations. H. J. Fixmer. *Munic Eng* 54:133-4 Ap '18  
 Construction of Portland cement concrete pavement foundations. J. W. Routh. *il Munic Eng* 57:169-71 O '19  
 Creosoted block can be laid on hardened pitch cheaper than on dry mortar. W. Buehler. *il Eng N* 79:1165-7 D 20 '17  
 Defects in surface of bituminous pavement due to concrete base. H. W. Skidmore. *Eng N* 82:878-80 My 1 '19  
 Hot mix bituminous pavements. F. P. Smith. *Eng & Contr* 51:599-601 Je 4 '19  
 Illinois adopts a uniform basis of design for all types of rigid pavement. C. Older. *Eng N* 82:905-7 My 8 '19  
 Importance of adequate drainage and foundations for road and street surfaces. C. Richardson. *Munic Eng* 56:146-9 Ap '19  
 Method of constructing smooth top concrete base for wood block paving. E. R. Dutton. *il diag Eng & Contr* 51:141 F 5 '19; Same. *Munic Eng* 56:51-2 F '19  
 Prevention of cracks in hard pavements. W: C. Perkins. *diag Eng N* 81:702-3 O 17 '18; Same. *Good Roads n s* 16:158+ O 26 '18; Same. *Munic Eng* 55:190-1 N '18; Same *abr. Eng & Contr* 50:449 N 6 '18  
 Proportions of cement concrete bases for bituminous pavements. W. A. Hempelmann. *Good Roads n s* 17:237 My 31 '19  
 Reinforced concrete base for pavements in Sheffield. *diag Eng & Contr* 50:103 Jl 31 '18  
 Tar concrete foundation for brick pavement. J: S. Crandell. *Eng & Contr* 50:318 O 2 '18  
 Using old concrete base in new pavement on widened streets. W. W. Whipkey. *diags Munic Eng* 53:206 N '17  
 Utilization of old concrete pavements as foundations. A. H. Blanchard. *il Munic Eng* 57:197-9 N '19

**Guarantees**

Economic status of guarantees for pavements on roads and streets. *Good Roads n s* 17:201-2+ My 10 '19  
 Guarantees for pavements. *Munic J* 46:193-4 Mr 8 '19; Excerpts. *Eng & Contr* 51:250 Mr 5 '19  
 Guarantees for paving; opinions of several city engineers. *Munic J* 46:205-6 Mr 15 '19  
 Guarantees from contractors. J. Simpson. *Munic J* 47:14-16 Jl 12 '19  
 Pavement guarantees; practices of counties throughout the country as to requiring them. *Munic J* 46:355-6 My 17 '19  
 Pavement guarantees; tabulation. *Munic J* 46:289-90 Ap 19 '19  
 Question of guarantees. *Munic J* 46:207-8 Mr 15 '19

**Maintenance and repair**

Development in maintenance and repair by tar products. J: S. Crandell. *Eng N* 82:132-3 Ja 16 '19  
 How Albany, N.Y., saved over \$360,000 in using redressed granite paving blocks. F. R. Lanagan. *il Munic Eng* 56:210 Je '19

Maintenance cost of bituminous concrete at Portland, Me. *Eng & Contr* 50:443 N 6 '18  
 Preparing pavements for winter. *Munic J* 45: 411-12 N 23 '18  
 Relative efficiency of methods of repairs to bituminous macadam and bituminous concrete pavements. G: H. Biles. *Good Roads n s* 15:29-30+ Ja 19 '18; Same. *Eng & Contr* 49:142-5 F 6 '18; Same. *Munic Eng* 55:150-3 O '18; Abstract. *Munic J* 44:90-2 F 2 '18; Discussion. H. W. Skidmore. *Munic J* 44: 128-9 F 16 '18  
 Repairing pavement openings. *il diag Munic J* 46:215-18 Mr 22 '19  
 Resurfacing reduced by patrol system on boulevards. R. R. Benedict. *il Eng N* 81: 408-10 Ag 29 '18  
 Street repairs in Columbus, Ohio. C: C. Brown. *Munic J* 44:92-4, 110-12 F 2-9 '18

*See also Pavements, Asphalt—Maintenance and repair; Pavements, Brick—Maintenance and repair; Pavements, Concrete—Maintenance and repair*

**Repair**

*See Pavements—Maintenance and repair*

**Specifications**

Rochester's sewer and paving specifications. J. W. Routh. *Munic J* 46:84-6 F 1 '19  
 Specifications for asphalt-on-concrete-base road construction. D. T. Pierce. *il Munic Eng* 54:53-4 F '18  
 Specifications for bituminous pavements constructed in Washington, D.C., in 1887. *Eng & Contr* 49:568 Je 5 '18  
*See also Pavements—Standards; Pavements, Wood—Specifications*

**Standards**

Hard-surface road specifications of the state of Illinois. E. L. Heidenreich; P. E. Green; C. Older. *Eng N* 82:1224-6 Je 19 '19  
 Illinois adopts a uniform basis of design for all types of rigid pavement. C. Older. *Eng N* 82:905-7 My 8 '19  
 Illinois brick paving specifications. H. C. Adams; C. Older. *Eng N* 83:383-6 Ag 21 '19

**Statistics**

Paving outlook for 1919. *Munic J* 46:143-8, 326-8 F 22, My 3 '19  
 Statistics from cities. *Munic J* 46:148-9, 182 F 22-Mr 1 '19  
 Street paving during 1917; tabulation. *Munic J* 44:131-46 F 16 '18

**Surface treatment**

Asphalt resurfacing in Los Angeles. C: W. Geiger. *il Munic J* 45:123-5 Ag 17 '18  
 Bituminous surfaces on macadam roads in York county, Ontario. *Eng & Contr* 50:149 Ag 7 '18  
 Developments in the construction of bituminous, warrenite and bitustone pavements. *il Good Roads n s* 15:118-19 F 23 '18  
 Method employed in resurfacing old macadam streets in Madison, Wis. G: Sullivan. *Munic Eng* 56:91-2 Mr '19  
 Oil construction for the streets in Oakland, Cal. C: W. Geiger. *il Munic J* 46:380-1 My 31 '19  
 Preservative effects of macadam surface treatments applied primarily as dust layers. F. S. Krug. *Munic Eng* 55:147-8 O '18  
 Progress reports of experiments in dust prevention and road preservation, 1918. U S Agric Bul 586:1-78 '18  
 Resurfacing of old macadam streets in Milwaukee. C. J. Van Etta. *il Munic Eng* 57: 195-6 N '19  
 Resurfacing old asphaltic with cement concrete. E. Altekruze. *Concrete* 14:56 F '19  
 Resurfacing old brick pavement. White Plains, N.Y. *il Munic J* 47:196-8 S 27 '19  
 Suggestions for paving parkway drives and boulevards with bituminous carpet on concrete base. S. Whinery. *Eng N* 79:746-7 O 18 '17; Discussion. E. E. Glass. 79:1075 D 6 '17  
 Surfacing old granite block pavement. C: E. Murphy. *Munic J* 47:183 S 20 '19

**Pavements—Surface treatment—Continued**

Tar treatment of gravel and macadam streets at Stillwater, Minn. G. F. Barstow. Eng & Contr 50:157-8 Ag 7 '18

See also Pavements, Bituminous; Roads, Oiled

**Surfaces**

Asphalt-covered napped-block pavement. Munic J 47:32-4 JI 19 '19

Pavement gage measures surface irregularities. W. M. Kinney. II Eng N 81:708-10 O 17 '18

**Temperature**

High relative temperatures of pavement surfaces. G. S. Eaton. Eng N 82:633-4 Mr 27 '19

**Pavements, Asphalt**

Asphalt block pavement laid on sand and loam base. Eng & Contr 49:147 F 6 '18

Asphalt consistency standards. J. R. Draney. Munic J 45:282-3 O 12 '18; Same. Good Roads n s 16:131 O 5 '18

Asphalt pavement construction in rainy weather. T. G. Marriott. Eng & Contr 50:528-9 D 4 '18

Asphalt resurfacing in Los Angeles. C. W. Geiger. II Munic J 45:123-5 Ag 17 '18

Asphaltic pavements at Ashokan, Ulster county, N.Y. R. R. Barrett. II Good Roads n s 18:95-6 Ag 20 '19

Data on California asphalt paving work performed with portable asphalt plant. T. E. Stanton. II Munic Eng 54:223-6 Je '18

Design and construction of hot-mix asphalt pavements; abstracts. F. P. Smith. Eng N 82:1100-2 Je 5 '19; Good Roads n s 17:219-21 My 24 '19; Same. Eng & Contr 51:600-1 Je 4 '19

Hot mix bituminous pavements. Good Roads n s 17:247 Je 7 '19

National pavement in New Haven. II Munic J 45:143-5 Ag 24 '18

National pavement in New Haven, Conn. II Good Roads n s 16:55-7 Ag 17 '18

Negligible year in asphalt paving. Eng N 82:131-2 Ja 16 '19

New device scoops up and loads asphalt pavement in one operation. R. H. Moulton. II Eng N 83:289 Ag 7 '19

Physical condition of an asphalt pavement an important factor in determining the resistance to traffic. C. L. Cook. Eng & Contr 49:348 Ap 3 '18

Practical hints on the design, construction and repair of asphalt pavements. C. A. Mullen. Eng & Contr 50:9-12 JI 3 '18; Excerpts. Munic Eng 55:9-10 JI '18

Recommended procedure in the design, construction and maintenance of asphalt macadam pavements. P. Hubbard. Munic Eng 57:152-6 O '19

Sheet asphalt, 1917; tabulation. Munic J 44:142-3 F 16 '18

Specifications for asphalt-on-concrete-base road construction. D. T. Pierce. II Munic Eng 54:53-4 F '18

Stone-filled sheet asphalt. C. Richardson. Eng N 80:109-10 Ja 17 '18

Street paving in San Francisco. II Munic J 46:48-9 Ja 18 '19

See also Asphalt plants; Pavements, Bitulithic; Pavements, Bituminous; Pavements, Bituminous concrete

**Cost**

Laying rock asphalt in Hopkinsville. C. Vaughn. II Munic J 45:362 N 9 '18

**Maintenance and repair**

Asphalt repair records kept and methods followed at Buffalo; abstracts. C. E. P. Babcock and J. A. Vandewater. Eng N 81:664-5 O 10 '18; Munic Eng 55:148-9 O '18; Eng & Contr 50:446, 448 N 6 '18

Estimating for asphalt pavement repairs. J. O. Preston. Munic Eng 57:125-6 S '19

How to determine when to repave. G. H. Norton. Eng & Contr 51:327-8 Ap 2 '19

Maintenance of asphalt pavements by the cut and replace method. J. W. Routh. II Munic Eng 56:164-8 N '18

Methods of resurfacing and patching asphalt streets in Detroit. A. C. Proctor. II Munic Eng 53:185-6 N '17

New machine employed in repairing asphalt streets. II Munic Eng 54:211-12 My '18

**Pavements, Bitoslag**

Bitoslag pavement in Luzerne county, Pa. J. C. Rock. II Good Roads n s 17:39-40 F 1 '19

Characteristics of bitoslag pavement. J. R. Draney. Munic Eng 57:156-7 O '19

**Pavements, Bitulithic**

Bitulithic pavements, 1917; tabulation. Munic J 44:145-6, 321 F 16, Ap 20 '18

Cantonment road building at Camp Lewis. U.S. Marshall. II Good Roads n s 18:127-30 S 10 '19

**Pavements, Bituminous**

Bituminous macadam. A. W. Dean. Good Roads n s 17:231-2 My 31 '19; Same. Eng & Contr 51:607 Je 4 '19; Same. Munic Eng 56:206-8 Je '19

Bituminous macadam, 1917; tabulation. Munic J 44:144-5 F 16 '18

Bituminous pavements, adaptable to various conditions, with special reference to type and thickness. L. Kirschbraun. II Munic Eng 54:101-4 Mr '18

Building a bituminous pavement with a concrete mixer and a macadam roller. E. A. Drinkwater. Eng & Contr 50:6 JI 3 '18

Bumps and waves in bituminous sheet pavements. W. L. Hempelman. Munic Eng 54:138-9 Ap '18

Causes for failure of bituminous macadam pavements. H. W. Leavitt. II Good Roads n s 15:309-11 Je 22 '18; Same. Eng & Contr 49:566-7 Je 5 '18

Combining road materials to withstand forces incident to motor haulage. II Munic Eng 53:230-1 D '17

Condition of road surface outweighs type of bitumen. J. Adler. Eng N 80:76-8 Ja 10 '18

Defects in surface of bituminous pavement due to concrete base. H. W. Skidmore. Eng N 82:878-80 My 1 '19

Efficiency of bituminous surfaces and pavements under motor truck traffic. P. Hubbard. Eng & Contr 51:243-4 Mr 5 '19; Same. Good Roads n s 17:117-19 Mr 15 '19; Same. Munic Eng 56:98-100 Mr '19

English and American practice in the construction of tar surfaces and pavements. A. H. Blanchard. II Good Roads n s 15:281-3+ Je 8 '18; Same. Munic J 44:443-6, 466-7 Je 1-8 '18; Excerpts. Eng & Contr 50:142-4 Ag 7 '18

Penetration bituminous pavements. R. G. Tyler. Texas U Bul 1735:35-9 Je 20 '17

Progress reports of experiments in dust prevention and road preservation, 1916. U S Agric Bul 586:1-78 '18

Recent developments in the construction of bituminous and concrete pavements. C. M. Upham. Eng & Contr 49:244-6 Mr 6 '18; Excerpt. Munic J 44:200-1; Discussion. C. C. Brown. 201-2 Mr 9 '18

Relative efficiency of methods of repairs to bituminous macadam and bituminous concrete pavements. G. H. Biles. Good Roads n s 15:29-30+ Ja 19 '18; Same. Eng & Contr 49:142-5 F 6 '18; Same. Munic Eng 55:150-3 O '18; Abstract. Munic J 44:90-2 F 2 '18; Discussion. H. W. Skidmore. Munic J 44:128-9 F 16 '18

Resurfacing in Oneida county, New York. I. A. Farquhar. II Good Roads n s 15:187-9+ Ap 6 '18

Some practical points to observe in the construction of bituminous pavements. R. K. Compton. Munic Eng 57:105-7 S '19; Excerpts. Eng & Contr 52:392-4 O 1 '19

Specifications for bituminous pavements constructed in Washington, D.C., in 1887. Eng & Contr 49:568 Je 5 '18

See also Pavements, Asphalt; Pavements, Bitulithic; Roads, Bituminous

**Pavements, Bituminous concrete**

American methods and machinery applicable to construction and maintenance of French highways. A. H. Blanchard. II Munic J 46:27-30 Ja 11 '19

**Pavements, Bituminous concrete—Continued**

- Bituminous concrete pavements, 1917; tabulation. Munic J 44:143-4, 319 F 16, Ap 20 '18
- Bituminous pavement foundations. G: C. Warren. II Munic J 44:228-9 Mr 16 '18
- English and American practice in the construction of tar surfaces and pavements. A. H. Blanchard. II Good Roads n s 15:288-9 Je 8 '18; Same. Munic J 44:466-7 Je 8 '18; Excerpts. Eng & Contr 50:142-4 Ag 7 '18
- Long-lived coal tar pavements at Washington, D.C. Eng & Contr 49:348-9 Ap 3 '18
- Maintenance cost of bituminous concrete at Portland, Me. Eng & Contr 50:443 N 6 '18
- Method of constructing asphaltic concrete on Dundas st., York county, Ontario. R. C. Muir. II Eng & Contr 49:342-4 Ap 3 '18
- Relative efficiency of methods of repairs to bituminous macadam and bituminous concrete pavements. G: H. Biles. Good Roads n s 15:29-30+ Ja 19 '18; Same. Eng & Contr 49:142-5 F 6 '18; Same. Munic Eng 55:150-3 O '18; Abstract. Munic J 44:90-2 F 2 '18; Discussion. H. W. Skidmore. Munic J 44:128-9 F 16 '18
- Resurface brick pavements with asphaltic concrete. II Eng N 81:444-5 S 5 '18

**Cost****See Pavements—Cost****Pavements, Brick**

- Asphaltic filler for brick pavements. A. D. Dimmick. II Munic Eng 57:201-3 N '19
- Brick is first choice in paving. Elec Ry J 53:1271-2 Je 28 '19
- Brick pavements being adapted to country roads. Eng N 80:402-3 F 28 '18
- Brick pavements, 1917; tabulation. Munic J 44:138-40, 318-19 F 16, Ap 20 '18
- Careless construction causes early failure of a brick pavement. H. H. Edwards. II Munic Eng 54:54-5 F '18
- Combining brick or granite block with wood paving blocks. II Munic Eng 53:181 N '17
- Construction plant and methods employed in paving seven streets with brick in Mt. Vernon, Ohio. A. A. Graham. II Munic Eng 55:8-9 JI '18
- Design and constructional features of modern brick pavements. F. A. Churchill. diags Munic Eng 54:184-6 My '18
- General features of brick pavement construction. A. T. Goldbeck and F. H. Jackson. Eng & Contr 51:479-81 My 7 '19; Excerpts. Munic J 48:340-1 My 10 '19
- Iowa county builds brick road from Camp Dodge to Des Moines. II diag Eng N 80:768-70 Ap 18 '18
- Labor cost of monolithic brick pavement. Eng & Contr 50:246 S 4 '18
- Latest Seattle specifications for brick paving are for the monolithic type. W. H. Tiedeman. Munic Eng 56:13-14 Ja '19
- New features in brick and wood block pavements. C. Older. Good Roads n s 15:154-64 Mr 16 '18; Excerpt. Munic J 44:416 My 13 '18
- Notes on brick paving. II Munic J 44:3-4 Ja 5 '18
- Old sand-filled brick pavement relaid monolithically. C. C. Wiley. II Munic Eng 53:207 N '17
- Organization and output of brick paving gang in Vermillion county (Ill.) roads. Eng & Contr 50:235 S 4 '18
- Parrish template or strikeoff. II Eng & Contr 49:102 Ja 30 '18
- Present status of brick pavements constructed with sand cushions, cement mortar beds and green concrete foundation. W: M. Acheson. Munic Eng 56:103-5 Mr '19; Same. Eng & Contr 51:338-9 Ap 2 '19; Same. Good Roads n s 17:147-9 Ap 5 '19; Same. Munic J 46:294-6 Ap 19 '19; Abstract. Eng N 82:467-8 Mr 6 '19
- Review of recent progress in brick pavement design and construction. C. R. Mandigo. II Munic Eng 57:9-11 JI '19
- Shallow brick stand up well on cement-sand base. II Eng N 82:378-9 F 20 '19
- Special types of brick pavement construction. A. T. Goldbeck and F. H. Jackson. Eng & Contr 51:489-90 My 7 '19

- Status of paving brick in manufacture and use during past year. W. P. Blair. Eng N 82:132 Ja 16 '19
- Street paving in San Francisco. II Munic J 46:47-8 Ja 18 '19
- Using home-made equipment on a small monolithic brick pavement construction job. F. R. Charles. Munic Eng 54:137-8 Ap '18
- Vertical fiber brick pavement. C. R. Mandigo. Munic J 47:266-7 N 1 '19; Excerpt. Munic Eng 57:211-12 N '19

**See also Roads, Brick****Cost****See Pavements—Cost****Failures**

- Concentrated pressure causes many pavement failures. A. H. Hinkle. diags Eng N 79:1067-8 D 6 '17
- Concentration of expansion stresses due to imperfect grouting the cause of brick pavement failures. C. C. Wiley. II Munic Eng 58:180-1 N '17
- Poor brick cause pavement failure—the saving of \$50 for tests leads to failure of a \$50,000 job. C. C. Wiley. II Munic Eng 56:179-80 My '19

**Maintenance and repair**

- Repair heaved brick pavement at Oak Park, Illinois. H. W. Skidmore. II Eng N 82:159-200 Ja 23 '19
- Resurface brick pavements with asphaltic concrete. II Eng N 81:444-5 S 5 '18

**Pavements, Concrete**

- American methods and machinery applicable to construction and maintenance of French highways. A. H. Blanchard. II Munic J 46:30-2 Ja 11 '19
- Belted and rolling methods for concrete roads in Illinois. H. E. Bilger. Eng N 80:461 Mr 7 '18
- Concentrated pressure causes many pavement failures. A. H. Hinkle. diags Eng N 79:1067-8 D 6 '17
- Concrete pavements laid in 1917; tabulation. Munic J 44:134-7, 319 F 16, Ap 20 '18
- Concrete paving in Sioux City. T. H. Johnson. Concrete 11:188-9 D '17
- Concrete roads on steep grades; abstracts. H. E. Breed. diag Munic J 44:329 Ap 20 '18
- Concrete slab for alley approaches and parking spaces with asphalt pavement. Eng & Contr 49:6 Ja 2 '18
- Concrete paving base in Buffalo, N.Y. G: F. Fisk. II Munic Eng 55:170 N '18
- Crew organization for constructing 700 sq. yds. concrete pavement per day. Eng & Contr 50:320 O 2 '18
- Economic utilization of labor saving road machinery. C: M. Upham. II Good Roads n s 18:75-6 Ag 6 '19
- Effect of frost action on pavements. C: T. Fisher. Eng N 81:373-4 Ag 22 '18
- Equipment and gang organization for constructing concrete base for pavements. G: F. Fisk. Eng & Contr 50:530 D 4 '18
- First frost is never responsible for cracked concrete roadways. J. L. Harrison. II diags Eng N 80:418-20 F 28 '18; Discussion. J: Wilson. 80:626 Mr 28 '18
- Gouge soft spots out of concrete pavements. W. E. Emery. Concrete 12:155 My '18; Same. Eng & Contr 50:160 Ag 7 '18
- Hard-surface road specifications of the state of Illinois. E. L. Heldenreich; P. E. Green; C. Older. Eng N 82:1234-6 Je 19 '19
- Hints on rolling and belting concrete pavements. Eng & Contr 49:432-3 My 1 '18
- How to get the best surface on a concrete road. A. H. Hunter. Munic Eng 55:47-9 Ag '18
- How to inspect concrete paving. F. E. Semon. II Concrete 12:125-6 Ap '18
- Impervious bituminous wall suggested to prevent seepage under paving. Eng N 81:226-8 Ag 1 '18
- Instructions for using the Macon concrete paving roller. Eng & Contr 49:437 My 1 '18
- Laying concrete pavement in freezing weather. A. B. Dunning. Munic J 44:281-2 Ap 6 '18

**Pavements, Concrete—Continued**

- Light canvas strips for floating concrete pavement. C: T. Fisher. *Il Munic Eng* 54:74 F '18
- Methods of protecting concrete pavements laid in warm weather. *Il diag Eng & Contr* 52:266-7 S 3 '19
- Motor trucks deliver mixed concrete three-fourths of a mile. *Il plan Eng N* 81:1000-1 N 28 '18
- New features in concrete pavements. C: M. Upham; W. M. Kinney. *Munic J* 44:347-8 Ap 27 '18
- Overcoming difficulties in laying concrete in cramped alleys. W. W. Horner. *Il Eng N* 83:288-9 Ag 7 '19
- Paved roadways aid plant efficiency. H. C. Campbell. *Il Ind Management* 56:471-2 D '18
- Pavement base in Buffalo. *Munic J* 45:369 N 9 '18
- Paving alley with concrete. *diag Munic J* 47:241 O 18 '19
- Permanent pavements at new aeronautical station at Langley field town site, Hampton, Va.; abstracts. S: H. Lea. *Il diag Eng N* 81:447-9 S 5 '18; *Munic J* 45:241-3 S 28 '18
- Pulling factory roads out of the mud. *Il Factory* 22:44-5 Ja '19
- Recent developments in the construction of bituminous and concrete pavements. C: M. Upham. *Eng & Contr* 49:244-6 Mr 6 '18
- Reinforcement for concrete pavements. *Il Munic Eng* 54:9-10 Ja '18
- Repaving Central Park transverse roads. D. B. Goodsell. *Il map Good Roads n s* 15:151-4 Mr 16 '18
- Resource of contractor saves labor. W. F. Reichardt. *Il Eng N* 83:712-13 O 9 '19
- Roller and belt road finish. *Concrete* 12:186 My '18
- Roller squeegee for pavement finishing. *Il Sci Am* 118:129 F 9 '18
- Roller weighing 74 pounds finishes walks. W. M. Kinney. *Il Eng N* 80:1196-7 Je 20 '18
- Rolling concrete longitudinally gives good roadway. G: Yavroumis. *diag Eng N* 80:1123 Je 13 '18
- Saving 15 men in a paving crew. L. E. Whitham. *Il Concrete* 12:46-7 F '18
- Saving men on a paving job. F. L. Conner. *Concrete* 13:92 S '18
- Suggestions for concrete pavement construction. C. E. Learned. *diags plan Munic J* 46:343-6, 467-8 Je 14, 28 '19; Same cond. *Eng & Contr* 52:9-11 Jl 2 '19
- Suggestions for paving parkway drives and boulevards with bituminous carpet on concrete base. S. Whinery. *Eng N* 79:746-7 O 18 '17; Discussion. E. E. Glass. 79:1075 D 6 '17
- 2-in. water pipe used for rolling concrete pavement. *Eng & Contr* 50:241 S 4 '18
- Vertical movements in concrete pavements and a suggestion towards their elimination. J. W. Lowell. *Eng & Contr* 50:441-3 N 6 '18
- See also Pavements, Bituminous concrete; Roads, Concrete*
- Cost**
- Bonus for laborers increases yardage and lowers cost of paving at Flint, Mich. C. E. Ridley. *Eng N* 80:701 Ap 11 '18
- Cost of concrete paving in Savannah. *Munic J* 43:599-600 D 22 '17
- Cost of constructing concrete pavement at Savannah, Ga. E. R. Conant. *Eng & Contr* 49:247 Mr 6 '18
- Expansion Joints**
- Concealed joints in concrete pavements. *Munic J* 43:581-2 D 15 '17
- Cutting down road joint plates. M. D. Ross. *Concrete* 12:128 Ap '18
- Device for installing expansion joints in concrete roads and pavements. *Il Eng & Contr* 51:96 Ja 29 '19
- Expansion joint installer for concrete pavements. I. R. Browning. *Il Eng & Contr* 50:537 D 4 '18
- Expansion-joint installer insures proper placing. I. R. Browning. *diags plan Eng N* 80:811 Ap 25 '18
- Joints in concrete-road work. C. O. Frye. *Eng N* 82:983-4 My 15 '19
- Method of repairing uneven joints in concrete road. *Eng & Contr* 50:241 S 4 '18
- Split float for finishing concrete at expansion joints. *diag Eng N* 82:934-5 My 8 '19
- Successful roadway expansion joint on Cleveland bridges. *diags Eng N* 79:1160-1 D 20 '17
- Wood block road joints. F. L. Brockway. *diag Concrete* 12:128 Ap '18; Same. *Eng & Contr* 49:575 Je 5 '18
- Maintenance and repair**
- Concrete road resurfaced with concrete in good condition. *Eng N* 81:190 Jl 25 '18
- Method of repairing uneven joints in concrete road. *Eng & Contr* 50:241 S 4 '18
- Repair of concrete pavements. A. H. Hinkle. *Sci Am* S 85:45 Ja 19 '18
- Replacing cuts in concrete pavements. *Munic J* 45:147 Ag 24 '18
- Resurfacing wornout pavements with concrete. G: A. Ricker. *Eng & Contr* 50:21 Jl 3 '18
- Pavements, Granite**
- Asphalt-covered napped-block pavement. *Munic J* 47:32-4 Jl 19 '19
- Construction procedure in repaving Detroit avenue, Lakewood, Ohio, with granite and wood block. *Il Munic Eng* 55:201-2 D '18
- Design and construction of a granite block pavement. G: W. Tillson. *Il Munic Eng* 54:177-80 My '18
- Design and construction of granite block pavements in Cincinnati. H. F. Shipley. *Il Munic Eng* 57:19-21 Jl '19
- Design and construction of modern granite block pavements with special reference to practice in borough of Manhattan. C. M. Pinckney. *Il Munic Eng* 56:199-203 Je '19
- Experience with granite block pavements in New Orleans. La. J: C. Bartley. *Munic Eng* 57:112-15 S '19
- Granite and stone block pavements, 1917; tabulation. *Munic J* 44:138 F 16 '18
- Granite block between street car tracks using cement mortar cushion. M. A. Stewart. *diag Eng & Contr* 50:8 Jl 3 '18
- Granite block laid on mortar bed and adapted to trunk highways. A. T. Rhodes. *Eng N* 82:134 Ja 16 '19
- How Albany, N.Y., saved over \$260,000 in using redressed granite paving blocks. F. R. Lanagan. *Il Munic Eng* 56:210 Je '19
- How to secure best results in construction of improved granite block pavements. A. T. Rhodes. *Eng & Contr* 52:382-5 O 1 '19
- Present status of granite block pavements. C. D. Pollock. *Good Roads n s* 15:6+ Ja 5 '18; Same abr. *Munic Eng* 54:55-7 F '18; Abstract. *Munic J* 44:5 Ja 5 '18
- Proposed specifications for block for granite block pavements. *Eng & Contr* 52:162 Ag 6 '19
- Quick work in laying granite block pavement. C. D. Pollock. *Il plan Munic J* 47:128-30 Ag 30 '19
- Repaving Central Park transverse roads. D. B. Goodsell. *Il map Good Roads n s* 15:151-4 Mr 16 '18
- Suggestions on the proper construction of granite block pavements. A. T. Rhodes. *Il Munic Eng* 56:106-10 Mr '19; Abstract. *Eng N* 82:134 Ja 16 '19
- Surfacing old granite block pavement. C: E. Murphy. *Munic J* 47:183 S 20 '19
- Pavements, Macadamized. See Roads, Macadamized**
- Pavements, Oil macadam**
- Oil construction for the streets in Oakland, Cal. C: W. Geiger. *Il Munic J* 46:380-1 My 31 '19
- Pavements, Stone**
- Basalt blocks make good headers in San Francisco. *Elec Ry J* 51:98 Ja 12 '18
- Details of construction of stone block pavements. A. H. Blanchard. *Il Munic Eng* 55:3-6 Jl '18
- Granite and stone block pavements, 1917; tabulation. *Munic J* 44:138 F 16 '18
- Street paving in San Francisco. *Il Munic J* 46:1-3 Ja 4 '19
- See also Pavements, Granite*

**Pavements, Wood**

- Combining brick or granite block with wood paving blocks. *Il* Munic Eng 53:181 N '17
- Corrugated spacer used for wood-block pavements. J: S. Crandell. *Il* Eng N 83:463 S 4 '19
- Creosoted block can be laid on hardened pitch cheaper than on dry mortar. W. Buehler. *Il* Eng N 79:1165-7 D 20 '17
- Creosoted wood block pavements, 1917; tabulation. Munic J 44:142 F 16 '18
- Destruction of wood block pavement due to use of tar in the creosote oil. P. C. Reilly. *Il* Munic Eng 54:183-4 My '18
- Experience with bituminous paint coat method of laying wood block pavement. Eng & Contr 51:154 F 5 '19
- Heaving of creosoted wood block pavements overcome. F. W. Cherrington. *Il* Eng N 80:1183-4 Je 20 '18; Same. Eng & Contr 50:7 JI 3 '18
- Increasing strength of wood paving blocks by impregnation. W. Riter. Eng & Contr 51:443 Ap 30 '19
- Method of laying wood blocks-open joint construction. F. S. Mitchell. *Il* Am Lumberman 2277:73 Ja 4 '19
- New features in brick and wood block pavements. C. Older. Good Roads n s 15:154-6+ Mr 16 '18; Excerpt. Eng & Contr 49:235 Mr 6 '18
- Overcoming the heaving of creosoted wood block pavements. Munic Eng 55:126-7 O '18
- Paint-coat method becomes standard construction for wood block. W. Buehler. Eng N 82:133-4 Ja 16 '19
- Paving blocks and sectional paving for railway tracks. *Il* diags Elec Ry J 54:30-1 JI 5 '19
- Procedure in constructing an open joint wood block pavement at Toledo, Ohio. R. Pierce. *Il* diags Munic Eng 56:174-5 My '19
- Progress reported on wood-block experiments in Minneapolis; abstracts. C. H. Teesdale and J. D. MacLean. Eng N 82:233-4 Ja 30 '19; Eng & Contr 51:146-7 F 5 '19
- Proper method of application of bituminous filler for creosoted wood block pavements and floors. L. T. Ericson. *Il* Eng & Contr 50:320-1 O 2 '18
- Recommended procedure in the construction of wood block pavements. L. T. Ericson. *Il* Munic Eng 54:139-40 Ap '18
- Relaying wood block in Bridgeport, Conn. J. S. Crandell. *Il* Elec Ry J 54:316-17 Ag 16 '19; Discussion. 54:588, 767-8 S 20, O 18 '19
- Some specific suggestions on the design and construction of modern wood block pavements. E. A. Fisher. *Il* Munic Eng 56:129-30 Ap '19
- Wood block pavement on Washington boulevard, Indianapolis, Ind. C: C. Brown. *Il* Munic J 44:241-2 Mr 23 '18
- Wood block pavements at Lakewood, Ohio. E. A. Fisher. diags Munic J 46:162-3 F 22 '19
- Wood block paving in Baltimore. Munic J 44:6-7 Ja 5 '18

**Failures**

- Wood-block pavement failures of southern cities analyzed. C. H. Teesdale. *Il* Eng N 80:307-10 F 14 '18; Same cond. Eng & Contr 49:236-7 Mr 6 '18

**Specifications**

- Attack on Chicago creosote oil specification fails. J. A. Meyer. Munic Eng 54:209 My '18
- Oil for creosoting wood paving blocks; the Chicago specifications and the injunction suit to prevent their use. Munic J 44:260-1 Mr 30 '18
- Specification for pitch paint coat method of constructing creosoted wood block pavement. Eng & Contr 51:151 F 5 '19
- Specifications for creosoted wood block paving; committee report. Good Roads n s 16:142 O 12 '18
- Specifications for pitch paint coat method of wood block pavement construction. A. H. Noyes and W. Buehler. Eng & Contr 49:433 My 1 '18

**Pavilions**

- Pavilion for Gateway Park, Minneapolis, Minn.; views and plan. Am Arch 114:pl 90-3 S 18 '18

**Heating and ventilation**

- How to heat a dance pavilion. diag Dom Eng 88:107-8 JI 19 '19

**Paving. See Pavements****Pawl springs**

- Value of pawl springs demonstrated by excessively burned controller contacts. Elec Ry J 54:341 Ag 16 '19

**Pawls**

- Experimental production of actuating pawl. F. W. Stalker. diags Am Mach 50:603-4 Mr 27 '19
- Producing pawls for experimental work. F. W. Stalker. diags Mach 25:856-7 My '19

**Payment**

- Legal questionnaire. Dom Eng 87:53-4 Ap 12 '19

*See also Bonus system; Piece work; Wages*

**Payne, John Barton, 1855-**

- Appointment as general counsel to the Director general of railroads. por Ry R 62:151 F 2 '18

**Payrolls**

- Addressing the pay envelop, and filling it. *Il* Factory 20:635 Ap '18
- Employees' pay checks. Elec Ry J 52:417 S 7 '18
- How five firms keep payroll records up to date. Ind Management 55:499-501 Je '18
- Installing accurate payroll system. C. E. Lynn. Iron Tr R 64:1289-92 My 15 '19
- Labor saving devices in railroad offices. Ry R 64:347-50 Mr 8 '19; Excerpt. Eng & Contr 51:401 Ap 16 '19
- Making payrolls check with costs. E. C. Fremont. Factory 20:639-40 Ap '18
- Paying off quickly. Factory 20:356+ F '18
- Saving labor in shop accounting. Ry Age 66:896-7 Ap 4 '19; Excerpt. Eng & Contr 51:399-400 Ap 16 '19
- Turning time cards into payroll. L. W. Kester. *Il* Factory 22:697-9 Ap '19

**Peace conference****Labor problems**

- French labor issue in peace parley. F. Milltown. Iron Tr R 64:506-7 F 20 '19

**Peace treaty (European war) 1919**

- Germany's mineral losses under the treaty. Iron Age 104:252-3 JI 24 '19
- Transportation sections of the peace treaty. Ry R 64:699-700 My 10 '19
- Treaty strips Huns of plants. J. Horton. Iron Tr R 65:158 JI 17 '19

**Peanut oil**

- Conversion of a brewery into an oil refinery. diags Chem & Met Eng 19:753-6 D 1 '18
- Peanut oil as fuel for motorships; abstract. Am Soc M E J 40:192 F '18
- Peanut oil in France. Sci Am S 85:112 F 16 '18

**Peanuts**

- Glory of the peanut. Chem & Met Eng 19:746 D 1 '18

**Pearlite**

- Divorce of pearlite after cold working. J. H. Whiteley. Chem & Met Eng 20:192-3 F 15 '19

**Peat**

- Antiseptic value of peat. Coal Age 13:1048 Je 8 '18
- Carbonization and distillation of peat. Coal Age 15:224 Ja 30 '19
- Carbonization and distillation of peat. C. Galaine and C. Houbert. Am Gas Eng J 109:295-6 S 28 '18; Same. Coal Age 14:588 S 26 '18
- Ekenberg peat process. A. McMillan. J Ind & Eng Chem 10:312 Ap '18
- European substitutes for coal in gas making. map Gas Age 41:5-7 Ja 1 '18
- New industrial uses for peat. Sci Am 118:189 Mr 2 '18
- Peat and its uses. Mech Eng 41:428 My '19



**Peat—Continued**

- Peat as a fuel. Sci Am S 86:47 J1 20 '18  
 Peat beds furnish huge fuel reserve. Iron Tr R 62:848 Ap 4 '18; Same. Automotive Ind 38:869+ My 2 '18  
 Peat deposits of the United States. J Fr Inst 185:579-80 Ap '18; Same. Coal Age 14:115 J1 20 '18  
 Peat industry breaks record. Coal Age 14:226 Ag 1 '18  
 Peat industry increased 420 per cent in ten years. Eng N 81:202 J1 25 '18  
 Peat plays important part in relieving coal shortage in France. Coal Age 15:51 Ja 9 '19  
 Possibilities of peat as fuel. Power 48:214 Ag 6 '18; Same. Coal Age 14:734-5 O 17 '18  
 Replace coal by peat fuel. C. C. Osborn. Coal Age 14:819 O 31 '18  
 Turf distillation. Am Gas Eng J 111:316 O 11 '19  
 Use of peat as fuel; bulletins of Canadian department of mines. Power 48:379 S 10 '18  
 Uses of peat in agriculture. Coal Age 14:63 J1 13 '18  
 Using peat for power. Factory 20:782 Ap '18  
 Utilization of peat for power generation. J: B. C. Kershaw. II maps Engineer 127:239-40, 265-7 Mr 14-21 '19; Same. Coal Age 15:898-901, 946-50 My 15-22 '19  
 Value of peat fuel for the generation of steam. diags Engineer 126:123-4, 163-6, 178-80 Ag 9, 23-30 '18
- Pebbles**  
 American pebbles and kiln linings. Concrete 13:sup32 S '18  
 Artificial pebbles for tube-milling. A. W. Allen. diags Eng & Min J 105:1033-41 Je 8 '18
- Peek, George N.**  
 Industrial representative. War industries board. por Iron Tr R 62:1135 My 2 '18
- Peerless truck & motor corporation**  
 Annual report, 1917. Automotive Ind 38:565 Mr 14 '18
- Pegmatites**  
 Pegmatites of the Duluth gabbro. F. F. Grout. II map Econ Geol 13:185-97 My '18
- Peirce, William S., 1864-**  
 William S. Peirce, brigadier general, United States army assistant chief of ordnance. por Am Mach 50:407 F 27 '19
- Pencils**  
 Industrial opportunities the gas companies are availing themselves of in pencil making and some they are missing. G. C. Shadwell. II Am Gas Eng J 111:89-92 Ag 2 '19
- Pendulum.** See Foucault's pendulum
- Penn-Wyoming copper company**  
 Copper co. sold. Chem & Met Eng 20:148-9 F 15 '19
- Pennsylvania**  
 Public works commission  
 Pennsylvania has emergency public works commission. Eng N 82:516 Mr 13 '19
- Pennsylvania electric association**  
 11th annual meeting. Bedford Springs, Pa., Sept. 6-7. Elec W 72:509-10 S 14 '18  
 12th annual convention. Bedford Springs, Pa., Sept. 3-6. Elec R 75:445-7 S 13 '19; Elec W 74:596-7 S 13 '19; Power 50:480-1 S 16 '19
- Pennsylvania housing and town-planning conference**  
 4th annual conference, Johnstown. Munic J 45:62-3 J1 20 '18
- Pennsylvania railroad**  
 Concrete moulding plant. II diags plans Ry R 64:425-32 Mr 22 '19  
 Functions of railway corporate organizations. Ry Age 65:871-2 O 11 '18  
 Improved apprenticeship methods on the Pennsylvania. J. H. Yoder. II Ry Mech Eng 92:8-10 Ja '18  
 New locomotive maintenance program Pennsylvania lines west. II diags plans Ry R 64:913-22 Je 21 '19  
 Pennsylvania railroad and its foreign labor. S: Rea. Ry R 64:786 My 31 '19
- Pennsylvania railroad company in 1917. Ry Age 64:490-1 Mr 8 '18  
 Pennsylvania system rejects screw spikes. diags Ry Age 64:294, 307-11 F 8 '18; Conclusions. Ry R 62:384-5 Mr 16 '18; Discussion. W. C. Cushing. Ry Age 64:441-2 Mr 1 '18  
 Recent operating difficulties. II Ry R 62:307-10 Mr 2 '18; Same. Ry Age 64:447-9 Mr 1 '18; Same cond. Ry Mech Eng 92:143-5 Mr '18  
 71st annual report, 1917. Ry R 62:348-51 Mr 9 '18
- Pennsylvania state college**  
 Co-operative railroad-college course. A. J. Wood. Ry Mech Eng 92:19-20 Ja '18
- Thermal testing plant**  
 Thermal testing plant of the engineering experiment station. Mech Eng 41:464 My '19
- Pennsylvania street railway association**  
 Annual meeting. Harrisburg, Pa., June 27-28. Elec Ry J 54:13-17 J1 6 '19
- Pennsylvania water & power company**  
 Operation at Holtwood. C: H. Bromley. II diags Power 49:450-4, 646-50, 683-4, 713-15, 770-6, 850-4, 973-6; 50:8-9 Mr 25, Ap 29-May 20, Je 3, 24-J1 1 '19  
 Pennsylvania water & power company service in war. C: E. F. Clarke. Elec W 73:597 Mr 22 '19
- Pens**  
 Use of gas in connection with the manufacture of pens. G. C. Shadwell. Am Gas Eng J 111:24-6 J1 12 '19  
 See also Fountain pens
- Pensions**  
 Life in a large manufacturing plant; continuity of service. C: M. Ripley. Gen Elec R 21:579-84 Ag '18  
 Midvale pension and home-building plans. Iron Age 104:182-3 J1 17 '19; Abstract. Iron Tr R 65:176 J1 17 '19  
 No part of funds used in Montreal pension plan obtained from employees. C. S. Bagg. Am Gas Eng J 109:223-4 S 7 '18  
 Pension system for southern California. Elec W 74:598 S 13 '19  
 Pensioning employees. J Elec 43:301-2 O 1 '19
- Penstocks.** See Water pipes
- Pentene.** See Amylene
- Pentosans**  
 Modification of phenylhydrazine method of determining pentosans. P. Menaul and C. T. Dowell. J Ind & Eng Chem 11:1024-6 N '19
- Peoples gas light & coke company, Chicago**  
 Annual report, 1917. Am Gas Eng J 108:159-60+ F 16 '18
- Peppermint**  
 Japan peppermint cultivation. J Ind & Eng Chem 10:74 Ja '18
- Pepsin**  
 Studies on pepsin; chemical changes in the purification of pepsin. L: Davis and H. M. Merker. Am Chem Soc J 41:221-8 F '19
- Peptization**  
 Influence of the age of ferric arsenate on its peptization. H. N. Holmes and F. H. Fall. Am Chem Soc J 41:713-17 My '19
- Peptone**  
 Compressibility of aqueous solutions of casein and peptone. S. Palitzsch. Am Chem Soc J 41:346-51 Mr '19
- Percentage**  
 Checking percentages by chart. W: Wyer. chart Ry Age 66:1826-8 Je 27 '19; Same cond. Eng & Contr 52:80-1 J1 16 '19
- Perchloric acid**  
 Perchloric acid method for potash in cement materials. W: B. Newberry. Chem & Met Eng 20:452-3 My 1 '19
- Pere Marquette railroad**  
 Pere Marquette. map Ry Age 66:1033-4 Ap 25 '19
- Perfumery**  
 Use of gas in perfumery trade. G. C. Shadwell. Am Gas Eng J 111:137-8+ Ag 16 '19

- Pergolas**  
Pergola construction. J: Upton. diag. plan Bldg Age 40:214 Ap '18
- Periodic law**  
Classification of the chemical elements. I. W. D. Hackh. Sci Am S 87:146-9 Mr 8 '19  
Place of manganese in the periodic system. F. R. v. Blichowsky. Am Chem Soc J 40:1040-6 J1 '18  
System of radio-active elements. I. W. D. Hackh. flow sheet biblog Chem & Met Eng 19:751-2 D 1 '18  
Table of the periodic system. I. W. D. Hackh. Am Chem Soc J 40:1023-6 J1 '18
- Periodicals**  
Business and professional library; value of periodicals. L. B. Krause. Eng & Contr 52:56-6 J1 9 '19  
Periodicals in the business library—how to use and how to file them. L. B. Krause. J Elec 42:478-4, 538-40 My 15-Je 1 '19  
See also Engineering periodicals; House organs; Newspapers; Trade journals
- Periodograph**  
Periodograph; a decimal time-keeping machine. J. V. Hunter. Il Am Mach 51:49-54, 161-4 J1 10, 24 '19
- Periscope**  
Periscope in war and peace. J. M. Purcell. Il Power 49:716 My 13 '19  
Periscopic or altiscopic rifles. diag. Sci Am S 85:117 F 23 '18
- Perkin medal**  
Perkin medal presented to Frederick G. Cottrell. Il diag. Chem & Met Eng 20:102-14 F 1 '19; J Ind & Eng Chem 11:147-54 F '19  
Presentation of Perkin medal to Auguste J. Rossi. Met & Chem Eng 18:114-20 F 1 '18; Same. J Ind & Eng Chem 10:138-45 F '18
- Perkins, Jacob, 1766-1849**  
Inventor of steel-engraving was an American. por Inland Ptr 63:408-4 J1 '19
- Permanganates**  
Studies on manganates and permanganates. H. I. Schlesinger, R. D. Mullinix and S. Popoff. J Ind & Eng Chem 11:317-23 Ap '19
- Permeability**  
Method for determining the permeability of balloon fabrics. J. D. Edwards and S. F. Pickering. diag. J Ind & Eng Chem 11:966-8 O '19
- Permeameter**  
Experimental study of the Fahy permeameter. C. W. Burrows and R. L. Sanford. Il diag. U S Bur Stand Bul 14:267-300 Je 17 '18  
Holz permeameter for magnetic-mechanical analysis of iron and steel. Il Mach 24:553-4 F '18  
Permeameter for general magnetic analysis. F. P. Fahy. Il diag. plan Chem & Met Eng 19:339-42 S 15 '18  
Test without destruction as achieved by the permeameter. Sci Am 119:328 O 19 '18
- Perpetual motion**  
Garabed a perpetual motion scheme. Sci Am 119:162 Ag 31 '18  
Perpetual motion machines. B. S. Jakobsen. diag. J Elec 42:426-7 My 1 '19
- Perryville, Maryland**  
Industrial housing at Perryville. Il plans Am Arch 114:503-10, pl 129-35 O 30 '18
- Pershing, John Joseph, 1860-**  
Opening of Pershing stadium in France—built of concrete. Il Concrete 15:56 Ag '19  
Portrait. Inland Ptr 63:640a S '19
- Persia**  
Between the Tigris and the Indus; a region of great future commercial importance. T: H. Holdich. Sci Am S 84:394-5 D 22 '17  
Persian oilfield. B. Redwood. Engineer 125:518 Je 14 '18; Same. Sci Am S 86:144 Ag 31 '18
- Railroads**
- See Railroads—Persia
- Pertinax**  
Pertinax as a substitute for mica and other things. Sci Am 120:674 Je 21 '19
- Peru**  
Peru and its principal railways. C. S. Cooper. Il Ry R 64:1-5, 61-5, 99-103 Ja 4-18 '19
- Antiquities**
- Modern designs from ancient fabrics. Il Sci Am 118:148-9 F 16 '18
- Commerce**
- Advertising methods in Chile, Peru, and Bolivia. J. W. Sanger. Il U S Bur For & Dom Com 185:1-56 '19  
Chemical trade of Chile, Peru, and Bolivia. O. P. Hopkins. J Ind & Eng Chem 10:807-8 O '18  
Construction materials and machinery in Chile, Peru, and Ecuador. W. W. Ewing. Il U S Bur For & Dom Com 175:112-70 '19  
Electrical goods in Ecuador and Peru. P. S. Smith. U S Bur For & Dom Com 154:1-50 '17  
Increased export duties in Peru. Eng & Min J 106:61 J1 13 '18  
Market for boots and shoes in Peru. H. G. Brock. Il U S Bur For & Dom Com 152:1-89 '17  
Textile markets of Bolivia, Ecuador, and Peru. W. A. Tucker. Il U S Bur For & Dom Com 158:1-106 '18  
Wearing apparel in Peru. W: F. Montavon. U S Bur For & Dom Com misc ser 74:1-64 '18
- Railroads**
- See Railroads—Peru
- Peters, Edward Dyer, 1849-1917**  
Notes on biography by Mrs E: M. Peters. Am Inst Min E Bul 140:sup81-6 Ag '18; Eng & Min J 106:424 Ag 31 '18  
Sketch. por Eng & Min J 103:380-1 Mr 3 '17
- Petroglyphs**  
Archeological notes on the Danish West Indies; the petroglyphs of the island of St John and of Congo Cay. T. de Booy. Il Sci Am S 84:376-7 D 15 '17
- Petrography. See Rocks**
- Petroleum**  
Anomalous dips. E. W. Shaw. Econ Geol 13:598-610 D '18  
Concrete example of the use of well logs. M. Bates. maps diag Am Inst Min E Bul 137:979-86 My '18  
Crevices and cavities in oil sands. E. W. Shaw. biblog Econ Geol 13:207-22 My '18  
Dehydrogenation of petroleum oils. A. S. Ramage. Chem & Met Eng 19:777 D 1 '18  
Electrical dehydration of oil. H. N. Sessions. Il J Elec 43:316-18 O 1 '19  
Establishing an oil research bureau proposed. V. H. Manning. Gas Age 44:279-80 O 1 '19  
Experiment station established. Ry R 63:281 Ag 24 '18  
Fats and fatty acids from petroleum. R. J. Moore and G. Egloff. diag Met & Chem Eng 18:308-11 Mr 15 '18; Discussion. B: T. Brooks; A. E. Outerbridge, Jr. 18:388-9 Ap 15 '18  
Fuel conservation in the petroleum industry. W. G. Williams. diag. plan Am Soc M E J 40:789-90 S '18  
Fuel oil: what it is and where it comes from. R. T. Strohm. Il Power 50:56-9 J1 8 '19  
Future oil supply probably assured by resources of shale deposits. Eng N 81:sup 197 O 17 '18  
Genesis of petroleum as revealed by its nitrogen constituents. C: F. Mabery. Am Chem Soc J 41:1690-7 O '19  
Geologic factors in oil prospecting. F: H. Lahee. diag. Econ Geol 14:480-90 S '19  
Geosynclines and petroliferous deposits. M. R. Daly. diag. maps Am Inst Min E Bul 128:1135-46 Ag '17; Discussion. 133:297-9; 135:695-7 Ja, Mr '18  
How long the oil will last. Il Sci Am 120:459+ My 3 '19  
Methods for estimating the future production of oil wells. J. O. Lewis and C. H. Beal. chart Am Inst Min E Bul 134:477-504 F '18; Discussion. 136:835-6; 137:1019-22 Ap-May '18

**Petroleum—Continued**

- Methods for increasing the recovery from oil sands. J. O. Lewis. *Il diags U S Bur Mines Bul* 148:1-128 '17; *Excerpt. Sci Am S* 85:215 Ap 6 '18
- Methods of extinguishing burning oil and gas wells. R. E. Somers. *Il diag Sibley J* 82: 119-22 My '18
- Modification of benzol method for water determination in mineral oils. F. C. Fuchs. *Eng & Min J* 106:357 Ag 24 '18
- Movements of oil and gas through rocks. V. Ziegler. *bibliog Econ Geol* 13:335-48 Jl '18; Same. *Sci Am S* 86:374-5 D 14 '18
- Nitro-glycerine and the oil industry. *Il Sci Am* 121:163+ Ag 16 '19
- Note book form and symbols for petroleum geologists. E. G. Woodruff. *Econ Geol* 14: 424-6 Ag '19
- Observations on a Florida sea-beach with reference to oil geology. J. F. Kemp. *Il Econ Geol* 14:302-23 Je '19
- Oil from shale rock. *Eng & Min J* 106:419 Ag 31 '18
- Operation of oil wells by electric power and the resulting gain to the oil producer. W. G. Taylor. *Il Gen Elec R* 22:384-98 My '19
- Petroleum and reconstruction problems. C. Naramore. *Am Inst Min E Bul* 145:supl4-18 Ja '19
- Petroleum investigations and production of helium. V. H. Manning. *U S Bur Mines Bul* 178C:1-87 '19
- Petroliferous provinces. E. G. Woodruff. *map Am Inst Min Bul* 150:907-12 Je '19; *Discussion*. 155:3058-70; 156:3146-7 N-D '19
- Petrology of reservoir rocks and its influence on the accumulation of petroleum. A. W. Lauer. *map 8 pls Econ Geol* 12:435-72 Ag '17; *Discussion*. 13:65-9, 147-9, 316-24 Ja, Mr, Je '18
- Relation of oil to carbon ratios of Pennsylvanian coals in North Texas. M. L. Fuller. *map Econ Geol* 14:536-42 N '19
- Staggering locations for oil wells. R. H. Johnson. *diags Am Inst Min E Bul* 140: 1311-16 Ag '18
- Superficial dip of marine limestone strata a factor in petroleum geology. K. F. Mather. *Il diags Econ Geol* 13:198-206 My '18
- Traps for saving gas at oil wells. W. R. Hamilton. *Il diags plans U S Bur Mines Tech Pa* 209:1-31 '19
- Work of the petroleum geologist. G. E. Burton. *Eng & Min J* 105:822-4 My 4 '18
- See also* Coal-tar products; Fuel, Colloidal; Gasoline; Kerosene; Liquid fuel; Oil lands; Oil shales; Oil storage
- Bibliography**
- Bibliography of petroleum and allied substances in 1916. E. H. Burroughs. *U S Bur Mines Bul* 165:1-159 '19
- Mining and metallurgical index. *See* monthly numbers of *Bulletin of the American institute of mining engineers*
- Petroleum and allied substances, 1915. E. H. Burroughs. *U S Bur Mines Bul* 149:1-147 '18
- Distillation and refinery**
- Action of concentrated sulfuric acid on olefins, with particular reference to the refining of petroleum distillates. B. T. Brooks and I. Humphrey. *Am Chem Soc J* 40:822-56 My '18
- Chemistry in the petroleum industry. W. M. Burton. *J Ind & Eng Chem* 10:484-6 Je '18; Same. *Met & Chem Eng* 18:647-50 Je 15 '18
- Concentration of sludge acid; patent. *diag Chem & Met Eng* 19:99 Jl 15 '18
- Desulfuration of hydrocarbons. *J Ind & Eng Chem* 10:73 Ja '18
- Distillation of crude petroleum. C. W. Stratford. *Automotive Ind* 38:1172-3 Je 20 '18
- Greenstreet cracking process. *Automotive Ind* 38:1088-9 Je 6 '18
- Manufacture of amyl acetate and similar solvents from petroleum pentane. B. T. Brooks, D. F. Smith and H. Essex. *J Ind & Eng Chem* 10:511-15 Jl '18
- Petroleum refining instruments used in testing oils. R. W. Cunningham. *diags Sci Am S* 88:268-9 N 8 '19

- Solubility of paraffins, aromatics, naphthenes and olefins in liquid sulphur dioxide. R. J. Moore, J. C. Morrell and G. Egloff. *diag Met & Chem Eng* 18:396-402 Ap 15 '18
- Trumble refining process. N. W. Thompson. *Il diags plan Am Soc M E J* 39:831-4 O '17; Same cond. *Met & Chem Eng* 18:256-7 Mr 1 '18
- Washing and distillation of liquids. *diags Gas Age* 40:573-5 D 15 '17
- Works of the Atlantic refining co. *Il Chem & Met Eng* 21:488-9 O 15 '19

**Laws and regulations**

- California laws relating to oil and gas wells. F. B. Tough. *bibliog U S Bur Mines Bul* 163:97-115 '18
- Oil shipment rules. *Gas Age* 41:364 Ap 15 '18
- Practical value of oil and gas bureaus. W. G. Matteson. *Am Inst Min E Bul* 126:979-81 Je '17; *Discussion*. 130:1867-62; 133:75-88 O '17, Ja '18

**Measurement**

- Feasible plan for gaging individual wells. R. H. Johnson and W. E. Bernard. *diags Am Inst Min E Bul* 126:955-7 Je '17; *Discussion*. 133:100-1 Ja '18
- Gaging and storage of oil in the mid-continent field. O. U. Bradley. *diags Am Inst Min E Bul* 135:677-86 Mr '18

**Pumping**

- Ideal twenty-four-hour load now awaiting central station power; saving in oil can be obtained by electrification. S. G. Gassaway and W. G. Taylor. *Gen Elec R* 21:699-708 O '18
- Opportunities for central-station power in the oil fields. L. E. Mohrhardt. *Il Elec R* 73:7-11 Jl 6 '18

**Transportation**

- Design and construction of navy concrete oil barges. R. M. Burkhalter. *Il diags plan Eng N* 82:1056-8 My 29 '19
- Navy concrete barge side-launched. *Il Eng N* 83:309 Ag 14 '19
- See also* Tank cars; Tank ships

**Water problem**

- Absence of water in certain sandstones of the Appalachian oil fields. F. Reeves. *diag map Econ Geol* 12:354-73 Je '17; *Discussion*. E. W. Shaw. 12:610-28 O '17
- Cement plugging for exclusion of bottom water in the Augusta field, Kansas. *Am Inst Min E Bul* 142:1613-20 O '18; *Discussion*. 148:711-16 Ap '19
- Investigations concerning oil-water emulsion. A. W. McCoy, H. R. Shidel and E. A. Trager. *Il diags Am Inst Min Bul* 152:1513-37 Ag '19; *Discussion*. 156:3168-72 D '19
- Methods of shutting off water in oil and gas wells. F. B. Tough. *bibliog Il diags U S Bur Mines Bul* 163:1-115 '18
- Petroleum hydrology applied to mid-continent field. R. O. Neal. *Am Inst Min E Bul* 145:1-8 Ja '19; *Discussion*. 147:603-6 Mr '19
- Sealing water in California oil fields. S. S. Langley. *diags Eng & Min J* 108:11-16 Jl 5 '19
- Water surfaces in the oil fields. M. R. Daly. *diags Am Inst Min E Bul* 133:151-7 Ja '18
- Water troubles in the mid-continent oil fields, and their remedies. D. Hager and G. W. McPherson. *diags Am Inst Min E Bul* 142:1621-7 O '18; *Discussion*. 149:771-4 My '19

**Alabama**

- Possible oil and gas fields in the cretaceous beds of Alabama. D. Hager. *map Am Inst Min E Bul* 134:469-76 F '18; *Discussion*. 136: 819-22 Ap '18

**Alsace-Lorraine**

- Oil fields. *Sci Am* 120:317 Mr 29 '19

**Argentina**

- Argentine fuel developments. *Eng & Min J* 107:950 My 31 '19

**Burma**

- Minerals in Burma increase 16% per cent. *Automotive Ind* 39:934-5 N 28 '18

**Petroleum—Continued****California**

Application of law of equal expectations to oil production in California. C. H. Beal and E. D. Nolan. *Am Inst Min Bul* 152: 1237-45 Ag '19  
 Chart of California oil production. L. H. Eddy. *Eng & Min J* 104:1074 D 22 '17  
 Fuel oil production. *J Elec* 42:80 Ja 15 '19  
 Oil in the Simi valley, Southern California. *Eng & Min J* 107:913 My 24 '19  
 Petroleum in California. *Eng & Min J* 107:146 Ja 18 '19

**Canada**

Gas and oil fields of western Canada. P. Thompson. *Eng & Min J* 105:1099-1100 Je 15 '18

**Colorado**

Mountains of oil; vast quantities of petroleum to be extracted from the shale cliffs of Colorado. W. F. Wilcox. *Il Sci Am* 119:29 Jl 13 '18  
 Petroleum in Colorado. *Eng & Min J* 106:413 Ag 31 '18

**Ecuador**

Petroleum in Ecuador. W. M. Brodie. *Il Eng & Min J* 107:941-4 My 31 '19

**Europe**

Germany's oil drive; conquest of petroleum lands one of immediate objectives. *Il map Motor Age* 33:22-3 Je 13 '18

**Great Britain**

Lord Cowdray would drill for oil in Great Britain. *Eng & Min J* 105:824 My 4 '18  
 New British oil industry. *Sci Am S* 85:357 Je 8 '18

**Illinois**

Cementation in the Illinois oil field. M. L. Nebel. *diag Eng & Min J* 105:1080-2 Je 15 '18  
 Oil and gas fields of Illinois. H. A. Wheeler. *Il map Eng & Min J* 105:181-4 Ja 26 '18

**Japan**

Petroleum in Japan. J. M. Clements. *Il Econ Geol* 13:512-23 N '18

**Kansas**

Petroleum industry. W. A. Whitaker, C. Estes and F. W. Campbell. *Il map Eng & Min J* 105:817-21 My 4 '18

**Kentucky**

Irvine oil district. S. St Clair. *map Am Inst Min Bul* 151:1079-89 Jl '19  
 Kentucky oil fields. W. N. Thayer. *map Eng & Min J* 105:781-5 Ap 27 '18

**Mexico**

Funnel and anticlinal-ring structure associated with igneous intrusions in the Mexican oil fields. V. R. Garfias and H. J. Hawley. *bibliog diags Am Inst Min E Bul* 128:1147-59 Ag '17; *Discussion*. 133:92-7 Ja '18  
 Investigation of petroleum in Mexico. *Eng & Min J* 107:1050 Je 14 '19  
 Mexico as source of petroleum and its products. E. De Golyer. *Automotive Ind* 40: 420-2 F 20 '19  
 Oil in southern Tamaulipas. E. Ordoñez. *diag map Am Inst Min E Bul* 137:1001-8 My '18; *Discussion*. 142:1560-4 O '18  
 Petroleum geology of the Isthmus of Tehuantepec. B. Hartley. *map Econ Geol* 12:581-8 O '17  
 Significance of certain Mexican oil field temperatures. E. DeGolyer. *bibliog Econ Geol* 13:275-301 Je '18  
*See also* Oil lands

**Ohio**

Lithology of the Berea sand in southeastern Ohio, and its effect on production. L. S. Panyity. *diag map Am Inst Min E Bul* 140: 1317-20 Ag '18

**Oklahoma**

Age of the oil in southern Oklahoma fields. S. Powers. *maps Am Inst Min E Bul* 131: 1971-82 N '17; *Discussion*. 135:708-9; 136:842 Mr-Apr '18  
 Haldton oil field. S. Powers. *diag map Econ Geol* 12:594-606 O '17

**Persia**

Persian oilfields. B. Redwood. *Engineer* 125: 518 Je 14 '18; *Same*. *Sci Am S* 86:144 Ag 31 '18

**Rumania**

Roumanian petroleum. *J Ind & Eng Chem* 10: 398 My '18

**South America**

Economic and geologic conditions pertaining to the occurrence of oil in the North Argentine-Bolivian field of South America. S. C. Herold. *Il maps Am Inst Min E Bul* 141:1503-22 S '18; *Excerpts*. *Eng & Min J* 106:573 S 28 '18; *Discussion*. *Am Inst Min Bul* 149:854 My '19  
 Review of present knowledge regarding the petroleum resources of South America. F. G. Clapp. *bibliog Am Inst Min E Bul* 130: 1739-91 O '17; *Discussion*. 133:101-2 Ja '18

**Texas**

Geological conditions near Bridgeport and Chico, Wise county, Texas, with special reference to the occurrence of oil. E. Böse. *diags Texas U Bul* 1758:1-31 O 15 '17  
 Geology of the oil fields of north central Texas. D. Hager. *diags map Am Inst Min E Bul* 138:1109-18 Je '18; *Discussion*. 140:1155-6 Ag '18  
 Review of the development in the new Central Texas oil fields during 1918. W. G. Matteson. *Il maps Econ Geol* 14:95-146 Mr '19

**United States**

Are we wasting our petroleum? *Sci Am* 118: 372 Ap 20 '18  
 Crude petroleum in the United States. *Power* 49:663 Ap 29 '19  
 Crude petroleum operations as compiled by U.S. Geological survey. *Am Gas Eng J* 109: 304 S 28 '18  
 Decline and ultimate production of oil wells, with notes on the valuation of oil properties; with bibliography. C. H. Beal. *Il charts maps U S Bur Mines Bul* 177: 1-215 '19  
 Energy resources of the United States: a field for reconstruction. C. G. Gilbert and J. E. Pogue. *Il charts diags U S National Museum Bul* 102, v 1:29-102 '19  
 Expected shortage of gas oil and the reason. E. G. Pratt. *Gas Age* 44:294-6 O 1 '19  
 Interpretation of the so-called paraffin dirt of the Gulf Coast oil fields. A. D. Brokaw. *Am Inst Min E Bul* 136:947-50 Ap '18; *Discussion*. 139:1148-53; 140:1158-62; 143:1674-7; 145: 98-101 Jl-Ag, N '18, Ja '19  
 Is our fuel supply nearing exhaustion? R. H. Fernald. *Il Ry R* 63:274, 304 Ag 24-31 '18; *Same*. *Gen Elec R* 21:547-50, 554 Ag '18  
 Limitations of our supply of petroleum. *Sci Am S* 85:394 Je 22 '18  
 Natural gas and petroleum wartime activities. C. C. Smith. *Gas Age* 44:90-2 Ag 1 '19  
 Oil problem during war period. M. L. Requa. *Am Inst Min E Bul* 143:sup5-12 N '18  
 Oil resources of the United States. *Eng & Min J* 108:699-700 O 25 '19  
 Our future petroleum industry. W. A. Williams. *Gen Elec R* 21:70-3 Ja '18  
 Our liquid fuel. *Il Sci Am S* 87:284 My 3 '19  
 Our wartime barrel of oil. *Il Sci Am* 118:541-Je 15 '18  
 Petroleum in the United States. *Eng & Min J* 107:183 Ja 25 '19  
 Petroleum production and exhaustion. L. P. Breckenridge. *Coal Age* 15:127 Ja 16 '19  
 Possible existence of deep-seated oil deposits on the Gulf coast. A. F. Lucas. *Il diag map Am Inst Min E Bul* 139:1119-34 Jl '18; *Discussion*. 142:1558-60 O '18

**Petroleum—United States—Continued**

- Principles and problems of oil prospecting in the Gulf Coast country. W. G. Matteson. 11 map Am Inst Min E Bul 134:429-63 F '18; Discussion. 134:463-8; 136:823-35; 139:1145-6; 140:1163-4 F, Ap, JI-Ag '18
- Production, consumption and stocks of petroleum during first half of 1917 and 1918; tabulation. Automotive Ind 39:600 O 3 '18
- Production of crude oil at new high level. Automotive Ind 40:154-5 Ja 16 '19
- Review of the motor-fuel situation. J. E. Pogue. chart Automotive Ind 40:1319-21 Je 12 '19
- Search for new oil pools in the United States. D. Hager. map Eng & Min J 105:11-12 Ja 5 '18
- Unmined petroleum is limited. Motor Age 34:8-10 S 26 '18
- Unmined petroleum supply limited. A. Sinsheimer. chart diag Automotive Ind 39:491-3 S 19 '18
- Unmined supply of petroleum in the United States. D. White. Automotive Ind 40:361, 376+ F 13 '19

**Utah**

- Oil and gas in Utah. F. R. Clark. Eng & Min J 108:696-7 O 25 '19

**Venezuela**

- Venezuelan petroleum fields. E. Sauer. Eng & Min J 107:734 Ap 26 '19

**Virginia**

- Deepest well in the world in Virginia. Metal Work 89:490 Ap 12 '18; Same cond. Eng & Contr 49:301 Mr 20 '18; Same cond. Eng & Min J 105:591 Mr 30 '18

**Wyoming**

- Lance Creek oil and gas field of Wyoming. Eng & Min J 107:995 Je 7 '19
- Petroleum as fuel. See Oil as fuel
- Petroleum engines. See Gas and oil engines
- Petroleum industry**
- Appeal to consumers of oil and gas well supplies. G. E. Day. Metal Work 90:233 Ag 23 '18
- Asphalt and petroleum residues in 1917. Chem & Met Eng 19:140 Ag 1 '18
- California crude-oil prices. Eng & Min J 106:572 S 28 '18
- Coal, oil and water-power statistics. charts Power 49:279 F 25 '19
- Cost accounting for oil producers. C. G. Smith. U S Bur Mines Bul 158:1-123 '17
- Crude oil production increased 29 per cent in 1917. Automotive Ind 38:206 Ja 24 '18
- Crude petroleum in 1917; tabulation. J. D. Northrop. Eng & Min J 106:692 O 19 '18
- Crude-petroleum situation in the United States. Power 50:546 S 30 '19
- Fuel oil and the war. M. L. Requa. Ry R 62:759 My 25 '18
- German petroleum industry. Sci Am S 85:227 Ap 13 '18
- High and low crude oil prices, 1860-1917. Gas Age 41:66 Ja 15 '18
- Oil companies active in Arizona. Eng & Min J 107:1055-6 Je 14 '19
- Petroleum in April and March. Eng & Min J 108:60-1 JI 12 '19
- Petroleum in March and February. Eng & Min J 107:909-10 My 24 '19
- Petroleum industry. V. H. Manning. Eng & Min J 108:413-14 S 6 '19
- Petroleum production of the United States and of the world. Eng & Min J 105:1140-1 Je 22 '18
- Proposed new British oil industry. Engineer 125:166 F 22 '18
- Record petroleum production. Eng & Min J 105:67 Ja 12 '18
- Rise of crude oil prices. chart Gas Age 41:357 Ap 15 '18
- Statistical sidelights on our national fuel problem. charts Coal Age 16:440-2 S 11 '19
- War service of the petroleum industry. M. L. Requa. Power 47:566 Ap 16 '18

World's production of crude petroleum in 1917, and since 1857, by countries; tabulation. Automotive Ind 39:601 O 3 '18

**Petroleum institute, American.** See American petroleum institute

**Petroleum pipe lines.** See Oil pipe lines

**Petrology.** See Rocks

**Pets**

How animals act in aeroplanes. H: Woodhouse. 11 Flying 8:771-4 O '19

**Pharmaceutical chemistry.** See Chemistry, Medical and pharmaceutical

**Phase converters**

No-load conditions of single-phase induction motors and phase converters. R. E. Hellmund. diags Am Inst E E Pro 37:317-401 Ap '18

**Phase modifiers**

Predetermination of synchronous phase-modifier performance. H. V. Carpenter. diags Am Inst E E Pro 38:997-1003 Ag '19

**Phase rotation indicator**

Simple device determines phase rotation. W. C. Heston. 11 diags J Elec 43:319-20 O 1 '19

Simple method of determining phase rotation. diags Elec R 72:805-6 My 11 '18

**Pheasants**

Evolution and destruction of life; effect of modern agencies on wild birds and animals. W: Beebe. Sci Am S 86:256 O 26 '18

Pheasants and their book. L. S. Crandall. 11 Sci Am 121:367+ O 11 '19

**Phelps Dodge corporation**

Report for the year 1917. Eng & Min J 105:1006-7 Je 1 '18

**Phenacetin**

Synthesis of certain substituted pyrogallol ethers, including a new acetophenide derived from the ethyl ether of syringic acid. M. T. Bogert and J. Ehrlich. Am Chem Soc J 41:798-810 My '19

**Phenacyl bromide**

Identification of acids; phenacyl esters. J. B. Rather and E. E. Reid. Am Chem Soc J 41:75-83 Ja '19

**Phenacylarsanilic acid**

Aromatic arsenic compounds; substituted benzyl, phenoxyethyl, and phenacylarsanilic acids. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 41:1826-33 N '19

**Phenanthrene**

Solubilities, separation, and purification of anthracene, carbazol and phenanthrene. J: M. Clark. J Ind & Eng Chem 11:204-9 Mr '19

**Phenol.** See Carboic acid

**Phenolphthaleins**

On the quinone-phenolate theory of indicators. R. T. Birge and S. F. Acree. Am Chem Soc J 41:1031-50 JI '19

**Phenols**

Alkali-insoluble phenols. R. Adams. Am Chem Soc J 41:247-70 F '19

Catalytic decomposition of certain phenol silver salts; thermal decompositions; the formula of the unpolymerized residues. W. H. Hunter and F. E. Joyce. Am Chem Soc J 39:2640-6 D '17

Certain amino and acylamino phenol ethers. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 41:1450-72 S '19

Compounds of phenol and the cresols with pyridine. F. W. Skirrow and T. V. Blinmore. Am Chem Soc J 40:1431-42 S '18

See also Carboic acid; Diaminophenols

**Phenolsulfonphthaleins**

On the quinone-phenolate theory of indicators. R. T. Birge and S. F. Acree. Am Chem Soc J 41:1031-50 JI '19

On the quinone-phenolate theory of indicators; on the reactions of phenolsulfonphthalein, and its bromo and nitro derivatives, and their monobasic and dibasic salts. E. C. White and S. F. Acree. Am Chem Soc J 41:1190-1212 Ag '19

**Phenolsulfonphthaleins—Continued**

Quinone: phenolate theory of indicators; a spectrophotometric study of the end-points and fading of phenolsulfonphthalein indicators. C. L. Brightman and others. *Am Chem Soc J* 40:1940-4 D '18

Quinone-phenolate theory of indicators; the absorption spectra of solutions of phenolsulfonphthalein and its tetrabromo and tetranitro derivatives and their salts, and of analogous substances. E. C. White and S. F. Acree. *Am Chem Soc J* 40:1092-9 J '18

**Phenoltetrabromo-phthalein**

Phthalic acid derivatives; constitution and color; phenoltetrabromo-phthalein and some of its derivatives. D. S. Pratt, F. B. Doane and A. W. Harvey. *Am Chem Soc J* 41:1289-93 Ag '19

**Phenoltetralodophthalein**

Phthalic acid derivatives; constitution and color, phenoltetralodophthalein and some of its derivatives. D. S. Pratt and A. F. Shupp. *Am Chem Soc J* 40:264-64 Ja '18

**Phenoxyacetic acid**

Aromatic arsenic compounds; the amides of (4-arsonic acid)-phenoxyacetic acid and the isomeric phenoxyacetyl-arsanilic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1834-40 N '19

**Phenoxyacetyl-arsanilic acids**

Aromatic arsenic compounds; the amides of (4-arsonic acid)-phenoxyacetic acid and the isomeric phenoxyacetyl-arsanilic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1834-40 N '19

**Phenoxyethyl acid**

Aromatic arsenic compounds; substituted benzyl, phenoxyethyl, and phenacylarsanilic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1826-33 N '19

Phenylbarbital. See Phenylethylbarbituric acid

**Phenylenediamines**

Catalytic preparation of the amidophenols and the phenylenediamines. O. W. Brown and L. L. Carrick. *Am Chem Soc J* 41:436-40 Mr '19

**Phenylethylbarbituric acid**

Preparation of phenylethylbarbituric acid. M. Rising and J. Stieglitz. *Am Chem Soc J* 40:723-30 Ap '18

**Phenylhydrazine**

Modification of the phenylhydrazine method of determining pentosans. F. Menaul and C. T. Dowell. *J Ind & Eng Chem* 11:1024-5 N '19

**Phenylhydroxylamine**

Organic chemical reagents;  $\beta$ -phenyl-hydroxylamine and cupferron. C. S. Marvel and O. Kamm. *Am Chem Soc J* 41:276-82 F '19

**Philadelphia, Pennsylvania**

Convention of the American foundrymen's association. G. B. Goodfellow. *Il Metal Ind* 17:405-12 S '19

Housing and traffic study made by the Philadelphia chapter of the A. I. A. map *Am Inst Arch J* 6:161-2 Ap '18

Industrial excursions, American chemical society, 58th meeting, Philadelphia. *Chem & Met Eng* 21:488-502 O 15 '19

Noteworthy housing development. F. C. Feld. *Il Am Inst Arch J* 6:77-8 F '18

Old Philadelphia, a city of achievement. C. Lundberg. *Il map Iron Age* 104:833-7 S 25 '19

Philadelphia as a foundry center. D. M. Avey. *Il Iron Tr R* 65:sup121-6 S 25 '19

Quaker city, American foundrymen's association's cradle. *Iron Tr R* 65:sup100-5 S 25 '19

Quaker city is thriving workshop. *Il map Foundry* 47:625-33 S 15 '19

**Bureau of municipal research**

What are you going to do about it, and Meter matters. *Eng & Contr* 50:457-8 N 13 '18

**Bureau of street cleaning**

First year's operation. R. C. Hicks. *Eng & Contr* 50:531-2 D 4 '18

Report. *Il Munic J* 45:368-9 N 9 '18

**Harbors**

Port improvements at Philadelphia. G. S. Webster. *Il diag Int Marine Eng* 24:739-40 N '19

**Lighting**

Historical lighting of Independence Square. E. F. Kingsbury. *Il diag plan Illum Eng Soc* 12:449-56; Discussion. 456-63 no 9 '17

**Railroads**

Federal street freight station of the Pennsylvania railroad. *Il diag plan Ry R* 61:717-24 D 15 '17

**Rapid transit**

Building a railway to Hog Island. *Il diag Elec Ry J* 52:824-9 N 9 '18

How Philadelphia rapid transit company is meeting war problems. T. E. Mitten. *Elec Ry J* 52:301 Ag 17 '18

New construction methods in subway work under Philadelphia City Hall. *Il diag plans maps Eng N* 83:300-9 Ag 14 '19

New Philadelphia co-operative plan. T. E. Mitten. chart *Elec Ry J* 52:1135-6 D 28 '18

Philadelphia lease lays good basis for future. *Elec Ry J* 51:166-7 Ja 26 '18

Philadelphia partnership plan shows foresight. *Elec Ry J* 51:179-82 Ja 26 '18

Philadelphia rapid transit system co-operative plan extended. *Elec Ry J* 52:459-62 S 14 '18

Philadelphia's answer to the traction question. T. E. Mitten. *Elec Ry J* 54:sup114-16 O 11 '19

Philadelphia's wonderful record. *Elec Ry J* 54:537 S 13 '19

Rapid transit lease measure passed. *Elec Ry J* 51:55 Ja 5 '18

Representatives of Philadelphia city administration present modifications of proposed new agreement with Philadelphia rapid transit company. *Elec Ry J* 50:1087-8 D 15 '17

**Sewerage**

First unit of improved means of sewage disposal for Philadelphia well started. W. L. Stevenson. *diag plan Eng N* 81:629-33 O 3 '18

Some characteristic design features of the Northeast sewage treatment works. W. L. Stevenson. *diag plan Munic Eng* 54:112-14 Mr '18

**Philadelphia foundrymen's association****History**

Quaker city, American foundrymen's association's cradle. *Iron Tr R* 65:sup100-5 S 25 '19

Sketch of Philadelphia foundrymen's association. *Iron Age* 104:837-8 S 25 '19

**Philippine Islands**

Fringing reefs of the Philippine Islands. W. M. Davis. *Sci Am S* 87:58-9 Ja 25 '19

**Agriculture**

See Agriculture—Philippine Islands

**Commerce**

Shoe and leather trade in the Philippine Islands. C. E. Bosworth. *Il U S Bur For & Dom Com* 161:1-23 '18

**Industries and resources**

Coconut palm; its culture and uses, with special reference to the industry. P. J. Wester. *Il Sci Am S* 87:276-8 My 3 '19

Lumbering in the Philippines. *Il Am Lumberman* 2298:52-3+ My 31 '19

**Railroads**

See Railroads—Philippine Islands

Phlogiston. See Combustion

**Phonograph**

Electro-plating and its relation to the manufacture of phonographs and phonographic records. S. Herrick. *Il Metal Ind* 16:20-1, 173-4, 269-70 Ja, Ap, Je '18

Improving the tonal quantity of the phonograph. *Sci Am* 118:121 F 2 '18

Phonograph in the remote districts of India. *Sci Am* 118:61 Ja 12 '18

**Phonograph—Continued**

- Phonograph sound box with a silk diaphragm. *Il Sci Am* 120:103 F 1 '19  
 Phonograph without tone-arm, sound-box, and horn. *Sci Am* 120:322 Mr 29 '19

**Phonograph needles**

- Phonograph needles of bamboo. *Il Sci Am* 121:6 JI 5 '19

**Phonograph records**

- At the other end of the phonograph. A. C. Lescarbours. *Il Sci Am* 119:164+ Ag 31 '18

**Phonometer**

- Absolute measurement of the intensity of sound. A. G. Webster. bibliog *Il Am Inst E E Pro* 38:889-900 JI '19

**Phosgene. See Carbonyl chloride****Phosphates**

- Agricultural availability of raw ground phosphate rock. W. H. Waggaman and C. R. Wagner. *J Ind & Eng Chem* 10:442-4 Je '18  
 Peptization of ferric arsenate and phosphate and the formation of their gels. H. N. Holmes and R. Arnold. *Am Chem Soc J* 40:1014-19 JI '18  
 Phosphate in Egypt. E. Cortese. map *Am Inst Min E Bul* 134:523-7 F '18  
 Phosphate-rock industry in 1918. *Eng & Min J* 107:1148 Je 28 '19  
 Phosphate situation in France and Spain. C. G. Memmlinger. *Concrete* 15:sup76-7 N '19  
 Reverted phosphate. C. C. James. *Il J Ind & Eng Chem* 10:33-5 Ja '18  
 Salt cake and nitre cake in making silico-fluoride; patent. *Met & Chem Eng* 18:41 Ja 1 '18  
 Solvent action of dilute citric and nitric acids on rock phosphate. J. A. Stenius. *J Ind & Eng Chem* 11:224-7 Mr '19  
 Use of mine run phosphates in the manufacture of soluble phosphoric acid. W. H. Waggaman and C. R. Wagner. *J Ind & Eng Chem* 10:353-5 My '18

**Phosphine**

- Effect of phosphine and hydrogen sulfide on the oxidation of ammonia to nitric acid. G. B. Taylor and J. H. Capps. *J Ind & Eng Chem* 11:27-8 Ja '19

**Phosphor bronze. See Bronze****Phosphorescence**

- Absorption and phosphorescence. E. C. C. Baly. *Sci Am S* 86:277 N 2 '18  
 Efficiency of light-production in organisms. E. Karrer. bibliog *J Fr Inst* 185:775-83 Je '18  
 Fluorescence and phosphorescence. S. E. Sheppard. *Illum Engr* 10:178 Je '17; Discussion. 10:225-6; 11:62-4, 197-200 Ag '17, F, Ag '18  
 Life and light; the process by which living organisms produce light. R. Dubois. *Sci Am S* 86:338-9 N 30 '18

**Phosphoric acid**

- Critical elaboration of quantitative precipitation methods, exemplified by a method for the determination of phosphoric acid. H. Heidenhain. *J Ind & Eng Chem* 10:426-9 Je '18  
 Electric furnace smelting of phosphate rock and use of the Cottrell precipitator in collecting the volatilized phosphoric acid. J. N. Carothers. *Il diags J Ind & Eng Chem* 10:35-8 Ja '18; Excerpts. *Eng & Min J* 105:879-80 My 11 '18  
 Manufacture of phosphoric and hydrofluosilicic acids; patent. *diag Chem & Met Eng* 19:99 JI 15 '18  
 Use of mine run phosphates in the manufacture of soluble phosphoric acid. W. H. Waggaman and C. R. Wagner. *J Ind & Eng Chem* 10:353-5 My '18  
*See also* Inositol phosphoric acid

**Phosphorus**

- Agricultural fertilizers; the raw materials, their source and characteristics. *Sci Am S* 87:174-6 Mr 15 '19  
 Alloys of copper and phosphorus. J. Scott. *Il Metal Ind* 15:386-7 S '17

- Determination of phosphorus in high-speed steels. E. C. Kraus. *Met & Chem Eng* 16:124 F 1 '17; Discussion. *Met & Chem Eng* 17:625-6, 681-2; 18:61 D 1-15 '17, Ja 15 '18  
 Determination of phosphorus in vanadium steels, ferrovanadium, non-vanadium steels, and pig iron. C. M. Johnson. *J Ind & Eng Chem* 11:113-16 F '19  
 Effect of phosphorus on soft steels; abstracts. J. S. Unger. *Il Iron Age* 101:1538-40 Je 18 '18; *Iron Tr R* 62:1495-8 Je 18 '18  
 Effects of phosphorus on malleable cast iron. J. H. Teng. *Il Foundry* 47:151-6 Ap 1 '19; Discussion. P. H. Davis. 47:258-9 My 1 '19  
 Geologic role of phosphorus. E. Blackwelder. *diags Sci Am S* 85:92-4 F 9 '18  
 Iron, carbon and phosphorus. J. E. Stead. *Chem & Met Eng* 19:592 O 1 '18  
 Mineral elements in animal nutrition. E. B. Forbes. *Sci Am S* 87:218-19+ Ap 5 '19  
 New method for determination of phosphorus. T. E. Rooney. *Foundry* 47:343+ Je 1 '19  
 Phosphorus, potassium, and nitrogen content of the waters of the inter-mountain region. J. E. Greaves and C. T. Hirst. *J Ind & Eng Chem* 11:451-4 My '19  
 Phosphorus shortage. *Metal Ind* 15:533-4 D '17  
 Reducing fire hazards of handling chemicals. *Munic J* 43:636 D 29 '17  
 Volatilization of phosphorus from 50 per cent ferrosilicon. R. E. Lowe. *Iron Age* 101:378 F 7 '18

**Phosphorus halides**

- Reactions in non-aqueous solvents; the action of chromyl chloride upon phosphorus halides. H. S. Fry and J. L. Donnelly. *Am Chem Soc J* 40:478-82 Mr '18

**Phosphorus trichloride**

- Action of phosphorus trichloride on unsaturated ketones. J. B. Conant. *Am Chem Soc J* 39:2679-84 D '17

**Photo-catalysis. See Light, Physiological effect of****Photoelectric cells**

- Photo-electric cell and other selective radiometers. W. W. Coblenz. *diags U S Bur Stand Bul* 14:507-36 JI 12 '19; Abstract. *J Fr Inst* 186:250-1 Ag '18

**Photoelectricity**

- Photoelectric effects on mercury droplets; abstract. J. B. Derleux. *Elec W* 71:1095 My 25 '18  
 Photoelectric sensitivity of bismuthinite and various other substances. W. W. Coblenz. *diags U S Bur Stand Bul* 14:591-604 JI 12 '19  
 Some optical and photoelectric properties of molybdenite. W. W. Coblenz and H. Kahler. *diags U S Bur Stand Sci Pa* 338:121-62 '19  
 Spectral photoelectric sensitivity of silver sulphide and several other substances. W. W. Coblenz and H. Kahler. *diags U S Bur Stand Sci Pa* 344:231-49 '19

**Photoengravers**

- Case of the Chicago photoengravers. *Inland Ptr* 61:322 Je '18  
 Guild reappears in industry. J. A. Fitch. *Inland Ptr* 62:412 Ja '19

**Photoengravers' association, American. See American photoengravers' association****Photoengraving**

- Half-tone printing on rough stock. C. A. Stinson. *Inland Ptr* 61:326 Je '18  
 Industrial gas as related to photo-engraving. G. C. Shadwell. *Il Am Gas Eng J* 110:501-5 Je 14 '19  
 Interesting study in photography and engraving. *Il Inland Ptr* 63:318 Je '19  
 Photoengraving an art, not manufacture. S. H. Horgan. *Inland Ptr* 61:748-9 S '18  
 Process engraving. S. H. Horgan. *See* monthly numbers of *Inland printer*  
 22d annual convention of the International association of manufacturing photoengravers. *Inland Ptr* 61:604-8 Ag '18  
 Twenty-five years of processwork. S. H. Horgan. *Inland Ptr* 63:408 JI '19  
 When photoengraving needed a friend. S. H. Horgan. *Inland Ptr* 63:286 Je '19

- Photogrammetry.** See **Photographic surveying**
- Photographic chemistry**  
 Examination of organic developing agents. H. T. Clarke. *J Ind & Eng Chem* 10:891-5 N '18; Same. *Sci Am S* 86:398-400 D 21 '18  
 Sensitometry of photographic intensification. A. H. Nietz and K. Huse. *diags J Fr Inst* 185:389-407; Bibliography. 408 Mr '18  
 See also **Dyes and dyeing**, **Photographic**
- Photographic lenses.** See **Lenses**, **Photographic**
- Photographic paper**  
 Blue and brown print paper: characteristics, tests and specifications. F. P. Veltch, C. F. Sammet and E. O. Reed. *J Ind & Eng Chem* 10:222-6 Mr '18  
 Photographs on salted paper. L. Cartwright. *Sci Am S* 87:95-6 F 8 '19
- Photographic surveying**  
 Aeroplane in surveying and mapping. E. L. Jones. *map Flying* 8:438-41+ Je '19; Same. *Sci Am S* 87:386-7+ Je 21 '19; Excerpts. *Eng & Contr* 52:325-6 S 17 '19  
 Army topographical division co-ordinates work of map makers in air and on ground. R. K. Tomlin, jr. *il Eng N* 80:984-8 My 23 '19  
 Mapping by airplane. *Am Arch* 115:873-4 Je 25 '19  
 Methods used in aero-photographic mapping. F. H. Moffit. *il diags Eng N* 82:1000-4 My 22 '19  
 New method in photogrammetry. R. Heindl. *il diags Sci Am S* 88:44-7 J1 '19 '19  
 Photographic surveying in Canada. *J Fr Inst* 185:850-1 Je '18  
 Present status of photographic mapping from the air. J. B. Mertie, jr. *Eng N* 82:996-9 My 22 '19  
 Topographic surveying by aerial photography. A. Brock, jr., and L. J. R. Holst. *il diags Aviation* 6:75-8 F 15 '19
- Photographs**  
 Testing physical fitness with the camera. R. G. Skerrett. *il Sci Am* 120:578 My 31 '19
- Coloring**  
 Wax medium and process for the permanent coloring of photographs. A. V. Godbold. *Sci Am S* 87:74-5 F 1 '19
- Photography**  
 Dyes in photography; their use in orthochromatic work and for non-halation plates. A. Seyewetz. *Sci Am S* 87:8 Ja 4 '19  
 Fog and some of its causes. A. J. Newton. *Inland Ptr* 60:493 Ja '18  
 Hints for photographers from motion pictures. A. Lockett. *Sci Am S* 87:220 Ap 5 '19  
 Industrious photographer; piecing together two or more pictures. P. Collins. *il Sci Am* 119:310-11 O 19 '18  
 Modern applications of photography. A. B. Hitchins. *il J Fr Inst* 187:129-46 F '19  
 New method of obtaining dye toned images by the use of copper ferrocyanide as a mordant. J. I. Crabtree. *J Fr Inst* 186:515-16 O '18  
 Novel lamp for photographic laboratories. *diag Sci Am* 119:442 N 30 '18  
 Peculiarities of color and their bearing on photographic work. A. J. Bull. *diag Sci Am S* 86:69 Ag 3 '18  
 Photographic resolving power. K. Huse. *J Fr Inst* 185:853-4 Je '18  
 Photographic sensitizing dyes: their synthesis and absorption spectra. L. E. Wise and E. Q. Adams. *J Ind & Eng Chem* 10:801-2 O '18; Same. *Color Tr J* 4:19-20 Ja '19  
 Photographing a tunnel interior. J. C. K. Stuart. *il Elec Ry J* 50:1039-40 D 8 '17  
 Photography and blue printing for Philadelphia Department of public works. *Munic J* 44:168 F 23 '18  
 Photography of insects. G. Grace. *Sci Am S* 86:91 Ag 10 '18  
 Pressure marks on photo plates. M. Lucklesh. *il Sci Am* 120:29 Ja 11 '19  
 Reticulation of gelatine. S. E. Sheppard and F. A. Elliott. *il diags J Ind & Eng Chem* 10:727-32 S '18
- Sensitometry of photographic intensification.** A. H. Nietz and K. Huse. *diags J Fr Inst* 185:389-407; Bibliography. 408 Mr '18  
 Sensitometry of röntgenographic materials; abstract. M. B. Hodgson. *J Fr Inst* 185:557-9 Ap '18  
 Spectral selectivity of photographic deposits. L. A. Jones and R. B. Wilsey. *diags J Fr Inst* 185:231-67 F '18  
 See also **Blueprints**; **Cameras**; **Color photography**; **Moving picture photography**; **Moving pictures**; **Nature photography**; **Photographic chemistry**; **Photographic paper**; **Photographic surveying**; **Photomicrography**; **Radiography**
- Copying**  
 Photographic copying. *Sci Am S* 87:128 F 22 '19  
 Playertype photo copying process. *Sci Am S* 87:271 Ap 26 '19  
 Some points in photo-copying. *Sci Am S* 85:38 Ja 19 '18
- Developing and developers**  
 Acid bleachers for photographic negatives. T. H. Greenall. *Sci Am S* 85:75 F 2 '18  
 High-temperature development of roll film, film packs, plates, and paper; abstracts. J. I. Crabtree. *J Fr Inst* 185:141-2 Ja '18; *Sci Am S* 85:187 Mr 23 '18  
 How the latent image on photographic plates is developed. A. M. Chanoz. *Sci Am S* 87:240 Ap 12 '19  
 Mechanism of development of the image in a dry plate negative; note. *Sci Am S* 86:249 O 19 '18  
 Nature of a developer sludge. J. I. Crabtree. *J Fr Inst* 186:871-2 S '18  
 Para cymene; the utilization of cymene for the preparation of photographic developers. H. A. Lubs. *J Ind & Eng Chem* 11:455-6 My '19
- Enlarging**  
 Some needed reforms in commercial enlarging lanterns. *Sci Am S* 85:203 Mr 30 '18
- Exposure**  
 Exposure meters. *Sci Am S* 87:105 F 15 '19
- Films**  
 Methods for stripping films. *Sci Am S* 86:135 Ag 31 '18
- Negatives**  
 Stripping negatives for storage as gelatine films. *Sci Am S* 87:137 Mr 1 '19
- Printing processes**  
 After-treatment of bromide prints. *Sci Am S* 87:153 Mr 3 '19  
 Bad bromides. *Sci Am S* 86:149 S 7 '18  
 Fixing photographic prints without hypo. D. Kidd. *Sci Am S* 86:326-7 N 23 '18  
 Permanence in photographic prints. H. Leffmann. *J Fr Inst* 185:825-6 Je '18  
 Photographic permanence. C. W. Piper. *Sci Am S* 87:363 Ap 26 '19  
 Photographs on salted paper. L. Cartwright. *Sci Am S* 87:95-6 F 8 '19
- Reducing**  
 Effect of the iron content of ammonium persulphate on its photographic reducing power. S. E. Sheppard. *J Fr Inst* 186:115-19 J1 '18  
 Iodine and iodine-thiourea as subtractive reducers for photographic negatives and positives. *Sci Am S* 85:309 My 13 '18  
 Weakening of photographic prints. *Sci Am S* 85:128 F 23 '18
- Reproduction of plans, drawings, etc.**  
 Coal mine photography. H. A. Williamson. *Coal Age* 13:1053-4, 1107-8, 1148-9 Je 8-22 '18
- Photography, Aerial**  
 Aeroplane in surveying and mapping. E. L. Jones. *map Flying* 8:438-41+ Je '19; Same. *Sci Am S* 87:386-7+ Je 21 '19; Excerpts. *Eng & Contr* 52:325-6 S 17 '19  
 Airplane mapping by the United States army. *il Sci Am S* 88:213 O 11 '19



**Photography, Aerial—Continued**

- Army topographical division co-ordinates work of map makers in air and on ground. R. K. Tomlin, jr. *il Eng N* 80:984-8 My 23 '18
- Bottling up the U-boats as viewed from the air. *Motor Age* 34:24-5 Ag 29 '18
- Broad field for commercial aerial photography. M. A. Kinney, jr. *il Flying* 8:250-5 Ap '19
- Future of airplane photography. A. Brock, jr., and L. J. R. Holst. *il Aviation* 5:705-7 Ja 1 '19
- High altitude airplane photographs. *Automotive Ind* 39:284-5 Ag 15 '18
- How war photographs are made; photographs. *Motor Age* 33:14-15 Je 6 '18
- Making war maps by camera. *il diags maps* *Automotive Ind* 39:485-9, 541-3 S 19-26 '18
- Map making from the sky. *il Sci Am S* 86:372-3 D 14 '18
- Mapping by airplane. *Am Arch* 115:873-4 Je 25 '19
- Methods used in aëro-photographic mapping. F. H. Moffitt. *il diags Eng N* 82:1000-4 My 22 '19
- Photographic eye and memory of the military airman. *il Sci Am* 119:61+ JI 27 '18
- Present status of photographic mapping from the air. J. B. Mertle, Jr. *Eng N* 82:996-9 My 22 '19
- Recent progress in aerial photography. L.-P. Clerc. *il diags map Sci Am S* 88:136-8, 170 Ag 30, S 13 '19
- Taking photographs from airplanes and balloons. J. A. Lefranc. *il diags Sci Am S* 87:60-2 Ja 25 '19
- Topographic surveying by aerial photography. A. Brock, jr., and L. J. R. Holst. *il diags Aviation* 6:75-8 F 15 '19
- See also* Gun cameras
- Photography, Color.** *See* Color photography
- Photography, Military**
- Columbia university an armed camp. *Sci Am* 118:37 Ja 26 '18
- Photographing the war. C. H. Claudy. *il Sci Am* 120:544-5 My 24 '19
- See also* Gun cameras; Photography, Aerial
- Photogravure**
- Rotary photogravure process. F. Nossel. *Inland Ptr* 60:473-4 Ja '18
- Photometry**
- Apparatus for the determination of the luminous intensity of lamps in all directions; abstracts. J. Sahuika. *Elec W* 72:989 N 23 '18; *Illum Engr* 11:195 Ag '18
- Average eye for heterochromatic photometry, and a comparison of a flicker and an equality-of-brightness photometer. E. C. Crittenden and F. K. Richtmyer. *diags U S Bur Stand Bul* 14:87-113 Ap 6 '18
- Computation of precision photometer scales. G. Thompson. *Illum Eng Soc* 14:286-94 no 6 '19
- Experiments on the black body at the melting point of platinum as a fixed point in photometry. H. E. Ives. *J Fr Inst* 186:122-3 JI '18
- Foot-candle meter. *il Elec W* 70:1177 D 15 '17
- Foot-candle meter. C. F. Sackwitz. *il Illum Eng Soc* 13:292-6; Discussion. 296-302 no 5 '18
- Fundamentals of illumination design. W. Harrison. *il diags Gen Elec R* 21:353-62 My '18
- Home-made photometer saves money for utility. *il Elec W* 73:1219 Je 7 '19
- Integrating hemisphere; advantages over sphere. F. A. Benford, jr. *il diags Illum Eng Soc* 13:323-51 no 6 '18
- Is the light sufficient? *il Sci Am* 118:527 Je 8 '18
- Low visibility phase of protective coloration. L. A. Jones. *il diags J Fr Inst* 188:363-87, 507-33 S-O '19
- Meaning and determination of candlepower in lighting. *Coal Age* 15:1099 Je 12 '19
- Measurement of transmission-factor. M. Luckiesh and L. L. Mellor. *bibliog il diags J Fr Inst* 186:529-45 N '18

- Neutral-tint and variable-tint screen. E. Karrer. *diags J Fr Inst* 185:539-46 Ap '18
- New stellar photometer; abstract. *Elec W* 72:501 S 14 '18
- Photometric apparatus for measuring the illuminating value of fluctuating sources of high candlepower (flares, parachute lights, etc.). A. P. Trotter. *il diags Illum Engr* 11:253-9 N '18
- Photometric scale. H. E. Ives. *J Fr Inst* 188:217-35 Ag '19
- Photometric tests of the brightness of radio-active self-luminous materials. W. C. Clinton. *Illum Engr* 11:260-3 N '18
- Physical study of the Welsbach mantle. H. E. Ives, E. F. Kingsbury and E. Karrer. *bibliog il diags J Fr Inst* 186:401-38, 585-625 O-N '18
- Progress in photometry with special reference to war problems. *Illum Engr* 11:249-50 N '18; Discussion. 11:269-76 D '18
- Recent work in photographic photometry. E. S. King. *Sci Am S* 85:72 F 2 '18
- Report of the illuminating engineering society committee on progress. *Illum Eng Soc* 12:394-6 no 8 '17
- Report of the illuminating engineering society committee on progress. *Illum Eng Soc* 13:496-9 no 9 '18
- Revised formula for luminosity curve solution for physical photometry. H. E. Ives. *J Fr Inst* 186:121-2 JI '18
- Ruled glasses for the diminution of light in photometry. *Illum Engr* 10:270 O '17
- Spherical photometer for incandescent lamps; abstract. *Elec W* 71:158 Ja 19 '18
- See also* Color; Light

**Photomicrography**

- Apparatus for taking photomicrographs. A. F. Hallmond. *diags Iron Age* 102:1265 N 21 '18; Abstracts. *Am Soc M E J* 40:969 N '18
- How moving photomicrographs are taken. *il Iron Age* 102:323-5 Ag 8 '18
- Improved method in photomicrography. *Sci Am* 120:176 F 22 '19
- Metallography and heat treatment of metals used in aeroplane construction. F. Grotts. *il Chem & Met Eng* 19:122 Ag 1 '18
- Micro-photoplays; staging motion-picture productions with the aid of the microscope. A. C. Lescarboura. *il Sci Am* 118:72-3 Ja 19 '18
- Technique of mineragraphy. W. L. Whitehead. *il diags Econ Geol* 12:697-716 D '17
- Photosynthesis**
- Nature's factories for sugar and starch. *Sci Am S* 87:223 Ap 5 '19
- Phototropism.** *See* Plants, Effect of light on
- Phototropy.** *See* Crystallography
- Phthaleins**
- 2,4-dihydroxybenzoyltetrachloro-*o*-benzoic acid and 2,3,4-trichloro-6-hydroxyxanthone-1-carboxylic acid and some of their derivatives. W. R. Orndorff and W. A. Adamson. *Am Chem Soc J* 40:1235-57 Ag '18
- See also* Phenolphthaleins
- Phthalic acid**
- Phthalic acid derivatives; constitution and color. D. S. Pratt and others. *Am Chem Soc J* 40:198-264, 407-15 Ja-F '18
- Phthalic acid derivatives; constitution and color; phenoltetrabromo-phthalein and some of its derivatives. D. S. Pratt, F. B. Doane and A. W. Harvey. *Am Chem Soc J* 41:1289-93 Ag '19
- Phthalic acid derivatives; constitution and color; some derivatives of tetra-bromophthalimide. D. S. Pratt and C. O. Young. *Am Chem Soc J* 40:1415-25 S '18
- Phthalic acid derivatives; constitution and color; tetrabromo-fluorescein, tetrabromoeosin and some of their derivatives. D. S. Pratt, G. F. Hutchinson and A. W. Harvey. *Am Chem Soc J* 41:1293-7 Ag '19
- Phthalic acid derivatives; constitution and color; 3, 4, 6-trilodophthaloxime and some of its derivatives. D. S. Pratt and C. O. Young. *Am Chem Soc J* 40:1425-8 S '18

- Phthalic anhydride**  
 Determination of phthalic anhydride in crude phthalic acid. C: R. Downs and C: G. Stupp. *diag J Ind & Eng Chem* 10: 596-8 Ag '18  
 Phthalic anhydride. H. D. Gibbs. *J Ind & Eng Chem* 11:1031-2 N '19  
 Phthalic anhydride: the melting point of pure phthalic anhydride; the system: phthalic anhydride-phthalic acid. K. P. Monroe. *diags J Ind & Eng Chem* 11:1116-19 D '19  
 Phthalic anhydride: the system: naphthalene-phthalic anhydride. K. P. Monroe. *diag J Ind & Eng Chem* 11:1119-20 D '19
- Phthalimides**  
 Phthalic acid derivatives; constitution and color. D: S. Pratt and G. A. Perkins. *Am Chem Soc J* 40:198-219 Ja '18  
 Phthalic acid derivatives; constitution and color; some derivatives of tetra-bromophthalimide. D: S. Pratt and C: O. Young. *Am Chem Soc J* 40:1415-25 S '18
- Physical education and training**  
 How physical training helps factory executives. D. C. Stanbrough. *Il Ind Management* 56:20-1 Ji '18  
 Physical exercises made part of day's routine: White company establishes gymnasium. *Il Automotive Ind* 38:688-9 Ap 4 '18; Same. *Gas Age* 41:353-4 Ap 15 '18
- Physical examinations**  
 Physical examination previous to employment. C: F. Willis. *Am Inst Min Bul* 151:1013-20 Ji '19; Same. *Coal Age* 16:313-15 Ag 21 '19; Same cond. *Iron Tr R* 65: 356-8 Ag 7 '19; Discussion. *Am Inst Min Bul* 156:3189-90 D '19  
 Prevention of illness among mine employees. C: F. Willis. *Am Inst Min Bul* 150:989-90 Je '19  
 Testing physical fitness with the camera. R. G. Skerrett. *Il Sci Am* 120:578 My 31 '19  
 Why a health audit pays. *Factory* 20:437-9 Mr '18
- Physics**  
 Fundamental concept of physics. J. Rice. *Sci Am S* 87:287-8 My 3 '19  
 Molecular orientations in physics and in crystallography. A. Ferrier. *diag Sci Am S* 87:18-19, 46-8 Ja 11-18 '19  
 New physics. A. C. Crehore. *J Elec* 43:374 O 15 '19  
 Remedy for alleged confusion due to use of the term mass. C. Hering. *Eng N* 80:133-4 Ja 17 '18  
*See also* Atmosphere; Atoms; Capillarity; Elasticity; Electricity; Fluids; Fluorescence; Friction; Gases; Heat; Hydraulics; Inertia; Light; Liquids; Magnetism; Matter; Properties of; Mechanical movements; Mechanics; Molecules; Oil films; Radiation; Radioactivity; Relativity (physics); Steam; Strains and stresses; Temperature; Temperature, High; Thermodynamics; Thermometers and thermometry; Units; Vibration; Viscosity
- Bibliography**  
 Publications of the Bureau of standards. U S Bur Stand Circ 241:1-149 '19
- Physiological chemistry**  
 Liquefaction or solution of gelatin in polybasic acids and their salts. M. H. Fischer and W. D. Coffman. *Il Am Chem Soc J* 40: 303-12 Ja '18  
*See also* Absorption (physiology); Antitoxins; Biological chemistry; Chemical apparatus; Diastase; Digestion; Enzymes; Osmosis; Poisons; Proteins; Taste
- Phytogeography.** See Plants, Geographical distribution of
- Pickling (metals)**  
 Acid economy in metal industries. *Sci Am S* 85:38 Ja 19 '18  
 Air operated pickling machine. *diag Iron Age* 104:702 S 11 '19; *Iron Tr R* 65:570 Ag 28 '19  
 Chemistry of pickling baths. *Automotive Ind* 39:960-1 D 5 '18  
 Electrolytic pickling of greasy surfaces. C. Hering. *Met & Chem Eng* 18:438 My 1 '18  
 Electrolytic pickling of steel. M. D. Thompson and F. W. Dodson. *Met & Chem Eng* 17: 713-14 D 15 '17; Discussion. C. Hering. *Met & Chem Eng* 18:282 Mr 15 '18; Same. *Iron Age* 101:1202 My 9 '18; Discussion. M. D. Thompson. *Met & Chem Eng* 18:437-8 My 1 '18  
 Electrolytic pickling of steel. M. D. Thompson and O. L. Mahlman. *Iron Age* 99:1190-1 My 17 '17; Same. *Iron Tr R* 61:1375-6 D 27 '17; Excerpt. *Met & Chem Eng* 16:586-7 My 15 '17; Excerpt. *J Fr Inst* 183:787 Je '17  
 Equipment and methods of tinning. E. P. Lattier. *Foundry* 47:817-20 N 15 '19  
 How to obtain uniform bright color on red brass castings. *Metal Ind* 17:35 Ja '19  
 Metal conservation; the electrolytic recovery of copper and sulphuric acid from copper mill pickling solutions. J. L. Jones. *Il diags Metal Ind* 15:433-5 O '17  
 New features in heat treating plants. *Il Iron Age* 103:1493-5 Je 5 '19  
 Nitric cake for pickling. H. W. Brownsdon. *Metal Ind* 15:487 N '17  
 Nitric cake for pickling metal. G: P. Butler. *Metal Ind* 16:418 S '18  
 Pickling ship steel. M. Meredith. *Mach* 24:762 Ap '18  
 Pickling solutions for iron and brass. *Foundry* 47:404a Je 15 '19  
 Pickling with nitric cake. *Automotive Ind* 39: 1102-3 D 26 '18  
 Pickling with nitric cake. *Iron Tr R* 62:153 Ja 10 '18  
 Removing oxide scale by pickling. E. E. Corbett. *Iron Tr R* 64:564-8 F 27 '19
- Picric acid**  
 Large picric-acid plants. *Am Mach* 49:12 Ji 4 '18  
 Manufacture of picric acid. A. Murray. *diags Color Tr J* 4:5-8 Ja '19
- Pictographs.** See Petroglyphs
- Picture writing.** See Petroglyphs
- Pictures**  
 Theory of contrast in pictorial presentation. A. H. Clark. *Am Inst Arch J* 7:125-8 Mr '19  
*See also* Etchings; Photographs
- Piece work**  
 Defense of the piece rate method of wage payment. L. Blog. *Ind Management* 58:325-7 O '19  
 Determining of piecework rates from charts. O: M. Burkhardt. *Am Mach* 49:383-7 Ag 29 '18  
 Efficiency hints for shop workers; slide chart for rate setting. G: F. Card. *Am Mach* 49: 573-4 S 26 '18  
 Fitting the wage to the work. W. R. Basset. *Factory* 21:236-8 Ag '18  
 Guaranteeing piece rates. S. Coolidge, jr. *Ind Management* 57:411 My '19  
 Important phase of the employment question. J. J. Hartley. *Mach* 25:1067 Ji '19  
 Labour administration. E: T. Elbourne. *Engineer* 126:388-90, 453-4 N 8, 29 '18  
 My objections to the piece rate method of wage payment. H. Emerson. *Ind Management* 57:470-2; 58:17-20 Je-Ji '19  
 Piecework faster than day labor on hand excavation. E. N. Bryan. *Eng N* 82:727 Ap 10 '19  
 Piecework rates for grinding gates and risers from steel castings. F. R. Zimmerman. *Foundry* 46:114 Mr '18  
 Piece-work system as applied to specific routine operations a happy innovation. J. A. A. Beaudin. *Am Gas Eng J* 111:163-5 Ag 23 '19  
 Piece work system in railway shops. W. J. McClennan. *Ry Mech Eng* 92:411-16 Ji '18  
 Piece work versus day labor in hand excavation. E. N. Bryan. *Eng & Contr* 52:319-20 S 17 '19; Abstract. *Eng N* 82:727 Ap 10 '19  
 Rapid calculation of piece-work earnings. S. P. Keator. *Il Mach* 26:271 N '19  
 Removing the distrust of piece work. F. A. Carlisle. *Eng & Contr* 51:555 My 21 '19  
*See also* Bonus system
- Pierce-Arrow motor car company**  
 Report for 1917. *Automotive Ind* 38:702-3 Ap 4 '18

**Piers**

- Calculation of shed capacity for piers. M. Harding. Eng & Contr 51:208 F 26 '19
- Concrete in marine terminals. H. C. Campbell. II Int Marine Eng 23:220-4 Ap '18
- Concrete pier built vertical and toppled into place. G. H. Connolly. II Eng N 81:913 N 14 '18
- Fire protection of piers. F. V. Sackett. II diags plan Int Marine Eng 23:351-8 Je '18
- Handling freight on New York's new steamship pier; Forty-sixth street wharf. C. W. Staniford. II diags plans Eng N 79:1058-60 D 6 '17
- Handling machinery feature of erection of ocean pier. II diag Eng N 80:800-3 Ap 25 '18
- New ocean freight terminal started on Staten Island. diags Eng N 80:120-3 Ja 17 '18
- New piers built of redwood. C. W. Geiger. II Am Lumberman 2297:50-1 My 24 '19
- Norfolk & Western builds terminal piers at Norfolk. F. P. Turner. II diags Eng N 80:940-6 My 16 '18
- Piers 86-95-96 and 97, North river, New York city. Arch & Bldg 51:52+, pl 95-9 Je '19
- Port improvements at Philadelphia. G. S. Webster. II diag Int Marine Eng 24:739-40 N '19
- Rapid pier construction of Baltimore & Ohio R. R. II Ry R 62:391-3 Mr 18 '18
- See also Bulkheads; Coal piers; Freight handling

**Lighting**

- Effective illumination upon steamship piers. Elec W 74:418 Ag 23 '19
- Light as an aid to the transportation of material. A. L. Powell and R. E. Harrington. diag plan Illum Eng Soc 14:13-16 no 1 '19; Same. Gen Elec R 22:68-71 Ja '19

**Piers (foundations)**

See also Bridges—Foundations and piers

**Testing**

- Compressive strength of large brick piers. J. G. Bragg. II diags U S Bur Stand Tech Pa 111:1-39 '18; Abstract. Am Soc M E J 41:174-5 F '19; Abstract. J Fr Inst 187:221-3 F '19; Summary. Eng & Contr 50:512 N 27 '18
- Empirical column formulas for brick piers. W. W. Pearse. diag Eng & Contr 51:427-8 Ap 23 '19

**Piez, Charles, 1866-**

- Vice president. Emergency fleet corporation. por Iron Tr R 62:1565 Je 20 '18

**Piezo-electricity**

- Piezo electric effect in the composite Rochelle salt crystal. A. McL. Nicolson. II diags Am Inst E E Pro 38:1315-33 N '19
- Piezo-electricity and its application. J. J. Thomson. diags Sci Am S 87:412-13 Je 28 '19

**Pig iron**

- Average monthly prices of pig iron, rolled products and old material in principal districts in 1918. Iron Tr R 64:122 Ja 2 '19
- British output of pig iron and steel in 1917. Iron Age 101:1486b Je 6 '18
- Coke, pig iron and transportation. Chem & Met Eng 19:603 O 15 '18
- Conversion of white iron into foundry. C. T. Huang. Iron Age 103:231-2 Ja 23 '19; Abstract. Eng & Min J 107:475-6 Mr 15 '19
- Daily average production by months of coke and anthracite pig iron in the United States from Jan. 1, 1908 to Jan. 1, 1918; chart. Iron Age 101:155 Ja 10 '18
- Desulphurizing in the pig-iron mixer. L. Blum. Sci Am S 88:143 Ag 30 '19
- Diagram of pig-iron production and prices: 1910 to the present time. Iron Age 104:394-5 Ag 7 '19
- Finished products in net tons pig iron and billets in gross tons. Iron Tr R 64:96a Ja 2 '19
- Foundryman's iron problem. C. J. Stark. Iron Tr R 63:895-8 O 17 '18; Same. Foundry 46:526-9+ N '18
- German pig-iron output in 1918. Iron Age 103:742 Mr 20 '19

- History is freely made in pig iron; prices. 1914-17. Iron Tr R 62:18-20 Ja 3 '18
- Makes iron for 125 years on same site; Robersonia iron co., ltd. II Iron Tr R 64:755-6 Mr 20 '19
- 1918 pig iron output second on record. Iron Tr R 64:1021 Ap 17 '19
- Official pig iron and steel scrap prices revised. Foundry 46:255 Je '18
- Pig iron and metal products of the United States, calendar years 1908-1916; 1917 estimated; tabulation. Metal Ind 16:59 Ja '18
- Pig iron capacity is 44,000,000 tons. R. V. Sawhill. Iron Tr R 64:78-9 Ja 2 '19
- Pig iron from electric furnaces. Iron Age 101:660 Mr 7 '18
- Pig iron from scrap steel. Am Soc M E J 40:191-2 F '18
- Pig iron market has abnormal year. chart. Iron Tr R 64:96-8 Ja 2 '19
- Production of pig iron in 1917. Eng & Min J 105:668 Ap 13 '18
- Production of pig iron in the United States in 1917. Iron Age 101:818 Mr 28 '18; Iron Tr R 62:798 Mr 28 '18
- Production of pig iron in the United States in 1918. Iron Age 103:889 Ap 3 '19
- Standard specifications for foundry pig iron; English and Spanish. U S Bur For & Dom Com Ind Stand 46:1-13 '19
- United States pig iron production—first half of 1918; tabulation. Iron Age 102:933 O 10 '18; Same. Iron Tr R 63:850 O 10 '18
- United States pig iron production in first half of 1919; tabulation. Iron Age 104:658 S 4 '19; Same. Iron Tr R 65:647 S 4 '19
- War had little effect on German steel. Iron Tr R 64:1016-17 Ap 17 '19

See also Cast iron; Iron; Iron founding

**Pigeons**

- Do not shoot at pigeons. Sci Am 118:347 Ap 13 '18
- Dove of war. L. S. Crandall. II Sci Am S 86:276-7 N 2 '18
- Pigeon express. II Sci Am 119:271 O 5 '18
- Sex, reproduction, and heredity in pigeons and fowls. Sci Am S 88:245 O 25 '19

**Pigments**

- Analysis of Egyptian pigments. Am Arch 114:232-3 Ag 21 '18
- Anthocyanin pigments in plants and their chemical, physiological and biological functions. Sci Am S 87:2-3+ Ja 4 '19
- Hiding power of white pigments and paints. A. H. Pfund. diags J Fr Inst 188:676-81 N 19 '19
- Lake colors. H. C. Fuchs. Color Tr J 5:21-2 Jl '19
- Paint, its history and properties. R. Job. II Am Arch 113:845-8 Je 26 '18
- Pigments of the tomb of Perneb. M. Toch. J Ind & Eng Chem 10:118-19 F '18
- Rare elements as paint pigments. H. A. Gardner. J Fr Inst 187:655-6 My '19
- Tinting strength of pigments. T. R. Briggs. Sci Am S 86:64 Jl 27 '18

See also Dyes and dyeing; Paint; Red lead; White lead

**Pigweed**

- Proximate analysis of the seed of the common pigweed *amaranthus retroflexus* L. E. P. Harding and W. A. Egge. J Ind & Eng Chem 10:529-30 Jl '18

**Pile drivers**

- Digging holes with a pile driver. II Sci Am 118:357+ Ap 20 '18
- Mounted piledriver rig developed by United States army. II diags plan Eng N 83:232-4 Jl 31 '19
- Portable piledriver has many uses. G. F. Paul. II Eng & Contr 52:329-30 S 17 '19

**Pile driving. See Piles and pile driving****Pile pulling**

- Lever and street car pull sheet piles. Eng N 81:55 Jl 4 '18

**Piles and pile driving**

- Comparison of pile bearing formulas. C. E. Nichols. Eng & Contr 50:194-6 Ag 21 '18

**Piles and pile driving—Continued**

- Comparison of wood and of concrete piling. A. C. Titcomb. *Il Arch Forum* 31:125-8 O '19
- Concrete casing of wood piles fails in driving. *Il Eng N* 80:256 F 7 '18
- Construction of St Louis municipal wharf. *Il diags Ry R* 64:275-9 F 22 '19
- Creosote piles still sound after 29-year service. *Il Eng N* 83:378 Ag 21 '19; Same cond. *Elec Ry J* 53:1233 Je 21 '19
- Creosoted piling makes great record. W. H. Kirkbride and E. M. Blake. *Il Am Lumberman* 2308:60 Ag 9 '19; Same cond. *Ry R* 65:202-3 Ag 9 '19
- Drive 15,000 piles for pair of thousand-foot shipways. *Il diags Eng N* 80:30-2 Ja 3 '18
- Durability of untreated piling above mean low water. M. E. Thorne and C. H. Teesdale. *Eng & Contr* 49:405-8 Ap 24 '18; Same cond. *Ry Age* 64:1285-6 My 24 '18
- Experiments with clay in its relation to piles. A. S. E. Ackermann. *Eng & Contr* 52:144-5 JI 30 '19
- Foundations of the new buildings of the Massachusetts institute of technology, Cambridge, Mass. C. T. Main and H. E. Sawtell. *diags Boston Soc C E J* 5:1-34 Ja '18; Abstract. *Am Soc M E J* 40:340-1 Ap '18; Discussion. *Boston Soc C E J* 5:34-8, 135-7 Ja, Mr '18
- Handling machinery feature of erection of ocean pier. *Il diag Eng N* 80:800-3 Ap 25 '18
- Latest Hog Island pile record preceded by consistent work. *Il Eng N* 81:54-5 JI 4 '18
- Life of creosoted piles. *Elec Ry J* 53:1233 Je 21 '19
- Old rails make hanging ways for pile hammer. J. H. Sawkins. *diags Eng N* 81:1143-4 D 19 '18
- Outfits for cutting off piles below water line. *Il diags Eng & Contr* 51:283-4 Mr 19 '19
- Pile-driving and supporting power of piles. H. Adams. *Eng & Contr* 50:111-12 JI 31 '18
- Pile foundations for unequal load distribution. E. P. Arneson. *diags Eng N* 83:698-9 O 9 '19
- Record for continuous pile driving. *Eng N* 81:331 Ag 15 '18
- Resistance of a group of piles. H. M. Westergaard. *W Soc E J* 22:704-13 D '17; Same. *Eng & Contr* 49:501-3 My 22 '18
- Salt boxes to preserve piles. H. Von Schrenk. *Il Ry Age* 64:114 Ja 11 '18
- Shape tops of wood piles so steam hammer will take two at once. *Il Eng N* 80:93 Ja 10 '18
- Subaqueous pile driving. A. C. Davis. *Eng & Contr* 49:300-1 Mr 20 '18
- Use of creosoted fir for marine construction. B. L. Grondal. *Sci Am S* 86:263 O 26 '18; Same abr. *Eng & Contr* 51:60 Ja 15 '19
- Use second piledriver to hold out hinged leads. *Il Eng N* 80:428-9 F 28 '18
- Wire coil prevents brooming of piles. *Eng N* 80:476 Mr 7 '18
- Wood cushion built up in layers used in driving concrete piles through clay. C. C. Hallway. *Eng N* 80:476-7 Mr 7 '18
- World's record for pile driving. *Eng & Contr* 50:58 JI 17 '18
- See also Breakwaters; Cofferdams; Concrete piling; Foundations; Piers; Pile drivers; Pile pulling; Sheet piling; Wharves
- Piling, Concrete.** See Concrete piling
- Pillars.** See Columns
- Pillories**
- Stocks and pillories of old England. *Il Sci Am S* 87:132-3 Mr 1 '19
- Pinacyanol**
- Synthesis of photosensitizing dyes; pinaverdol and pinacyanol. L. E. Wise and others. *J Ind & Eng Chem* 11:460-3 My '19
- Pinaverdol**
- Synthesis of photosensitizing dyes; pinaverdol and pinacyanol. L. E. Wise and others. *J Ind & Eng Chem* 11:460-3 My '19
- Pine**
- Concentrated load tests of yellow-pine beams for shear. L. R. Manville and C. R. Hill. *Il diag Eng N* 83:69-71 JI 10 '19

- Effects of grazing upon western yellow-pine reproduction in the national forests of Arizona and New Mexico. R. R. Hull. *Il map U S Agric Bul* 580:1-27 '17
- Experiments on the pulping of extracted yellow pine chips by the sulfate process. O. Kress and C. K. Textor. *J Ind & Eng Chem* 10:268-70 Ap '18
- Government sets southern pine and fir prices. *Am Lumberman* 2250:35-6 Je 29 '18
- How pine manufacturers can help government. *Il Am Lumberman* 2258:57 Ag 24 '18
- Putting North Carolina pine to the front. *Il Am Lumberman* 2246:52-3 Je 1 '18
- Southern pine association district meeting, Laurel, Miss., Jan. 9. *Am Lumberman* 2279:46-7 Ja 18 '19
- Southern pine beetle timber menace. *Il Am Lumberman* 2299:43 Je 7 '19
- Southern pine comparative statistics. *Am Lumberman* 2281:49 F 1 '19
- Tests of the absorption and penetration of coal tar and creosote in longleaf pine. C. H. Teesdale and J. D. MacLean. *Il U S Agric Bul* 607:1-42 '18
- Thru the east Mississippi shortleaf belt. *Il Am Lumberman* 2271:42b-42d N 23 '18
- Turning sand hills into pine forests. R. P. Crawford. *Il Sci Am* 118:447 My 18 '18
- Will use California white pine for airplanes. *Am Lumberman* 2258:36 Ag 24 '18
- See also Parana pine; Pine blister rust
- Pine blister rust**
- What will happen to our white pine? P. S. Lovejoy. *Am Lumberman* 2250:59+ Je 29 '18
- Pine needles**
- Textile and paper from pine needles. *Sci Am* 119:368 N 2 '18
- Pinene nitroschloride**
- Optically active pinene nitroschloride and synthetical active pinene. E. V. Lynn. *Am Chem Soc J* 41:361-8 Mr '19
- Pinions**
- Beating the gear cutter. D. A. Hampson. *diag Am Mach* 48:701 Ap 25 '18
- Cutting teeth in pinion-shafts on the gear shaper. R. E. Parke. *diag Mach* 25:846 My '19
- Electric-railway motor pinion making. *Il Am Mach* 49:648-50 O 10 '18
- Forming dies for special steel pinions. F. A. Gross. *Il diags Mach* 25:751 Ap '19
- Modern welding and cutting. E. Viell. *Il diags plan Am Mach* 50:344-6, 389-94 F 20-27 '19
- Pinion heating in shops and carhouses. *Il diags Elec Ry J* 53:787-8 Ap 19 '19
- Problem in trigonometry; driving three pinions by one gear. *Mach* 24:245 N '17; Discussion. 24:347, 547 D '17, F '18
- Pipe.** See Pipes
- Pipe and supplies association, National.** See National pipe and supplies association
- Pipe bending**
- Bending heavy pipe in the blacksmith shop. J. V. Hunter. *diags Am Mach* 48:444-5 Mr 14 '18
- Bending lead waste pipe with sand. R. J. Gordon. *diags Dom Eng* 85:327-8 N 30 '18
- Bending racks and roll benders for large conduit and pipe. T. Croft. *diags Elec R* 72:1052-3, 1095-6; 73:25-6, 65-7, 105-7 Je 22-JI 20 '18
- Comments on conduit benders. T. Croft. *diags Elec R* 72:733-4, 774-5, 807-8, 848-9 Ap 27-My 18 '18
- Construction and manipulation of a rack for bending large pipe. A. D. Adair. *diags Coal Age* 16:478 S 18 '19
- Device for bending small pipe. S. Jaross. *diag Coal Age* 14:251 Ag 8 '18
- Hercules pipe bender makes record on large pipe. *Il Elec R* 73:871-2 N 30 '18
- Hickey for bending pipe or conduit. *diags Coal Age* 14:626-7 O 3 '18
- Home-made conduit bender. *Il Elec W* 71:1142 Je 1 '18
- Home made pipe bender. *Il diags Ry Mech Eng* 92:285-6 My '18

**Pipe bending—Continued**

- Making offset bends in wrought-iron pipe or conduit. diags Metal Work 89:812 Je 21 '18  
 Methods of bending conduit. T. Croft. diags Elec R 72:78-9, 124, 164-5, 206, 248-9, 289-90, 349-50 Ja 12-F 23 '18  
 Operations in a creamery machinery plant. F. A. Stanley. 11 diags Am Mach 48:177-81 Ja 31 '18  
 Pipe-bending machine. 11 Elec W 72:328 Ag 17 '18  
 Portable vise stand and pipe bender offered. 11 Gas Age 42:552 D 16 '18  
 Tube-bending device. H. W. Jespersen. diags Mach 24:545 F '18  
 Tube-bending device. A. Ryden. diags Am Mach 47:1073 D 20 '17  
 Whitecotton pipe and conduit bender. 11 Elec R 72:739 Ap 27 '18  
 Wonder pipe bender. 11 Power 48:669 N 5 '18

**Pipe cleaning.** See Water pipes—Cleaning

**Pipe couplings.** See Pipe joints

**Pipe cutters**

- Fox pipe-cutting machine. 11 Am Mach 51:637-8 S 25 '19  
 Manufacturing operations on pipe cutters. J. V. Hunter. 11 Am Mach 51:567-8 S 18 '19  
 Portable drive for pipe stock. 11 Gas Age 41:347 Ap 15 '18

**Pipe elbows**

- Bidding for and making a twist elbow. 11 diags plans Metal Work 90:469-71+ O 25 '18  
 Comment on elbow drafting. diag Metal Work 90:387 O 4 '18  
 Making a skeleton pattern for a large elbow and base. B. R. Hall. 11 diags Foundry 47:260-2 My 1 '19  
 Patterns for a curved elbow. diags Metal Work 91:267-8 F 28 '19  
 Patterns for 7-piece transition return bend. diags Metal Work 89:741-4 Je 7 '18

**Pipe fitting**

- Tools have given man his supremacy. H. S. Ashmun. Metal Work 90:358-9 S 27 '18  
 See also Gas fitting; Hot water heating; Pipe joints; Plumbing; Steam pipes

**Pipe fittings**

- Automatic tapping machine for pipe fittings. J. H. Vincent. 11 diag Am Mach 50:797-8 Ap 24 '19  
 Marine practice in valves and fittings. A. G. Christie. Am Soc M E J 41:135-6 F '19  
 1915 standard extra-heavy bull-head reducing tees and crosses, flanged. diags Heat & Ven 16:71 Ja '19  
 1915 standard extra-heavy straight tees, crosses and laterals, flanged. diags Heat & Ven 16:70 Ja '19  
 1915 standard weight flanged reducing laterals. diags Heat & Ven 15:66 O '18  
 Putting an old idea to a new use. I. E. Pearce. diags Am Mach 51:475-6 S 4 '19  
 Report of the A.S.M.E. committee on standardization of flanges and pipe fittings. diags Am Soc M E J 40:850-3 O '18  
 Service connections to concrete water mains. diags Eng N 82:63 Ja 2 '19  
 Standard bull-head reducing tees and crosses—flanged. diags Heat & Ven 15:65 Ag '18; Correction. 15:77 S '18

See also Furnaces, Hot air—Pipes and fittings; Pipe flanges; Pipe joints

**Pipe flanges**

- Investigation of question of flanges for light cast iron pipe. J. Knickerbocker. Am Water Works Assn J 6:457-71 S '19; Same, without diagrams. Eng N 82:1197-8 Je 19 '19; Same. Eng & Contr 52:38 JI 9 '19; Discussion. Am Water Works Assn J 6:471-2 S '19  
 Machine faces pipe flanges. 11 Iron Tr R 63:787 O 3 '18  
 Metal-to-metal flange joint. M. Bertrande. diags Power 48:787 N 26 '18  
 1915 standard extra heavy pipe flanges and bolts. diags Heat & Ven 15:71-2 D '18  
 1915 standard weight flanged reducing laterals. diags Heat & Ven 15:66 O '18

Rules for flanged fittings; American 1915 standard, extra heavy. Heat & Ven 15:66 N '18

Rules for flanged fittings; American 1915 standard, standard weight. Heat & Ven 15:69-72 Je '18

Shell thickness of flanged fittings. diags Heat & Ven 16:70 F '19

**Pipe hangers**

- Pipe hangers to eliminate vibration. A. J. Dixon. diags Power 46:837 D 18 '17  
 Suggestive pipe hangers. diags Heat & Ven 16:39 O '18  
 Various types of pipe hangers. diags Coal Age 14:848-9 N 7 '18; Same. Power 48:770-1 N 26 '18

**Pipe joints**

- Berry flexible and expansion joint for pipe lines. 11 Eng & Contr 48:517 D 19 '17; Power 47:48 Ja 8 '18; Elec R 72:129-30 Ja 19 '18; Eng & Min J 105:472 Mr 9 '18  
 Buckeye pipe-screwing machine. 11 Eng & Contr 49:108 Ja 30 '18  
 Cast iron pipe joint tests made at Schenectady. V. Starzenski. 11 diags Gas Age 44:383-7 N 1 '19  
 Cement joints for cast-iron water and gas mains at Vallejo, California. Eng N 82:1201-2 Je 19 '19  
 Cement joints for cast iron water mains; abstracts. C. H. Shaw. Engineer 124:32 JI 13 '17; Concrete 10:240-1 Je '17; Iron Age 100:318 Ag 9 '17; Sci Am 117:166 S 1 '17; Eng & Contr 48:495 D 12 '17  
 Cement joints for cast-iron water mains at shipbuilding plant. A. J. Newman. Eng N 83:609 S 25 '19  
 Cement joints for pipe sewers. Concrete 15:127-8 S '19  
 Cement joints for water mains save money in Portland, Oregon. Eng N 82:324 F 13 '19  
 Clay used to pack joints in sewer-pipe while pouring with asphalt. Eng N 81:554-5 S 19 '18  
 Combination pipe joint. H. C. Thayer. diags Power 47:197 F 5 '18  
 Concrete pipe joint designed for high pressure. diags Eng N 81:216 Ag 1 '18  
 Correct place to locate expansion joint on 8-inch pipe to tank. diag Dom Eng 87:153-4 Ap 26 '19  
 Deeper bell and elimination of lead groove recommended for cast iron pipe to be jointed with cement. Am Gas Eng J 111:444-6 N 8 '19  
 Dope on pipe and fittings. W. H. Wakeman. Dom Eng 86:79-80 Ja 11 '19  
 Electrically welded steam lines. H. R. Woodrow. diags Power 49:322 Mr 4 '19  
 Expansion of steam pipes. C. L. Hubbard. diags Dom Eng 86:164-7+, 213-15 Ja 25-F 1 '19  
 Experience with leadite joints at Windsor. Conn. Munic Eng 53:238 D '17  
 Experience with metalium joints in water pipe lines in Davenport, Ia. T. Healy. Munic Eng 57:47-8 JI '19  
 Factors that make for efficiency in gas main welding. M. S. Clark. Am Gas Eng J 107:546-7 D 15 '17  
 Flexform joint for vitrified clay pipe. 11 Munic J 43:619 D 22 '17  
 Flex-form joint mold for making joints in vitrified pipe. 11 Eng & Contr 51:97 Ja 29 '19  
 Hydraulic penstock and pipe, gate and valve connections. diags Elec R 72:960-1 Je 8 '18  
 Large concrete pipe grouted at special joints. 11 Eng N 83:483 S 4 '19  
 Latest developments in poured joints for vitrified pipe sewers. H. P. Boynton. 11 Munic Eng 54:91-2 Mr '18  
 Lead pipe couplings. J. A. Jensen. Am Water Works Assn J 5:407-11 D '18  
 Lead wool as a material for calking joints in cast iron pipes. R. J. Thomas. Am Water Works Assn J 5:10-14 Mr '18  
 Leakage from vitrified pipe used to convey water under a low head. W. W. Brush. 11 diags Am Water Works Assn J 5:15-25 Mr '18  
 Leaking flange joints. L. A. Cole. diags Power 50:153 JI 22 '19

**Pipe joints—Continued**

- Leakproof joint developed for reinforced concrete pressure pipe. *diags* Metal Work 90: 501 N 1 '18
- Making of cement joints for cast iron pipe. W. M. Henderson. *Il* Gas Age 44:343-4 O 15 '19; Same. *Am* Gas Eng J 111:292-4 O 4 '19
- Making tight joints in vitrified clay sewer lines. D. H. Wyatt. *Il* Munic Eng 54:253-4 Je '18
- Metallum. H. V. Knouse. *Il* Am Water Works Assn J 5:174-80 Je '18; Same *abr.* Eng & Contr 50:348-9 O 9 '18; Abstract. Eng N 79:1224 D 27 '17
- Method and cost of making tight joints in pipe sewers. W. W. Dixon. *Il* Munic Eng 54:193-4 My '18
- Modern welding and cutting; thermit welding. E. Viail. *Il* *diags* Am Mach 50:243-8 F 6 '19
- New lead joint for pressure pipe. Concrete 13: 196 D '18; Eng & Min J 106:1114 D 28 '18
- New Van Stone joint. *diag* Power 48:568 O 15 '18
- Portland cement joints for cast iron pipe. Eng & Contr 49:27 Ja 9 '18
- Rectangular to round tee joint patterns. *diags* Metal Work 90:276-7 S 6 '18
- Rubber expansion joint for condenser piping. W. F. Schaphorst. *diag* Concrete 11:sup52 D '17; Metal Work 88:777 D 28 '17
- Sewer pipe joints; discussion. J. L. Woodfall and others. *Il* *diags* Boston Soc C E J 5:81-103 F '18; Same *abr.* Eng & Contr 50:45-8, 180-1 JI 10, Ag 14 '18; Abstract. Munic J 44:410-11, 427-9 My 18-25 '18
- Steam and hot water spill calked joints in soil pipes. *diags* Dom Eng 86:346 F 22 '19
- Strength of weld in wrought iron pipe. E. A. Klages. *Il* *diags* Gas Age 41:36-7 Ja 1 '18; Same. Metal Work 89:67+ Ja 11 '18; Same *abr.* Iron Age 101:203 Ja 17 '18
- Strength of welded joints. C. Wilde. *Il* Gas Age 44:206 S 1 '19
- Successful use of cement joints for cast iron water and gas mains. S. E. Kleffer. Munic Eng 57:42 JI '19
- Tests of cement, lead and metallum joints for cast-iron pipe. F. Bass and J. A. Jensen. *diag* plan Eng N 80:991-2 My 23 '18
- Tuxeda swing joint. *Il* Power 47:834 Je 11 '18
- Type of thread as affecting pipe joints. Am Soc M E J 40:199-200 F '18
- Unique expansion joint. L. V. Lauther. *Il* Coal Age 13:997 Je 1 '18
- Use of cement joints for cast iron water and gas mains. Eng & Contr 52:46-7 JI 9 '19
- Water works operation; repairing leaks and breaks in water mains and underground appurtenances. *Il* Munic J 45:107-8+ Ag 10 '18
- Weld strength of pipe. Iron Tr R 61:1327 D 20 '17
- Welded steel expansion joint. A. H. Nourse. *diags* Int Marine Eng 23:426 JI '18
- Wiped and flanged joints for lead pipe connections in services. J. A. Jensen. Eng & Contr 50:252-3 S 11 '18
- See also* Pipe flanges
- Pipe laying**
- City of Detroit offsets labor shortage by using machinery for all water main construction. *Il* Munic Eng 55:104-6 S '18
- Concrete pipe made and laid for Winnipeg aqueduct. *Il* Concrete 14:208-13 Je '19
- Economical construction of a creek crossing. J. F. Mead. Am Water Works Assn J 6: 58-9 Mr '19
- 8-in. main across 1300-ft. estuary placed in single day. W. M. Henderson. *Il* Am Gas Eng J 109:459-63 N 16 '18
- Gas pipe line through rock. *Il* Gas Age 41:161 F 15 '18
- Guide carriage for laying large sewage concrete pipes in tunnels. F. C. Perkins. *Il* Sci Am 118:172 F 23 '18; Munic J 44:94 F 2 '18
- Large concrete-cased steel pipe laid in one piece. *Il* Eng N 83:176-7 JI 24 '19
- Laying eighteen-inch drain pipe below the water table. *Il* Eng N 80:1059-60 My 30 '18
- Laying out grades for steam return lines, water piping and drainage. C. L. Hubbard. *Il* *diags* Dom Eng 89:5-8+ O 4 '19
- Laying water mains in alleys. C. R. Henderson. Am Water Works Assn J 6:141-3 Je '19; Same. Munic Eng 56:241-2 Je '19; Same. Eng & Contr 52:195 Ag 13 '19
- Laying water mains in Detroit. Munic J 45: 92 Ag 3 '18
- Lowering an intermediate pressure main. *Il* Gas Age 41:19-20 Ja 1 '18
- Lowering ground water levels. C. L. Kirk. Am Water Works Assn J 5:36-7; Discussion. 37-9 Mr '18
- Lowering pipe. R. S. Fuller. *Il* Gas Age 41: 217 Mr 1 '18
- Machinery plays large part in Chicago water pipe extension work. R. S. Spalding. *Il* Munic Eng 55:179-81 N '18
- Making and placing ten miles of concrete pipe for Winnipeg aqueduct. K. B. Kumpa. *Il* *diag* Eng N 80:111-14 Ja 17 '18
- Method of building reinforced concrete infiltration gallery in Los Angeles river. C. W. Gelger. *Il* Munic Eng 54:33 Ja '18
- Method of lowering 12 in. water main while under full service pressure. Eng & Contr 49: 466 My 8 '18; Same. Munic Eng 56:16 Ja '19
- 113 miles of pipe line completed in record time despite adverse conditions. R. E. Morrison. *Il* Am Gas Eng J 108:97-9 F 2 '18
- Pipe line laid under 80-ft. depth estuary. Am Gas Eng J 109:5-6 JI 6 '18
- Problems in underground pipe construction. *Il* *diag* plans Heat & Ven 15:31-6 Je '18
- Raising two lines of 24-inch water main seven feet. F. J. Sauer, jr. *Il* *diag* plan Eng N 82: 254-5 Ja 30 '19
- Sewer pipe laid on lake bottom. *Il* Sci Am 118: 353 Ap 20 '18
- Submerged gas main. Gas Age 42:466 D 2 '18
- Supporting strength of sewer pipe in trenches. A. Marston, W. J. Schlick and H. F. Clemmer. Eng & Contr 49:176-7 F 13 '18
- Trailer shield holds sides of caving ditches in pipe laying. *Il* *diag* Eng N 82:740-1 Ap 10 '19
- Trenching machinery in laying water pipe. O. T. Smith. *Il* Munic J 45:142-3 Ag 24 '18
- See also* Pipe lines
- Cost**
- Cost of laying iron pipe. Munic J 45:110-12 Ag 10 '18
- Cost of laying water mains at Hartford, Conn. Eng & Contr 50:551 D 11 '18; Same. Metal Work 91:548 My 2 '19
- Cost of laying water pipe. Munic J 47:165 S 13 '19
- Cost of water mains at Council Bluffs, Ia., from 1907 to 1918. Eng & Contr 51:623 Je 11 '19
- Costs of trenching for gas mains. Gas Age 41:564 Je 15 '18
- Instruction for gas company fitters. G. Wehrle. Gas Age 42:477 D 2 '18
- Pipelaying cost is influenced by many conditions on each job. W. A. Judd. Eng N 82:1227 Je 19 '19
- Saving effected by Detroit water board by using excavating and pipe laying machinery. *Il* Eng & Contr 51:176 F 12 '19
- Unit figures for estimating cost of laying pipe. G. Wehrle. Gas Age 40:553-6 D 15 '17; Excerpt (Tables). Eng & Contr 51:37-8 Ja 8 '19
- Pipe lines**
- Construction details on the Marin water and power project. H. M. Bowers. *Il* *diags* J Elec 43:22-3 JI 1 '19
- Electric exploration for buried water-pipes. *Il* Sci Am 121:363 O 11 '19
- How engineering records of underground structures are kept in Baltimore. M. J. Ruark. *diag* plan Munic Eng 54:260-1 Je '18
- Hydrostatic tests of 36 in. submarine pipe line. Eng & Contr 48:498 D 12 '17
- Identifying pipe lines. Factory 20:666 Ap '18
- Largest gas line in the United States being constructed. *Il* *diag* Eng N 82:706-7 Ap 10 '19
- Laying utility mains in advance of pavement construction. F. D. Howell. Eng & Contr 49:253-4 Mr 6 '18

**Pipe lines—Continued**

Location of subsurface pipe lines to conserve street pavements. H. M. Adams. *Munic Eng* 56:225-6 Je '19  
 Permanent and temporary pipe supports. diags Heat & Ven 16:46 Je '19  
 Pipe-line transportation of coal. Power 47: 835-6 Je 11 '18  
 Pulsations in pipe lines. H. C. Vensano. Eng & Contr 49:33 Ja 9 '18  
 Steel pipe erected from derrick on sections already built. *Il Eng N* 81:100 Ji 11 '18  
*See also* Aqueducts; Electrolytic corrosion; Gas distribution; Gas pipe lines; Gas pipes; Oil pipe lines; Pipe laying; Piping; Steam pipes; Water pipes; Water supply engineering

Pipe thawing. *See* Thawing

**Pipe threading**

Pipe-threading hints. diags Power 47:55-6 Ja 8 '18; Same cond. *Metal Work* 89:448-9 Ap 5 '18

**Pipe threading machines**

Pipe-threading machine. *Il Ind Management* 55:159 F '18

**Pipe threads**

Minimum number threads for screwed pipe connections. Power 47:25 Ja 1 '18  
 Miscellaneous thread and drill sizes. Motor Age 34:37 N 14 '18

**Piperazine**

Preparation of piperazine. D: S. Pratt and C. O. Young. *Am Chem Soc J* 40:1428-31 S '18

**Pipes**

Cast iron pipe made by centrifugal process. *Il Metal Work* 89:485-6 Ap 12 '18  
 Cast iron pipe manufactured in United States in 1914. *Am Gas Eng J* 107:568 D 22 '17  
 Casting pipe centrifugally. *Il diag Sci Am* 118:99+ F 2 '18  
 Casting pipe sections by continuous pouring. *Il diags plan Foundry* 46:73-8 F '18  
 Chart for the determination of pipe diameters, flow and loss of head. chart Eng & Min J 105:684 Ap 13 '18  
 Determining the presence of manganese in iron and steel pipe. *Coal Age* 13:781 Ap 27 '18  
 Effect of cement concrete on iron pipe. *Dom Eng* 83:50 Ap 13 '18  
 Effect of mouthpieces on the flow of water through a submerged short pipe. F. B. Seely. bibliog *Il diags Ill U Eng Exp Sta Bul* 96:1-49 '17; Abstracts. Eng & Contr 48: 301 O 10 '17; *Am Soc M E J* 39:957-8 N '17; *Munic J* 43:426 N 1 '17; *J Fr Inst* 185:281-2 F '18  
 Factors for reducing weight of g. i. pipe of any given gauge to that of any other gauge; table. Heat & Ven 15:70 Ap '18  
 Friction of slime pulp in pipes; abstract. E. J. Laschinger. *Am Soc M E J* 40:116-17 Ja '18  
 How to distinguish iron from steel pipe. N. Bowland. Power 47:194-5 F 5 '18  
 Installing 17,250 ft. of Matheson joint pipe National coating without one fitting. *Il Munic Eng* 55:27-8 Ji '18  
 Ironing out cracks in iron; Bardeen electrical method of eliminating fatigue of metals. Elec R 72:844 My 18 '18; Same. *Sci Am S* 86:48 Ji 20 '18  
 Normal needs in wrought pipe set aside. *Iron Tr R* 64:109-10 Ja 2 '19  
 Pipe corrosion in buildings. Eng & Min J 105: 287-8 F 9 '18  
 Pipe molds made from rotating patterns. diags Foundry 47:810 N 15 '19  
 Pipe uses limited; regulations of building materials section of War Industries board. *Iron Age* 102:826 O 3 '18; Same. Eng & Contr 50: 392 O 23 '18; Same. *Munic Eng* 55:169-70 N '18  
 Proper designation for pipe. W. L. Schaeffer. Elec Ry J 52:21 Ji 6 '18  
 Short cuts for the estimator; figuring sheet iron duct work. D: H. Cuyler. diags *Metal Work* 91:673-4 My 30 '19  
 Slitting and perforating pipes by the oxy-acetylene process. *Il diags Eng & Min J* 108:320 Ag 23 '19

Straightener for bent pipe. diag Eng & Min J 108:622 O 11 '19  
 Temporary pipe patches. C. H. Willey. diags *Int Marine Eng* 23:248-50 Ap '18  
 To distinguish wrought-iron from steel pipe. T: F. Payne. Power 46:789 D 11 '17  
 Using pipes as rollers. L. P. Breedlove. diag chart Mach 24:1160 Ag '18  
 Weight of round galvanized iron pipe and elbows of the proper gauges for blast-pipe systems. Heat & Ven 15:63 Mr '18  
 Which pipe is best adapted for use in connection with an exhaust blower system? diags *Metal Work* 89:114, 182-3 Ja 18, F 1 '18

*See also* Air pipes; Gas pipes; Heating pipes; Pipe joints; Pipe laying; Pipe lines; Piping (power plants); Roof leaders; Sewer pipes; Steam pipes; Tubes; Water pipes

**Prices**

Cast iron pipe breaks price record. *Iron Tr R* 62:31 Ja 3 '18  
 Cast-iron pipe prices in Boston from 1868 to 1917. *Eng N* 80:923 My 9 '18  
 Cast-iron pipe prices—1900-1918. diags *Iron Age* 103:21 Ja 2 '19  
 Cast iron pipe prices rise during year. *Iron Tr R* 64:107 Ja 2 '19  
 Prices and depreciation of cast iron pipe. B. B. Hodgman. *Am Water Works Assn J* 5:145-54; Discussion. 155-62 Je '18

**Specifications**

Standard specifications for cast-iron pipe and special castings; English and Spanish. diag U S Bur For & Dom Com Ind Stand 28:1-27 '19  
 Standard specifications for cast iron pipes for water and gas mains. Eng & Contr 50:430-1 O 30 '18  
 Standard specifications for welded steel pipe; English and Spanish. U S Bur For & Dom Com Ind Stand 20:1-15 '19  
 Standard specifications for welded wrought-iron pipe; English and Spanish. U S Bur For & Dom Com Ind Stand 61:1-15 '19

**Testing**

Cast-iron pipe or welded pipe for house drainage calked-joint vs. screw-joint, wrought-iron vs. steel pipe. W: P. Gerhard. *Il Am Inst Arch J* 7:283-8 Je '19  
 Investigations of pipe corrosion in Chicago buildings, with special reference to durability of pipe materials. T: J. Claffy. *Munic Eng* 55:208-10 D '18; Abstract. Eng N 82: 469-71 Mr 6 '19  
 Relative corrosion of cast-iron, wrought-iron and steel pipe in house drainage systems. W: P. Gerhard. *Il Am Soc M E J* 40: 945-7 N '18; Same. Arch & Bldg 51:10-12 F '19; Discussion. Mech Eng 41:455-60 My '19  
 Relative merits of cast-iron, wrought-iron and steel pipe for house drainage purposes. W: P. Gerhard. *Il J Fr Inst* 187:99-109 Ja '19  
*See also* Pipes, Concrete—Testing

**Pipes, Cement**

Friction tests and capacity table for cement pipe. G. E. P. Smith. Eng & Contr 52: 37-8 Ji 9 '19

**Pipes, Concrete**

Bonna system reinforced concrete pipes in Antwerp waterworks extension. *Il Eng & Contr* 50:117-18 Ji 31 '18  
 Cast half a mile of concrete pipe per day at Fresno, Calif. *Il Eng N* 80:400-1 F 28 '18  
 Concrete pipe joint designed for high pressure. diags Eng N 81:216 Ag 1 '18  
 Concrete pipe made and laid for Winnipeg aqueduct. *Il Concrete* 14:208-13 Ja '19  
 Curing concrete pipe. *Concrete* 14:93-4 Mr '19  
 Hand tamps preferred for field work. A. S. Bent. *Concrete* 14:197 My '19  
 Large concrete pipe grouted at special joints. *Il Eng N* 83:483 S 4 '19  
 Machine made railway culverts. *Concrete* 13: 102 S '18  
 Making and placing ten miles of concrete pipe for Winnipeg aqueduct. K. B. Kumpe. *Il diag Eng N* 80:111-14 Ja 17 '18

**Pipes, concrete—Continued**

- Making irrigation pipe. C: R. Chapman. Concrete 12:213-14 Je '18  
 Notes on concrete pipe. Concrete 15:47-8 JI '19  
 Outfall sewer of poor concrete pipe disintegrates. H. L. Sherman. II Eng N 80:525-6 Mr 14 '18; Discussion. L: E. Ferguson. Eng N 80:829 Ap 25 '18  
 Pipe standardization. C. F. Buente. Concrete 14:92-3 Mr '19  
 Pneumatic tamping in pipe manufacture. II diags Concrete 14:69-70 F '19  
 Pressure pipe of reinforced concrete. C. Meriwether. II diag Concrete 13:89-91 S '18  
 Recent developments in reinforced concrete pressure pipe for water supply lines. W. R. Harris. diags Munic Eng 55:58-9 Ag '18  
 Reinforced-concrete pipe made by the centrifugal process. E. M. Weston. Eng N 83:707-8 O 9 '19  
 Reinforced concrete pipe with special locking joint. II Munic Eng 54:121 Mr '18  
 Reinforced concrete pressure pipe. C. Meriwether. diags Am Water Works Assn J 5:419-24 D '18  
 Sewer pipe on the Pacific coast. E. F. Bent. Concrete 12:213 Je '18

**Failures**

- Concrete pipe fails from unequal expansion of shell. G. E. P. Smith. II diags Eng N 83:118-15 JI 17 '19

**Testing**

- Hydrostatic test of pipe. E. F. Bent. II Concrete 13:100 S '18  
 Some reforms needed in testing concrete pipe. G. E. P. Smith. II Concrete 13:156-7 N '18

**Pipes, Copper**

- Copper-pipe smithing in the Sun shipyard. E. A. Suverkrop. II diag Am Mach 50:205-7 Ja 30 '19

**Pipes, Furnace. See Furnaces, Hot air—Pipes and fittings****Pipes, Gas. See Gas pipes****Pipes, Heating. See Heating pipes****Pipes, Lead**

- Thickness and weight of lead pipe. Power 47:377 Mr 12 '18

**Pipes, Paper**

- Paper pipes for water, oil and gas. Dom Eng 81:425 D 8 '17

**Pipes, Sewer. See Sewer pipes****Pipes, Steam. See Steam pipes****Pipes, Steel**

- Manufacture of welded pipe. S. A. Hand. II Am Mach 49:285-8 Ag 15 '18  
 Normal needs in wrought pipe set aside. Iron Tr R 64:109-10 Ja 2 '19  
 Pitting of steel piping. II Power 46:824 D 18 '17; Discussion. N. Bowland. 47:301-2 F 26 '18  
 Standard specifications for welded steel pipe: English and Spanish. U S Bur For & Dom Com Ind Stand 20:1-15 '19  
 Steel pipe makers fall far behind in 1917. Iron Tr R 62:33 Ja 3 '18

**Pipes, Tobacco. See Tobacco pipes****Pipes, Vitrified**

- Leakage from vitrified pipe used to convey water under a low head. W: W. Brush. II diags Am Water Works Assn J 5:15-25 Mr '18

- Use of vitrified clay pipe for irrigation lines. V. E. Piollet. II Munic Eng 55:73-5 Ag '18

**Pipes, Water. See Water pipes****Pipes, Wood**

- Canadian commission adopts wooden pipe. II Am Lumberman 2268:33 N 2 '18  
 Cost of wood stave pipe at Seattle, Wash. Eng & Contr 49:163 F 13 '18  
 Diagram for computing band spacing for wood-stave pipe. W. T. Batcheller. diags Eng N 83:472 S 4 '19; Discussion. E. A. Moritz. 83:710 O 9 '19  
 Leakage test of wood-stave pipe line. V: M. Crown. map Eng N 83:264 Ag 7 '19

Redwood piping earns universal reputation; service in army camps. Am Lumberman 2252:33 JI 13 '18

What are the limitations of wood pipe under fills? Eng N 79:1304 D 27 '17

Wood-stave pipe built of local hemlock in North Carolina. D. R. Shearer. II Eng N 81:138 JI 18 '18

**Pipets**

- Absorption pipettes. E. Van Alstine. diag J Ind & Eng Chem 11:51-2 Ja '19  
 Improved automatic pipette-washing device. A. V. Fuller. diag J Ind & Eng Chem 10:297 Ap '18  
 Pipette for fuming liquids. R. C. Cook. diag Eng & Min J 105:604 Mr 30 '18  
 Safety pipette. A. S. Behrman. diags J Ind & Eng Chem 9:1047 N '17; Eng & Min J 105:249 F 2 '18

**Piping. See Furnaces—Pipes and fittings; Gas pipes; Heating pipes; Plumbing; Ships—Piping systems; Steam pipes; Water pipes****Piping (power plants)**

- Diagram of water piping system at Millers Ford. Elec R 73:807 O 13 '18  
 Fuel economy in the operation of hand fired power plants. A. C. Willard and others. diags charts III U Eng Exp Sta Circ 7:67-80 '18  
 Improving a defective piping system. A. J. Dixon. diags Power 50:153 JI 22 '19  
 Improving boiler room piping connections. diags Heat & Ven 16:37-9 N '19  
 Piping for combined power and heating plants. C. L. Hubbard. diags Dom Eng 82:166-8+, 211-12+ F 2-9 '18  
 Plan of steam piping in power plant of Old Hickory powder plant. E. A. Wardenburg. Power 49:751 My 20 '19  
 Separating air from returns. A. J. Dixon. diag Power 50:476 S 16 '19  
 Steam piping for power plant auxiliaries. G. H. Gibson. II diags Metal Work 89:669-72 My 24 '18

**Piping (refrigerating plants)**

- Changed ammonia condenser piping. W. T. Meizer. diags Power 50:102-3 JI 15 '19  
 Remodeling suction gas mains. Anheuser-Busch brewery. R. H. Karl. II charts diags plans Power 50:48-54 JI 8 '19

**Pisa, Italy**

- Natural gas used for lighting at Pisa. Sci Am S 86:96 Ag 10 '18

**Pisé de terre. See Adobe****Pistols**

- Using rimless cartridges in new service revolvers. P. A. MacKenzie. II Am Mach 49:859-60 N 7 '18

**Piston rings**

- Casting gray-iron piston rings by machinery. E. Sheldon. II diags Am Mach 49:783-7 O 31 '18  
 Casting rings in centrifugal machine by De Lavaud process. E. F. Cone. II diag Iron Age 102:801-7 O 3 '18; Abstract. Am Soc M E J 40:960 N '18  
 Chucks for holding pot castings used in making piston rings. J: Drew. II diag Am Mach 51:833-4 N 6 '19  
 Dial feed arrangement used in grinding piston rings. J. J. McIntyre. II diags Am Mach 50:803-4 Ap 24 '19  
 Du Bois piston ring for internal combustion engine. II Power 49:759 My 20 '19  
 Fitting piston rings. diags Motor Age 34:31 Ag 29 '18  
 Gas-engine piston rings. E. Pagett. diag Power 50:595 N 22 '19  
 Lapping in piston rings. diags Motor Age 35:28-9 F 13 '19  
 Novel two part piston ring. E. Sheldon. II Am Mach 51:199-202 JI 31 '19  
 Parting off piston rings to accurate width. M. G. Datson. diag Am Mach 49:1047 D 5 '18  
 Piston ring design. diags Int Marine Eng 24:177 Mr '19  
 Piston-ring slitting fixture. H. E. McCray. diag Am Mach 48:250-1 F 7 '18



**Piston rings—Continued**

- Splitting piston rings. J. Young. Mach 25: 590-1 Mr '19
- Tooling equipment for an automobile piston-ring. T. Orchard. diags plan Mach 25: 1053-60 Jl '19
- Piston-rod packing.** See Packing
- Pistons**
- Aluminum: its use in the motor industry in England. E. C. Hill. Metal Ind 17:125-7 Mr '19
- Aluminum piston development. J. E. Schipper. il diags Automotive Ind 38:1139-41 Je 13 '18
- Aluminum pistons for aero-engines. diags Engineer 126:35 Jl 12 '18; Automotive Ind 39: 361 Ag 29 '18
- Aluminum pistons in German airplane engines. C. Vickers. Foundry 46:460 O '18
- Correct way of making an engine piston pattern. F. B. Raebig. diags Foundry 46:32-3 Ja '18
- Drilling pistons to prevent oil pumping. diags Motor Age 34:30-1 O 10 '18
- Making a large piston on emergency order. J. R. Anderson. il diags Foundry 47:270-1 My 1 '19
- Manufacture of pistons in a medium sized factory. J. E. Schipper. il Automotive Ind 41:767-70 O 16 '19
- New light piston alloy. Automotive Ind 41: 161 Jl 24 '19
- Obtaining required length of piston rod. Power 47:561 Ap 16 '18
- Piston displacement chart for four-cylinder engines, any bore and stroke. Motor Age 34:38 Ag 29 '18
- Piston displacement chart for six-cylinder engines, any bore and stroke. Motor Age 34:30 S 5 '18
- Piston displacement chart of eight-cylinder engines. Motor Age 34:30 S 12 '18
- Piston displacement chart of twelve-cylinder engines, any bore and stroke. Motor Age 34:34 S 19 '18
- Piston refinements increase weight. diags Automotive Ind 38:20 Ja 3 '18
- Piston travel and breaking power. H. F. Wood. Ry Mech Eng 92:662 D '18
- Placing new piston rod in engine. Power 47: 671 My 7 '18
- Ricardo engine made good in tanks. il diags Automotive Ind 40:407-10+ F 20 '19
- Seized piston in a Diesel engine. D. L. Fagnan. diags Power 50:138 Jl 22 '19
- Use of bronze for snap valve rings and piston surfaces. C. E. Fuller. diags Ry R 64:992-4 Je 28 '19
- See also Piston rings
- Pitch**
- Methods of analysis used in the coal-tar industry. J. M. Weiss. diags plans J Ind & Eng Chem 10:820-3 O '18
- See also Bituminous materials
- Pitch as fuel**
- Burning of pitch and creosote mixtures. diags Engineer 125:332-3 Ap 19 '18; Abstract. Am Soc M E J 40:503 Je '18
- Pitch as a fuel. Sci Am S 86:155 S 7 '18
- Pitch as a fuel for power generation. J. B. C. Kershaw. Power 47:904-6 Je 25 '18; Abstract. Am Soc M E J 40:496 Je '18
- Pitchblende**
- Experiments on the extraction of radium from American pitchblende ores by chlorination. Mrs R. Cable and H. Schlundt. Met & Chem Eng 18:460-2 My 1 '18; Excerpts. Eng & Min J 106:216 Ag 3 '18
- Pitot tube**
- Modification of the pitot tube. P. J. M. Clute. diags Power 46:876 D 25 '17
- Notes on the use of the pressure gage for pitot-tube measurement. E. Anderson. il Chem & Met Eng 19:250 S 1 '18
- Using a pitot tube. W. E. Brye. diags Power 47:195-6 F 5 '18; Discussion. C. H. Chase. 47:921 Je 25 '18
- See also Impact tube

**Pittsburgh, Pennsylvania**

- Bridges**
- Raising Allegheny river bridge 13 feet by jacking without interruption of traffic. il diags plans Eng N 82:850-4 My 1 '19
- Railroads**
- Baltimore & Ohio grade separation at Pittsburgh. il diags map Ry Age 64:1028-31 Ap 19 '18
- Wabash-Pittsburgh terminal investigation. Ry Age 64:375-8 F 15 '18
- Rapid transit**
- Pittsburgh valuation reviewed. Elec Ry J 54:436-8 Ag 30 '19
- Rapid transit recommendations. E. K. Morse. diags Eng N 80:720-1 Ap 11 '18
- Street-car loop subway proposed by Pittsburgh. diags Eng N 82:1059 My 29 '19
- Street railway situation in Pittsburgh. E. V. Babcock. Elec Ry J 54:116-17 O 11 '19
- Traffic study. charts maps plan diags Elec Ry J 51:842-6 My 4 '18
- Transit commission. E. K. Morse. Eng Soc W Pa 34:431-9; Discussion. 440-60 Jl '18
- Valuation commission for Pittsburgh. Elec Ry J 51:582 Mr 23 '18
- Pittsburgh & Lake Erie railroad**
- Pittsburgh & Lake Erie railroad. Ry Age 67:4-5 Jl 4 '19
- Pittsburgh bureau of mines experiment station.** See United States—Mines, Bureau of —Pittsburgh station
- Pittsburgh, Cincinnati, Chicago and St Louis railway**
- New freight terminal at Indianapolis. il diags plan Ry R 62:233-7 F 16 '18
- Track elevation work of the P. C. & St L. Ry. in Cincinnati. il diags plans Ry R 62: 85-8 Ja 19 '18
- Pittsburgh coal company**
- Report for 1917. Coal Age 13:787-8 Ap 27 '18
- Pittsburgh university.** Mellon Institute
- Growth of the industrial fellowship system. J Ind & Eng Chem 10:401-2 My '18
- Industrial fellowships of the Mellon Institute. J Ind & Eng Chem 11:371-4 Ap '19
- Science and industry. E. R. Weidlein. Textile World 55:5208+ My 4 '18
- Pituitary body**
- Method of tissue analysis: applied to the posterior and anterior lobes of cattle pituitaries. C. G. MacArthur. Am Chem Soc J 41:1225-40 Ag '19
- Placer mining.** See Hydraulic mining
- Plainfield, New Jersey**
- Architecture**
- Municipal building, Plainfield. C. M. Price. il plans Arch Forum 31:123-4, pl 59-64 O '19
- Plains**
- Peopling of the American plains by the Indians. F. H. Sterns. Sci Am S 85:234-5 Ap 13 '18
- Plan service.** Architectural. See Architectural plan service
- Plane tables**
- Transit or plane-table for topography. Eng N 83:95, 332-3, 433-4, 673-4 Jl 10, Ag 14, 28, O 2 '18
- Planers.** See Planing machines
- Planes**
- Advantages of the round bottom plane. M. E. Duggan. diags Foundry 46:35 F '18
- Using a plow-plane as a marking gage. H. Simon. diags Bldg Age 40:328 Jl '18
- Planets**
- Why Bode's law? T. M. Blakeslee. Sci Am 119:67 Jl 27 '18
- Planing**
- Chart for determining planing time. A. L. Jenkins. Am Mach 49:742-4 O 24 '18
- Handy adjustable extension planing tool. A. Starr. diags Am Mach 48:35 Ja 3 '18
- Planing cold-drawn steel parts. D. A. Hampson. diags Mach 24:496 F '18

**Planing machines**

- Amalgamated reinforced-concrete metal-planing machines. *Il Am Mach* 48:432 Mr 7 '18
- Bement horizontal and vertical wall planer. *Il Mach* 25:1087-8 Jl '19
- Bickett heavy 42-inch planer. *Il Ry Mech Eng* 92:360-2 Je '18; *Am Mach* 48:934-5 My 30 '18
- Bickett planing machine drive. *Il Am Mach* 49:1055 D 5 '18
- Bruno slotting attachment for shaping and planing machines. *Il Am Mach* 48:596 Ap 4 '18
- Cincinnati open-side planing machines. *Il Am Mach* 50:725-8 Ap 17 '19
- Cincinnati planing machine for finishing heavy lathe beds. *Il Iron Age* 102:692 S 19 '18
- Cincinnati 30-inch special forge planing machine. *Il Am Mach* 50:868 My 1 '19; *Iron Age* 103:1082 Ap 24 '19
- Electro-magnetic clutch for planing machine. *Il diags Engineer* 125:366-7 Ap 26 '18
- Extracts from Chordal's letters. *Am Mach* 49:741-2 O 24 '18
- Foundations for planers. T. Croft. *diags Am Mach* 47:1029-35 D 13 '17
- Gleason bevel gear planing machine, automatic, 25-inch. S. M. Banfield. *Il diags Am Mach* 49:829-34 N 7 '18
- Gorton planing machines. J. V. Hunter. *Il diags Am Mach* 51:1-4 Jl 3 '19
- Huge planer for rush war job has concrete bed and housing. *Il Iron Tr R* 62:852-4 Ap 4 '18
- Improvements embodied in Cincinnati planers. J. H. Van Deventer. *Il Am Mach* 51:717-21 O 16 '19
- Liberty 48-inch open-side planing machine. *Il Am Mach* 50:859-60 My 1 '19; *Iron Age* 103:1144 My 1 '19; *Iron Tr R* 64:1154-5 My 1 '19
- Liberty planing machine. *Il Iron Age* 101:941 Ap 11 '18; *Am Mach* 48:765-6 My 2 '18
- Machine tools of concrete. R. H. Moulton. *Il Sci Am* 118:565 Je 22 '18
- Making concrete metal-planing machines. E. Viall. *Il diags plans Am Mach* 48:603-8 Ap 11 '18; *Abstract J Fr Inst* 186:288 S '18; *Discussion W. T. Sears. Am Mach* 48:943-4 Je 6 '18
- Metal planing machines of concrete. C. Lundberg. *Il Iron Age* 101:865-9 Ap 4 '18; *Abstract Concrete* 12:214 Je '18
- Newton upright generating planer. *Il Iron Tr R* 64:208-9 Ja 16 '19; *Ry Mech Eng* 93:50-1 Ja '19
- Operating characteristics of motor-driven planers. C. E. Clewell. *Il diags Elec W* 71:87-90 Ja 12 '18; *Discussion W. G. Merowit. 71:1230 Je 22 '18*
- Plate planer with safety features. *Il Iron Age* 104:376 Ag 7 '19
- Powell high-cutting speed planer. *Il Iron Tr R* 63:22-3 Jl 4 '18
- Repairing old planing machines. V. H. Jackson. *Am Mach* 47:1081-2 D 20 '17
- Simmons open-side 42-in. planing machine. *Il Am Mach* 50:370 F 20 '19
- Tool for internal planing. M. L. Lowrey. *Il Am Mach* 48:880 My 23 '18
- Wright concrete planing machines. *Il Am Mach* 49:363-4 Ag 22 '18; *Iron Age* 102:449 Ag 22 '18; *Iron Tr R* 63:558-9 S 5 '18

*See also Machine tools*

**Feeding**

- Safety device for feed mechanisms on planing machines. *diags Am Mach* 50:309, 804 F 13, Ap 24 '19

**Planning**

- Creating a class of super-foremen. J. V. Hunter. *Am Mach* 48:865-6 My 23 '18
- Factory management in garment trades. M. Gordon. *Il Ind Management* 58:12-16 Jl '19
- Handling maintenance routine. *Factory* 21:872+ N '18
- Handling production in a small shop. R. T. Kent. *Iron Age* 101:871-5 Mr 14 '18
- How I watch jobs through in the engineering department. W. J. Oldroyd. *Factory* 22:477-8 Mr '19

**Keeping production in balance. Factory**

- 286-8 Ag '19
- Managing for maximum production. L. V. Estes. *Il Ind Management* 57:379-84 My '19
- Mass production at the Winchester shops. W. E. Freeland. *Il chart Iron Age* 101:616-21 Mr 7 '18
- My traveling companion—my note book. C. L. Pool. *Factory* 22:254-5 F '19
- Planning department system. J. H. Black. *chart Ind Management* 58:225-9 S '19
- Planning work with three forms: A. R. Neptune. *Factory* 21:39-40 Jl '18
- Preliminary planning of shop operations. A. A. Dowd. *Il diags plan Am Mach* 48:991-7; 49:339-42 Je 13, Ag 22 '18
- Use of sketches on operation sheets. E. Lee. *Mach* 24:740 Ap '18

*See also Progress records*

**Planning boards. See Control boards**

- Plans (architectural). *See Architectural drawing; Architecture—Designs and plans; Architecture, Domestic—Designs and plans*

**Plant breeding**

- Direct selection in pure lines; recent studies in plant improvement. H. De Vries. *Sci Am S* 85:82-3 F 9 '18
- Scientific plant breeding. *Sci Am S* 86:347 N 30 '18

**Plant cells and tissues**

- Important biological problem; the significance of essences and pigments. J. Dufrenoy. *Sci Am S* 85:210-11 Ap 6 '18

**Plant forms. See Design, Decorative****Paint growth. See Growth (plants)****Plant juices. See Sap****Plant lice**

- Mobilizing a lady bug army to fight the aphids. H. E. Thomas. *Il Sci Am* 120:507+ My 17 '19

**Plant names**

- Ancient plant-names. W. T. Thiselton-Dyer. *Sci Am S* 85:404 Je 29 '18
- How flowers were named. *Sci Am S* 87:176 Mr 15 '19

**Plantin, Christopher**

- Dynasty of wealthy printers; Plantin-Moretus family. *por Inland Ptr* 60:759-60 Mr '18

**Planting. See Agriculture; Gardening; Landscape gardening; Tree planting****Plants**

- Distribution and characters of some of the odorous principles of plants. F. B. Power. *J Ind & Eng Chem* 11:344-52 Ap '19
- Nature's factories for sugar and starch. *Sci Am S* 87:223 Ap 5 '19
- Vegetable plethora. F. Gagnesplan. *Il Sci Am S* 88:220+ O 11 '19
- See also Color of plants; Dye plants; Flowers; Growth (plants); Hybridization; Leaves; Seeds; Weeds*

**Chemistry**

*See Botanical chemistry*

**Fertilization**

*See Fertilization of plants*

**Plants, Effect of aluminum on**

- Influence of aluminum ions on seed germination. J. Stoklasa and others. *Sci Am S* 87:318-20 My 17 '19

**Plants, Effect of light on**

- Action of ultra-violet rays on sugar-cane, pineapple and banana in Hawaii. T. Tsuji. *Sci Am S* 87:327 My 24 '19
- Effect of artificial light on the growth and ripening of plants. J. L. R. Hayden and C. P. Steinmetz. *Il Gen Elec R* 21:232-6 Mr '18

**Important biological problem; the significance of essences and pigments. J. Dufrenoy. Sci Am S 85:210-11 Ap 6 '18**

- Light and organisms. A. M. Hurd. *Sci Am S* 88:171+ S 13 '19

- Plants, Geographical distribution of**  
Age and area law; a fundamental law of geographical distribution. J. Small. *Sci Am S* 85:338-9 Je 1 '18  
Present day problems of plant geography. J. Dufrenoy. *Sci Am S* 85:242-3, 266-7 Ap 20-27 '18
- Plants, Metallurgical.** See Metallurgical plants
- Plants, Reproduction in**  
Plant growth and reproduction. V. H. Blackman. *Sci Am S* 87:38 Ja 13 '19
- Plaster and plastering**  
Mechanism of the setting process in plaster and cement. C. H. Desch. *Sci Am S* 86:234-5 O 12 '18  
Setting of cements and plasters. Concrete 12: sup45-7 My '18; Same. *Eng & Contr* 50:80-2 Jl 24 '18  
See also Cement; Concrete; Mortar; Plaster work, Decorative; Stucco
- Plaster of Paris**  
Plaster of Paris for sealing holes. R. C. Morse. *Am Mach* 48:181 Ja 31 '18  
See also Gypsum
- Plaster work, Decorative**  
Development of ornamental plasterwork. M. F. Friederang. *Il Am Arch* 115:535-42 Ap 16 '19  
English architectural decoration. A. E. Bullock. *Il Arch Rec* 43:535-46 Je '18
- Plastic materials**  
Non-inflammable plastic material. *J Fr Inst* 185:848 Je '18
- Plate glass**  
Does plate glass fade? *Sci Am* 121:99 Jl 26 '19  
See also Glass
- Plate mills.** See Rolling mills
- Plate printing**  
Half-tone printing on bond-paper. E. St John. *Inland Ptr* 62:570 F '19
- Plates**  
Microscope in the tool-room. J. Scott. *Il diags Mach* 25:799-802 My '19
- Plates, Iron and steel**  
Design of rolls for making ship and boiler plates. S. W. Standiford. *Il diags Mach* 25: 395-400 Ja '19  
Efficient layout and management of the plate and angle shop in shipyards. G. F. S. Mann. *plan Int Marine Eng* 24:139+ Mr '19  
Is there a ship-plate shortage? J. L. Replogle affirms there is. *Iron Age* 101:1012-15+ Ap 18 '18  
New way of countersinking ship plates. *Il Iron Age* 102:1210 N 14 '18  
Plate mills under great pressure. *Iron Tr R* 64:104-5 Ja 2 '19  
Recent developments in machines for electric spot welding as a substitute for riveting. J. M. Weed. *Il Gen Elec R* 21:928-34 D '18  
Research in spot welding of heavy plates. W. L. Merrill. *Il Gen Elec R* 21:919-22 D '18  
Standard specifications for wrought-iron plates; English and Spanish. *U S Bur For & Dom Com Ind Stand* 27:1-13 '19  
Steel plates in 1917. *Iron Tr R* 62:28-9 Ja 3 '18  
Tests of oxyacetylene welded joints in steel plates. H. F. Moore. *Il diags Ill U Eng Exp Sta Bul* 98:1-21 '17; Excerpts. *Eng & Contr* 48:542 D 26 '17; Summary. *Am Gas Eng J* 107:sup18 D 23 '17; Same. *Ry Mech Eng* 92: 111-12 F '18; Same. *Metal Work* 90:501-2 N 1 '18  
War taxes plate shop facilities. *Il Iron Tr R* 62:787-90 Mr 28 '18  
See also Boiler plates
- Plating**  
Effecting war economies in the plating room. E. P. Later. *Foundry* 46:461-3 O '18  
How we can best adopt standardization for platers' solutions in individual plants. C. H. Proctor. *Metal Ind* 17:310-13 Jl '19  
Nickel and brass plating of die castings. R. J. Hazucka. *Metal Ind* 16:83 F '18  
Plater's recollections. J. Birbaum. *Metal Ind n s* 14:298-9, 476-7; 15:67-9, 259, 343-4 Jl, N 16, F, Je, Ag '17  
Review of the plating industry for 1917. C. H. Proctor. *Metal Ind* 16:6-7 Ja '18  
Solving the cyanide shortage. C. B. Willmore. *Metal Ind n s* 15:12-14 Ja '17  
Standards for protective finishes for iron. E. P. Later. *Foundry* 46:424-6 S '18  
Zinc cyanide plating solutions. F. J. Liscomb. *Metal Ind* 16:552-3 D '18  
See also Cobalt plating; Copper plating; Electroplating; Galvanizing; Lead plating; Metal coating; Metal coloring; Nickel plating; Silver plating; Tinning
- Plating machines**  
Continuous process cleaning and plating machine. *Il Metal Ind n s* 15:39-40 Ja '17
- Platinum**  
Bucket dredger for winning platinum bearing soil. *Il Engineer* 128:90-1 Jl 25 '19  
Commercial oxidation of ammonia to nitric acid. C. L. Parsons. *Il diags J Ind & Eng Chem* 11:541-52 Je '19; Abstract. *Chem & Met Eng* 20:502-3 My 15 '19  
Data on platinum gauze used as a catalyzer for the oxidation of ammonia; table of weights and active surface of platinum, air space, etc., shown for a unit of one square inch of gauze of a given mesh and diameter of wire. A. A. Campbell. *J Ind & Eng Chem* 11:468-9 My '19  
Experiments on the black body at the melting point of platinum as a fixed point in photometry. H. E. Ives. *J Fr Inst* 186:122-3 Jl '18  
Geology of platinum deposits. W. L. Uglow. *Eng & Min J* 108:352-6, 390-3 Ag 30-S 6 '19  
Germany's finger in the platinum pie. *Chem & Met Eng* 19:166-7 Ag 15 '18; Discussion. 19:224 S 1 '18  
Government control of platinum. W. F. Hillebrand. *J Ind & Eng Chem* 10:322-3 Ap '18  
Great gamble. *J Ind & Eng Chem* 10:419-20c Je '18  
How Draper brought out the platinum. F. W. Draper. *Eng & Min J* 105:510-12 Mr 16 '18  
Living from hand to mouth. *J Ind & Eng Chem* 10:591-2 Ag '18  
Placer platinum in California and Oregon. *J Fr Inst* 185:854-6 Je '18  
Platinum and palladium in Brazil. G. F. Kunz. *Il Sci Am S* 88:24-5 Jl 12 '19  
Platinum as seen by the jeweler and the chemist. *Chem & Met Eng* 19:118 Ag 1 '18  
Platinum at Franklin camp. B. C. Eng & Min J 107:409 Mr 1 '19  
Platinum economy in the industrial chemical laboratory. E. C. Mueser. *Chem & Met Eng* 20:69 Ja 15 '19  
Platinum in Ronda mountains, Spain. L. G. Dreyfus, Jr. *Eng & Min J* 104:1122 D 29 '17  
Platinum in Russia and Colombia. *Eng & Min J* 105:523 Mr 16 '18  
Platinum in Spain. A. McMillan. *J Ind & Eng Chem* 10:150 F '18  
Platinum in the Ural region. *Sci Am S* 85:144 Mr 2 '18  
Platinum industry under government control. *Met & Chem Eng* 18:286 Mr 15 '18  
Platinum mining in Russia. I. I. Rogovin. *Eng & Min J* 105:638 Ap 6 '18; Correction. 105:846 My 4 '18  
Platinum occurrence in Sudbury ores. *Eng & Min J* 105:835 My 4 '18  
Platinum produced in Alaska brings high prices. *Elec R* 74:97 Ja 18 '19  
Platinum regulations. *J Ind & Eng Chem* 10:866-7 O '18  
Platinum scraps. *J Ind & Eng Chem* 10:336-8 My '18  
Platinum shortage and what it means to platinum users. C. M. Hoke. *Metal Ind* 15: 204-6 My '17  
Platinum situation. J. M. Hill. *maps Eng & Min J* 108:181-7 Jl 26 '19  
Platinum statistics in 1917. *Eng & Min J* 105:51 Ja 12 '18  
Precipitation of colloidal gold and platinum on metallic surfaces. E. B. Spear and K. D. Kahn. *Am Chem Soc J* 40:181-4 Ja '18

**Platinum—Continued**

- Recovery of platinum and alcohol from the potash determination. A. E. Smoll. *J Ind & Eng Chem* 11:466-7 My '19
- Regulations issued for licensing platinum. Eng & Min J 106:635-6 O 5 '18
- Russia's platinum needed by the Allies. *Dom Eng* 84:291 Ag 24 '18
- Russia's production of platinum. A. R. Merz. bibliog map *J Ind & Eng Chem* 10:920-5 N '18
- Source of placer platinum in the Tulameen district of British Columbia. R. M. Macaulay. map Eng & Min J 107:303-6 F 15 '19
- Sources of platinum. *Sci Am* S 86:197 S 28 '18
- Statistics. Eng & Min J 107:76 Ja 11 '19
- Stellite as a substitute for platinum. E. Haynes. *J Ind & Eng Chem* 9:974-5 O '17; Abstracts. *J Fr Inst* 185:154-5 Ja '18; *Mach* 24:822 My '18
- Stringent regulations on platinum. *Chem & Met Eng* 19:607-8 O 15 '18
- Truth about platinum. *Sci Am* 118:448 My 18 '18
- Use of platinum in jewelry. J. L. Howe. *J Ind & Eng Chem* 10:159 F '18
- Why platinum had to be conscripted. *Sci Am* 118:432 My 11 '18
- Wyoming platinum mine. H. H. Taft. Eng & Min J 106:900 N 23 '18

*See also* Women's national league for the conservation of platinum

**Platinum, Substitutes for**

- Discovery of substitute for platinum as a catalyst. *Elec R* 74:304 F 22 '19
- Platino, a platinum substitute. Eng & Min J 106:12 Jl 6 '18; *Sci Am* 119:146 Ag 24 '18
- Stellite as a substitute for platinum. E. Haynes. *J Ind & Eng Chem* 9:974-5 O '17; Abstracts. *J Fr Inst* 185:154-5 Ja '18
- Substitutes for platinum. *Sci Am* 120:257 Mr 15 '19
- Using gold instead of platinum for laboratory cathodes. F. F. Hunt. Eng & Min J 105:162 Ja 19 '18

*See also* Palau

**Platinum chloride, Substitutes for**

- Platin-nig; a new substitute for chloride of platinum for oxidizing gold, silver, copper, bronze and brass. C. H. Proctor. *Metal Ind* 16:41 Ja '18

**Playgrounds**

- Argo mills co. establishes playground. *Il Textile World* 54:1072 S 7 '18
- Concrete slide and shelter for park. *diag Concrete* 15:90 Ag '19

*See also* Parks

**Pleno gas. See Gas—Standards****Pliers****Manufacture**

- Manufacturing drop-forged pliers. E. Sheldon. *Il Am Mach* 49:889-93 N 14 '18
- Milling operations on adjustable combination pliers. J. V. Hunter. *Il Am Mach* 51:529 S 11 '19

**Plimpton press**

- Reduction of labor turnover in the Plimpton press. J. C. Williams. *U S Bur Labor Statistics Bul* 227:82-91 '17

**Plowing**

- Electrical plowing and mechanical agriculture in France. *diags Elec R* 74:985-7 Je 14 '19
- Gasoline tractor for cable plowing. *Il diags plan Sci Am* 119:318 O 19 '18
- Plowing deeper and deeper; the gasoline tractor and the science of sub-soiling. H. A. Crafts. *Il Sci Am* 121:516+ N 22 '19
- Plowing in the light land. *Il Automotive Ind* 41:808-10 O 23 '19
- Taking the plod out of plowing. C. E. Gapen. *Il diag Sci Am* 121:13+ Jl 5 '19

**Cost**

- Cost of plowing with tractor outfits. G. A. Benjamin. Eng & Contr 49:616-17 Je 19 '18

**Plows**

- Attaching plow to tractor. F. M. Loomis. *diags Motor Age* 34:20-2 O 3; 28-9 O 17 '18

Effects of attachments on quality of work and on the draft of plows. *Sci Am* 120:490+ My 10 '19

Ferguson plow. *Il Automotive Ind* 38:948 My 16 '18

New Swiss motor plow. *Automotive Ind* 40:1126 My 22 '19

Simple lifting device on Oliver motor plow. *Il Automotive Ind* 38:999 My 23 '18

Tests for side drafts held. *Il Motor Age* 34:28-9 S 12 '18

Vertical hitch on tractor plows. F. M. Loomis. *diags Motor Age* 34:20-1 N 7 '18

Vulcan tractor gang plow. *Il Motor Age* 34:38-9 Jl 18 '18

**Plugs. See Electric fittings**

**Plumb plan. See Railroads and state—United States—Plumb plan**

**Plumbago. See Graphite**

**Plumbers**

In ancient days when plumbers possessed coats of arms. W. H. Bancroft. *Il Dom Eng* 81:452-3+ D 15 '17

Relation of master plumber to the community. F. W. Page. *Metal Work* 89:142-3 Ja 25 '18

*See also* Plumbing; Plumbing trade

**Plumbers' associations**

Association's aid by advice to members. J. A. Sprouls. *Metal Work* 88:727-8 D 14 '17

Benefits derived from association work. C. M. Swinnerton. *Dom Eng* 89:277-9 N 8 '19

California state association of master plumbers 17th annual convention, Pacific Grove, Cal. *Metal Work* 90:169-70 Ag 9 '18; *Dom Eng* 84:204-5 Ag 10 '18

Connecticut master plumbers hold annual convention. *Dom Eng* 83:252-3 My 18 '18

Dawn of a new era in the plumbing trade in Massachusetts; campaign of Massachusetts state association of master plumbers. *Dom Eng* 84:51-2 Jl 13 '18

Illinois master plumbers' association 27th annual convention, Danville, Ill., Jan. 28-30. *Dom Eng* 86:267-70+ F 8 '19; *Metal Work* 91:219-20 F 14 '19

Illinois master plumbers 26th annual convention, Bloomington, Ill., Jan. 22-24. *Dom Eng* 82:174-5+ F 2 '18

Indiana society of sanitary engineers 22d annual convention, South Bend, Ind., March 11-13. *Metal Work* 89:404-5 Mr 22 '18

Indiana society of sanitary engineers 23d annual convention, Terre Haute, March 10-12. *Dom Eng* 86:478-82 Mr 15 '19

Iowa master plumbers' association 31st annual convention, Cedar Rapids, Ia., Jan. 14-16. *Dom Eng* 86:181-3 Ja 25 '19

Iowa master plumbers 30th annual convention, Waterloo, Ia. *Dom Eng* 82:143-4 Ja 26 '18

Kansas master plumbers' association holds 27th annual convention. *Dom Eng* 82:457, 486-8 Mr 23-30 '18

Kansas master plumbers' 28th annual convention, Kansas City, March 17-18. *Dom Eng* 86:567-9 Mr 29 '19

Kentucky state association of master plumbers holds annual convention, Dawville, Ky., May 20-21. *Dom Eng* 83:336-7 Je 1 '18

Maine master plumbers' convention. *Metal Work* 89:369-71 Mr 15 '18

Maine master plumbers' 11th annual convention, Portland. *Dom Eng* 86:474-5 Mr 15 '19; *Metal Work* 91:352-4 Mr 14 '19

Massachusetts master plumbers' convention, Boston, April 1-2. *Dom Eng* 87:61-4 Ap 12 '19; *Metal Work* 91:471-3 Ap 11 '19

Massachusetts state association of master plumbers' annual convention, Boston, April 2. *Dom Eng* 83:54-6 Ap 13 '18

Michigan master plumbers' 27th annual convention, Lansing, March 12-13. *Dom Eng* 86:525-8 Mr 22 '19

Michigan state association of master plumbers holds convention, Flint, Mich., May 23-29. *Dom Eng* 83:394-6 Je 8 '18

Missouri master plumbers' convention. *Metal Work* 89:403 Mr 22 '18

**Plumbers' associations—Continued**

- Missouri master plumbers' 35th annual convention, Hannibal, Mo., March 10. Dom Eng 86:476-7 Mr 15 '19; Metal Work 91:411 Mr 23 '19
- Nebraska master plumbers hold 10th annual convention at Omaha. Dom Eng 82:452+ Mr 23 '18; Metal Work 89:403-4 Mr 22 '18
- Nebraska master plumbers' 11th annual convention, Omaha, Neb., March 12-13. Dom Eng 86:518-20 Mr 22 '19; Metal Work 91:382-3 Mr 21 '19
- New Jersey association of master plumbers holds convention at East Orange, N.J., May 14-16. Metal Work 89:683-7 My 24 '18; Dom Eng 83:296-8 My 25 '18
- New York state master plumbers hold 30th annual convention in New York city. Dom Eng 82:450-1+ Mr 23 '18; Metal Work 89:399-403 Mr 22 '18
- New York state master plumbers' 31st annual convention, Buffalo, N.Y., March 11-12. Dom Eng 86:521-4+ Mr 22 '19
- Ohio master sheet metal contractors' association 4th annual convention. Metal Work 90:133-5 Ag 2 '18
- Ohio state association of master plumbers 27th annual convention, Dayton, Feb. 5-7. Dom Eng 82:258-60+ F 16 '18
- Ohio state association of master plumbers 28th annual convention, Feb. 11-13. Dom Eng 86:348-53+ F 22 '19
- Oklahoma master plumbers annual convention, Oklahoma City, April 8-9. Dom Eng 87:108-11 Ap 19 '19
- Pennsylvania state association of master plumbers' 55th annual convention. Dom Eng 83:250-2 My 18 '18
- Remarkable success attends plumbing and heating contractors' convention of progress state. Dom Eng 83:488-90 S 13 '19
- Wisconsin master plumbers 24th annual convention, Milwaukee, Jan. 15-16. Dom Eng 82:95+ Ja 19 '18
- Wisconsin master plumbers' association 25th annual convention. Dom Eng 86:178-80 Ja 25 '19

*See also* Heating and piping contractors' national association; National association of master plumbers of the United States

**Plumbing**

- Air chambers in plumbing systems. R. J. Gordon. diags Dom Eng 86:124-6, 216-18, 258-60 Ja 18, F 1-3 '19
- Circulating cooled drinking water. Metal Work 89:494, 526, 554, 736-7 Ap 12-26, Je 7 '18
- Domestic engineering in a country home. It plans Metal Work 92:303-5 S 12 '19
- Economical design of plumbing systems. W. Hutton. diags plans Bldg Age 41:286-7 S '19
- Equipment of comfort stations abroad. J. Y. Dunlop. diags Metal Work 92:1-3 Jl 4 '19
- Equipping the farm for comfort and efficiency. W. Hutton. It diag plans Dom Eng 88:432-5+ S 6 '19
- Fine installation of factory plumbing. It diag plan Dom Eng 88:491-4+ S 13 '19
- Important features of country plumbing. W. B. Gray. diags Metal Work 91:333-5 Mr 14 '19
- Maintaining a constant water pressure. diags plans Metal Work 90:687 D 20 '18
- Modern plumbing in a school in Wisconsin. R. J. Gordon. diags plan Dom Eng 84:426-8 S 21 '18
- Necessity of sanitary plumbing. Metal Work 91:147 Ja 31 '19
- Need of water supply and plumbing systems in farm and country homes. Dom Eng 82:336-8 Mr 2 '18
- Notes of an American plumber in France. W. C. Mullen. It Dom Eng 87:481-3 Je 7 '19
- Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diags plan Dom Eng 89:368-71, 579-81 N 22, D 20 '19
- Plumbing details for bakery. diag Dom Eng 88:597 S 27 '19

- Plumbing equipment in United States base hospital no. 40. It diags Dom Eng 87:278-9 My 17 '19
- Plumbing in a camp hospital. diags Metal Work 90:578 N 22 '18
- Plumbing work as it is done in the sunny South. A. N. Elder. It Metal Work 88:750-1 D 21 '17
- Practice or theory of plumbing. T. J. Claffy. It Metal Work 89:106-9, 167-70, 236-8 Ja 18, F 1, 15 '18
- Principles of sanitary plumbing and drainage of buildings. C. A. Holmquist. Metal Work 89:601-4 My 10 '18
- Problem in combination spring water and soft water supply to house and barn. diags Dom Eng 82:372-3 Mr 9 '18
- Progress in plumbing and sanitation. T. J. Claffy. It Dom Eng 81:442-3 D 15 '17
- Public comfort station work. diags Metal Work 91:115-16+ Ja 24 '19
- Roughing-in measures for different fixtures. diags Metal Work 91:839 Je 27 '19
- Sanitary equipment of a suburban home. diag plans Metal Work 89:544-5 Ap 26 '18
- Several practical plumbing questions answered. diags Dom Eng 86:174-5 Ja 25 '19
- Something about ice and how it affects the plumbing trade. J. H. Perry. diags Dom Eng 81:386-8 D 8 '17
- Something about water. J. H. Perry. diags Dom Eng 81:494-6, 541-4; 82:130-2+ D 22-29 '17, Ja 26 '18
- Status of country town plumbing. W. B. Gray. diag Metal Work 92:98-9 Jl 25 '19
- Use of floor and ceiling plates on pipes in industrial buildings. J. H. Perry. diags Dom Eng 84:393-4 S 14 '18

*See also* Bathrooms; Baths, Public; Drainage; House; Gas fitting; Heating; Heating pipes; Hot water supply; Lavatories; Lead burning; Pipe fitting; Pipe fittings; Pipe joints; Plumbers; Plumbing fixtures; Plumbing supplies; Plumbing trade; Roof leaders; Sanitary engineering; Sewer pipes; Sewerage; Solder and soldering; Steam pipes; Toilet rooms; Water hammer; Water pipes

**Accounting**

*See* Plumbing trade—Accounting

**Estimates**

- Helping the tradesman to estimate safely. Metal Work 92:344 S 19 '19
- Important factors in plumbing business. E. H. Disch. Metal Work 90:576-7 N 22 '18

**Standards**

- Bureau of standardization of plumbing materials formed at special meeting in Chicago. Dom Eng 88:540-2 S 20 '19; Metal Work 92:349-51 S 19 '19
- Plumbing standards for the housing projects of the Emergency fleet corporation. W. G. Tucker. plans Arch Rec 46:47-56 Jl '19
- Shall war-time plumbing remain permanent? A. E. Hansen. Dom Eng 89:9-10, 22 O 4 '19

**Study and teaching**

- Harvard school of architecture on plumbing. Metal Work 92:125-7 Ag 1 '19

**Tables, calculations, etc.**

- Proportioning the sizes of mains and risers. diag Dom Eng 88:158 Jl 26 '19
- Real help in plumbers' educational bulletin. Metal Work 91:647-8 My 23 '19

**Testing**

- Modern plumbing work proved by test. It Metal Work 92:156-9 Ag 8 '19
- Report of Test committee on plumbing in the United States housing corporation's buildings at Bridgeport, Conn. A. L. Webster and others. diags Dom Eng 87:100-3 Ap 19 '19
- Testing modern plumbing installations. R. J. Gordon. diags Dom Eng 88:294-6, 343-5+, 388-90, 545-7+ Ag 16-30, S 20 '19
- Testing old plumbing and sewer drainage systems. R. J. Gordon. diags Dom Eng 88:586-8+ S 27 '19

## Plumbing—Continued

## Traps

- Anti-siphon trap tests made for housing corporation at Bridgeport, Conn. T: J. Claffy. Dom Eng 87:243+ My 10 '19
- Back venting versus simplified plumbing. II diags plans Am Arch 115:795-804 Je 4 '19; Same. Metal Work 92:219-21+, 254-6, 282-4 Ag 22-S 5 '19
- Grease interception from house sewage. H. J. Belmont. diags Dom Eng 88:249-51+ Ag 9 '19
- Grease traps in plumbing. R. J. Gordon. diags Dom Eng 84:464-6+ S 28 '18
- Grease traps made of terra cotta sewer. diags Dom Eng 88:349-50 Ag 23 '19
- Main house trap. E. Newsome. Metal Work 90:476 O 25 '18
- Making a lead grease trap. R. J. Gordon. diags Dom Eng 85:43-5, 121-3+, 280-2 O 12, 26, N 23 '18
- Modern plumbing work proved by test; working system with vent pipe shows superiority over non-siphon trap. II chart Metal Work 92:156-9 Ag 8 '19
- Non-siphon trap approved in New York. F. M. Frissell. Metal Work 91:749 Je 13 '19
- Plumbing traps and trapping. R. J. Gordon. diags Dom Eng 87:327-9 My 24 '19
- Principles of sanitary plumbing and drainage of buildings. C. A. Holmquist. Metal Work 89:603 My 10 '18
- Problem of back vents and anti-siphon traps. R. J. Gordon. diags Dom Eng 88:198-200 Ag 2 '19
- Questions about traps. Metal Work 91:94 Ja 17 '19
- What is a re-sealing trap in plumbing? diags Dom Eng 88:213+ Ag 2 '19

## Ventilation

- Back-venting plumbing fixtures. R. J. Gordon. Dom Eng 86:469-70, 560-2; 87:154 Mr 15, 29, Ap 26 '19
- Back venting versus simplified plumbing. II diags plans Am Arch 115:795-804 Je 4 '19; Same. Metal Work 92:219-21+, 254-6, 282-4 Ag 22-S 5 '19
- Mac Enical, expert engineer. diags Dom Eng 89:218-20+ N 1 '19
- Plumbing ventilation. R. J. Gordon. diags Dom Eng 86:83-5 Ja 4 '19
- Something about back-venting plumbing fixtures in large toilet rooms. R. J. Gordon. diags plan Dom Eng 87:50-2+, 240-2, 271 Ap 12, My 10 '19

## See also Plumbing—Traps

## Plumbing contracts

- Can a plumber collect for work done in a new building which collapsed before the work had been completed? Dom Eng 82:375+ Mr 9 '18
- Doing extras on a plumbing contract without agreeing on price before hand. Dom Eng 82:340-1 Mr 2 '18
- Doing work on percentage basis is risky. B. Thur. Metal Work 91:22 Ja 3 '19
- How much protection is afforded the plumber and steam fitter under the standard form of subcontract? Dom Eng 89:269-70 N 8 '19
- Mistake in name of fixture ordered by customer may or may not avoid the agreement, according to the other facts. Dom Eng 86:433-4 Mr 8 '19
- Overhauling the plumbing in an old colonial mansion. R. J. Gordon. Dom Eng 89:71-4 O 11 '19
- Standard plumbing contract submitted. Metal Work 91:548 My 2 '19
- Suggestions as to form of contract. Dom Eng 82:447-8 Mr 23 '18
- What is the measure of a plumber's damages when a customer refuses to carry out a contract? Dom Eng 88:257-8 Ag 9 '19
- With one ear at the receiver. W. W. Hughes. Dom Eng 81:439 D 15 '17

## See also Building contracts

## Plumbing fixtures

- Fresh air, sunlight and sanitation. Am Arch 113:595-6 My 15 '18

Standardization of sanitary earthenware. Dom Eng 81:398-9 D 8 '17

- Types of plumbing fixtures in general use in Europe. J: J. Laferme. II Dom Eng 87:112-13 196-8 Ap 19, My 3 '19
- Uniform prices of plumbing fixtures. W. W. Hughes. Dom Eng 83:330 Je 1 '18

## See also Bathrooms; Lavatories

## Plumbing inspection

- Dual water supply and cross connections. J: G. Mitchell. Metal Work 89:453-4 Ap 5 '18

## Plumbing laws and regulations

- Amendments to New York city plumbing code. J. E. Taggart. diags Metal Work 91:492-3 Ap 18 '19
- Changes in the Wisconsin state plumbing law. Metal Work 92:262-3 Ag 29 '19
- Kokomo's proposed plumbing ordinance. Dom Eng 83:142-3+ Ap 27 '18
- New basic plumbing code, drafted by the Legislative committee of Pennsylvania master plumbers' association. Dom Eng 87:437-8+, 485-6 Je 7-14 '19
- Plumbing trade in Britain. Metal Work 91:305-6 Mr 7 '19
- Proposed amendments to Wisconsin state plumbing law. Metal Work 91:401-2 Mr 28 '19
- Recent amendments to the New York city plumbing regulations. A. L. Webster. diags plans Am Arch 116:861-5 S 10 '19

## Plumbing shops

- Is yours a showroom or a storeroom? II Metal Work 90:355-7 S 27 '18
- Plumbing shop on wheels. II Dom Eng 89:174-5 O 25 '19
- Should plumbing fixtures be priced in window displays? C: H. Rosemont. II Dom Eng 87:94-5, 381-4; 89:375-6 Ap 19, My 31, N 22 '19
- When the new wears off. A. W. Williams. Dom Eng 89:225-6 N 1 '19
- Window displays in English plumbing shops far behind those in America. I. R. Merritt. II Dom Eng 88:259-60 Ag 9 '19

## Electric appliance department

- Should the plumber open an electric appliance department? T: F. Chantler. Dom Eng 87:425-7 Je 7 '19
- What the master plumber should know about selling electrical appliances. T: F. Chantler. Dom Eng 89:117-19 O 18 '19
- What the plumber should know about the advertising of electrical appliances. H. C. H. Griffith. Dom Eng 88:300 Ag 16 '19

## Plumbing supplies

- Experiences of a plumbing supply salesman in Europe. J: J. Laferme. Dom Eng 82:300-1 F 23 '18
- War service committee for standardizing plumbing material appointed. Metal Work 90:287 S 6 '18

## Plumbing trade

- Advantages and disadvantages of incorporating the plumbing business. Dom Eng 84:162-3 Ag 3 '18
- Automobile and the truck in the plumbing business. R. Falconer. Dom Eng 89:377-8 N 22 '19
- Banker shows tradesman way to success. D. L. Hanson. Metal Work 88:722-3 D 14 '17
- Beat the diminishing dollar to it. E. Stern. Metal Work 89:7-8 Ja 4 '18
- Cashing in on for sale sign. J. S. Older. Dom Eng 84:285-6 Ag 24 '18
- Classify your farmer prospects. Dom Eng 88:459-60 S 6 '19
- Constructive suggestions for helping and elevating the plumbing business. B. Hughes. Dom Eng 88:209-10 Ag 2 '19
- Eastern supply association meeting, New York. Metal Work 89:272-5 F 22 '18
- Economy goods at New York show. Metal Work 89:276 F 22 '18
- Economy talk always wins. Metal Work 90:27-9 J1 12 '18
- Exhibit of plumbing and heating goods at St Louis convention. II Dom Eng 83:378-83, 426-8 Je 8-15 '18

**Plumbing trade—Continued**

Export sales questionnaire. J: J. Laferme. See weekly numbers of Domestic engineering.

Getting together to sell the farmer. *Il Dom Eng* 88:440-1+ S 6 '19

Higher standards in plumbing. J: H. Perry. *Dom Eng* 88:168-9 Ja 25 '19

How can I cut down expenses? *Metal Work* 90:472-3 O 25 '18

How they used to do it in the tin and plumbing business. *Metal Work* 89:516-17 Ap 19 '18

How to develop your latent business opportunities. E. Stern. *diag Metal Work* 89:569-70 My 3 '18

Hundred million dollar field open; researches in the field of farm lighting and power systems. *Dom Eng* 86:427-9 Mr 8 '19

Legal questionnaire. See weekly numbers of Domestic engineering. January 19 to date

Make two jobs grow where one grew before. *Metal Work* 89:656-8 My 24 '18

Making service a business-pulling power. J. S. Vogel. *Dom Eng* 84:325 Ag 31 '18

Manufacturers endorse idea of practical buying in plumbing shops at Christmas. *Dom Eng* 89:260-1 N 8 '19

Modern plumbing for everybody under the partial-payment plan. C. W. McCarty. *Dom Eng* 81:418-19+ D 8 '17

Price and quality talk for winning trade. *Metal Work* 89:239-40 F 15 '18

Rules for the proper conduct of a plumbing business. *Metal Work* 90:604 N 29 '18

Salesmanship in the plumbing business. H. S. Ashmun. *Dom Eng* 83:505-6 Je 29 '18

Sanitor construction company of Minneapolis. W. W. Hughes. *Dom Eng* 83:173-4 My 4 '18

Selling the farm water supply outfit. *Il diag plan Metal Work* 89:630-1 My 17 '18

Should a master plumber handle side lines? *Dom Eng* 88:593-5 S 27 '19

Side lines and side liners. W: Hutton. *Dom Eng* 89:272+ N 8 '19

Side lines are money makers. H. Conn. *Il Metal Work* 89:287-9 Mr 1 '18

Side lines—by all means. A. Bateman. *Dom Eng* 89:217 N 1 '19

Trade extension committee emphasizes importance of premise report card. *Dom Eng* 83:507 Je 29 '18

Trade extension favored by supply trade. *Metal Work* 89:866-7+ Je 28 '18

Vocational training for the plumbing trade in St Louis school. L: Gustavson. *Metal Work* 89:687-8+ My 17 '18

War industries board answers questions of vital interest. A. Wheeler. *Dom Eng* 84:207-8 Ag 10 '18

See also Plumbing fixtures; Plumbing shops; Plumbing supplies

**Accounting**

Bookkeeping and cost finding for the plumber. W. A. Fink. *Dom Eng* 79:326-7, 493-4; 80:7-8+, 132-4, 211-12, 368-9, 411+, 445-6; 81:11+, 176-7, 221-2+; 82:5+, 213-14, 253-4; Je 2, 30-Jl 7, 28, Ag 11, S 8-22, O 6, N 3-30 '17, Ja 5, F 9-16 '18

Cost-keeping system for plumbing and heating contractors. W. G. Astle. *Il Dom Eng* 81:448-51 D 15 '17

Figuring a profit. *Dom Eng* 82:10, 173, 219-20, 335+; 83:90-1 Ja 5, F 2-9, Mr 2, Ap 20 '18

How to handle wages account. W. A. Fink. *Dom Eng* 82:90-2 Ja 19 '18

Neglected charges interfere with success. A. W. Bouton. *Metal Work* 92:105-6 Jl 25 '19

Something on the cost of doing business. *Metal Work* 92:364-7 S 26 '19

Standardized accounting for plumbers. *Metal Work* 92:315 S 12 '19

Watchdog for profits keeps them safe. *Metal Work* 91:92-3 Ja 17 '19

What you should know about overhead expense. D. Carey. *Dom Eng* 88:204-5+ Ag 2 '19; Same. *Metal Work* 92:196-8 Ag 15 '19; Same cond. *Eng & Contr* 52:463-5 O 22 '19

**Advertising**

Advertising that says something. *Dom Eng* 89:268 N 8 '19

Business boosting for plumbers. *Metal Work* 89:765-7 Je 14 '18

Dawn of a new era in the plumbing trade in Massachusetts; campaign of Massachusetts state association of master plumbers. *Dom Eng* 84:51-2 Jl 13 '18

Day at the Illinois state fair. F. Keeble. *Il Dom Eng* 88:449-51 S 6 '19

Direct advertising. I. Spear. *Dom Eng* 84:11-12 Jl 6 '18

Effective good will letter. *Metal Work* 92:160-1 Ag 8 '19

Expansion of plumbers' mental processes. *Metal Work* 92:342-3 S 19 '19

How to successfully reach the farmer via the mail route. R. Duysters. *Dom Eng* 88:457-8 S 6 '19

Kitchen business is good business. *Metal Work* 89:849-50 Je 28 '18

Live wire methods for starting trade now. *Metal Work* 91:703-5 Je 6 '19

Merchandising methods for plumbers. R. Duysters. *Metal Work* 92:31-3 Jl 11 '19

Movie program advertising. E. A. Dench. *Dom Eng* 86:388 Mr 1 '19

Newspaper advertising for the plumber and steamfitter. I. Spear. *Dom Eng* 83:48-9 Ap 13 '18

Newspapers will get you people's attention. W: J. Woolley. *Metal Work* 91:233-4 F 21 '19

Oil paintings depicting home comforts feature showroom display of Indiana plumbing and heating contractor. *Il Dom Eng* 89:181 O 25 '19

Practical plans for boosting water supply sales. *Dom Eng* 84:83-4 Jl 20 '18

Put a punch in plumbing publicity. W. B. Stoddard. *Il Metal Work* 89:267-8 F 22 '18

Putting more water supply systems on the farm. I. Spear. *Dom Eng* 83:240-1 My 18 '18

Putting pep into publicity. C: Bishop. *Dom Eng* 88:153-5+ Jl 26 '19

Putting pep into publicity. G: H. Robertson. *Dom Eng* 86:296-8+ F 15 '19

Scheme adopted by Detroit association educates trade and public. *Dom Eng* 88:396-7 Ag 30 '19

Selling private water supply systems to rural homes. I. Spear. *Dom Eng* 82:476-9+ Mr 30 '18

Suggestions for the farm water supply campaign. F. S. Hanley. *Dom Eng* 82:494 Mr 30 '18

What the plumber should know about the advertising of electrical appliances. H. C. H. Griffith. *Dom Eng* 88:300 Ag 16 '19

What the plumber should know about the displaying of electrical appliances. H. C. H. Griffith. *Dom Eng* 88:391 Ag 30 '19

**Plush**

Bleaching and finishing cotton plush. *Textile World* 55:1179 F 15 '19

Manufacturing figured plush. *Textile World* 53:2792 Ja 5 '18

**Plywood**

Plywood for automobile bodies. O. M. Baxter. *Automotive Ind* 41:333 Ag 14 '19

Plywood in aeroplane construction. H. H. Suplee. *Sci Am S* 87:415 Je 28 '19

Waterproof plywood for airplanes. *Il Automotive Ind* 40:1331-3+ Je 12 '19; Same cond. *Am Lumberman* 2300:44 Je 14 '19

What kind of lumber makes the best veneer for plywood? A. Elmendorf. *Automotive Ind* 41:168-9 Jl 24 '19

**Pneumatic hammers**

Effect of the air hammer on the hands of stonecutters. *diags U S Bur Labor Statistics Bul* 236:1-147 '18

Forming sheet-metal work with air hammer. H. Feldmeier. *diag Am Mach* 49:87 Jl 11 '18

Titan pneumatic hammer. *Il diag Mach* 25:477+ Ja '19; *Automotive Ind* 40:213 Ja 28 '19

**Pneumatic jacks**

Pneumatic jack for locomotive work. J. Long. *diags Am Mach* 50:1095-6 Je 5 '19

**Pneumatic tires.** See Tires, Automobile

#### **Pneumatic tools**

- Air tool devices. diags Eng & Contr 50:598 D 25 '18  
 Compensation for accidents caused by pneumatic tools. C. C. Sherlock. Mach 25:212-13 N '18  
 Effect of air tools on workmen. F. M. Barnes, Jr. Marine R 49:188-9 Ap '19  
 Effect of pneumatic reciprocating tools on the nervous system; abstracts. F. M. Barnes, Jr. Coal Age 14:510 S 12 '18; Iron Tr R 63:1071-2 N 7 '18  
 Filtered air supply for pneumatic tools. diag Eng & Contr 50:370 O 16 '18  
 Keller-Master valveless air drill. II diags Am Mach 51:800-1 O 30 '19  
 New pneumatic tools. II Iron Age 103:1293 My 15 '19  
 Pneumatic bench clamp. G. C. Christy. II Ry Mech Eng 92:279-80 My '18  
 Pneumatic punching machine. F. J. Borer. II diags Ry Mech Eng 91:695-6 D '17  
 Pneumatic riveting practice. A. M. MacFarland. II diags Mach 24:721-8 Ap '18  
 Pneumatic tampers break up frozen coal. H. L. Hicks. II Ry Age 64:1043 Ap 19 '18  
 Pneumatic tools for breaking up pavement. W. P. Burn. II Elec Ry J 54:583-4 S 20 '19

See also Pneumatic hammers

#### **Pneumonia**

- Pneumonia as a public health problem. R. Cole. Sci Am S 86:346-7 N 30 '18  
 Visualizing the recent pandemic in army camps. G. A. Soper. Eng N 88:72-4 J1 10 '19

**Poisonous gases.** See Gases, Asphyxiating and poisonous; Gases in warfare

#### **Poisons**

- Consumption and cost of economic poisons in California in 1916. G. P. Gray. J Ind & Eng Chem 10:301-2 Ap '18  
 Poisons and drugs of animal origin. G. Barger. Sci Am S 86:238-9 O 12 '18

See also Lead poisoning

#### **Poland**

- Anthropology of Poland. Sci Am S 87:331 My 24 '19

#### **History**

- Naval forces of old Poland. Z. Komorowski. Sci Am S 87:178-9 Mr 22 '19

#### **Polarimeter**

- Glass polarimeter; a simple instrument for illustrating the laws of optical rotation. G. A. Shook and C. V. Kent. diags Sci Am S 85: 204 Mr 30 '18

#### **Polariscope**

- Polariscope situation and the need of an international saccharimetric scale. C. A. Browne. J Ind & Eng Chem 10:916-18 N '18  
 Polariscopes and international saccharimetric scale. F. Stanley. J Ind & Eng Chem 11:598-9 Je '19

See also Optical rotation

#### **Polarity**

- Essentials of transformer practice. E. G. Reed. diags Elec J 16:301-3 J1 '19  
 Methods of testing polarities of circuits without voltmeter. Power 48:464, 718 S 24, N 12 '18  
 Simple test to determine polarity of transformers. G. N. Hughes. diag Elec W 74: 581 S 13 '19  
 Testing instrument transformers for polarity. C. W. Bates. diags Elec W 74:290-1 Ag 9 '19

#### **Polarization (light)**

- Application of optical methods of identification to alkaloids and other organic compounds. E. T. Wherry. U S Agric Bul 679: 1-9 '18; Abstract. J Fr Inst 185:561-2 Ap '18  
 Optical method for the determination of malic and tartaric acids in the same solutions. J. J. Willaman. Am Chem Soc J 40:693-704 Ap '18

See also Optical rotation; Polariscopes; Stereochemistry

**Pole road plan with adapted truck promises economy.** diags Am Lumberman 2261:46 S 14 '18

#### **Poles**

- Applying common-sense in line construction. C: R. Harte. II Elec Ry J 52:278-82 Ag 17 '18  
 Concrete pole-base. W. R. McCann. II Sci Am 121:348 O 4 '19  
 Conservation essential in consumption of wooden poles. II Elec R 75:607-8 O 11 '19  
 Design of flag poles. diags Am Arch 113:191-4 F 13 '18  
 Digging pole holes with dynamite. Eng & Contr 50:284 S 18 '18  
 Economics of pole timber. E. F. Hartman. II Elec W 72:590-1 S 28 '18  
 Examples of pole guying from other fields. C: R. Harte. II Elec Ry J 53:331-4 F 15 '19  
 Extending the life of wood poles. C: R. Harte. II Elec Ry J 53:554-9 Mr 22 '19  
 Fir as a substitute for cedar poles. Elec R 72: 1050-1 Je 22 '18  
 Fire protection for wood-pole bases. II Elec R 72:1005 Je 15 '18  
 Getting the right wood poles for electric railway service. C: R. Harte. II Elec Ry J 51:743-7 Ap 20 '18  
 Interesting method of moving large number of poles. Elec R 75:838 N 15 '19  
 Interesting pole-setting record of Dakota engineering & construction company. Elec W 71:570 Mr 16 '18  
 Jenney versus deadman; convenience should be sacrificed to safety in raising poles. G. H. McKelway. II Elec Ry J 52:494 S 21 '18  
 Life of impregnated wooden poles; abstract. F. Moll. Elec W 71:211 Ja 26 '18  
 Material required for concrete pole foundations. diags Elec R 73:979 D 21 '18  
 Numbering of pole line structures. diags Elec R 73:526-8 O 5 '18  
 Portable equipment for treating poles. II Elec W 74:248 Ag 2 '19  
 Power-driven machine for boring pole holes. II Elec W 71:1295 Je 15 '18  
 Practical points in pole and tower erection and support. C: R. Harte. II Elec Ry J 52: 490-4 S 21 '18  
 Raising poles more easily and safely. II Elec R 73:221 Ag 10 '18  
 Safety considerations make elimination of pole steps desirable. H. E. Wagner. Elec R 71: 1027 D 15 '17  
 Southern company sets poles at 25 cents each. E. B. Hook, Jr. II Elec W 70:1105 D 8 '17  
 Specifications for cedar poles. Elec Ry J 51: 1152 Je 15 '18  
 Studies in wood, steel and concrete pole-line costs. F. L. Haushalter. Elec R 72:587-9, 625-9, 667-70 Ap 6-20 '18  
 Waterproofing cement pole settings. M. Rogers. diag Elec R 72:465 Mr 16 '18  
 Western red cedar poles; official specifications of the Western red cedar association revised to April 30. Elec R 73:22-3 J1 22 '18

See also Electric lines—Poles

#### **Poles, Concrete**

- Concrete poles are in the process of evolution. C: R. Harte. II Elec Ry J 51:1126-9 Je 15 '18  
 Concrete poles carry 22,000-volt power line. II diags Elec W 71:296-7 F 9 '18  
 Hollow concrete poles made by new methods. II Ry Age 65:1127-8 D 20 '18; Same cond. Eng & Contr 51:94 Ja 29 '19  
 New type of reinforced-concrete poles; abstract. Elec W 72:752 O 19 '18  
 Seventy-foot concrete flagpole poured erect in place. R. C. Hardman. II Eng N 83: 173 J1 24 '19

#### **Poles, Steel**

- Virtues and limitations of steel supports in overhead construction. C: R. Harte. II Elec Ry J 51:948-52 My 18 '18

#### **Police**

- Results prove wireless valuable for police communication. II Elec R 73:863 N 30 '18

See also Traffic policemen



- Police, Aerial**  
Aerial police. Sci Am 120:307 Mr 22 '19  
Every progressive city to have an aerial police. A. Post. Flying 7:1146 Ja '19
- Polishing.** See Grinding and polishing
- Pollen**  
Protein extract of ragweed pollen. F. W. Heyl. Am Chem Soc J 41:670-82 Ap '19  
Yellow coloring substances of ragweed pollen. F. W. Heyl. Am Chem Soc J 41:1285-9 Ag '19
- Pollination.** See Fertilization of plants
- Polychrome decoration.** See Decoration and ornament
- Polymerism**  
Compressibility of aqueous solutions, especially of urethane, and the polymerization of water. T. W. Richards and S. Palitzsch. Am Chem Soc J 41:69-69 Ja '19
- Pontianak.** See Jelutong
- Pontoon bridges**  
Adjusting railroad pontoon bridge to fluctuations of water level. Il Ry R 64:776-7 My 24 '19  
American engineers make records in bridging the Rhine. J. M. Farrin; S. H. Andrews. Il Eng N 83:118-19 Jl 17 '19; Same. Am Arch 116:227-8 Ag 13 '19  
Concrete pontoons form water end of launching ways. diag plan Eng N 83:432 Ag 28 '19  
Improved form of pontoon bridge for public use. J. W. Skelly. diag plans Eng & Contr 51:689-91 Je 25 '19  
Pontoon bridge for pioneer railway. diag plan Eng & Contr 51:450-1 Ap 30 '19  
Pontoon drawbridge that operates on river kite principle. H. P. Gillette. diag Eng & Contr 50:296-7 S 25 '18  
Pontoon railway bridges. Il Ry R 64:990-1 Je 28 '19
- Pontoons**  
Methods of shifting pontoons for walking dragline excavators. A. S. Fry. Il Eng N 82:1227-8 Je 19 '19  
Pontoon for raising ships. diag plans Marine R 49:335-7 Jl '19  
Reinforced concrete pontoons. Il Engineer 126:285 O 4 '18  
Reinforced concrete pontoons at Sydney. N. S. W. Eng & Contr 51:455 Ap 30 '19
- Pope, George, 1844-1918**  
Sketch. Am Ind 18:12-14 My; 14-15 Je '18
- Population**  
Earth and population. O. Klotz. Sci Am S 85:393 Je 22 '18
- Porcelain**  
Chemical laboratory porcelain. H. Watkin. Sci Am S 84:374-5 D 15 '17  
Comparative tests of porcelain laboratory ware. C. E. Waters. U S Bur Stand Tech Pa 105:1-8 '17  
Japanese porcelains from chemical point of view, and how to improve them. Chem & Met Eng 21:183-5 Ag 15 '19  
New type of English hard porcelain. Sci Am 118:95 Ja 26 '18  
Photographic study of porcelain insulators. H. G. Tufty. Il Elec W 73:268-71 F 8 '19  
Porcelain for pyrometric purposes. F. H. Riddle. Il diag Am Inst Min Bul 153:2207-17 S '19  
Porcelain pots for the melting of optical glass. Il Chem & Met Eng 19:47 Jl 1 '18  
Recent developments in the manufacture of chemical porcelain. J. C. Ballar. Chem & Met Eng 19:484 S 27 '18  
See also Pottery
- Porches**  
Early Connecticut architecture; entrance porch to the Bristol house, New Haven, Conn. Am Arch 116:443-4 O 1 '19  
How a brick porch was built on to an old house. F. A. Shore. Il diag plan Bldg Age 40:203 Ap '18  
How a sun porch was added to an old mansion. W. A. Giesen. Il diag plan Bldg Age 40:474-6 O '18
- Lippia terrace porch for small home. A. Marple. Il Bldg Age 40:79-80 F '18  
See also Doorways
- Porphyry**  
Porphyry intrusions of the Michigan copper district. T. S. Woods. Il map Eng & Min J 107:299-302 F 15 '19; Discussion. S. S. Lang. 107:452 Mr 8 '19
- Port-holes.** See Air ports
- Portable buildings.** See Buildings, Portable
- Portable schoolhouses.** See Schoolhouses, Portable
- Portable towers.** See Towers, Portable
- Portland, Maine**  
Rapid transit  
Zone system in Portland. Il map Elec Ry J 54:621-7 S 27 '19
- Portland, Oregon**  
City planning for Portland. Il diag maps Munic J 47:116-18, 133-4 Ag 23-30 '19
- Railroads**  
City designs forms for Portland grade separation. Il diag plans Eng N 80:1132-4 Je 13 '18  
Oregon-Washington railway separates grades for three miles. Il diag plans Eng N 80:1097-1101 Je 6 '18
- Rapid transit**  
Portland court case closed. Elec Ry J 51:543 Mr 16 '18  
Portland six-cent fare in court. Elec Ry J 51:479 Mr 9 '18  
Six-cent fare held legal. Elec R 73:216 Ag 10 '18  
Traffic problems confront the Rose city. map Elec Ry J 52:330-1 Ag 24 '18  
Zone tickets adopted for Portland. Il map Elec Ry J 53:728-31 Ap 12 '19
- Sanitary affairs**  
Twenty-mile sewage and reclamation channel proposed. R. G. McMullen. map Eng N 81:592 S 26 '18
- Portland cement.** See Cement
- Portland cement association**  
Annual meeting, New York, Dec. 10-13. Concrete 12:sup10 Ja '18
- Porto Rico**  
Construction of concrete houses. Il diag plans Bldg Age 40:396-400 Ag '18  
Porto Rico army camp designed for tropical conditions. Il Eng N 81:85-7 Jl 11 '18
- Industries and resources**  
Panama hats, the chief industry of southwestern Porto Rico. T. de Booy. Il Sci Am S 85:328-9 My 25 '18  
See also Mines and mineral resources—Porto Rico
- Ports**  
Conditions at French ports during the war. A. Pawlowski. Eng & Contr 49:540-2 My 29 '18  
Continental river ports of France and Germany. M. Jacquinet. plans Eng & Contr 49:531-4 My 29 '18  
Development of port Chafaral, Chile. Engineer 126:199-200 S 6 '18  
Government plans expansion of port facilities. Il Ry R 63:193-5 Ag 10 '18  
Improvement program for port of New York. M. Hulbert. Ry R 63:718-19 N 16 '18  
New British port; proposed dock in Falmouth harbor that could accommodate 1,000-foot liners. E. A. Dime. map Sci Am 120:368 Ap 12 '19  
New York city's transportation requirements. Ry R 62:402-3 Mr 16 '18  
Port facilities and freight handling. Il J Elec 42:294-7 Ap 1 '19  
Port of New York capable of expansion. W: R. Willcox. Int Marine Eng 23:501 S '18  
Port of Providence, R.I. Sci Am 118:453 My 18 '18

**Ports—Continued**

- Port of Seattle. C. P. Norton. *Il Int Marine Eng* 23:568-70 O '18  
 Port of the empire. Engineer 125:48, 70-1 Ja 18-25 '18  
 Ports and terminal facilities. R. S. MacElwee. *Sci Am S* 86:82-3, 110-12 Ag 10-17 '18  
 Progress of New York harbor investigation. *Ry R* 63:277-9 Ag 24 '18; Same cond. *Eng N* 81:397-9 Ag 29 '18  
 Projects for the development of the port of Havre, France. *Il Eng & Contr* 49:525-8 My 29 '18  
 Report of the port and harbor facilities commission of the United States Shipping board for twenty-two American ports. H. M. Harding. *Int Marine Eng* 24:293 Ap '19  
 Vast expansion of port facilities by U.S. shipping board. *Munic J* 45:310-11 O 19 '18  
*See also* Docks; Freight handling; Harbors; Mechanical handling; Piers; Shipping; Terminals
- Position finders**  
 Listening for the enemy; sound-ranging devices. *Il Sci Am* 120:510-11 My 17 '19
- Positions, Recommendations for. See Recommendations for positions**
- Post office buildings**  
 New Haven post office and court house. G. Nichols. *Il Arch Forum* 31:85-90, pl 33-7 S '19  
 South terminal station, Boston, Mass.; views and plans. *Am Arch* 114:pl 87-9 S 18 '18  
 Victory federal building, Springfield, Mass.; view and plans. *Am Arch* 115:pl 94-5 Mr 26 '19
- Postal rates**  
 Dangers of the postal zone law. A. Capper. *map Coal Age* 16:359 Ag 28 '19; Same. *Chem & Met Eng* 21:487 O 15 '19  
 Menace of the postal-zone law. F. W. Mondell. *Chem & Met Eng* 21:469 O 8 '19; Excerpt. *Gas Age* 44:239 S 15 '19  
 Postal zone law a menace. F. Mondell. *Gas Age* 44:239 S 15 '19  
 Vicious postal zone law. A. Capper. *Coal Age* 16:604 O 9 '19; Same. *Elec Ry J* 54:692 O 4 '19  
 Zone postal system and Mr Kitchin. *Sci Am* 118:542 Je 15 '18
- Postal service**  
*See also* Electric railway mail service; Mail handling; Motor trucks in postal service; Parcel post; Post office buildings; Postal rates; Railway mail service
- United States**  
 Book prices barred by postoffice. *Eng N* 83:379 Ag 21 '19  
 Our winged postmen; completing our postal progress with first aerial mail route between Washington and New York. *Il Sci Am* 118:476-7+ My 26 '18
- Postal service, Aerial**  
 Aerial and motor truck mail service development. *Automotive Ind* 39:1034-5 D 12 '18  
 Aerial mail in the United States and abroad. O. Praeger. *Il plan Flying* 8:144, 145-7+ Mr '19  
 Aerial mail program of foreign countries. *Flying* 8:478 Je '19  
 Air mail service profitable in first year of operation. A. Sinsheimer; O. H. Praeger. *Automotive Ind* 40:1102-6, 1147-8 My 22 '19  
 Airplane mail service. *Il Ry R* 63:37-9 Jl 18 '18  
 Airplanes too costly for general use. *Il Motor Age* 33:18 Je 27 '18  
 Army and aerial mail service. *Sci Am* 120:112 F 8 '19  
 Commercial value of the aero mail. E. J. David. *Il map Flying* 8:457-9+ Je '19  
 Cost of air mail service. *Am Mach* 49:364 Ag 22 '18  
 How the air mail is routed. *Il map Flying* 8:775 O '19  
 Mail through the air. *Sci Am* 118:275 Mr 30 '18  
 One year of air mail service. *Sci Am S* 88:79 Ag 2 '19

Our winged postmen; completing our postal progress with first aerial mail route between Washington and New York. *Il Sci Am* 118:476-7+ My 26 '18  
 Performance and cost of the air mail service. Aviation 5:702; 6:286, 337 Ja 1, Ap 1-15 '19  
 Postoffice has to use army airplanes. *Motor Age* 34:13 D 26 '18  
 Standard single-seater mailplane. *Il diagrs plan Aviation* 5:703-4 Ja 1 '19  
 \$2,000,000 asked for air mail service by Assistant postmaster general. *Automotive Ind* 40:394-5 F 13 '19  
 United States aerial mail extension. *Il maps Flying* 7:1127-9 Ja '19  
 What will become of army planes? *Motor Age* 34:17 D 5 '18  
 Will extend aero mail westward. O. Praeger. *Flying* 8:535+ Jl '19  
 World's aerial mail and passenger services. Aviation 5:755 Ja 15 '19

**Posters**

How the government unconsciously adopted a trade-mark style of lettering. W. L. Larned. *Inland Ptr* 61:725-6 S '18  
 Typical posters of the National safety council. *Elec Ry J* 52:196 Ag 3 '18

**Posts**

Concrete used to repair wooden posts. L. M. Pannell. *diagrs Bldg Age* 41:236 Jl '19  
*See also* Fence posts; Poles

**Posts, Concrete**

Putting panels in posts. K. E. Hildreth. *Concrete* 13:71 Ag '18  
 Railway sign posts. *Il diagrs Concrete* 14:252 Je '19  
 Reinforcement for concrete posts. *diagrs Sci Am* 118:109 F 2 '18  
*See also* Fence posts, Concrete

**Potash**

Alunite problem. W. F. Downs. *Eng & Min J* 107:388 Mr 1 '19  
 Artificial manures from blast-furnaces. Engineer 125:80 Ja 25 '18  
 Blast-furnace and cement-kiln potash. *Iron Age* 102:1209 N 14 '18  
 Brown process for cement and potash. *Chem & Met Eng* 19:447 S 26 '18  
 California kelp operations of the Hercules powder company. *Il Met & Chem Eng* 18:576-80 Je 1 '18  
 Collapse of kelp potash. *Chem & Met Eng* 20:206-7 Mr 1 '19  
 Colorado potash company; production of potash by electrolytic decomposition of feldspar leucite. J. G. Hibbs. *Chem & Met Eng* 21:222 S 1 '19  
 Concentration of potash from raw materials containing only a trace of this element by means of the electric precipitation of fine dust and fume cement kilns. B. F. Erdahl. *J Ind & Eng Chem* 10:356-9 My '18; Abstract. *Concrete* 12:sup55-6 Je '18  
 Cottrell process for potash recovery. L. Bradley. *Chem & Met Eng* 19:457-60 S 26 '18; Same. *J Ind & Eng Chem* 10:834-8 O '18; Same cond. *Iron Age* 102:1151-3 N 7 '18  
 Development of domestic potash resources; cement kiln by-product. *Eng & Min J* 106:313 Ag 17 '18  
 Direct heat treatment of cement mill dust to increase its water-soluble potash content. A. R. Merz. *J Ind & Eng Chem* 10:106-9 F '18; Excerpts. *Concrete* 12:sup35 Ap '18  
 Discussion of potash by the New York section of American institute of mining engineers and New York section of the American electrochemical society. *Am Inst Min E Bul* 135:sup16-31 Mr '18  
 Double salts of calcium and potassium and their occurrence in leaching cement mill fine dust. E. Anderson. *J Ind & Eng Chem* 11:327-32 Ap '19  
 Effect of coal ash on the liberation and nature of cement mill potash. N. S. Potter, Jr., and R. D. Cheesman. *diag J Ind & Eng Chem* 10:109-11 F '18  
 Electricity releases chemistry's power. J. M. Matthews. *Gen Elec R* 21:730 N '18  
 Exploration of Spanish potash deposits. E. M. Heriot. *diagrs Eng & Min J* 105:643-4 Ap 6 '18

**Potash—Continued**

- Extraction of potash and other constituents from sea water bittern. J. H. Hildebrand. *diags J Ind & Eng Chem* 10:96-105 F '18
- Extraction of potash from kelp. C. A. Higgins. *diag Chem & Met Eng* 19:432-3 S 26 '18; Same. *J Ind & Eng Chem* 10:832-3 O '18; Same. *Sci Am S* 86:336 N 23 '18
- Extraction of potassium salts from the Pintados salar. R. C. Wells. *Eng & Min J* 105:678-9 Ap 13 '18
- Further experience in potash recovery. J. Treanor. *Concrete* 14:sup30-1 Mr '19
- Further study of the De Roode method for determining potash. T. F. Keitt and H. E. Shiver. *J Ind & Eng Chem* 11:1049-52 N '19
- German potash deposits. H. H. Taft. *Eng & Min J* 107:473 Mr 15 '19
- Inexpensive ash leaching plant. W. D. Turner and B. G. Nichols. *diag J Ind & Eng Chem* 10:374-6 My '18
- Italian leucitic lavas as a source of potash. H. S. Washington. *Met & Chem Eng* 18:65-71 Ja 15 '18
- Kelp-potash plant of the Lorned manufacturing company. L. H. Thompson. *ii diags Chem & Met Eng* 19:450-2 S 26 '18
- Large potash yield from British flue dust. A. Hall. *Iron Age* 101:807 Mr 23 '18
- Mechanical precipitation and waste heat recovery potash. W. C. Hanna. *ii Concrete* 12:sup33-5 Ap '18
- Methods of analysis for Nebraska potash salts and brines. A. H. McDowell. *J Ind & Eng Chem* 10:128-9 F '18
- Nature of the recombinant potash in cement mill dust. A. R. Merz and W. H. Ross. *J Ind & Eng Chem* 11:39-45 Ja '19
- Nebraska potash industry. E. E. Thum. *ii map Met & Chem Eng* 17:698-8 D 15 '17
- Neglected chemical reaction and an available source of potash. *Sci Am S* 85:390 Je 22 '18
- New potash deposits. *chart diag Sci Am S* 86:170 S 14 '18
- New source of potash; present development and future possibilities of extraction from Chile nitrate. C. M. Barton. *Met & Chem Eng* 18:248 Mr 1 '18
- Origin of the Nebraska potash lakes. W. A. Norris. *Met & Chem Eng* 18:281 Mr 15 '18
- Perchloric acid method for potash in cement materials. W. B. Newberry. *Chem & Met Eng* 20:452-3 My '19
- Potash as a by-product. J. S. Grasty. *ii Chem & Met Eng* 19:434-8 S 26 '18
- Potash content of blast furnace charges. N. H. Gallert. *Iron Age* 103:355-6 F 6 '19
- Potash cry. *Sci Am* 118:70 Ja 19 '18
- Potash from alunite in Utah. J. W. Hornsey. *Chem & Met Eng* 19:461-2 S 26 '18; Same. *J Ind & Eng Chem* 10:838-9 O '18
- Potash from blast furnace gas. A. L. Leigh. K. M. Chance. *Met & Chem Eng* 18:420-1 Ap 15 '18
- Potash from cement dust; patent. *Met & Chem Eng* 18:99 Ja 15 '18
- Potash from coal-burning blast furnaces. R. A. Berry and D. M. McArthur. *Met & Chem Eng* 18:547-8 My 15 '18
- Potash from feldspar; abstracts. E. A. Ashcroft. *Met & Chem Eng* 18:153 F 1 '18; *Eng & Min J* 105:382 F 23 '18
- Potash from feldspar; patents. *Met & Chem Eng* 18:100-1, 317 Ja 15, Mr 15 '18
- Potash from glauconite; patent. *Met & Chem Eng* 18:317 Mr 15 '18
- Potash from iron ores and fluxes. J. J. Porter. *Chem & Met Eng* 19:462 S 26 '18
- Potash from kelp; the experimental plant of the United States department of agriculture; preliminary paper. J. W. Turrentine and P. S. Shoaff. *flow sheet ii chart J Ind & Eng Chem* 11:864-74 S '19
- Potash from Searles lake. A. De Ropp, jr. *ii diags map Chem & Met Eng* 19:425-31 S 26 '18; Same abr. *J Ind & Eng Chem* 10:839-44 O '18
- Potash from the lavas of Vesuvius. *Sci Am* 119:262 S 28 '18
- Potash from tobacco plants; patent. *Met & Chem Eng* 18:317 Mr 15 '18
- Potash from wood ashes. *Chem & Met Eng* 20:464 My 1 '19
- Potash from wood ashes; production in Michigan and Wisconsin. C. T. Edgar. *ii Met & Chem Eng* 18:537-9 My 15 '18
- Potash in Nebraska. J. M. Lliteras. *diag Chem & Met Eng* 19:633-4 O 15 '18
- Potash in 1917. *Chem & Met Eng* 19:542 O 1 '18
- Potash in the Pintados salar, Tarapaca, Chile. H. S. Gale. *diag maps Eng & Min J* 105:674-7 Ap 13 '18
- Potash industry of Germany. W. Savage. *diag charts Chem & Met Eng* 19:453-6 S 26 '18
- Potash industry of the United States and its possibilities for future production. A. E. Wells. U S Bur Mines Minerals Investigations 20p '19 (Typew); Excerpt (Potash in cement manufacture). *Concrete* 15:sup62-3 O '19
- Potash mine in Abyssinia. *Concrete* 12:sup9 Ja '18
- Potash, nitrogen and grease from sewage; Miles process; abstract. K. H. Goodenough and H. W. Clark. *Met & Chem Eng* 18:314 Mr 15 '18
- Potash production in the manufacture of Portland cement. *Concrete* 15:sup29 Ag '19
- Potash recovery. N. H. Gallert. *Chem & Met Eng* 20:308-9 Ap 1 '19
- Potash situation. *Eng & Min J* 108:381 S 6 '19
- Potash situation. A. W. Stockett. U S Bur Mines War Minerals Investigation Ser 2:1-13 O '18 (Typew)
- Potash situation. A. W. Stockett. *J Ind & Eng Chem* 10:915-20 N '18
- Potash supply. R. K. Meade. *Sci Am S* 84:405 D 29 '17
- Present and future of potash. *Met & Chem Eng* 18:58-9 Ja 15 '18
- Recovery of platinum and alcohol from the potash determination. A. E. Smoll. *J Ind & Eng Chem* 11:466-7 My '19
- Recovery of potash. W. F. Coolbaugh. *Eng & Min J* 106:94 Ji 20 '18
- Recovery of potash. J. S. Grasty. *Chem & Met Eng* 20:373-4 Ap 15 '19
- Recovery of potash from blast furnaces. K. A. Chance. *Iron Age* 102:604 S 5 '18
- Recovery of potash from blast furnaces; abstracts. L. Bradley. *Iron Age* 102:1151-3 N 7 '18; *Iron Tr R* 63:1248-9 N 28 '18
- Recovery of potash from greensand. H. W. Charlton. *J Ind & Eng Chem* 10:6-8 Ja '18; Excerpts. *Eng & Min J* 105:919 My 18 '18
- Recovery of potash from molasses fermentation liquors. E. Humboldt. *ii Chem & Met Eng* 20:55 Ja 15 '19
- Recovery of potash from wool scouring waste. R. S. Weston. *Textile World* 53:3103+ Ja 12 '18
- Recovery of water soluble potash. W. H. Ross and A. R. Merz. *Concrete* 12:sup6-8 Ja '18
- Sea-weed for war. E. C. Crossman. *ii Sci Am* 119:231+ S 21 '18
- Separation of potash salts. H. P. Bassett. *Chem & Met Eng* 20:76-7 Ja 15 '19
- Separation of potassium and sodium salts; patent. *Met & Chem Eng* 18:317 Mr 15 '18
- Situation in regard to manganese, sulphur, pyrite, and some other war minerals; with discussion. J. E. Johnson, jr. *Eng Soc W Pa* 33:656-8 Ja '18
- Sources of American potash. R. O. El Davis. U S Agric Circ 61:1-7 '19
- Sources of potash. T. E. Thorpe. *Sci Am S* 85:103 F 16 '18
- Stability of American potash industry gravely imperiled. H. S. Gale. *Am Gas Eng J* 110:144-6 F 15 '19
- Study of sources of error incident to the Lindo-Gladding method for determining potash. T. E. Keitt and H. E. Shiver. *J Ind & Eng Chem* 10:994-6 D '18
- Study of the DeRoode method for the determination of potash in fertilizer materials. T. E. Keitt and H. E. Shiver. *J Ind & Eng Chem* 10:219-22 Mr '18
- Two letters on effect of coal ash on the nature of cement mill potash. *J Ind & Eng Chem* 10:1030-3 D '18

**Potash—Continued**

Wet process for extracting potash from cement dust. J. G. Dean. flow sheets diag plans Chem & Met Eng 19:439-47 S 26 '18  
Zeolites as potash collectors. F. W. Clarke. Chem & Met Eng 19:431 S 26 '18  
See also Glaucconite

**Bibliography**

Extraction of potash from complex mineral silicates, such as feldspar, leucite and glaucconite (greensand marl). E. C. Buck. Met & Chem Eng 18:33-7, 90-5 Ja 1-15 '18  
Literature of the potash industry, 1912-1917. F. W. Bruckmiller. Chem & Met Eng 19:447-9 S 26 '18

**Potash industry and trade**

Almost \$14,000,000 worth of potash produced in country in 1917. Am Gas Eng J 108:515 Je 1 '18  
Alsatian potash industry. Eng & Min J 107:989-90 Je 7 '19  
Alsatian potash industry. F. K. Cameron. U S Bur Mines Minerals Investigations 9p '19 (Typew)  
America independent of German potash. Iron Tr R 63:959-60 O 24 '18  
American Trona corporation. Lord Harris. Eng & Min J 104:1083 D 22 '17  
British potash industry. Engineer 126:148 Ag 16 '18  
Does American potash need a fixed price? Chem & Met Eng 21:220-1 S 1 '19; Discussion. F. W. Brown. 21:447 O 8 '19  
Foreign potash situation. H. S. Gale. Eng & Min J 108:236-7 Ag 9 '19  
Future of the potash industry. J. W. Turrentine. Chem & Met Eng 20:310-11 Ap 1 '19  
German potash and the war. J Ind & Eng Chem 10:655 Ag '18  
German production of potash. J. C. McNally. Chem & Met Eng 19:300 S 15 '18  
House committee continues hearing on potash and tungsten. P. Wooton. Eng & Min J 107:1168-9 Je 28 '19  
Increase in 1917 production of potash. Concrete 12:sup56-7 Je '18  
Increasing production of American-made potash. Chem & Met Eng 19:419-20 S 26 '18  
New potash bill considered. P. Wooton. Eng & Min J 107:1093 Je 21 '19  
New potash bill drafted. Eng & Min J 107:243 F 1 '19  
Outlook for German competition in potash. Chem & Met Eng 19:420 S 26 '18  
Potash in 1917. H. S. Gale and W. B. Hicks. J Ind & Eng Chem 11:809 Ag '19  
Potash in 1918. Eng & Min J 107:125-6 Ja 11 '19  
Potash independence. Sci Am 118:546+ Je 15 '18  
Potash industry of Germany. W. Savage. diag charts Chem & Met Eng 19:453-6 S 26 '18  
Production of potash shows great growth. Am Lumberman 2245:66 My 25 '18

**Potassium**

Agricultural fertilizers; the raw materials, their source and characteristics. Sci Am 8 87:175-6 Mr 15 '19  
Improved methods for the estimation of sodium and potassium. S. N. Rhue. J Ind & Eng Chem 10:429-31 Je '18  
Phosphorus, potassium, and nitrogen content of the waters of the inter-mountain region. J. E. Greaves and C. T. Hirst. J Ind & Eng Chem 11:451-4 My '19  
Specific heats at low temperatures of sodium, potassium, magnesium and calcium metals, and of lead sulfide. E. D. Eastman and W. H. Rodebush. Am Chem Soc J 40:489-500 Mr '18  
Use of nickel crucibles for the J. Lawrence Smith fusion in determining soil potassium. S. S. Walker. J Ind & Eng Chem 11:1139-40 D '19

**Potassium bromide**

Equilibrium data on the polybromides and polyiodides of potassium. G. A. Linhart. Am Chem Soc J 40:158-63 Ja '18

**Potassium carbonate. See Potash****Potassium chloride**

Comparison of the activities of two typical electrolytes. G. A. Linhart. Am Chem Soc J 39:2601-5 D '17  
Determination of potassium and sodium as chlorides through use of the refractometer. B. A. Shipley and G. H. Burrows. Am Chem Soc J 40:185-7 Ja '18  
Equilibria in solutions containing mixtures of salts; the system water and the sulfates and chlorides of sodium and potassium. W. C. Blasdale. diag J Ind & Eng Chem 10:344-7 My '18  
Equivalent conductance of electrolytes in dilute aqueous solution; study of dilute solutions of potassium chloride. H. J. Weiland. diag Am Chem Soc J 40:131-50 Ja '18  
Ionization relations of potassium and strontium chlorides in mixtures. G. M. Smith and E. A. Rees. Am Chem Soc J 40:1802-47 D '18  
Separation of the chlorides and sulfates of sodium and potassium by fractional crystallization. W. C. Blasdale. diag J Ind & Eng Chem 10:347-53 My '18

**Potassium dichromate**

Colloidal products of the reactions between potassium dichromate and stannous salts. J. C. Witt. Am Chem Soc J 40:1026-30 Jl '18  
Oxidizing action of potassium dichromate as compared with that of pure iodine. C. R. McCrosky. diag Am Chem Soc J 40:1662-74 N '18

**Potassium guaiacol sulfonate**

Identification and determination of potassium guaiacol sulfonate. S. Falkin. J Ind & Eng Chem 10:610-12 Ag '18

**Potassium hydroxide**

Organic additive compounds of potassium hydroxide. W. M. Dehn and R. E. Merling. Am Chem Soc J 39:2646-57 D '17

**Potassium iodide**

Equilibrium data on the polybromides and polyiodides of potassium. G. A. Linhart. Am Chem Soc J 40:158-63 Ja '18

**Potassium manganate**

Studies on manganates and permanganates. H. I. Schlesinger, R. D. Mullinix and S. Popoff. J Ind & Eng Chem 11:317-23 Ap '19

**Potassium manganous tartrate**

Manganous tartrate and potassium manganous tartrate. L. Dobbin. diag Am Chem Soc J 41:934-40 Je '19

**Potassium mono-calcium sulfate**

Double salts of calcium and potassium and their occurrence in leaching cement mill flue dust. E. Anderson. J Ind & Eng Chem 11:327-32 Ap '19

**Potassium nitrate. See Saltpeter****Potassium penta-calcium sulfate**

Double salts of calcium and potassium and their occurrence in leaching cement mill flue dust. E. Anderson. J Ind & Eng Chem 11:327-32 Ap '19

**Potassium permanganate**

Determination of sulphur dioxide. O. R. Sweeney, H. E. Outcault and J. R. Withrow. J Ind & Eng Chem 9:949-50 O '17; Same cond. Eng & Min J 105:162-3 Ja 19 '18

Electrometric method for the determination of ferrocyanides depending on a change in oxidation potential. G. L. Kelley and R. T. Bohn. Am Chem Soc J 41:1776-83 N '19

Oxidation of ethyl alcohol by means of potassium permanganate; with discussion. W. L. Evans and J. E. Day. diag Am Chem Soc J 41:1267-85 Ag '19

Oxidation of organic compounds with alkaline potassium permanganate. W. L. Evans and H. Adkins. Am Chem Soc J 41:1385-1414 S '19

Preparation of N/100 permanganate solutions. J. O. Halverson and O. Bergelm. J Ind & Eng Chem 10:119-20 F '18

Role of atmospheric oxygen and alkali in the oxidation of acetone with potassium permanganate, pyruvic acid as an intermediate product. E. J. Witzemann. Am Chem Soc J 39:2657-71 D '17

**Potassium permanganate—Continued**

Study of side chain oxidations with potassium permanganate. L. A. Bigelow. *Am Chem Soc J* 41:1559-81 O '19

**Analysis**

Permanganate method for copper. L. F. Clark. *J Ind & Eng Chem* 11:1138-9 D '19

**Potassium phthalate**

Study of the electrical conductance of aqueous phthalate solutions. H. E. Patten, A. J. Johnson and G. H. Mains. *diags Am Chem Soc J* 40:1156-62 Ag '18

**Potassium sulfate**

Equilibria in solutions containing mixtures of salts; the system water and the sulfates and chlorides of sodium and potassium. W. C. Blasdale. *diags J Ind & Eng Chem* 10:344-7 My '18

Potassium sulphate from alunite at Marysvale, Utah. *Met & Chem Eng* 18:391-2 Ap 15 '18

Potassium sulphate from cement dust. *Met & Chem Eng* 18:391 Ap 15 '18

Separation of the chlorides and sulfates of sodium and potassium by fractional crystallization. W. C. Blasdale. *diags J Ind & Eng Chem* 10:347-53 My '18

**Potato butter**

Potato butter. *Sci Am S* 85:191 Mr 23 '18

**Potatoes**

Early potatoes. *Sci Am S* 85:377 Je 15 '18

Effect of frost and decay upon the starch in potatoes. H. A. Edson. *J Ind & Eng Chem* 10:725-6 S '18

Preserving potatoes by lime. *Sci Am S* 85:22 Ja 12 '18

Process for using spoiled potatoes. *Sci Am* 117:487 D 22 '17

Proper storage conditions for potatoes. *Sci Am S* 85:363 Je 8 '18

Some industrial uses of the potato. J. P. Heritage. *Sci Am* 121:388+ O 18 '19

Spuds by the million; what Florida farmers are doing to prevent a potato famine. *Il Sci Am S* 85:196 Mr 30 '18

Treatment of frozen potatoes. *Sci Am S* 85:99 F 16 '18

**Potatoes, Dried**

Canned spuds from Aroostook county, Maine, to France; thousands of cans produced in record time. *Il Metal Work* 89:855-6 Je 28 '18

**Potatoes, Drying of.** See Drying (fruit and vegetables)

**Potential regulators**

Compensated-type potential regulators. A. H. Ford, P. E. Mead and G. W. Thomas. *diags Elec W* 73:620-3 Mr 29 '19

**Potentiometers**

Checking calibration of thermocouples and pyrometers. *diags Elec R* 74:56-9 Ja 11 '19

Electrical apparatus for use in electrometric titration. H. S. Roberts. *Il diags Am Chem Soc J* 41:1358-62 S '19

Leeds & Northrup self-recording potentiometer. *Il Iron Tr R* 63:447-8 Ag 22 '18

New standard of current and potential. C. T. Allcutt. *Il diags Am Inst E E Pro* 37:83-9 F '18

Potentiometers for thermoelement work. W. P. White. *diags Am Inst Min Bul* 153:1763-72 S '19; Discussion. 153:3187-8 D '19

Production of high temperature and its measurement. E. F. Northrup. *Il diag Met & Chem Eng* 17:687-8 D 15 '17

Rectangular-component two-dimensional alternating-current potentiometer. A. E. Kennelly and E. Velder. *Il diags J Fr Inst* 188:1-26 Jl '19

Weighing high temperatures in an electric balance. J. M. Bird. *Il Sci Am* 120:430-1+ Ap 28 '19

**Potteries**

Better lighting of glass works and potteries. F. H. Bernhard. *Il Elec R* 73:567-72 O 12 '18

Potteries at Shek Waan, near Canton, China. C. N. Laird. *Il J Ind & Eng Chem* 10:568-71 Jl '18

**Potters**

Mortality from respiratory diseases in dusty trades. F. L. Hoffman. *U S Bur Labor Statistics Bul* 231:247-71 '18

**Pottery**

Application of pyrometers to ceramic industry. J. P. Goheen. *Il Am Inst Min Bul* 153:sup2255-64 S '19

Application of pyrometry to the ceramic industries. C. B. Thwing. *Am Inst Min Bul* 153:2139-42 S '19

Bureau of standards urges use of waste pottery bisque. *Met & Chem Eng* 18:13 Ja 1 '18

Ceramics and the war. E. W. Washburn. *Met & Chem Eng* 18:263-5 Mr 1 '18

Chemical stoneware industry and the war. P. C. Kingsbury. *Chem & Met Eng* 19:476-8 S 27 '18

Chemical stoneware; preparation and selection of materials, acid-resisting tests, and annealing ware. A. Malinovsky. *Chem & Met Eng* 19:485-7 S 27 '18

Development of the stoneware industry. *Chem & Met Eng* 19:478 S 27 '18

Effect of sulfur in coal used in ceramic industries. C. W. Parmelee. *Am Inst Min Bul* 153:1845-50 S '19

Electricity in the ceramic arts. J. P. Alexander. *Il Gen Elec R* 22:113-16 F '19

Origin of American agriculture revealed by ancient pottery. H. J. Spinden. *Il map Sci Am S* 88:120-1+ Ag 23 '19

Palmerton zinc refractories. C. P. Fiske. *flow sheets plans Am Inst Min E Bul* 130:1719-38 O '17; Excerpts. *Met & Chem Eng* 18:97 Ja 15 '18

Potter and his work—Leon V. Solon. H. V. Magonigle. *Il Arch Rec* 45:303-10 Ap '19

Recent developments in ceramics. A. V. Bleining. *Chem & Met Eng* 19:467-70 S 27 '18

Romance of the war; Coors pottery, Golden, Colo. *Eng N* 81:644 O 3 '18

Standardization of chemical stoneware. H. Nielson and J. R. Garrow. *Sci Am S* 86:53 Jl 27 '18

See also Clay industries; Porcelain; Potteries; Terra cotta; Tile; Vases

**Poughkeepsie, New York****Architecture**

Some landmarks of Dutchess county. H. M. Hastings. *Il Arch Rec* 45:476-80 My '19

**Bridges**

Strengthening Poughkeepsie bridge superstructure. *Il diags Ry Age* 65:473-6 S 13 '18

**Poughkeepsie (steamship)**

S. S. Poughkeepsie, standard 8,800-ton dead-weight cargo vessel built by Newburgh shipyards, Inc. *Il diags plans (supp) Int Marine Eng* 24:530-5 Ag '19

**Poultry**

Poultry culture—home production. *Sci Am S* 85:39 Ja 19 '18

Poultry culture; Indian game. *Sci Am S* 85:67 F 2 '18

Poultry culture—perpetual laying. *Sci Am S* 85:123 F 23 '18

See also Geese

**Feeding**

Balanced ration on the poultry farm. *Sci Am* 121:330 S 27 '19

Study of the proteins of certain insects with reference to their value as food for poultry. J. S. McHargue. *biblog Sci Am S* 86:31 Jl 13 '18

Wheatless ration for the rapid increase of flesh on young chickens. M. E. Pennington and others. *Il U S Agric Bul* 667:1-12 '18

**Transportation**

Baby chicks by parcel post. *Sci Am* 119:511 D 28 '18

**Poultry farms**

Electrical chicken farm. *Il Sci Am* 119:153 Ag 24 '18

**Poultry houses**

Back yard poultry house. *diag plan Am Lumberman* 2236:42 Mr 23 '18

Boys' poultry house. *Il plan Am Lumberman* 2276:42c D 28 '18

**Poultry houses—Continued**

- Chicken coop that can be added to a private garage. H. Jensen. *diags plan Bldg Age* 40: 558-9 D '18
- How to build a poultry house. R. S. Whiting. *il diags plan Am Lumberman* 2289:38k-38l Mr 29 '19
- Missouri poultry house. *il diags plan Am Lumberman* 2243:38 My 11 '18
- New York state poultry house. *diags Am Lumberman* 2232:42 F 23 '18
- Poultry brooder house. *diags plan Am Lumberman* 2233:36 Mr 2 '18
- Poultry house built by a practical builder and poultryman. H. H. Shepard. *il diags plan Bldg Age* 40:522-3 N '18
- Scientific henhouse built for convenience and efficiency. M. E. Dickson. *il Bldg Age* 40: 384-5 Ag '18
- Some types of poultry houses built in the West. *il plan Bldg Age* 40:142-5 Mr '18
- Southern poultry house. *diag plan Am Lumberman* 2238:48 Ap 6 '18

**Poundal**

- Definition of poundal. *Mach* 24:810 My '18

**Powder bags**

- Chemically treated fabrics for powder bags. *Chem & Met Eng* 19:403 S 25 '18

**Powder factories.** See Smokeless powder**Powder flasks**

- Safety powder flasks. *il Coal Age* 14:103 JI 20 '18

**Powdered fuel.** See Coal, Pulverized**Power**

- Alas! poor Garabed! *Power* 48:60 JI 9 '18
- Buying a scientific pig in a poke. *Chem & Met Eng* 19:57-8 JI 15 '18
- Demise of the Garabed. *J Ind & Eng Chem* 10:590-1 Ag '18
- Distribution of hydraulic resources and primary power by sections, 1918; map. *Elec W* 73:478 Mr 8 '19
- Distribution of primary power, water power, steam power and gas power, 1918; map. *Elec W* 73:420 Mr 1 '19
- Electric versus hydraulic drive for steel-mill auxiliaries. R. B. Gerhardt. *Elec R* 75:736-8 N 1 '19; Abstract. *Iron Age* 103:1568 Je 12 '19
- Energy resources of the United States: a field for reconstruction. C. G. Gilbert and J. E. Pogue. *il U S National Museum Bul* 102, v 1:103-46 '19; Excerpts. *Gen Elec R* 22:149-51 F '19
- Garabed. *Engineer* 125:145 F 15 '18
- Garabed. *Sci Am* 118:100 F 2 '18
- Garabed a perpetual motion scheme. *Sci Am* 119:162 Ag 31 '18
- Garabed: boon or buncombe? *Power* 47:221-2 F 12 '18
- Garabed claim is contested by E. C. Kilpatrick. *Motor Age* 34:19 JI 4 '18
- Garabed; Congress provides for investigating claims of an inventor as to free energy. *Iron Age* 101:260 Ja 24 '18
- Giragossian free energy generator. *J Ind & Eng Chem* 9:1074 N '17
- Good night, Garabed. *Power* 48:428 S 17 '18
- Heat from the atmosphere a substitute for fuel. J. T. Wainwright. *Power* 47:559 Ap 16 '18
- No patent issued to Giragossian. *Eng & Min J* 105:809 Ap 27 '18
- Power production and coal economy. W. N. Polakov. *Ind Management* 58:235-6 S '19
- Power without cost; a near perpetual motion device. *diag Power* 47:154 Ja 29 '18
- President Wilson signs Garabed bill. *Power* 47:313 F 26 '18
- Providing heat and power for the modern office building. O. B. Goldman. *J Elec* 42:583-5 Je 15 '19
- Something for nothing. *Sci Am* 119:26 JI 13 '18
- Thrift in using power. *Factory* 20:516+; 21: 456+, 738+, 1130+; 22:166+, 344+, 516+, 1088+, 1190; 23:150+, 378+, 666+, 1206+, 1436+ Mr S-O D '18-Mr. My-S N-D '19
- While important legislation waits; bill to provide for investigation of invention of G. T. K. Giragossian. *Power* 46:157, 532-3 JI 31, O 16 '17

**Why of the Garabed motor mystery.** *Ind Management* 56:248-9 S '18

See also Compressed air; Dynamometer; Electric power; Force and energy; Horsepower; Hydroelectric power; Machinery; Mechanics; Mining engineering—Power; Pneumatic tools; Power cost; Power factor; Power plants; Power transmission; Steam; Tide power; Treadmills; Water power; Wind power

**Power cost**

- Analyzing the expense for power. *Factory* 20: 684+ Ap '18
- By-product installation for power stations; abstract. *diag Am Soc M E J* 40:962 N '18
- Construction costs of Rice Riis station. J. A. Leonard. *il diags Elec W* 74:223-30 Ag 2 '19
- Cost of hydroelectric development; abstracts. H. K. Barrows. *Elec W* 73:413-17 Mr 1 '19; *Eng & Contr* 51:271-3 Mr 12 '19; *Power* 49: 544-6 Ap 8 '19
- Detroit production costs at Connors Creek station. *Elec W* 74:656 S 20 '19
- Economic proportion of hydroelectric and steam power. F. G. Baum. *Am Inst E E Pro* 37:1115-19 S '18; Same. *Elec R* 73:450-1 S 21 '18
- Economics of the shop power house. V. T. Kropidowski. *Ry Mech Eng* 91:243-4, 373-5, 675-8 My. JI. D '17
- Effect of poor coal on plant efficiency. W. C. Slade. *Power* 47:420-1 Mr 19 '18; Same cond. *Elec W* 71:672-3 Mr 30 '18
- Energy component in industry. *Elec W* 74: 650-2 S 20 '19
- Fertilizer industry and its power requirements. J. E. Mellett. *il Gen Elec R* 21:96-110 F '18
- Illinois coal-mine power plants. E. Steck. *Coal Age* 16:355-6 Ag 28 '19
- Industrial power problems. W. F. Uhl. *Am Soc M E J* 40:923-8 N '18
- Kilowatt-hour and the coal required to produce it. B. H. Blaisdell. *Elec Ry J* 51:525-6 Mr 16 '18
- Mastering power production; principle of essential cost and use of standard cost. W. N. Polakov. *Ind Management* 56:321-9 O '18
- Public steam and electrical systems; analysis of the building heating situation in large cities. J. A. McHollan. *Elec W* 71:513 Mr 9 '18
- Relation of load-factor to operating cost of electric drive. D. R. Shearer. *Elec R* 72: 759-61 My 4 '18
- Something to be proud of; running an ordinary 500-hp. plant during unusual year of 1917. A. Summers. *Power* 47:627 Ap 30 '18
- Steam versus electricity for auxiliary drive. E. L. Martheleur. *Elec W* 74:728 JI 19 '19
- Use of electric power in the mining of anthracite coal. J. B. Crane. *il Am Inst E E Pro* 37:1197-1202 O '18; Same. *Elec R* 73: 976-7 D 21 '18; Same. *Gen Elec R* 22:146-8 F '19
- Utilization of electric brass furnaces. H. W. Gillett. *J Ind & Eng Chem* 11:664-8 JI '19; Same cond. *Chem & Met Eng* 21:6-10 JI 1 '19
- Power economy conference, international. See International power economy conference
- Power factor**
- Alliance (Ohio) gas & power company to clean up existing power-factor conditions. *Elec W* 73:133-4 Ja 18 '19
- Committee is organized for power-factor study. *Elec W* 74:285 Ag 9 '19
- Compensated-type potential regulators. A. H. Ford, P. E. Mead and G. W. Thomas. *diags Elec W* 73:620-3 Mr 29 '19
- Condenser rating necessary to improve power factor. H. H. Getter. *chart Elec W* 71:379-80 Ap 27 '18
- Correcting power factor in distribution circuit. J. F. Dubois. *diags Elec W* 71:257-8 F 2 '18
- Direct current vs. power factor. F. E. Austin. *diags Sci Am S* 87:316-17 My 17 '19
- Discussion on power factor. A. Dow. *Elec W* 73:1397-8 Je 28 '19

**Power factor—Continued**

- Economic use of static condensers. W. V. Lyon. *diags Elec W 73:724-6 Ap 12 '19*
- Effect of power-factor on central-station operation. W. Brown. *il Elec R 78:199-202 Ag 10 '18*
- Electrical study course—power and power factor. *diags Power 50:561-2 O 7 '19*
- Electromagnetic condenser for power-factor regulation; patent. *diag Elec W 71:556 Mr 16 '18*
- Fundamental considerations of power-factor correction. R. A. McCarty. *diags Power 47:639-41 Ap 30 '18*
- Getting the maximum out of equipment. W. Brown. *Elec W 72:791-3 O 26 '18*
- Idle generator is used to improve power factor. *Elec W 71:933 My 4 '18*
- Improved power factor is urgent. G. E. Miller. *Elec W 72:362 Ag 24 '18*
- Improved power factor results from investigation. L. E. Brown. *diags Elec W 73:1392 Je 28 '19*
- Improvement of power factor; abstract. W. C. Rechniewski. *Elec W 71:940 My 4 '18*
- Improvement of power factor; abstract. A. Soulier. *Elec W 73:1042 My 17 '19*
- Improvement of power factor in electrical supply systems. *il diags Engineer 128:486-8 N 14 '19*
- Improvements of the power factor as a consequence of the unification of frequencies; abstract. A. Cusmano. *Elec W 73:1280 Je 14 '19*
- Improving power factor and voltage regulation by using synchronous condensers. J. T. Peyton. *il Elec W 72:492-3 S 14 '18*
- Improving power-factor by static condenser. *il diag Elec R 73:317-20, 325 Ag 31 '18*
- Improving the power-factor. *Elec R 72:1041 Je 22 '18*
- Interesting metering problem. V. H. Todd. *diag Power 50:151-2 J1 22 '19*
- Justice of the power-factor rate. A. G. Darling. *Elec W 74:586-7, 660-1, 708-10 S 13-27 '19*
- Location for power-factor corrective apparatus. W. Brown. *diags Elec W 72:1125-8 D 14 '18*
- Penalty for low power-factor. *Elec R 74:918 My 31 '19*
- Power factor and phase rotation. L. F. Curtiss. *diags J Elec 42:530-3 Je 1 '19*
- Power factor and power rates. D. D. Ewing. *Elec W 73:382 F 22 '19*
- Power factor and the war. W. Brown. *diags Elec W 71:1364-6 Je 29 '18*
- Power-factor clauses in contracts. W. Brown. *Elec W 72:1164-5 D 21 '18*
- Power-factor correction—an urgent necessity. W. Brown. *Elec W 72:834-7 N 2 '18*
- Power-factor correction by use of the static condenser. O. C. Roff. *il diag Elec R 75:423-7 S 13 '19*
- Power factor from the station operator's point of view. L. W. Wyss. *Power 48:807-8 D 3 '18*
- Power factor improvement in a large central station; abstract. F. Scoumanne. *Elec W 71:940 My 4 '18*
- Power-factor improvement in New England stations. A. E. Pope and others. *il Elec W 73:834-5 Ap 26 '19*
- Power factor of arc-welding sets. C. J. Holslag. *Elec W 73:233 F 1 '19*
- Power factor with unbalanced loads. *Elec W 74:338-9 Ag 16 '19*
- Practical limitations to power-factor correction. R. Kelly. *chart diag Elec R 78:243-4 Ag 17 '18*
- Removing obstacles to power-factor charge. W. Brown. *Elec W 72:1220-2 D 28 '18*
- Simple method of determining power-factor correction. R. Kelly. *diags Power 49:923-4 Je 17 '19*
- Simplified power-factor formula. J. Brodsky. *Power 48:207 Ag 6 '18*
- Static condenser improves power factor. A. Bridgeman. *Elec R 72:636 Ap 13 '18*
- Static condensers. W. E. Taylor. *il diags Gen Elec R 21:565-9 Ag '18*
- Power-factor meters**
- Calibration of power-factor indicators. W. W. Hoke. *diags Elec W 72:1076-8 D 7 '18*
- D. c. calibration of power-factor meters. T. W. Varley. *diags Elec W 71:248-9 F 2 '18*
- Esterline portable graphic recording power-factor meter. *il Elec R 73:1025 D 28 '18; Power 49:252 F 18 '19*
- Inoperative power-factor meter caused shut-down. W. H. DeMuth. *Power 49:985 Je 24 '19*
- Measuring power factor with unbalanced load. W. S. Wilder. *diags Elec W 74:239-40 Ag 2 '19*
- Obtaining power factor by use of watt-meter. E. G. Barrington. *diags Elec W 71:140-1 Ja 19 '18*
- Power houses.** See **Power plants**
- Power of attorney.** See **Agency**
- Power plants**
- Better structural design saves steel in power house. *diag Elec W 74:470-1 Ag 30 '19*
- By-product installation for power stations; abstract. *diag Am Soc M E J 40:962 N '18*
- First public discussion of the A. S. M. E. rules for conducting performance tests of power plant apparatus issued in 1915. *Am Soc M E J 40:123-5 F '18*
- High cost of power. C. M. Garland. *Ind Management 56:135-6 Ag '18*
- Indiana engineering society 39th annual convention, Indianapolis, Jan. 23-25. *Power 49:223-4 E 11 '19*
- International power economy conference, Chicago. *Elec R 73:936-7 D 14 '18*
- Mechanical equipment at Johns Hopkins university. J. C. Smallwood. *il Power 49:811-14 My 27 '19*
- Painting power-plant apparatus distinctive colors. T. W. Reynolds. *Power 48:83 J1 16 '18*
- Plant of the hotel Traymore, Atlantic City. *il Power 49:760-2 My 20 '19*
- Power and heating plant, Yale university, New Haven, Conn.; views and plans. *Arch Forum 31:pl 1-3 J1 '19*
- Power installation at the Old Hickory powder plant, near Nashville, Tennessee. E. A. Wardenburg. *il diags plans Power 49:748-55 My 20 '19*
- Power plant, Burroughs adding machine company and Lozier motor company, Detroit, Mich.; views and plans. *Arch Forum 31:pl 6-8 J1 '19*
- Power plant course at Wentworth institute, Boston. C. H. Beers. *il Power 46:862-4 D 25 '17*
- Practical kinks for the power plant; drawings. *Power 46:794-5 D 11 '17*
- Present-day problems in station design. L. R. Lee. *Elec W 74:697-700 S 27 '19*
- Reinforced concrete saves steel in power plant. *Elec W 72:975-6 N 23 '18; Same. Power 48:846-7 D 10 '18*
- Review of the year in the power field. *Power 49:2-8 Ja 7 '19*
- Selection of the power plant for the mill. G. J. Young. *Eng & Min J 107:1121-4 Je 28 '19*
- Tendencies in prime mover practice. *il diags Elec W 73:1106-9; Discussion. 1084-5 My 24 '19*
- What the owner can do. *Factory 20:1098+ Je '18*
- See also **Boiler plants; Electric plants; Hydroelectric plants; Steam plants**
- Accounting**
- Overhead charges in power plant construction. A. F. Brewer. *Ind Management 58:183-4 S '19*
- Power and service costs. F. W. Kilduff. *J Account 27:427-36 Je '19*
- Power-plant cost sheet. A. E. Huntington. *Power 50:120-1 J1 15 '19*
- Employees**
- Bonus for power-plant employees. W. B. Lewis. *chart Power 47:439-42 Mr 26 '18; Same. Textile World 53:5235+ My 4 '18*
- Effective yet simple bonus system for power plants. *il Eng & Contr 51:369-71 Ap 9 '19*

**Power plants—Employees—Continued**

How best to educate power-plant operators. W. E. East. Elec W 72:687-8 O 12 '18; Same. Power 48:683 N 5 '18

**Inspection**

Federal inspection of power plants. Power 47:806 Je 4 '18

Massachusetts plan of power-plant inspection and coal conservation. T: Hawley. Power 48:302-4 Ag 27 '18

Program of power plant saving prepared by U.S. Fuel administration. Am Gas Eng J 109:66-7 Jl 20 '18

**Management**

Changing power-plant shifts. J. C. Hawkins. chart Power 48:202-3 Ag 6 '18

Machinery versus trained brains. L. Hrebemanovich. Ind Management 58:198-200 S '19

Management of the power plant. R. June. Il Textile World 54:71+, 847+, 1097+, 1611+, 2107+, 2863+; 55:661, 935+, 1453+, 2089+, 2719+, 3711+; 56:106+, 663+, 1379+, 2005+, 2729+ Jl 6, Ag 24, S 7, O 5, N 2, D 7 '18, Ja 18, F 1, Mr 1, Ap 5, My 3, Je 14, Ag 2, S 6, O 4, N 1 '19; Same abr. Concrete 13:sup16-19, sup41-3 Ag, O '18; Same abr. Elec R 74:94-7, 257-60, 419-21, 937-9, 1033-5; 75:100-2, 270-3, 481-3, Ja 18, F 15, Mr 15, Je 7, 21, Jl 19, Ag 16, S 20 '19

Mastering power production. W. N. Polakov. Ind Management 55:100-4, 185-9, 298-302, 380-4, 485-90; 56:1-7, 217-26, 321-9, 339-403 F-Jl, S-N '18

Organize to save coal and power; recommendations of Massachusetts fuel administration. Textile World 54:525+ Ag 3 '18; Power 48:249-50 Ag 13 '18; Am Soc M E J 40:692 Ag '18

Power economy an essential factor in winning the war. W. R. Conover. Ind Management 55:314-18 Ap '18

Power-plant operation on an efficient basis. P. R. Duffey. Power 50:330-1 Ag 26 '19

Power-station organization chart; Buffalo General electric company, Buffalo, New York. Power 48:87 Jl 16 '18

Power-station organization chart; Commonwealth Edison co. Power 48:164 Jl 30 '18

Power-station organization chart; Edison electric illuminating co. of Brooklyn, N. Y. Power 48:118 Jl 23 '18

Power thrift. Il Factory 22:1159-61 Je '19

Practical measures for securing greatest economy in public utility plant operation. C: Brossmann. Munic Eng 54:13-15, 140-2; 55:29-31, 111-13, 206-8 Ja, Ap, Jl, S, D '18

Some conditions observed in public utility plants by a representative of the U.S. Fuel administration. C: Brossmann. charts Munic Eng 56:94-6 Mr '19; Same. Power 49:416-17 Mr 18 '19

Superintendent and the engineer. L. Prior. Power 48:128 Jl 23 '18

Thrift in using power. Factory 22:1190+ Je '19

**Piping**

See Piping (power plants)

**Records**

Power-house report forms. Power 48:738 N 19 '18

**War power plant law, 1918**

Action nearer on \$200,000,000 power law. Elec W 72:608-11 S 28 '18

Ask \$200,000,000 for war power plants. Elec W 72:408-14 Ag 31 '18

Emergency power act introduced in Congress. Elec R 73:331-2 Ag 31 '18; Elec Ry J 52:385 Ag 31 '18; Chem & Met Eng 19:226 S 1 '18

Emergency power act passes House. Power 48:579 O 15 '18

National control of the power resources; Sims bill. Elec W 72:365-6 Ag 24 '18

Need of \$200,000,000 for war power plants; requirements of the United States shipping board emergency fleet corporation. Elec W 72:504-6 S 14 '18

President urges passage of power bill. Elec R 73:500 S 28 '18

\$200,000,000 federal power plant legislation; Sims bill. Munic J 45:193 S 7 '18

\$200,000,000 power law; why Dr Garfield supports the bill. Elec W 72:564-6 S 21 '18

War need of the \$200,000,000 power plant law; additional testimony before the committee of Congress. Elec W 72:461-3 S 7 '18

Power rates. See Electric rates; Power cost

Power stations. See Power plants

**Power transmission**

Belt transmission waste. J. F. Engler. Concrete 13:sup28 S '18

Design of friction wheels. L. Eisenkramer. diags Mach 24:696 Ap '18

New era in power transmission. L: Bell. Elec W 73:631-2 Mr 29 '19

Power transmission by belting. E. D. Willson. Il diag Textile World 55:3709 Je 14 '19

Safeguarding power transmission machinery. Il Textile World 53:4044 Mr 2 '18

Simple power friction test. W. F. Schaphorst. Gas Age 40:563 D 15 '17

See also Air compressors; Belting; Chain gear; Compressed air; Electric distribution; Electric driving; Electric transmission; Gearing; Machinery; Pulleys; Rope driving; Shafting

Pratt, Francis C. Portrait. Gen Elec R 22:562 Ag '19

Pratt school of naval architecture. See Massachusetts institute of technology—Pratt school of naval architecture

Precious metals. See Gold; Platinum; Silver

**Precious stones**

Precious stones in the United States. Sci Am S 88:189 S 20 '19

Specific character of precious stones. Sci Am S 88:29 Jl 12 '19

See also Diamonds

**Precious stones, Artificial**

Oxy-city gas appliance provides tremendous heat necessary for the manufacture of artificial gems. R. E. Livingston. Il Am Gas Eng J 108:241-2 Mr 16 '18

Predatory animals. See Animals, Predatory

Prehistoric man. See Man, Prehistoric

Preservation of wood. See Wood preservation

Preservatives (food). See Food preservatives

Preserving. See Canning and preserving

**Presses**

Atlas 15-ton hand and power forcing press. Il Am Mach 49:136 Jl 18 '18

Automatic arresting motion for power presses. Il diags Engineer 127:135 F 7 '19; Abstract. Mech Eng 41:394 Ap '19

Compact punch press of new type. Il Iron Tr R 63:557-8 S 5 '18

Cut and carry type of press. G. R. Smith. Il Am Mach 47:1021-4 D 13 '17

Ferracute presses. Il Am Mach 49:41-2, 450 Jl 4, S 5 '18; Mach 25:76 S '18

500-ton Ferracute press. Il Am Mach 50:228 Ja 30 '19

Heavy-duty horizontal press. R. H. Wadsworth. Il Am Mach 48:616 Ap 11 '18

Huge Bliss double-crank press. Il Am Mach 49:138 Jl 18 '18

King pressure toggle for presses. Il Am Mach 48:766-7 My 2 '18

Large trimming press. Il Iron Age 103:1648 Je 19 '19; Iron Tr R 64:1492 Je 5 '19

Loshbough-Jordan combination-gear-inclinable press. Il Mach 24:1155 Ag '18; Iron Age 102:275 Ag 1 '18

Loshbough-Jordan no. 5 open-back, inclinable power press. Il Am Mach 49:226-7 Ag 1 '18

Moore presses. Il Am Mach 48:933 My 30 '18

Nosing presses for 75-mm. shells. Il Iron Age 102:393 Ag 15 '18

Pressure toggle for drawing presses. Il Iron Tr R 63:27 Jl 4 '18

Primitive idea in hand-operated presses. Il Sci Am 121:235 S 6 '19



**Presses—Continued**

Relation of press stroke to the life of a die. E. F. Creager. *Il diag Am Mach* 47:485-7 S 20 '17; *Abstract. Am Soc M E J* 39:959 N '17; *Discussion. Am Mach* 47:1131-2; 48:466 D 27 '17, Mr 14 '18

Safety practice in power-press work. *Il diags Am Mach* 50:1177-84 Je 19 '19

Sensitive bench drill press. *Il Iron Tr R* 62: 860 Ap 4 '18; *Elec R* 72:777-8 My 4 '18

Sidney power presses. *Il Am Mach* 48:469 Mr 14 '18; *Iron Age* 101:626 Mr 7 '18

200-ton plate joggling press. *Il Iron Age* 102: 387 Ag 15 '18

Useful mechanism for power press feeds. G. M. Bartlett. *Il diag Mach* 25:533 F '19

*See also* Compressing machines; Dies; Hydraulic machinery; Hydraulic presses; Printing presses; Punching machinery

**Presses, Hydraulic.** *See* Hydraulic machinery

**Presses, Printing.** *See* Printing presses

**Pressure**

New pressure table for Eley lead crushers: abstract. F. W. Jones. *Am Soc M E J* 40: 432-3 My '18

Solubility;—relative values of internal pressures and their practical application. J. H. Hildebrand. *Am Chem Soc J* 41: 1067-80 J1 '19

Sterilization by pressure. B. H. Hite, N. J. Giddings and C. E. Weakly, Jr. *Il Sci Am* 120:693 Je 28 '19

*See also* Atmospheric pressure; Earth pressure; Vapor pressure; Wind pressure

**Pressure, Atmospheric.** *See* Atmospheric pressure

**Pressure charts**

Remarkable pressure chart. *Coal Age* 15:728, 1133 Ap 17, Je 19 '19

**Pressure gages**

Determination of the compressibility of solids at high pressures. L. H. Adams, E. D. Williamson and J. Johnston. *diags Am Chem Soc J* 41:17-21 Ja '19

Determining zero reading on an Ellison gage. H. Bacharach. *Il diag Chem & Met Eng* 20: 246 Mr 1 '19

Master pressure gages. *Il Ind Management* 55: 242 Mr '18

Measuring high pressures with dead weight. S. A. Moss. *Il diag Power* 47:286-8 F 26 '18

Notes on the use of the pressure gage for pitot-tube measurement. E. Anderson. *Il Chem & Met Eng* 19:250 S 1 '18

Precision pressure gauge. E. J. Brady. *J Fr Inst* 187:499-501 Ap '19

Pulsation in pressure gage stopped. P. Le Moine. *diags Power* 48:208 Ag 6 '18

*See also* Steam gages

**Pressure measurement**

Bacharach pressure recorder. *Il diag Elec W* 70:1176 D 15 '17

**Presswork.** *See* Printing, Practical—Presswork

**Price cutting**

Price-cutting permitted on patented articles; decision of United States Supreme court. A. Scheible. *Elec R* 72:841 My 18 '18

Prices and competition. R. Ash. *Am Lumberman* 2304:46-7 J1 12 '19

**Price fixing**

American economic association has a committee to consider the subject of price-fixing. *Eng & Min J* 106:1007 D 7 '18

Determination of selling price. E. D. Hilton. *J Account* 25:27-33 Ja '18

Fixing of a price. M. D. Whitman. *Textile World* 53:4797-8 Ap 20 '18

Fixing of resale prices. C. C. Sherlock. *Am Mach* 51:521-2, 579-81, 604-5 S 11-25 '19

Jobbers confer on price fixing; hear government's side and present their own problems. *Textile World* 54:293 J1 20 '18

Lessons of war cost-finding. W. B. Colver. *Dom Eng* 86:63+ Ja 4 '19; *Same. Am Gas Eng J* 110:46-9 Ja 18 '19; *Same. Am Mach* 50:39-41 Ja 2 '19

Maintenance of resale prices. *Am Ind* 20:24-5 Ag '19

New price maintenance plan outlined by trade commission. *Automotive Ind* 41:178-9 J1 24 '19

Price-bidding in war times. R. C. McCrea. *Chem & Met Eng* 19:71-6 J1 15 '18

Price-fixing. *Eng & Min J* 106:231-2 Ag 3 '18

Price fixing contracts on patented articles. E. B. Marshall. *Sci Am* 119:72+ J1 27 '18

Price fixing plan is coldly received. *Am Lumberman* 2284:40-1 F 22 '19

Price readjustment. B. M. Anderson, Jr. *Eng & Min J* 106:1122-4 D 28 '18

Question of price fixing argued. W. M. Wood, Jr. *Textile World* 53:6102 Je 15 '18

United States Supreme court upholds manufacturers right—must not make formal contracts to maintain resale prices. W. L. Crounse. *Metal Work* 92:7-10 J1 4 '19

**Prices**

Basic prices on cottons. *Textile World* 54:49 J1 6 '18

Civil war price trends compared with those today. M. Knowles. *Eng N* 82:414-16 F 27 '19

Commodity prices and public utility rates. W. J. Hagenah. *Elec W* 71:1024-6 My 18 '18; *Abstract. Elec Ry J* 51:970-1 My 18 '18

Construction and prices: 1913 and now. *Eng N* 82:498-9 Mr 6 '19

Factors that cause high prices. *Am Arch* 113: 405-6 Ap 3 '18

Falling dollar; how shall we arrest the decline of its purchasing power? A. J. Lotka. *Sci Am* 121:133+ Ag 9 '19

Federal trade commission finds many companies made huge profits; abstracts. *Automotive Ind* 39:32-3+ J1 4 '18; *Iron Age* 102: 29-31 J1 4 '18; *Eng & Min J* 106:30 J1 6 '18

Have prices reached the lowest level that can be expected in 1919? *Dom Eng* 87:142-6 Ap 26 '19

High price level a future probability. I. Fisher. *Gas Age* 43:348-50 Ap 1 '19; *Same. Am Water Works Assn J* 6:323-30 Je '19; *Excerpts. Eng & Min J* 107:835-6 My 10 '19; *Abstract. Eng N* 82:551 Mr 20 '19

Higher prices are sure to continue. I. Fisher. *Elec Ry J* 53:1094-5 Je 7 '19

Increased production to prevent higher price levels. *Am Ind* 20:7 Ag '19

Industrial board to meet institute committee. *Iron Age* 103:700-1 Mr 13 '19

International price comparisons. W. C. Mitchell, M. L. Goldsmith and F. K. Midgah. *bibliog War Industries Board Price Bul* 2:1-395 '19 25c

Material prices kept up after 1865. *Am Arch* 115:652 My 7 '19

Our high prices—have they come to stay? A. J. Lotka. *Il Sci Am* 121:12-13 J1 5 '19; *Discussion. Sci Am* 121:109, 229 Ag 2, S 6 '19

Present conditions fix normal prices. T. E. Holden. *Elec Ry J* 53:1095-7 Je 7 '19

Present high prices on water works materials will continue after the war. R. E. McDonnell. *Munic Eng* 54:238-9 Je '18

Present level of prices, with special reference to the prices of road-making materials. S. M. Williams. *Munic Eng* 56:130-2 Ap '19

Price history of the war. *Am Arch* 115:387 Mr 12 '19

Price level teachings from other wars. *Am Ind* 19:10-11 My '19

Price level will stay up. *Elec Ry J* 53:862-3 My 3 '19

Price movements in war times. *Coal Age* 16: 565-6 O 2 '19

Prices and wages. W. Wesnedre. *Coal Age* 16:584 O 2 '19

Prices during the war and the readjustment period. T. S. Holden. *Eng & Contr* 51:564-6 My 28 '19

Prices of paving and paving materials. *Munic J* 46:326-3 My 3 '19

Prices yesterday, today and tomorrow; excerpts. O. P. Austin. *Eng N* 82:809-12 Ap 24 '19; *Elec Ry J* 53:779-80 Ap 19 '19; *Textile World* 55:2327 Ap 19 '19; *Am Mach* 50: 856-8 My 1 '19; *Gas Age* 43:466-9 My 1 '19; *Am Arch* 115:720 My 21 '19; *Coal Age* 15: 863-6 My 8 '19; *Eng & Contr* 51:604-6 My 14 '19; *Int Marine Eng* 24:315 My '19; *Iron Age* 103:1145-7 My 1 '19

**Prices—Continued**

- Profit is bedrock of business. H. N. Casson. Gas Age 42:133-4 Ag 1 '18
- Quoting from a price-list. H. Allen. Inland Ptr 61:331-4 Je '18
- Railway wages and retail prices. S. Thompson. Ry R 65:222-3 Ag 16 '19
- Reply to the wool questionnaire. L. Penwell. Textile World 53:6009+ Je 8 '18
- Rise in prices of metals, commodities and wages of labor. Eng & Min J 105:568-70 Mr 23 '18
- Secretary Redfield explains his plan; Industrial board of the Department of commerce. Iron Age 103:549-50 F 27 '19; Dom Eng 86:486-7 Mr 15 '19; Elec R 74:428-9 Mr 15 '19; Metal Work 91:339 Mr 14 '19; Ry Age 66:510 F 28 '19
- Secretary Redfield favors price reductions. Iron Age 103:437-9 F 18 '19; Same cond. Am Gas Eng J 110:205-6 Mr 1 '19
- Should prices be standardized? C. E. Flynn. Heat & Ven 16:54-6 N '19
- Simplified price level economics. R. H. Tingley. Am Ind 19:11 Ag '18
- Southern pine base price unchanged; price fixing committee denies application for advance. Am Lumberman 2263:37+ S 28 '18
- Standard accounting through price control. C. Reittel. J Account 25:360-5 My '18
- Study of movements of prices after the war. Elec W 73:858-9 Ap 26 '19
- Supreme court decision on resale prices. Dom Eng 83:239 My 18 '18
- Table showing percentage to be added to cost to bring 5 per cent net on volume of business for the year. E. F. Butler. Dom Eng 82:448 Mr 23 '18
- Trend of prices. D. F. O'Brien. Am Water Works Assn J 6:394-7 S '19
- Trend of prices. C. R. Wood. Am Water Works Assn J 6:398-402 S '19
- What do we mean by inflation? Ry Age 65:100-1 sec 2 Jl 12 '18
- Wholesale prices of leading articles in United States markets, January, 1916, to December, 1917. U S Bur For & Dom Com misc ser 64:1-14 '18
- Will present high prices persist? H. P. Gillette. Eng & Contr 51:617 Je 11 '19
- Will wages and prices remain stable? A. F. Rice. Coal Age 15:533 Mr 20 '19
- Will war-time prices decline to lower levels? F. A. Warfield. Elec W 74:588 S 13 '19
- World is on higher price level. T. S. Holden. Eng & Contr 52:69-71 Jl 16 '19
- See also* Cost of living; Electric rates; Food supply; Gas rates; Index numbers; Price cutting; Price fixing; Railroads—Rates; Wages; Water rates; also subdivision
- Prices under various subjects, e.g. Building materials—Prices, Coal—Prices, Steel—Prices
- Priestley, Joseph**  
American spirit in chemistry. E. F. Smith. Il J Ind & Eng Chem 11:405-10 My '19
- Prime movers.** *See* Engines
- Printers**  
Art of looking up words. J. Edwards. Inland Ptr 64:35 O '19
- Dynasty of wealthy printers; Plantin-Moretus family. Inland Ptr 60:759-60 Mr '18
- Mortality from respiratory diseases in dusty trades. F. L. Hoffman. U S Bur Labor Statistics Bul 231:122-46 '18
- New pastures for ambitious printers. R. F. Salade. Inland Ptr 60:466-9 Ja '18
- William Bowyer. por Inland Ptr 63:283 Je '19
- See also* Federation of master printers and allied trades of the United Kingdom; United typothetae of America
- Printers' marks**  
Printer-marks. Il Inland Ptr 62:286 D '18
- Printing**  
Collectanea typographica. H. L. Bullen. *See* monthly numbers of Inland printer, January, March to date
- Color in one-color printing. J. L. Frazier. Inland Ptr 61:345-7 Je '18

- Evolution in beautiful typography. R. L. Burgess. Inland Ptr 63:434 Jl '19
- Printing and architecture are sister arts. Il Inland Ptr 63:404 Jl '19
- Printing as a device for teaching the English language. F. K. Phillips. Il Inland Ptr 62:431-2 Ja '19
- Psychology of printing. Inland Ptr 62:194 N '18
- Publisher, author, printer. F. H. Teall. Inland Ptr 61:577-9 Ag '18
- Three dimensions of color. E. C. Andrews. diag Inland Ptr 62:554-6, 673-4 F-Mr '19
- See also* Advertisements; Blind—Printing and writing systems; Capitalization; Color printing; Compound words; Electrotyping; Gumming; Ink; Letterheads; Linotype; Paper; Photography; Photogravure; Plate printing; Posters; Printers; Printing machinery; Printing offices; Printing presses; Printing trade; Proofreading; Street railroads—Printing; Textile printing; Type; Typesetting; Typesetting machines

**History**

- First history of printing. Il Inland Ptr 62:194 N '18

**Specimens**

- Examples of the work of Taylor & Taylor, San Francisco. Inland Ptr 62:296a-296f D '18
- Specimens. J. L. Frazier. *See* monthly numbers of Inland printer

*See also* Advertisements; Blotters; Christmas printing; Letterheads

**Standards**

- Messenger for the message—a talk on standardization. G. A. Heintzemann. Inland Ptr 64:217-18 N '19

**Study and teaching**

- Appeal to reason—concerning the introduction and conduct of printing courses in the public schools. F. W. Engelhardt. Inland Ptr 61:495-6 Jl '18
- Apprentice problems in West Africa—Cameroun. J. H. Bradford. Il Inland Ptr 60:764-5 Mr '18
- Course of study for vocational schools. H. E. Milliken. Inland Ptr 61:93-5 Ap '18
- Course of study giving the work by grades. O. W. Athey. Inland Ptr 61:361-3 Je '18
- Educational value of printing. D. B. Corson. Inland Ptr 61:364-5 Je '18
- Having a standardized course, how shall it be made effective? W. H. Hatton. Inland Ptr 61:639-40 Ag '18
- Industrial education survey of the city of New York. Inland Ptr 62:677-8 Mr '19
- Keeping the case straight in the printing class. J. L. Deal. Inland Ptr 61:494-5 Jl '18
- Osgood spacing chart. Inland Ptr 62:312 D '18
- Parts of a type. diag Inland Ptr 61:493-4 Jl '18
- Plea for a standardized course of school printing. W. H. Hatton. Inland Ptr 60:465-6 Ja '18
- Preparing the student for display. W. H. Hatton. Inland Ptr 62:191-2 N '18
- School versus shop training for apprentices. F. K. Phillips. Inland Ptr 64:172-3 N '19
- Teaching of printing. J. W. Hough. Inland Ptr 60:755-6 Mr '18
- Teaching of printing from a director's viewpoint. Inland Ptr 61:492 Jl '18
- Teaching the beginner how to distinguish between letters that confuse. W. H. Hatton. Inland Ptr 61:751-2 S '18
- What about the printing instructor? W. A. Woodis. Inland Ptr 62:557-8 F '19
- Who should teach: the theorist with pedagogical training or the practical printer? W. H. Hatton. Inland Ptr 60:786-7 Mr '18

**Africa, West**

- Apprentice problems in West Africa—Cameroun. J. H. Bradford. Il Inland Ptr 60:764-5 Mr '18

**Australia**

- Notes from the Australian printing field. J. A. Burke. Inland Ptr 60:809 Mr '18

**Printing—Continued****Far East**

Adapting American printing machinery to the requirements of the Orient. *Il Inland Ptr 61:373-4 Je '18*

**Japan**

First movable metallic type. F. L. Martin. *Il Inland Ptr 60:661-2 F '18*

**Porto Rico**

Things printorial in the capital city of Porto Rico. D. Lightbourn. *Inland Ptr 63:643 S '19*

**Venezuela**

Caracas print-shops visited by a linotype operator. D. Lightbourn. *Inland Ptr 62:190 N '18*

**Printing, Municipal**

Pasadena's municipal printing department. Munic J 45:299-300 O '19 '18

**Printing, Practical**

Care and use of brass rule. W. W. Pannell. *Inland Ptr 61:357 Je '18*

Consistency, wise and foolish. F. H. Teall. *Inland Ptr 61:181-2 My '18*

Kind of service expected of the printer. M. B. Stewart. *Inland Ptr 61:33-6 Ap '18*

Mistakes in the printing of French words. H. Rosset. *Inland Ptr 62:39-40 O '18*

Overcoming an obstacle. T. Facey. *diags Inland Ptr 61:491 Jl '18*

Paneling and ironing for printed matter. R. F. Salade. *diag Inland Ptr 61:220-1 My '18*

*See also* Blotters; Color printing; Dummies (printing); Electrotyping; Ink; Linotype; Plate printing; Printing machinery; Printing offices; Printing presses; Printing trade; Proofreading; Type; Typesetting

**Accounting**

Comparing department sales with actual department costs. W. R. Hyde. *Inland Ptr 62:633-5 Mr '19*

Standardization of printers' accounts. J. H. Jackson. *J Account 27:358-63 My '19*

**Costs**

Abnormal costs. J. M. Thomssen. *Inland Ptr 62:153-5 N '18*

Bargain printing. B. Daniels. *Inland Ptr 61:194-5 My '18*

Cost and method. B. Daniels. *See* monthly numbers of Inland printer

Costs of job-printing. R. T. Porte. *Il Inland Ptr 62:652-4; 63:61-4, 190-2, 292-4, 412-14, 531-3, 670-2; 64:46-8, 206-8, 315-17 Mr-D '19*

Growing costs. B. Daniels. *Inland Ptr 62:166 N '18*

Handling paper costs. B. Daniels. *Inland Ptr 62:406-7 Ja '19*

Machine and its overhead. A. E. McGowan. *Inland Ptr 61:43-6 Ap '18*

Pay-roll and a few other items. B. Daniels. *Inland Ptr 64:183-4 N '19*

Something for employing printers to think over. *Inland Ptr 60:626 F '18*

What should a cost system cost? B. Daniels. *Inland Ptr 64:49-50 O '19*

**Estimates**

Cost and method. B. Daniels. *See* monthly numbers of Inland printer

Costs of job-printing—making the estimate. R. T. Porte. *Inland Ptr 64:315-17 D '19*

Fascinating game of guessing at approximates. M. Heir. *Inland Ptr 60:609-11, 737-40 F-Mr '18*

Long-loved friend found wanting; new method for judging amount of space copy will fill when printed. M. Heir. *Inland Ptr 61:169-73 My '18*

Price system for the one-man shop. E. W. Frick. *Inland Ptr 62:404-5 Ja '19*

Quoting from a price-list. H. Allen. *Inland Ptr 61:331-4 Je '18*

**Imposition**

Automatic imposition; how to do better work easily in one-third usual time on shortrun editions. G. H. Brown. *diags Inland Ptr 61:444-6 Jl '18*

Cost of lock-up. *Inland Ptr 60:635 F '18*

Flexible split-leaf dummy. C. Schaffner. *Inland Ptr 62:552 F '19*

**Presswork**

Actual production. B. Daniels. *Inland Ptr 62:407 Ja '19*

Die-stamping on a platen-press. R. F. Salade. *Inland Ptr 62:572 F '19*

Half-tone printing on bond-paper. E. St John. *Inland Ptr 62:570 F '19*

How many per hour? *Inland Ptr 61:602-3 Ag '18*

Ink distribution on job-presses. R. O. Vandercook. *diag Inland Ptr 63:176 My '19*

Paneling on a printing-press. M. F. Labrun. *diag Inland Ptr 62:643-4 Mr '19*

Paper consumption in newspaper pressrooms. F. Milne. *Inland Ptr 62:814-16 D '18*

Proofreading in pressroom and bindery. D. Kimball. *Inland Ptr 62:398-400 Ja '19*

Putting self into the self-feeder. E. A. Seagers. *Inland Ptr 63:638-40 S '19*

Simple time and trouble saver for the platen pressman. E. A. Seagers. *Inland Ptr 63:56 Ap '19*

To secure register on cardboard. *Inland Ptr 60:639-40 F '18*

White lines in solid matter. L. A. Schmidt. *Inland Ptr 63:160 My '19*

*See also* Printing presses

**Spacing**

Method for teaching spacing to the apprentice. W. H. Hatton. *Inland Ptr 60:658-9 F '18*

Optical horizontal balance. J. L. Frazier. *Il Inland Ptr 60:497-500 Ja '18*

White space and margins. J. L. Frazier. *Inland Ptr 63:637-41 Ag '19*

Printing, Public. *See* Legal advertising; Printing, Municipal

Printing, Textile. *See* Textile printing

Printing costs. *See* Printing, Practical—Costs

Printing ink. *See* Ink

**Printing machinery**

Adapting American printing machinery to the requirements of the Orient. *Il Inland Ptr 61:373-4 Je '18*

Brazilian markets for paper, paper products, and printing machinery. R. S. Barrett. *Il U S Bur For & Dom Com 171:1-77 '18*

Chilean market for paper, paper products, and printing machinery. R. S. Barrett. *Il U S Bur For & Dom Com 153:1-72 '17*

Paper, paper products, and printing machinery in Argentina, Uruguay, and Paraguay. R. S. Barrett. *Il U S Bur For & Dom Com 163:1-165 '18*

Universal printing machine. *Il Sci Am 120:346+ Ap 5 '19*

*See also* Linotype; Printing presses; Typesetting machines

**Printing offices**

Electric trucks and tractors in printing plants. B. J. Dillon. *Il Elec R 75:896-7 N 29 '19*

Model country print-shop; Red Lake Falls gazette. *Il Inland Ptr 60:796-7 Mr '18*

Model printing-plant. G. Farke. *Il diag Inland Ptr 61:367-8 Je '18*

Modern buildings for printing trades. *Il diag plan Am Arch 115:691-4 My 14 '19*

Modern newspaper plant—the home of the Detroit news. A. G. Brenton. *Il Inland Ptr 60:525-8 Ja '18*

Newspapers are likely customers for industrial fuel gas. H. L. Wolfe. *Il Am Gas Eng J 109:178-9+ Ag 24 '18*

Opening of new plant records remarkable progress. *Il diag Inland Ptr 61:61-2 Ap '18*

*See also* Printing machinery; Printing trade

**Lighting**

Better lighting for print-shops. G. D. Crain, jr. *Inland Ptr 61:177-9 My '18*

Lighting of printing and book-binding plants. F. H. Bernhard. *Il Elec R 73:279-86 Ag 24 '18*

**Management**

Anticipating complaints. G. D. Crain, jr. *Inland Ptr 63:33-4 Ap '19*

**Printing offices—Management—Continued**

- Commercial art department for the printery. R. F. Saladé. Inland Ptr 62:211-12 N '18
- Consolidation versus competition. W. H. Mayes. Inland Ptr 62:637-8 Mr '19
- Efficiency in the printing-plant. W. A. Henkel. Inland Ptr 63:393-5 Jl '19
- Gaining time in the plant. R. F. Saladé. Inland Ptr 63:274-6 Je '19
- Getting out of the ruts. W. H. Mayes. Inland Ptr 60:741-5 Mr '18
- Great selling power of service. R. F. Saladé. Inland Ptr 62:518-20 F '19
- Keeping track of jobs in process. Inland Ptr 62:660-1 Mr '19
- Production-service. W. C. Pratt. Inland Ptr 62:37-9 O '18
- Psychology of the little thing. M. Gross. Inland Ptr 62:33-5 O '18
- Sources of lost time. B. Daniels. Inland Ptr 61:193 My '18
- Stop the leaks. D. C. Hegarty. Inland Ptr 63:517-19 Ag '19
- Storage system that pays. J. J. Finnegan. Inland Ptr 61:310-11 Je '18; Discussion. W. A. Duboc. 61:716-16 S '18

**Records**

- Facsimile record for cuts. L. F. Wilcox. II Inland Ptr 63:277-8 Je '19
- Individual customer's record. W. R. Hyde. Inland Ptr 63:279-80 Je '19

**Printing on cloth. See Textile printing****Printing presses**

- Application of printing-press motors. C. E. Clewell. II Elec W 72:302-5 Ag 17 '18
- Daniel Treadwell, an inventor forgotten by printers. H. L. Bullen. diag Inland Ptr 61:85-6 Ap '18
- Electrically-driven printing presses. II diag Engineer 126:140, 144-5 Ag 16 '18
- Our largest newspaper presses. II Sci Am 120:451+ My 3 '19
- Small presses. Inland Ptr 62:651 Mr '19
- Speed-adjusting controller for printing presses. W. G. Merrowit. Elec W 72:705 O 12 '18
- Taking care of printing-presses. L. A. Schmidt. Inland Ptr 62:416 Ja '19
- To keep job-presses in good condition. T. F. Whitehead. Inland Ptr 60:784-5 Mr '18

See also Printing, Practical—Presswork

**Printing trade**

- Building up printing accounts. C. E. Shaffner. Inland Ptr 63:273-4 Je '19
- Cutting the coat to fit the cloth. B. Daniels. Inland Ptr 63:432 Jl '19
- Is paper merchandise properly salable by printers? H. L. Bullen. Inland Ptr 63:296 Je '19
- National affairs from the angle of the printing crafts. W. Fawcett. Inland Ptr 62:529-30 F '19
- New pastures for ambitious printers. R. F. Saladé. Inland Ptr 60:466-9 Ja '18
- Printer's birthright; providing his own materials. F. H. Farnsworth. Inland Ptr 62:324-5 D '18
- Printers' pools placed on the defensive. W. Fawcett. Inland Ptr 62:72 O '18
- Printing—and advertising. S. A. Pease. Inland Ptr 63:637-8 S '19
- Printing for profit, by Charles Francis. Review by S. H. Horgan. Inland Ptr 60:665-6 F '18
- Printing-trades contribution to industrial injuries. W. J. French. Inland Ptr 61:638 Ag '18
- Putting the printing business back on a peace basis. W. Fawcett. Inland Ptr 62:287-8 D '18
- Selling the printed product. E. D. Taylor. Inland Ptr 61:705-7; 62:35-6 S-O '18
- Speaking the buyer's language. M. Gross. Inland Ptr 60:469-72 Ja '18
- Strang propounds a few queries; how a knowledge of printing helps the salesman. M. Gross. Inland Ptr 64:37-9 O '19
- Thoughts on selling printing. S. A. Pease. Inland Ptr 60:749-50 Mr '18
- War tax returns of the printer. W. Fawcett. Inland Ptr 60:636-8 F '18
- When the printer queers himself by price cutting. H. P. Hildreth. Inland Ptr 62:517-18 F '19

Wisconsin plan; coöperation of the University of Wisconsin with the Federated printing and press associations. E. A. Atherton. Inland Ptr 61:101-2 Ap '18

**Advertising**

- Achilles heel of the printer's house-organ. R. E. Ramsay. Inland Ptr 62:636-6 Mr '18
- Advertising your own business. J. L. Engle. Inland Ptr 62:274-8 D '18
- Direct advertising campaigns. F. L. Martin. Inland Ptr 63:70-2 Ap '19
- Direct-mail methods for printers. M. Gross. Inland Ptr 61:46-8 Ap '18
- How can the printer create unusual business? J. M. Evans. Inland Ptr 62:156-8 N '18
- Movie program advertising. E. A. Dench. Inland Ptr 61:732 S '18
- Printer's house-organ—what shall and shall not go into it. M. Droke. Inland Ptr 61:589-91 Ag '18
- Printer's publicity. F. L. Martin. See monthly numbers of Inland printer
- Printing knowledge versus advertising knowledge. M. Gross. Inland Ptr 61:441-3 Jl '18
- Suggestions for gaining new business. R. F. Saladé. Inland Ptr 60:612-13 F '18
- Time-saving printing. H. L. Bullen. Inland Ptr 63:530 Ag '19
- Your own pills. J. R. Hammond. Inland Ptr 63:514-15 Ag '19

**Priority**

- Annual convention of the National association of purchasing agents. Detroit. Automotive Ind 39:532-3 S 26 '18
- Automatic priority classification; new rules and regulations issued by War industries board. Iron Tr R 63:270-2 Ag 1 '18
- Committee settles priority doubts of jobbers. Iron Tr R 63:740-1 S 26 '18
- Complete text of War industries board ruling. Automotive Ind 39:823-4 N 14 '18
- Coupling publicity with priority. G. Canterbury. Iron Tr R 63:859 O 10 '18
- Electric railways and manufacturers of railway apparatus in class two. Elec Ry J 52:471 S 14 '18
- Four classes of industrial priority named by War industries board. Eng N 81:516 S 12 '18; Am Lumberman 2261:38 S 14 '18
- How the priority certificate works. Am Mach 48:207 Ja 31 '18
- How to obtain a priority order at Washington. Am Water Works Assn J 5:194-7 S '18; Same, without resolutions. Eng & Contr 50:350-1 O 9 '18
- Many priority questions settled. M. Hirsch. Iron Tr R 63:968-70 O 24 '18
- Ministry of munitions orders; control of metals, chemicals, machinery and plant. Engineer 126:560-1 D 27 '18
- New priorities regulations. Am Mach 48:297-8 F 14 '18
- New rules governing priority in production. Am Mach 49:272-4 Ag 8 '18
- Preference list of industries and plants, compiled by the Priorities division of the War industries board. Gas Age 42:386-7 N 1 '18
- Preference list of industries concerned with mining and metallurgy. Eng & Min J 106:499 S 14 '18
- Preference list of industries issued. Iron Age 102:637-9 S 12 '18; Elec W 72:507-8 S 14 '18; Iron Tr R 63:623-5 S 12 '18
- Preference list of 74 industries; aircraft leads activities. Automotive Ind 39:471+ S 12 '18
- Priorities on machine tools. C. T. Foster. Am Mach 48:966-7 Je 6 '18
- Priority and preference orders. R. S. Lovett. Ry Age 64:124 Ja 11 '18
- Priority circular no. 3. Ry Age 64:321 F 8 '18; Same abr. Eng & Min J 105:343 F 16 '18
- Priority in war industry. C. J. Stark. Iron Tr R 63:564-5, 620-2, 678-80, 736-8, 789-90, 858-9 S 5-O 10 '18
- Priority order no. 2 suspended. Eng N 80:95 Ja 10 '18
- Priority order no. 5—five preferential classes. Ry R 61:734 D 15 '17
- Regulations of priorities' division for new war construction. Eng & Contr 50:314 S 25 '18

**Priority—Continued**

War industries board ruling on priority distribution for electrical manufacturers and jobbers. Elec R 73:475 S 21 '18; Same. Elec W 72:567-8 S 21 '18

**Prisms**

Detection of ghosts in prisms. T. Smith. diag Sci Am S 87:92-4, 108 F 8-15 '19  
Reflecting prisms. T. Y. Baker. diag Sci Am S 87:173-3 Mr 15 '19

Prison labor. See Convict labor

**Prisoners of war**

Mentality of war prisoner. Sci Am S 87:105 F 15 '19

**Private car lines**

Federal trade report on private car lines. Ry R 65:394-5 S 13 '19  
Private car lines to receive one cent a mile. Ry Age 65:386-91 Ag 30 '18  
Privately owned cars in Great Britain. H. R. Willson. Ry R 65:446-7 S 27 '19  
Who shall own the cars? Sci Am 121:248 S 13 '19

Private schools. See Schools, Private

Private tracks. See Railroads, Industrial

**Privies**

Camp sanitary closet with septic tank. diag plan Eng N 83:97 J1 10 '19  
Dry closet system. E. H. McCuiston. Texas U Bul 1733:10-15 Je 10 '17  
Folding portable dry closet. diag plan Eng N 83:146 J1 17 '19

**Probabilities**

Theory of probabilities applied to failures of suspension insulators. L. M. Klauber. diag Am Inst E E Pro 38:959-72 Ag '19

See also Least squares

Producer gas. See Gas; Gas manufacture and works; Gas producers

Production. See Factory management

Production records. See Progress records; Records

**Professional advertising**

British architect and advertising. Am Arch 114:224 Ag 21 '18  
British viewpoint of advertising. Am Arch 114:264 Ag 28 '18  
Ethics in advertising. Am Inst Arch J 6:84-5 F '18  
Question of ethics. Am Arch 113:291-2 Mr 6 '18  
Royal institute of British architects and the question of advertising. Am Arch 114:369-70 S 25 '18  
Shall architects advertise? Am Arch 113:801-2 Je 12 '18  
Two opinions on architectural advertising. T. C. Young; F. E. Davidson. Am Arch 115:26-7 Ja 1 '19

**Professional associations**

Professional organization in England. S. Webb and B. Webb. Eng N 82:712-16 Ap 10 '19

**Professional ethics**

Architecture as a service. A. E. Robinson. Am Arch 113:567 My 8 '18  
Fetishes and fallacies. T. C. Young. Am Arch 113:15-16 Ja 2 '18; Discussion. 347-9 Mr 20 '18  
Intimate thoughts on professional ethics. J. W. Davidge. Am Arch 114:666-8 D 4 '18  
Report of sub-committee of the joint committee on reconstruction after war. J. C. Llewellyn. Am Arch 115:65-7 Ja 8 '19  
What constitutes unprofessional practice in architecture? Am Arch 114:187-9 Ag 14 '18; Discussion. G. C. Nimmons. 114:343-4 S 18 '18  
See also Engineering ethics; Professional advertising

**Professions**

Common professional platform; address at the Inter-professional conference. T. R. Kimball. Eng N 83:808-9 O 30 '19  
Professional idea. J. B. Keeble. Am Inst Arch J 7:199-201 My '19  
Professional principle. T. R. Kimball. Am Inst Arch J 7:215-16 My '19; Am Arch 115:635-6 My 7 '19

**Profit**

How to calculate profits. Am Ind 18:39 My '18  
Profit earned and profit collected. F. Thulin. J Account 25:34-42 Ja '18  
What a dollar will earn in a year. Horseless Age 44:20-1 Ap 15 '18  
See also Interest

**Profit sharing**

Can profit sharing with employees be successfully worked out? R. H. Ballard. Am Gas Eng J 107:517-19 D 8 '17  
Fair basis of profit-sharing. G. K. Parsons. Ind Management 55:140-4 F '18  
Fallacy of the employees' profit-sharing as a reward for labor. P. L. Burkhard. Ind Management 58:42-5 J1 '19  
Guarantee profit sharing by law. H. A. Rands. Eng N 82:536 Mr 13 '19  
How my men help me manage. S. Cary. Il Factory 22:917-19 My '19  
How valuable are profit-sharing plans? H. Tipper. Automotive Ind 40:209-10 Ja 23 '19  
Human valuation. G. K. Parsons. Ind Management 55:399-401 My '18  
Profit sharing—acceptability and possibilities. G. E. Holmes. Ind Management 57:437-8 Je '19  
Profit-sharing plan for executives. A. P. Ball. Il Ind Management 57:296-8 Ap '19  
Profit-sharing promotes thrift. R. H. Butz. Iron Tr R 65:571 Ag 28 '19  
Tested profit sharing plan of the Miller lock company. D. Wolf. Il Ind Management 56:486-8 D '18  
Why I believe in profit sharing. H. S. Dennison. Factory 20:424 Mr '18  
Why my men say "our." F. J. Moss. Factory 23:1031-3 N '19  
Willys profit-sharing plan on 50-50 basis. J. E. Schipper. Automotive Ind 40:942-4 My 1 '19

**Profiteering**

Federal trade commission finds many companies made huge profits; abstracts. Automotive Ind 39:32-3+ J1 4 '18; Iron Age 102:29-31 J1 4 '18; Eng & Min J 106:30 J1 6 '18  
Let the facts be known. C. S. Keith. Am Lumberman 2255:38+ Ag 3 '18  
Letter from American metal co. Eng & Min J 106:69 J1 13 '18  
Lumber industry has not profiteered. C. S. Keith. Am Lumberman 2259:1 Ag 31 '18  
Refutes the charge of Southern pine profiteering. C. S. Keith. Am Lumberman 2252:49 J1 13 '18  
Report on profiteering. Eng & Min J 106:34-5 J1 6 '18  
Trade commission on profiteering. Am Lumberman 2251:42; 2252:28 J1 6-13 '18  
Treasury on profiteering. Eng & Min J 106:460-1 S 7 '18

**Progress records**

Convenient production record. Il Mach 25:501 F '19  
Follow-up system for engineering. Automotive Ind 40:530 Mr 6 '19  
Graphic production control. C. E. Knoepfel. Il diag Ind Management 57:113-18 F '19  
How a contractor keeps tab on the job. W. F. Tubising. Il Concrete 11:180-1 D '17  
How far along is the job? a graphic answer that's always ready. chart Factory 23:1296-7 D '19  
How I watch jobs through in the engineering department. W. J. Oldroyd. Factory 22:477-8 Mr '19  
How progress is recorded on army construction jobs. Eng N 80:993-4 My 23 '18  
Improved progress-of-work chart. F. J. Schlink. J Fr Inst 185:697-701 My '18  
Keeping progress records. W. P. Munger. Ry Age 64:1075-6 Ap 26 '18  
Keeping track of production. H. A. Russell. Ind Management 56:231-4 S '18  
Method of regulating shop output. E. T. Spidy. Ry Mech Eng 92:527-9 S '18  
Progress chart for recording preparation of construction plans. J. C. Thornton. chart Eng N 82:202-3 Ja 23 '19  
Progress on different divisions of work kept even by charts. Eng N 80:1148-9 Je 13 '18

**Progress records—Continued**

Progress reports of concrete construction work. Concrete 13:131-2 O '18  
 Quantity house production methods, construction branch. Emergency fleet corporation. *Il* Am Arch 115:393-8 Mr 12 '19  
 Schedule board for engineering department. H. E. Wulffing. *Il* Elec W 71:1274 Je 15 '18  
 Seeing orders through the shop. E. Standfuss. *Il* Factory 21:847-9 N '18  
 Shop-production diagrams. H. S. Rich. Am Mach 50:606 Mr 27 '19  
 Transmission line progress chart. Elec R 73:380 S 7 '18  
 Visible index system for record keeping. Eng & Contr 51:202 F 19 '19  
 War industries brought under modern engineering control; use of progress chart by Ordnance department. M. Schuyler. chart Eng N 80:323-5 F 14 '18; Same. Am Mach 48:341-3 F 21 '18

**Prohibition**

Coal production and booze. Coal Age 12:424, 547-8; 13:156-7, 300, 346-7, 556-7, 758, 843-4 S 8, 29 '17, Ja 19, F 9-16, Mr 23, Ap 20, My 4 '18  
 Effect of prohibition on lighting revenue. Elec W 73:736-9 Ap 12 '19  
 Effect of prohibition on motoring public. Motor Age 36:16-18 Ag 21 '19  
 Folly of temporizing with the saloon propaganda. Eng & Min J 104:1003-4 D 8 '17  
 National prohibition injects new element in building situation. Arch Forum 31:106-8 S '19  
 National prohibition only solution of saloon evil. E. H. Cox. Coal Age 12:1008 D 15 '17  
 Prohibition and labor. G. N. Lantz. Coal Age 13:556 Mr 23 '18  
 Prompt action by chemists needed on prohibition legislation. J. R. Withrow. J Ind & Eng Chem 11:253-4 Mr '19  
 Wish dry zones for ship building areas. Am Lumberman 2234:54 Mr 9 '18

**Projectiles**

Aberdeen chronograph; an improved device for timing the flight of a projectile. H. T. Wade. *Il* Sci Am 121:131+ Ag 9 '19  
 Bombing and getting bombed. *Il* Sci Am 118:209 Mr 9 '18  
 Curious projectiles. *Il* diags Sci Am S 87:28-9 Ja 11 '19  
 Making gray iron castings in a brass foundry. W. H. Parry. Metal Ind 16:12 Ja '18  
 Moving targets and torpedo attack. diag Engineer 125:561-3; 126:2-3, 23-4 Je 28-Jl 13 '18  
 Rotating projectiles from smooth-bore guns. C. G. Abbot. *Il* Sci Am 121:38+ Jl 12 '19  
*See also* Ammunition; Ballistics; Bombs; Depth; Bullets; Grenades; Munitions of war; Shells (projectiles); Shrapnel shells

**Projection.** See Lantern projection

**Projection of light.** See Light projection

**Projectors.** See Light projection

**Promissory notes**

How payment upon notes can be enforced by proper parties. R. H. Butz. Textile World 54:2406 N 9 '18  
 Innocent holder of note may collect from you, even though you do not owe the man to whom you gave it. Dom Eng 87:151-2 Ap 26 '19  
 Two common promissory note phrases explained. E. J. Buckley. Metal Work 88:785 D 28 '17

**Pronunciation**

Pronunciation and division. F. H. Teall. Inland Ptr 62:397-8 Ja '19

**Proofreading**

From copyholder to proofreader. H. B. Cooper. Inland Ptr 60:43-5, 185-7, 332-5, 477-9, 621-3, 751-2; 61:87-8, 223-4, 356-7, 499-500, 623-4, 743-4 O '17-S '18  
 Good and bad proofreading. F. H. Teall. Inland Ptr 63:405-6 Jl '19  
 Head proofreader. F. H. Teall. Inland Ptr 62:671 Mr '19

How far is a proofreader responsible? M.

Fairfield. Inland Ptr 62:37-8 Ap '19

Keeping the job uniform. H. E. Brenneman.

Inland Ptr 62:202 N '18

Mistakes we make. F. H. Teall. Inland Ptr

60:520 Ja '18

More about word forms. H. E. Brenneman.

Inland Ptr 63:520 Ag '19

Necessary, and not an evil. F. H. Teall. In-

land Ptr 63:285-6 Je '19

Notes on proofreading. P. Bartholow. Inland

Ptr 62:279-80 D '18

Proofreading in pressroom and bindery. D.

Kimball. Inland Ptr 62:398-400 Ja '19

Proofroom. F. H. Teall. See monthly num-

bers of Inland printer

What is a proofreader? Inland Ptr 60:484-5 Ja

'18

When should a proofreader change from the

copy? M. Fairfield. Inland Ptr 61:102-3 Ap

'18

*See also* Capitalization; Compound words;

Punctuation; Spelling; Word division

**Propane**

Production of toluene and propane from spruce

turpentine; patent. Met & Chem Eng 17:716

D 15 '17

**Propellers**

Device for twin screw propeller bearings.

H. E. A. Raabe. diag Int Marine Eng 23:

543 S '18

Housing propeller for small boats. *Il* Sci

Am 120:468 My 3 '19

Investigations into the causes of corrosion

or erosion of propellers. C. A. Parsons and

S. S. Cook. Engineer 127:427-8 My 2 '19

Pitch of propeller. diags Int Marine Eng 24:

301 Ap '19

Propeller data from the New Mexico's trials.

Int Marine Eng 24:707 O '19

Single-collar vs. multi-collar thrust bearings

for propeller shafts. H. G. Reist. diags Gen

Elec R 22:133-7 F '19

*See also* Ship propulsion

**Manufacture**

Eastern yard makes big propellers. *Il*

Marine R 49:350-1 Jl '19

How propeller castings are made. R. H.

Palmer. *Il* diags Iron Tr R 63:711-13 S 26 '18

How to construct a pattern for a propeller. E.

Leslie. diags plan Foundry 47:16-17 Ja '19

Manufacture of small propeller castings.

diags Metal Ind 17:280 Je '19

Molding a propeller hub. C. A. Otto. diags

Am Mach 48:802-3 My 9 '18

Propeller patterns. J. A. Shelly. *Il* diags Mach

25:434-8 Ja '19

Welding propellers in Panama canal foundry;

how blades are repaired by burning-on, with

a comparison of costs with autogenous pro-

cesses. J. H. Moffett. *Il* Foundry 46:356-8

Ag '18

**Propellers, Airplane.** See Airplane propellers

**Property.** See Real estate; Valuation

**Propionic acid**

Quantitative estimation of acetic, propionic

and butyric acids. R. D. Crowell. Am Chem

Soc J 40:453-60 F '18

Relative stability of halogen substituted ali-

phatic acids in water solution; the propionic

acid and butyric acid series. G. S. Simpson.

Am Chem Soc J 40:674-83 Ap '18

**Proportional limit.** See Elastic limit

**Prospecting**

Examining and developing the mine pros-

pect. H. T. Curran. *Il* Eng & Min J 107:

348-8 F 23 '19

Federal aid for prospectors. E. J. Ristedt.

Eng & Min J 107:998-9 Je 7 '19

Must the prospector go? Eng & Min J 107:8,

281 Ja 4, F 8 '19

Principles and problems of oil prospecting in

the Gulf Coast country. W. G. Matteson. *Il*

map Am Inst Min E Bul 134:429-63 F '18;

Discussion. 134:463-8; 136:823-35 F, Ap '18

Prospecting for manganese. H. V. Maxwell.

Eng & Min J 105:286 F 9 '18

**Prospecting—Continued**

Standardization of mining methods; prospecting and development. C. A. Mitke. Eng & Min J 106:1106-11 D 28 '18

See also Assaying; Divining rod; Mines and mineral resources; Ore sampling

**Prosthesis. See Artificial limbs****Protalbinic acid**

Nitrogen distribution in protalbinic and lysalbinic acids. C. Kennedy and R. A. Gortner. Am Chem Soc J 41:1526-31 O '17

**Proteins**

Cause of and remedy for certain inaccuracies in Hausmann's nitrogen distribution method. S. L. Jodidi and S. C. Moulton. Am Chem Soc J 41:1526-31 O '19

Molecular mechanism of colloidal behavior; the chemical nature of the adsorption of acids and alkalies by the protein molecule. R. S. Bracewell. Am Chem Soc J 41:1511-15 O '19

Protein extract of ragweed pollen. F. W. Heyl. Am Chem Soc J 41:670-82 Ap '19

Researches on proteins;—the destructive distillation of fibroin. T. B. Johnson and P. G. Daschavsky. Am Chem Soc J 41:1147-9 JI '19

Study of the proteins of certain insects with reference to their value as food for poultry. J. S. McHargue. Sci Am S 86:31 JI 13 '18

See also Casein; Gelatin

**Protoplasm**

Collocation of plasmas within the cell. L. Legrand. diags Sci Am S 85:60-4, 76-7 Ja 26- F 2 '18

**Providence, Rhode Island**

Port of Providence. Sci Am 118:453 My 18 '18

**Water supply**

Improving Providence water supply. J. R. Hess, Jr. II diags Munic J 46:350-3 My 17 '19

Plans for earth-dam construction involve large use of machinery. F. E. Winsor. Eng N 83:612 S 25 '19

**Providence engineering society**

History. Am Soc M E J 40:697-8 Ag '18

**Proving grounds**

America's great effort in ordnance. II diags map Sci Am 120:338-9, 432-3+ Ap 5, 26 '19

History of the Aberdeen ordnance proving ground. F. P. Lindh. II Am Mach 50:459-61, 509-13, 607-11 Mr 6-13, 27 '19

Navy needs a proving ground. Sci Am 118:250 Mr 23 '18

**Prunes**

Intensive prune cultivation under way in France. Sci Am S 87:39 Ja 18 '19

Prune cultivation in France. Sci Am S 87:21 Ja 11 '19

**Prussian blue**

Prussian blue. H. C. Fuchs. Color Tr J 4:92-3 Ap '19

**Prussic acid. See Hydrocyanic acid****Psychoanalysis**

Significance of dreams. E. Rignano. Sci Am S 87:326-7 My 24 '19

**Psychological examination of recruits. See United States—Army—Psychological examinations****Psychology**

Psychology of color in relation to illumination. L. T. Troland. Illum Eng Soc 13:21-37 no 1 '18; Same. Sci Am S 86:114-15, 134-5 Ag 24-31 '18

**Psychoneurosis. See Nervous system—Diseases****Psychotherapy. See Mental healing****Psychrometry**

How to use a psychrometric chart. J. I. Lyle. folding chart Heat & Ven 15:33-6 Ja '18

Psychrometric chart explained. L. A. Wilson. Heat & Ven 16:41-4 Ag '19

Temperature of evaporation. W. H. Carrier. Am Soc Heat & V E 24:25-46; Discussion. 46-50 '18

**Ptyalin**

Effect of neutral salts upon the activity of ptyalin. E. W. Rockwood. Am Chem Soc J 41:228-30 F '19

**Public accountants. See Accountants, Public****Public baths. See Baths, Public****Public buildings**

Architect in war work illustrated by views and plans of groups of temporary office buildings. W. B. Wood. II diags plans map Am Arch 114:630-44, pl 161-8 N 27 '18

Arlington building, Washington, D.C. II plans Arch & Bldg 51:5-6, pl 19, 22-4 Ja '19

National capital building commission report. Am Arch 113:65 Ja 16 '18

New office buildings at Washington, D.C. for the navy and war departments. G. P. Hales. II diags plan Arch Rec 44:522-31 D '18

New program for public buildings in Washington. II Am Inst Arch J 6:19-26 Ja '18

Office building of the Department of the interior at Washington, D. C. C. Butler. II diags plans Arch Rec 44:199-213 S '18

Public buildings of concrete in Philippines. II plan Concrete 15:112-13 S '19

U.S. government buildings for the army and navy departments. II Arch & Bldg 51:41-3, pl 74-85 My '19

United States treasury annex, Washington, D. C.; designs and plans. Am Arch 113:pl 227-31 Je 26 '18

Victory federal building, Springfield, Mass.; view and plans. Am Arch 115:pl 94-5 Mr 26 '19

See also Baths, Public; Capitol buildings; Community centers; Court houses; Fire houses; Library architecture; Market buildings; Municipal buildings; Orphan asylums; Post office buildings; Public comfort stations; Public works; Schoolhouses; State buildings; United States—Mines, Bureau of—Pittsburgh station

**Public buildings commission. See United States—Public buildings commission****Public comfort stations**

Comfort station activities in Wisconsin. plan Metal Work 91:712 Je 6 '19

Comfort station and band stand for city of Louisville, Ky.; views and plan. Am Arch 114:pl 107-8 O 9 '18

Comfort stations are national necessities. II plan Dom Eng 87:186-8+ My 3 '19

Comfort stations at Niagara Falls. II plans Metal Work 89:707-8 My 31 '18

Comfort stations compulsory in Wisconsin. II Metal Work 91:369 Mr 21 '19

Equipment of comfort stations abroad. J. Y. Dunlop. diags plans Metal Work 92:1-3 JI 4 '19

Louisville's new public comfort station. II plan Metal Work 91:5-6 Ja 3 '19

Providing sanitary conveniences for large gatherings. II plans Metal Work 89:293-4 Mr 1 '18

Public comfort station work. diags Metal Work 91:115-16+ Ja 24 '19

Westlake public comfort station in Seattle, Wash. C. A. Osier. II Dom Eng 82:169-70 F 2 '18

**Public documents. See Government publications****Public health**

Federal aid and co-operation in rural public health work. Eng N 82:316 F 13 '19

Public health and private precaution. Munic J 45:467-8 D 14 '18

See also Building laws; Disinfection and disinfectants; Dust prevention; Dust removal; Epidemics; Factory sanitation; Health boards; Hookworm disease; Hospitals; Housing problem; Hygiene, Industrial; Influenza; Malaria; Military hygiene; Physical examinations; Plumbing laws and regulations; Public comfort stations; Railroads—Sanitation; Refuse disposal; Safety devices and measures; Sanitary engineering; Sanitation; Sewage disposal; Smoke prevention; Street cleaning; Swimming pools; Ventilation; Water pollution; Water supply

**Public health boards. See Health boards**

**Public lands**

- Desert sign post. H. C. Hardy. *Il Sci Am* 121: 307+ S 27 '19  
 Engineering work and food supply. F. H. Newell. *Eng & Contr* 49:263-4 Mr 13 '18  
 Water supply and the public lands. W. B. Heroy. *J Elec* 43:24 J1 1 '19  
*See also* Forest reserves

**Public schools**

- What the public schools mean to the employer. H. Tipper. *Automotive Ind* 41: 129-30 J1 17 '19

**Public service**

- Harnessing boy-power. W: B. Ashley. *Il Sci Am* 120:100-1+ F 1 '19  
 Universal public service in peace and war. I. N. Hollis. *Am Soc M E J* 40:11-17 Ja '18

**Public service commissions. See Public utilities commissions****Public service corporation, New Jersey**

- Expenses and revenue for 1917. *Elec Ry J* 51: 782-3 Ap 20 '18

**Public service gas company**

- New Jersey company makes reply to service complaints. J: L. O'Toole. *Am Gas Eng J* 108:19-20 Ja 5 '18

**Public service railway of New Jersey**

- Company needs \$3,500,000 more. *Elec Ry J* 51: 622-3 Mr 30 '18  
 How Public service railway is helping build ships in Newark vicinity. *Il map plans Elec Ry J* 52:734-9 O 26 '18  
 How the Public service railway established and will collect its zone fare. *Il diag plan map Elec Ry J* 53:598-604 Mr 22 '19  
 New Jersey zone fares in doubt. *Elec Ry J* 54:715-17 O 11 '19  
 Public service railway does war work at Camden and Gloucester. *Il plan map Elec Ry J* 52:919-22 N 23 '18  
 Traffic check and what is showed on the Public service railway. *map Elec Ry J* 53:644-8 Mr 29 '19  
 Zone system for New Jersey. *maps Elec Ry J* 53:523-8 Mr 15 '19

**Public speaking**

- Recent novelties in public speaking; application of the vacuum-tube amplifiers and the loud-speaking telephone. *Il Sci Am* 120: 489+ My 10 '19

**Public utilities**

- Logic of public utility consolidations. C. P. Fowler. *Elec W* 71:611-12 Mr 23 '18  
 Prepare your commission cases thoroughly; abstracts. H. L. Geisse. *Elec Ry J* 51:698-9 Ap 13 '18; *Elec W* 71:923-4 My 4 '18; *Elec R* 72:829-30 My 18 '18  
 Presenting the case for the utilities. *Elec W* 71:473-4 Mr 2 '18; Same cond. *Elec Ry J* 51: 427 Mr 2 '18  
 Public utilities and housing projects; notes concerning the general policy of the United States housing corporation. *Munic J* 45:267-8 O 5 '18  
 Public utility defined. *Gas Age* 42:518 D 16 '18  
 Public war experiences and their effect on the future. W. H. McGrath. *J Elec* 43:347-9 O 15 '19  
 Utility field in 1917. W. H. Hodge. *Am Gas Eng J* 108:11 Ja 5 '18  
 War policy of utilities. W. S. Barstow. *Gas Age* 40:585 D 15 '17  
 War-time problems; abstracts. M. Thelen. *Elec Ry J* 51:761-2 Ap 20 '18; *Elec R* 72:804 My 11 '18

*See also* Carriers; Corporation law; Corporations; Depreciation; Electric railroads; Electric utilities; Express companies; Gas companies; Government ownership; Municipal ownership; Public utilities commissions; Railroads; Railroads and state; Street railroads; Telegraph; Telephone; Telephone companies; Valuation; Water companies; Waterworks

**Accounting**

- Working capital for rate-making purposes. O. A. Mann. *J Account* 26:340-2 N '18

*See also* Electric railroads—Accounting; Electric utilities—Accounting; Public utilities—Valuation; Railroads—Accounting; Telephone companies—Accounting; Waterworks—Accounting

**Finance**

Commission control does not remove hazard of utility investment; ruling in Indianapolis water-rate case. L. Metcalf. *Eng N* 81:1134-6 D 19 '18

- Credit of public utilities. H. A. Wagner. *Elec W* 71:916-18 My 4 '18  
 Credit of public utility companies. *Gas Age* 41:235 Mr 1 '18  
 Effect of war conditions on the public utilities. *Elec W* 71:686-7 Mr 30 '18  
 Effect of war upon public utilities. H. Wurdack. *Elec R* 72:1037-9 Je 22 '18  
 Equation to express fair return. W: G. Raymond. *Ry Age* 64:506 Mr 8 '18  
 Fair rates of return on utility investment. H. Erickson. *Gas Age* 42:251-4 S 16 '18  
 Financing corporation for utilities. *Munic J* 45:273 O 5 '18  
 Financing public utilities. O. B. Willcox. *Gas Age* 42:20 J1 1 '18  
 Government must help utilities: needs of public service corporations set forth in hearing on war finance bill. *Elec Ry J* 51:326 F 16 '18  
 Immediate relief is a prime national necessity. T: N. McCarter. *Elec Ry J* 51:713-14 Ap 13 '18; Same. *Ry R* 62:557-8 Ap 13 '18  
 Lessened purchasing power of public utility earnings. W. H. Winslow. *Elec W* 74:419-20 Ag 23 '19  
 New York bankers balk at utility loans. *Elec Ry J* 51:1162-3 Je 15 '18  
 No market for utility securities until satisfactory credit standing is restored. F. H. Sisson. *Am Gas Eng J* 111:345-6+ O 18 '19  
 Problem of financing public utility companies. C. Corey. *Elec R* 74:804-5 My 17 '19  
 Public utilities and the war. C: W. McKay. *Elec R* 72:548-50 Mr 30 '18  
 Public utility situation outlined by national committee. *Elec Ry J* 51:619-20 Mr 30 '18  
 Taking the customer into partnership. *Il J Elec* 43:248-50 S 15 '19  
 To keep utilities from railroads' fate. O. B. Willcox. *Elec R* 72:425 Mr 9 '18  
 Utilities and the war. M. C. Ewing. *Elec R* 72:718 Ap 27 '18  
 Utilities need immediate relief; committee representing utility associations presents report. *Elec R* 72:421-2 Mr 9 '18  
 What is a fair return in war time? J: Bauer. *Elec Ry J* 52:59-61 J1 13 '18

*See also* Electric railroads—Finance; Electric utilities—Finance; Public utilities—Rates; Public utilities—Securities; Railroads—Finance; Street railroads—Finance

**Franchises**

- Franchise is a binding contract. *Elec Ry J* 53:828-9 Ap 26 '19  
 Indeterminate franchise is most equitable; zone rates for electric railroads. H. Erickson. *Elec Ry J* 53:1266-7 Je 28 '19  
*See also* Electric utilities—Franchises; Street lighting—Contracts; Street railroads—Franchises

**Law**

- Comply with these stipulations and save money; attention to details will hold public service companies to account when loss is suffered through their negligence. E. J. Buckley. *Metal Work* 90:222-3 Ag 23 '18  
 New York state legislation affecting power interests. *Power* 47:453-4 Mr 26 '18

*See also* Gas companies—Law; Public utilities—Regulation; Public utilities commissions

**Management**

- Bonus system as applied to the collection department of a public utility. P. Bucher. *Am Gas Eng J* 109:193-7 Ag 31 '18  
 Commercial expansion will solve utility problems. R. Falconer. *Il Gas Age* 43:208-9 F 15 '19  
 Co-operative meter reading suggested for Kansas City. *Elec R* 73:416 S 14 '18



**Public utilities—Management—Continued**

Modern utilities organization. R. Elsmann. *diag Am Gas Eng J* 109:49-51, 121-3 *Jl* 20, *Ag* 10 '18

Practical measures for securing greatest economy in public utility plant operation. C. Brossmann. *Munic Eng* 55:111-13 *S* '18

Taking the customer into partnership. H. J. Elec 43:248-50 *S* 15 '19

**Public relations**

Asininity of trying to get blood out of a turnip; impossible for the public relations man to camouflage a reactionary chief executive. T. Dreier. *Elec Ry J* 51:318-19 *F* 16 '18

Case for private ownership. E. O. Edgerton. *J Elec* 42:524-6 *Je* 1 '19

Development of favorable public opinion toward utilities. J. F. Gilchrist. *Elec R* 75:733-5 *N* 1 '19

Illinois committee on public utility information formed. *Elec R* 74:717 *My* 3 '19

Illinois utilities commission offers advice to public service companies. F. G. Ewald. *Elec R* 74:270 *F* 15 '19; Same. *Elec W* 73:324-5 *F* 15 '19

In national advertising state the facts—tell the truth and let the consumer form his own opinion. N. C. Kingsbury. *Am Gas Eng J* 111:347-8, 389-92 *O* 18 '19

Instilling the public-relations idea. L. W. W. Morrow. *Elec Ry J* 51:1051-2 *Je* 1 '18

Public utility field most attacked and least defended of any special line of endeavor. W. A. Fairservice. *Am Gas Eng J* 111:309-10 *O* 11 '19

Publicity useless unless utility policy is progressive. R. Elsmann. *Am Gas Eng J* 111:45-6 *Jl* 19 '19

Reaching the public through newspapers; Indianapolis daily takes side of utilities. *Elec R* 72:922 *Je* 1 '18

Standard for weighing publicity of utilities. B. T. Mullaney. *Elec W* 74:82 *Jl* 12 '19

*See also* Electric railroads—Public relations; Electric utilities—Public relations; Street railroads—Public relations; Water companies—Public relations

**Rates**

Big war-time rate increase for Jersey utilities. *Munic J* 44:248-9 *Mr* 23 '18

Commodity prices and public utility rates. W. J. Hagenah. *Elec W* 71:1024-6 *My* 18 '18; Abstract. *Elec Ry J* 51:970-1 *My* 18 '18

Cost of service the chief factor in rate regulation. W. G. Raymond. *Eng N* 81:451-4 *S* 5 '18

Cost versus value of service in rate making. J. Bauer. *Elec W* 72:388-9, 443-4 *Ag* 31-*S* 7 '18

Declares quality of service should determine the price. C. F. Elmes. *Am Gas Eng J* 110:439-42+ *My* 24 '19

Federal government can raise utility rates in war times. P. H. Gadsden. *Elec Ry J* 51:1091-2 *Je* 8 '18; *Eng N* 80:1144 *Je* 13 '18

Indiana ruling points out need of more elastic rate structure. *Am Gas Eng J* 108:99-101 *F* 2 '18

Interesting features in rate making brought out in reversing decree of Maryland Public service commission on the Havre de Grace and Perryville bridge company rate case. *Am Gas Eng J* 108:220-4 *Mr* 9 '18

Missouri convention shows a keen interest in rates. *Elec W* 71:1102-3 *My* 25 '18; *Elec Ry J* 51:1053-4 *Je* 1 '18

New York commission establishes basis for rate increases. *Elec R* 73:501 *S* 28 '18

Power of commissions to increase franchise rates. *Gas Age* 44:17-18 *Jl* 1 '19

Preparation of data in connection with rate cases. C. R. Bitting. *Elec Ry J* 54:sup29-30 *O* 11 '19

Present situation will prove in the end the greatest blessing to public utilities. H. L. Doherty. *Am Gas Eng J* 108:103-4 *F* 2 '18

Proposal for national utilities administration. *Ry R* 63:259-60 *Ag* 17 '18

Rate adjustment, valuations, and some of the problems incident thereto. C. M. Gariand. *Munic Eng* 56:74-6 *F* '19

Rate board of conciliation; plan adopted in Iowa. *Gas Age* 42:210 *S* 2 '18

Rates for public utilities service. J. M. Spitzglass. *Gas Age* 41:305-8 *Ap* 1 '18; Same cond. *Am Gas Eng J* 108:269-72 *Mr* 23 '18

Readiness-to-serve and minimum charge. S. S. Wyer. *Am Gas Eng J* 108:516-18 *Je* 1 '18

Regulating rates in Iowa. W. Chamberlain. *Elec Ry J* 54:28-9 *Jl* 5 '19

State commission control over rate contracts. *Gas Age* 43:527-8 *My* 15 '19

Vital principles underlying utility rate making. G. R. C. Wiles. *Gas Age* 44:99-102 *Ag* 1 '19

*See also* Electric rates; Gas rates; Water rates

**Regulation**

British Columbia has new law providing unusual means for enforcing orders. *Elec Ry J* 53:876 *My* 3 '19

California commission says regulation stood war test. *Elec W* 73:188-9 *Ja* 25 '19

Cost of service plan; is it not a step towards stabilizing the relations between utilities and their communities. H. C. Clark. *Am Gas Eng J* 109:471-6 *N* 16 '18

Council for Illinois commission makes clear statement of commission's attitude on general rate increase. H. H. Hartman. *Am Gas Eng J* 107:559-60 *D* 15 '17

Efficiency standards for public utilities. M. G. Lloyd. *Elec R* 73:334-5 *Ag* 31 '18

Efficient management entitled to liberal profit; declaration of principles by the Illinois public utilities commission. *Gas Age* 44:141-2 *Ag* 15 '19

Federal government can raise utility rates in war times. P. H. Gadsden. *Elec Ry J* 51:1091-2 *Je* 8 '18; Excerpt. *Eng N* 80:1144 *Je* 13 '18

Government operation of public utilities. P. Cabot. *Elec W* 74:351-3 *Ag* 16 '19

Government utility ownership only alternative to commission regulation. I. Insull. *Elec R* 74:1092 *Je* 28 '19

If public regulation of utilities is to be a success it must be administered without reference to the popular favor or prejudice of the moment. S. Insull. *Am Gas Eng J* 110:353-5 *Ap* 26 '19; Same abr. *Gas Age* 43:472-3 *My* 1 '19

Illinois commission prepares tentative rules governing the collection and handling of consumers' deposits. *Am Gas Eng J* 108:113-14+ *F* 2 '18

Public utility regulations. C. D. Jackson. *Elec Ry J* 53:230-1 *F* 1 '19

Regulation of public utilities by state and commissions—right to raise rates. *Gas Age* 41:373-4 *Ap* 15 '18

Rules of procedure of Iowa conciliation board. *Gas Age* 42:280-1 *S* 16 '18

State commission control over rate contracts. *Gas Age* 43:527-8 *My* 15 '19

Tennessee and Michigan expand laws. *Elec Ry J* 54:591-2 *S* 20 '19

Utilities need no special favor or consideration—need only a square deal. G. B. Cortelyou. *Am Gas Eng J* 110:463 *My* 31 '19

Utilities turn to regulatory commissions. W. J. Hagenah. *Elec W* 71:24-5 *Ja* 5 '18

Utility questions among most important of times. R. T. Higgins. *Elec W* 74:587-8 *S* 6 '19

*See also* Electric railroads and state; Electric utilities—Regulation; Gas companies—Regulation; Government regulation of industry; Public utilities commissions; Railroads and state; Waterworks—Laws and regulations

**Reports**

Preparation of public utility reports; not literary arrangement, but common sense important. P. Bucher. *Am Gas Eng J* 109:241-2 *S* 14 '18

**Securities**

Strengthened position for utility securities as a result of understanding brought about by war. E. B. Merritt. *Am Gas Eng J* 109:346-7 *O* 12 '18

*See also* Public utilities—Finance

**Public utilities—Continued****Service**

Service is supremely important. J: S. Allen. Elec Ry J 53:688-9 Ap 5 '19

**Taxation**

How should utilities be taxed? F. F. Blachly. Elec Ry J 51:1052-3 Je 1 '18  
 Net earnings rule in special franchise taxation. M. Saxe. J Account 25:17-26 Ja '18  
 New Jersey supreme court holds going value not taxable. Elec R 72:593 Ap 6 '18  
 Taxes which affect the public utilities. Elec W 71:1144-5 Je 1 '18

**Valuation**

Amazing to observe extent to which property is confiscated, under guise of rate regulation, with hardly a protest being raised by the victims. G: N. Webster. Am Gas Eng J 111:112-18, 121-2 Ag 9 '19  
 Cost of service the chief factor in rate regulation. W: G. Raymond. Eng N 81:451-4 S 5 '18  
 Depreciation and rate making. L. R. Nash. Elec Ry J 52:511-13 S 21 '18  
 Depreciation in the valuation of public service property. A. S. B. Little; L: L. G. Benedict. Gas Age 40:203-7, 502-6, 557-9 S 1, D 1-15 '17  
 Fair value in valuation of public service property. A. S. B. Little. Gas Age 41:162-4 F 15 '18  
 Final report of the committee on depreciation; Dissenting opinion, by J. N. Hazlehurst. Am Water Works Assn J 6:85-121; Discussion. 121-35 Mr '19  
 Influence of recent events on utility valuation procedure. J: W. Alvord. Munic Eng 55:210-12 D '18  
 Need of a revised principle of utility valuation. R. L. Hale. Gas Age 43:137-9 F 1 '19  
 Pitfalls in regulating depreciation. J: Bauer. Elec Ry J 52:326-8 Ag 24 '18; Discussion. L: L. G. Benedict. 52:465-6 S 14 '18  
 Preparation of unit prices for valuing public utility properties in war times. J: M. Ray. Eng & Contr 49:45-7 Ja 9 '18  
 Principles underlying determination of fair value. P. J. Kealy and others. Eng N 83:425-8 Ag 28 '19; Same. Elec Ry J 54:222-5 Ag 2 '19; Excerpt. Eng & Contr 52:321-2 S 17 '19  
 Rate adjustment, valuations, and some of the problems incident thereto. C. M. Garland. Munic Eng 56:74-6 F '19  
 Rational basis for determining working capital. G. S. Jacobs. Eng N 80:1041-5 My 30 '18  
 Reproduction cost is fair. H. H. Crowell. Elec Ry J 53:500-1 Mr 15 '19  
 Unit costs for use in public utility appraisals. R. L. Baldwin. Eng N 83:514-18 S 11 '19  
 Valuation for sale and for rate making two distinctive things according to Illinois public utilities commission. Gas Age 40:577 D 15 '17  
 Valuation of public service property. A. S. B. Little. Gas Age 42:57-9 JI 15 '18  
 Washington and Idaho water power co. valuation. Power 47:746 My 21 '18  
*See also* Depreciation; Electric railroads—Valuation; Railroads—Valuation; Waterworks—Valuation

**Public utilities commissions**  
 Commissions rate authority superior to contract. Gas Age 44:55-6 JI 15 '19  
 Commissions without power in New York; Rochester decision of Court of appeals. Elec Ry J 51:811-12 Ap 27 '18; Same. Munic J 44:420-1 My 18 '18  
 Court of Washington (state) decides against commission's fare-raising power. Munic J 45:18-19 JI 6 '18  
 Decision of ex-Judge Hughes in Brooklyn borough case. Am Gas Eng J 109:119 Ag 3 '18  
 Fare increases blocked in New York. Elec Ry J 51:696-7 Ap 13 '18  
 Finding best character of community rate. B. H. Peck. Elec W 71:825-7 Ap 20 '18

Have public service commissions proved to be a failure? Eng & Contr 50:271 S 18 '18  
 Hughes decides for Brooklyn gas company. Gas Age 42:171 Ag 15 '18  
 Indiana commission has jurisdiction. Elec Ry J 52:261 Ag 10 '18  
 Legislative recommendations of Massachusetts commission. Elec W 73:122 Ja 18 '19  
 Massachusetts commission procedure explained. Elec Ry J 51:149 Ja 19 '18  
 New Jersey commission claims rate power superior to contracts. Munic J 45:35-6 JI 13 '18  
 New Jersey court holds that Public utility commission has power to establish electric rates. Elec R 72:1094 Je 29 '18  
 New York commissions report to the state; review of a decade of utility regulation. Elec Ry J 51:334 F 16 '18  
 Oregon commission had jurisdiction; in Portland six-cent case, State supreme court upholds commission rate change. Elec Ry J 52:308 Ag 17 '18  
 Plea for power to increase rates. Gas Age 41:422 My 1 '18  
 Politics and public utilities. W. W. Harris. Elec Ry J 52:798-9 N 2 '18  
 Prepare your commission cases thoroughly; abstracts. H. L. Geisse. Elec Ry J 51:698-9 Ap 13 '18; Elec W 71:923-4 My 4 '18; Elec R 72:829-30 My 18 '18  
 Public service commission for the First district of New York has no authority to require an electric railway to reserve a definite percentage of its revenues for maintenance and depreciation. Elec Ry J 51:1068 Je 1 '18  
 Public utilities in wartime; work of the Indiana commission. C. H. Mote. Am Gas Eng J 109:9-11+ JI 6 '18  
 Relation of Public service commissions to the gas consuming public and to the gas companies. W. Clark. J Fr Inst 186:649-74 D '18  
 What commissions are doing on rates. Elec W 71:1189-90, 1356-7; 72:158-9 Je 8, 29, JI 27, Ag 31 '18  
*See also* Government regulation of industry; Public utilities—Regulation

**Public utilities committees.** See Chamber of commerce of United States

**Public works**  
 Administration of the public works of Buffalo. A. W. Kreinheder. Am Water Works Assn J 6:350-4 S '19  
 American society of civil engineers adopts resolutions for vigorous prosecution of public works construction. Eng & Contr 51:171 F 12 '19  
 Attitude of Railroad administration on public improvements. Ry R 64:882 Je 14 '19  
 Bidding on public work. J. J. Simpson. Munic J 47:254-6 O 25 '19  
 City and county engineers write of construction projects planned to provide buffer employment for labor during readjustment period. Munic Eng 56:37-46, 112-14, 154-7 F-Ap '18  
 Experiences at Worcester, Mass., in public work construction by city forces. A. T. Rhodes. Eng & Contr 51:12-13 Ja 1 '19  
 How should a federal department of public works be organized? C: W. Baker. Eng N 82:722-4 Ap 10 '19  
 Massachusetts has special committee to forward public works and civil construction. C. Coolidge. Eng & Contr 51:157-8 F 5 '19  
 Mayor Davis, of Cleveland, drafts \$20,000,000 public works construction program in preparing for peace. Munic Eng 55:168-9 N '18  
 Municipal partnership in public improvement. J: Simpson. Munic J 45:182-5 S 7 '18  
 Municipal peace readjustment. M. I. Koon. Munic J 46:63-5 Ja 25 '19  
 Municipal work and the war; opinions of mayors in different parts of the country as to the extent to which work should be continued next year. Munic J 44:11-12 Ja 5 '18  
 Performing municipal construction work by day labor in Flint, Michigan; abstracts. E. C. Shoecraft. Munic Eng 56:66-7 F '19; Eng N 82:524 Mr 13 '19  
 Shall we militarize our national public works? Am Arch 116:23-5 JI 2 '19

**Public works—Continued**

U. S. Department of labor creates division of public works and construction development. *Munic Eng* 56:100 Mr '19

*See also* Contracts, Letting of; Irrigation; Municipal engineering; Public buildings; Reclamation service (United States); Rivers—Regulation; Roads; also subdivision Public works under names of countries, e.g. France—Public works

**Finance**

How to finance public improvements in Illinois villages. *W. Artingstall. Munic Eng* 57:188-92 O '19

**Public works commission, Pennsylvania.** *See* Pennsylvania—Public works commission

**Publicity**

*See* Advertising; Electric railroads—Public relations; Public utilities—Public relations; Railroads—Public relations; Street railroads—Public relations

**Publishing**

Examination, for credit purposes, of a book publishing house. *H. S. Morse. J Account* 26:278-89 O '18

Preparation of book manuscript. *F. H. Teall. Inland Ptr* 64:175-6 N '19

*See also* Printing

**Puddling furnace.** *See* Furnaces, Metallurgical

**Pueblo architecture**

Prehistoric Pueblo Indian ruin near Aztec, New Mexico. *Il Sci Am S* 86:4-5 Jl 6 '18

**Pulleys**

Advantages of steel over cast-iron pulleys. *W. F. Schaphorst. Mach* 24:824 My '18

Crowning of loose pulleys. *Mach* 24:549-50 F '18

Data on belts and pulleys. *W. L. Tryon. diag Foundry* 47:584a, 648a, 704a, 788a, 820a S 1-O 1, N 1-15 '19

Equipping a plain bushed pulley with ball bearings. *diags Mach* 25:1170 Ag '19

Fast and loose pulleys. *R. Jenkins. Engineer* 125:311 Ap 12 '18

Graphic method for the design of cone pulleys. *R. S. Brown. diag Am Mach* 48:194 Ja 31 '18

Increasing motor capacity by changing pulley diameter. *F. M. Baker. Elec R* 73:262 Ag 17 '18

Magnetic pulleys. *Il diag Sci Am* 120:59 Ja 18 '19

Measuring horsepower of a pulley. *diag Mach* 24:651-2 Mr '18

Milling pulley faces. *J. A. Lucas. diag Am Mach* 49:528 S 19 '18

Overcoming loose-pulley trouble on a special drive. *J. Limbrunner. diags Am Mach* 48:340 F 21 '18

Pulley-crowning attachment for the engine lathe. *T. Krauska. diag Mach* 25:546 F '19

Safety-first idea of twenty years ago. *W. H. Webster. Am Mach* 48:364 F 28 '18

Saving coal by efficient pulleys. *C. H. Machen. Il diag Am Mach* 49:536-8 S 19 '18; Same abr. *Textile World* 55:29+ Ja 4 '19

Standardization of pulley sizes. *Am Lumberman* 2280:66 Ja 25 '19

Text books vs. practice. *C. Hering. diags Sci Am S* 87:383 Je 14 '19

*See also* Belting; Shafting

**Pullman, Illinois**

Modern industrial plants. *G. C. Nimmons. Il plans map Arch Rec* 44:414-21 N '18

**Pullman car works**

Simple routine for correcting unsafe conditions. *F. H. Waller. Factory* 20:237 F '18

**Pulverized coal.** *See* Coal, Pulverized

**Pumping**

Gasoline pumping outfit. *diag Metal Work* 90:715 D 27 '18

Graphical records of surge pressures in pipe lines. *R. Bennett. diag Eng N* 82:1048-50 My 29 '19; Abstract. *Mech Eng* 41:618-20 Jl '19

Pointers on pumping hot water. *M. A. Saller. Power* 49:212 F 11 '19; Discussion. *C. W. Peters. 828 My* 27 '19

Portable pumping outfits unwater trenches for lowering pipe lines. *Il Eng N* 82:490-1 Mr 6 '19

Proper ratio of pump capacity to average daily output. *Eng & Contr* 49:446 My 8 '18

Pumping experiments for subsoil water supply for Furl, India. *diag Eng & Contr* 50:425-6 O 30 '18

Pumping water for irrigation makes important power load. *W. A. Scott. Elec R* 75:517 S 27 '19

Unique features of unified operation of water, sewerage and drainage facilities at New Orleans, La. *G. G. Earl. Il Munic Eng* 56:121-9 Ap '19

*See also* Mine pumping; Pumping stations; Pumps; Sewage pumping

**Cost**

Community irrigation pumping plant. *E. E. Glass. Eng & Contr* 50:458 N 13 '18

Cost of emergency pumping at Grinnell, Iowa. *W. G. Raymond. Am Water Works Assn J* 6:834-8 N '19; Abstract. *Eng N* 83:18 Jl 3 '19

Cost of irrigation pumping in Chandler district of Salt River project. *J. M. Gaylord. Eng & Contr* 50:470 N 13 '18

Cost of pumping at Louisville, Ky. *Eng & Contr* 50:33 Jl 10 '18

Cost of pumping for irrigation in western Nebraska. *Eng & Contr* 49:180-1 F 13 '18

Cost of pumping is reduced 30 per cent. by test. *W. G. Raymond. Eng N* 83:18 Jl 3 '19

Cost of pumping through pipe lines; with discussion. *G. C. Habermeyer. Am Water Works Assn J* 6:258-61 Je '19; Same cond. *Eng & Contr* 51:518 My 14 '19; Discussion. *Am Water Works Assn J* 6:261-2 Je '19

Deep well pumps at El Paso. *H. P. Jackson. Munic J* 46:308 Ap 26 '19

Economic value of electrically driven pumps for small water works. *D. D. Ewing. Munic Eng* 56:68-70 F '19; Excerpts. *Eng & Contr* 51:170-1 F 12 '19

Electric irrigation pumping proves profitable on large scale. *Elec R* 73:737 N 9 '18

Electric pumping with results of tests and operating records. *H. W. Wagner. Il Iowa state College Bul* 46:12-15, 39-45 '17; Excerpts. *Eng & Contr* 49:162-3 F 13 '18; Abstract. *Elec W* 71:206 Ja 26 '18

Methods and costs of pumping for irrigation in Arkansas river valley. *Eng & Contr* 50:29-30 Jl 10 '18

Performance of fuel oil engines in water works service; with cost comparisons. *S. N. Connally. diag Munic Eng* 55:113-14 S '18

Quantity of water used by Detroit and the cost of pumping. *Eng & Contr* 49:459 My 8 '18

Water consumption and pumping costs at Cambridge, Mass. *Eng & Contr* 49:354 Ap 10 '18

**Pumping machinery**

Pumping engines for the Cairo main drainage; abstract. *diag Am Soc M E J* 40:965 N '18

Pumping machinery used by service of supply of American expeditionary forces in France. *W. B. Gregory. Mech Eng* 41:462-3 My '19

Sell pneumatic tank water supply systems. *Il Metal Work* 90:147-9 Ag 9 '18

Unafrow pumping engine. *D. A. Decrow. Il diag Am Water Works Assn J* 6:518-23 S '19; Same cond. *Eng N* 82:1193-4 Je 19 '19; Same abr. *Eng & Contr* 52:48-9 Jl 9 '19

Use of condensing apparatus in water works plants. *Il Munic Eng* 54:243-4 Je '18

*See also* Air lifts; Air pumps; Fire engines; Fire pumps; Newcomen engine; Pumping stations; Pumps; Tire pumps; Vacuum pumps

**Pumping machinery, Electric**

Automatic control of electrically driven hydraulic pumps. *A. Towler. Engineer* 124:480-1 N 30 '17

Automatically controlled electric pump. *Il Elec W* 71:959 My 4 '18

**Pumping machinery, Electric—Continued**

- Butte water company's new electric pumping unit in service. Elec R 73:335 Ag 31 '18
- Cam-driven electric pump. Il Elec W 71:855 Ap 20 '18
- Centrifugal pumps of St Paul water department. Munic J 44:279-80 Ap 6 '18
- Choice of direct-current motor for centrifugal pumps. C. P. Royce. Elec R 73:462 S 21 '18
- C-H enclosed float switch for remote control of pumps. Il Munic Eng 55:40-1 Jl '18
- Economic value of electrically driven pumps for small water works. D. D. Ewing. Munic Eng 56:68-70 F '19; Excerpts. Eng & Contr 51:170-1 F 12 '19
- Electric pumping plant for drainage district in Illinois. Elec R 72:957-8 Je 8 '18
- Electric pumping proves economical for city of Savannah. Il Elec R 75:877 N 22 '19
- Electric pumping successful in diking districts. Il Elec R 73:461 S 21 '18
- Electric pumping with results of tests and operating records. H. W. Wagner. Il Iowa state college Bul 46:1-80 '17; Excerpts. Eng & Contr 49:162-3 F 13 '18; Excerpts. Munic J 44:506-7, 527-30 Je 22-29 '18; Abstract. Elec W 71:206 Ja 26 '18
- Electric pumps in the textile industry. Il Textile World 53:5231-4 My 4 '18
- Electric pumps utilized in hydraulic sluicing. Elec R 74:383 Mr 8 '19
- Electrically driven mine pump. J. Martin. Coal Age 13:214 Ja 26 '18; Discussion. 13: 429, 559, 889 Mr 2, 23, My 11 '18
- Electrically operated deep-well centrifugal pump for railroad shops and yards. Elec R 74:220 F 8 '19
- Electrically operated house pump. Il Elec R 72:533-4 Mr 23 '18; Elec W 71:648 Mr 23 '18
- Electrification of Lancaster (Pa.) water works. J. T. Brainard. Il Munic J 44:219-20 Mr 16 '18; Same cond. Elec R 72:382-3 Mr 2 '18
- Electrification of pumping stations saves coal and money. H. R. Cady. diag Eng N 80:915-16 My 9 '18
- High efficiencies of motor-driven water-works pumps. J. W. Kelsey. Il Elec R 72:727-8 Ap 27 '18; Same. Power 48:16-17 Jl 2 '18
- High efficiencies shown by motor-driven water works pumps at St Paul, Minn. Il plan Munic Eng 55:202-4 D '18
- Hi-speed pumps and pumping outfits. Il Elec W 71:282 F 2 '18; Elec R 72:571-2 Mr 30 '18
- Horsepower requirements of centrifugal pumps. T. M. Heermans. Il Power 49:763-5 My 20 '19; Same abr. Eng & Contr 51: 637-8 Je 11 '19
- Inclosed Bulldozer electric power pump. Il Elec W 72:186 Jl 27 '18
- Induction motors driving centrifugal pumps. F. Jeffrey. Il diags Power 50:324-7 Ag 26 '19
- Lancaster's remodeled pumping plant. J. T. Brainard. Il Munic J 46:173-6 Mr 1 '19
- New electric pumping units for Portland water works. F. D. Weber. Il J Elec 42:582 Je 15 '19
- Operation of oil wells by electric power and the resulting gain to the oil producer. W. G. Taylor. Il Gen Elec R 22:384-98 My '19
- Pumping oil wells by electricity. O. H. Nonnenbruch. Il Power 49:982 Je 24 '19
- Pumping plant and electrical equipment at Balboa shops, Canal Zone. R. D. Gatewood. Il Power 49:114-16 Ja 28 '19
- Remote control of motor-driven pumps and compressors. F. M. Nourse. Il diags Munic Eng 55:133-6 O '18
- Self-oiling electric house pump. Il Elec W 72: 234 Ag 3 '18
- Tests of electrically operated deep well pumps. P. S. Biegler and I. W. Flisk. Am Water Works Assn J 6:78-84 Mr '19
- War-time operation of motor-driven deep-well pumps. P. S. Biegler and I. W. Flisk. Elec W 72:297-8 Ag 17 '18
- Water indicator and motor stop. F. Huskinson. diags Coal Age 14:358-9 Ag 22 '18
- Water pumping by electric power. R. L. Yates. Elec R 72:451-4, 510-12 Mr 16-23 '18
- Pumping stations**
- Air lift pumping plant at Curragh camp. Il plan Engineer 125:475-6 My 31 '18
- Automatic sewage pumping stations serve small suburban district. G. H. Kilpatrick. Eng N 80:957 My 16 '18
- Bridgeport's sewage screen and pumping station. J. A. McElroy. diag plan Munic J 47:224-6 O 11 '19
- Combined vertical shaft turbine and 4-stage pump of Grandview irrigation district, Sunnyside unit, Yakima project, Washington. Il Eng & Contr 51:99-100 Ja 29 '19
- Considerations affecting the choice of pumps for small water works. H. A. Symonds. Munic Eng 57:178-80 O '19
- Construction of a pumping station for the Schenectady works, General electric company. K. O. Guthrie. Il diag plan Gen Elec R 22:538-44 Jl '19
- Conversion of small steam operated pumping stations into electrically operated, automatically controlled stations. J. W. Toyne. Munic Eng 55:64-5 Ag '18
- Design, construction and operation of Toledo's new high pressure fire protection system. W. J. Sherman. Il Munic Eng 53:221-2 N '17; Excerpts. Elec R 72:72-3 Ja 12 '18
- Design of new electric-drive water-pumping station was governed by power rate. H. W. Taylor. Il Eng N 82:653-5 Ap 3 '19
- Determining the heat given off by engines and power piping. E. V. Hill and W. J. Maurer. Il diag plan Heat & Ven 15:18-24 Jl '18
- Double 48-inch manifold at Bissell's Point, St Louis. C. M. Dally. Am Water Works Assn J 5:288-92 S '18; Excerpt. Eng & Contr 49:597-8 Je 12 '18; Excerpt. Eng N 80:992 My 23 '18
- Electrical and pumping equipment being installed at Lima, O. Elec R 71:1064 D 22 '17
- Electrically driven high-lift centrifugal pumps supply water for irrigation. B. P. Fleming. Il diags plan map Eng N 82:74-9 Ja 9 '19; Same cond. Power 49:133-6 Ja 29 '19
- Electrically operated pumping system of New Orleans. Il Elec R 71:1047-9 D 22 '17
- Electricity supersedes steam pumps in Los Angeles. Il Elec R 73:723-5 N 9 '18
- Improved efficiency of the St Louis pumping stations. L. A. Day. Am Water Works Assn J 4:417-27; Discussion. 428-31 D '17
- Improving pumping station grounds. E. G. Wagner. Il plan Munic J 45:88-90 Ag 3 '18
- Lancaster's remodeled pumping plant. J. T. Brainard. Il Munic J 46:173-6 Mr 1 '19
- Large pumping stations in Holland. Engineer 126:106 Ag 2 '18
- Louisville builds new pumping station on huge open-well caisson. Il diags plans Eng N 80:905-10 My 9 '18
- Louisville's new pumping station. Il Munic J 46:398-402 Je 7 '19
- Mayfair pumping station of the Chicago water works. Il Munic Eng 54:237-8 Je '18
- New pumping units for Lynn water supply. R. J. Newsom. Eng & Contr 51:521 My 14 '19
- 100,000 tons of coal wasted by Chicago. Il charts Munic J 44:105-9 F 9 '18
- Operating features of a California pumping project. Il Elec R 73:523-5 O 5 '18
- Performance of new air-lift pumping plant at Galesburg, Ill. J. Oliphant. Il Munic Eng 55:57-8 Ag '18
- Pumping in the Metropolitan water district of Massachusetts. A. O. Doane. Am Water Works Assn J 4:504-13; Discussion. 513-16 D '17
- Pumping plant and electrical equipment at Balboa shops, Canal Zone. R. D. Gatewood. Il Power 49:114-16 Ja 28 '19
- Pumping plants for small water works. H. A. Symonds. Eng & Contr 52:422-3 O 8 '19
- Pumping station addition built under difficulties at Knoxville, Tenn. J. W. Hill. Il diags Eng N 80:414 F 28 '18
- Reliability of pumping station design. C. Goldsmith. Am Water Works Assn J 4:432-44; Discussion. 444-6 D '17
- Remodeling the St Louis Baden station. K. Toensfeldt. Il diag plan Power 47:862-5 Je 18 '18; Same cond. Eng N 80:1135-6 Je 18 '18

**Pumping stations—Continued**

- Sinking a concrete pumping station in a river. K. O. Guthrie. *Il diag plan Eng N* 82:1013-16 My 22 '19
- Sinking 50' concrete rings for pump pit. W. W. Hay. *Il Concrete* 13:25-6 JI '18
- Southern California electrically operated irrigation pumping plant. *Il Eng & Contr* 49:172 F 13 '18
- Utilizing surplus capacity of water-works station. *Elec W* 72:308 Ag 17 '18
- Water works operation; pumping plants. *diags Munic J* 46:244-6, 264-6, 322-4 S 28-O 5, 26 '18
- Water-works pumps with high efficiencies. J. W. Kelsey. *plan Power* 48:16-17 JI 2 '18; Same. *Elec R* 72:727-8 Ap 27 '18
- See also* Mine pumping; Pumping machinery; Pumps; Sewage pumping; Water supply; Water supply engineering; Water-works

**Pumps**

- Air-bound pump and the remedy. *diags Dom Eng* 84:85-6 JI 20 '18
- Air chambers in plumbing systems. R. J. Gordon. *diags Dom Eng* 86:124-6 Ja 18 '19
- Automatic control for belt-driven pump. H. K. Wilson. *diag Power* 47:846 Je 11 '18
- Automatic pump control. B. N. Everett. *diags Power* 50:496-9 S 23 '19
- Automatic variation of gas pressure and its application to a vacuum pump, circulation of gases, magnetic stirrer. O. Maass. *diags Am Chem Soc J* 41:53-9 Ja '19
- Estimating height of suction lift. *Power* 47:885 Je 18 '18
- Factors in the selection of pumps for small water-works. H. A. Symonds. *Eng N* 83:429-31 Ag 28 '19
- Finney hand pump. *Il diags Engineer* 128:191 Ag 22 '19
- Fuel pump for airplanes. *diags Automotive Ind* 41:575 S 18 '19
- Handy pump. *diags Int Marine Eng* 23:247 Ap '18
- Hy-Pres oil pump. *Il diags Power* 50:110 JI 15 '19
- Indicated horsepower required for pump. *Power* 48:363 S 3 '18
- Installation and use of air chambers. H. D. Fisher. *diags Power* 50:209-10 Ag 5 '19
- Lift and force pumps. J. H. Perry. *diags Dom Eng* 84:194-6, 239-41 Ag 10-17 '18
- Links in the history of engineering; an old engineering price list. Sir Samuel Morland's pumps. *Engineer* 127:536-7 My 30 '19
- Little Niagara pumps. *Il diag Am Mach* 50:467-8 Mr 6 '19
- Luitwieler single-plunger double acting pump. *Il Power* 47:652 My 7 '18
- Mechanical efficiency of gravel pumps. T. R. A. Windeatt. *diag Eng & Min J* 105:515 Mr 16 '18; Same. *Eng & Contr* 49:392 Ap 17 '18
- Methods employed in recovering a pump from bottom of deep well. W. A. Judd. *Munic Eng* 53:237-8 D '17; Same. *Am Water Works Assn J* 5:142-4 Je '18; Same. *Eng & Contr* 50:266 S 11 '18
- Motor operated by a river's flow. *Il Sci Am* 118:363 Ap 20 '18
- Points in pump selection. B. N. Everett. *Power* 48:446-7 S 24 '18; Same. *Chem & Met Eng* 20:246-7 Mr 1 '19
- Pump piston groaned. B. E. Eckard. *diags Power* 48:395 S 10 '18
- Pump-piston speeds and relative capacities. *Power* 47:631 Ap 30 '18
- Pump troubles. C. Labbe. *diags Eng & Min J* 108:217-22 Ag 9 '19
- Pumps for the return of condensation and the removal of air. C. L. Hubbard. *Il diags Dom Eng* 89:372-4, 420-2 N 22-29 '19
- Purchasing a brine pump. B. N. Everett. *Power* 48:53-4 JI 9 '18
- Quantity of water handled by pump. *Power* 47:885 Je 18 '18
- Raising hard and soft water for domestic purposes. *diags Metal Work* 91:423-4 Ap 4 '19
- Rollway pump for pumping cutting tool lubricants. *Il Ry Mech Eng* 93:553-4 S '19; *Power* 50:563 O 7 '19
- Setting the valves on duplex steam pumps. P. R. Prescott. *Power* 48:531 O 8 '18
- Small pump strainer. J. C. Hawkins. *diags Power* 48:63 JI 9 '18
- Something about pumps. *diags Power* 47:612-14 Ap 30 '18
- Something about water. J. H. Perry. *diags Dom Eng* 83:285-6, 327-8 My 25-Je 1 '18
- Submersible pumps. F. C. Perkins. *Sci Am* 121:394+ O 18 '19
- Submersible salvage pumps and engines. *Il diags Engineer* 127:274-5, 278 Mr 21 '19; Abstract. *Mech Eng* 41:550-1 Je '19
- Talks on Diesel engines. L. H. Morrison. *diags Power* 49:492-4 Ap 1 '19
- Trane master pump. *Il Heat & Ven* 15:60-1 N '18
- Triplex pumps. J. H. Perry. *diags Dom Eng* 84:275-6+ Ag 24 '18
- Valveless pump. *diags Chem & Met Eng* 20:599-600 Je 1 '19
- Watch the auxiliaries. P. R. Prescott. *Power* 48:460 S 24 '18
- Water pumps of the drainage station at Codigoro; abstract. *Mech Eng* 41:843 O '19
- Weber subterranean pump. *diag Power* 49:925 Je 17 '19
- Worthington oil-line pump with forged cylinders. *Il Power* 48:627 O 29 '18
- See also* Air lifts; Air pumps; Fire pumps; Pumping stations; Tire pumps; Vacuum pumps

**Repair**

- Building up a worn pump with the oxy-acetylene process. C. C. Phelps. *Il Munic Eng* 57:143-4 S '19
- Rejuvenating a worn-out pump. H. H. Hunner. *Eng & Min J* 106:1087 D 21 '18; Same. *Power* 49:53 Ja 14 '19

**Testing**

- Electric pumping with results of tests and operating records. H. W. Wagner. *Il Iowa state college Bul* 46:1-80 '17
- Tests of main circulating pumps of the ships North Dakota and Nevada; abstract. S. M. Robinson. *Am Soc M E J* 40:434 My '18

*See also* Pumps, Centrifugal—Testing

**Pumps, Air lift. See Air lifts****Pumps, Centrifugal**

- American pumps with Francis type of impellers for drainage and irrigation pumping. *Il Eng & Contr* 49:116 Ja 30 '18
- Centrifugal mine pumps. *Coal Age* 14:1049; 15:66-7, 245 D 5 '18, Ja 9, 30 '19
- Centrifugal mine pumps. O. Haentjens. *diags Coal Age* 13:998-1002 Je 1 '18
- Centrifugal pump driven by a synchronous motor. F. G. Switzer. *Sibley J* 32:70-1 F '18
- Centrifugal-pump motor heats. *Coal Age* 15:681 Ap 10 '19
- Centrifugal pumps. E. C. York. *Am Water Works Assn J* 5:115-19 Je '18
- Centrifugal pumps at the Chicago water-works plants. *Eng N* 82:1114 Je 5 '19
- Centrifugal pumps for mine service. H. Axford. *Coal Age* 12:485-90 S 22 '17; Same cond. *Power* 47:636-8 Ap 30 '18
- Centrifugal pumps made with wooden casings. J. A. Shaw. *Power* 49:220 F 11 '19
- Chain drive fire pump; new application of centrifugal to water power drives. C. H. Bunting. *Il diag Textile World* 55:2727 My 3 '19
- Durlon centrifugal and reciprocating pumps. *Il diags Power* 48:879-80 D 17 '18
- Electrically driven high-lift centrifugal pumps supply water for irrigation. B. P. Fleming. *Il diags plan map Eng N* 82:74-9 Ja 9 '19; Same cond. *Power* 49:133-6 Ja 28 '19
- Estimating capacity of centrifugal pumps. *Power* 48:137 JI 23 '18
- Fulfo motor-driven centrifugal pumps. *Il Mach* 25:661 Mr '19; *Am Mach* 50:465 Mr 6 '19; *Iron Age* 103:555 F 27 '19
- Fulfo reversing centrifugal lubricating pump. *Il Iron Age* 104:641 S 4 '19; *Iron Tr R* 65:639 S 4 '19
- High efficiencies shown by motor-driven water works pumps at St Paul, Minn. *Il plan Munic Eng* 55:202-4 D '18

**Pumps, Centrifugal—Continued**

- Horsepower requirements of centrifugal pumps. T. M. Heermans. *Il Power* 49:763-5 My 20 '19; Same abr. *Eng & Contr* 51:637-8 Je 11 '19
- Improved efficiency of modern pumping units shown. *Il diags Elec R* 75:654-5 O 13 '19
- Modifying centrifugal pump for direct motor connection. B. B. Jackson. *Elec R* 72:637-8 Ap 13 '18
- Multi-stage pump with two discharge nozzles. *diag Elec W* 71:750 Ap 6 '18
- New feature in centrifugal pump design. *Il Munic Eng* 54:210-11 My '18
- New 110-million gallon pump at the Chain of Rocks, St Louis. L. A. Day. *Am Water Works Assn J* 5:293-8 S '18; Excerpts. *Eng N* 80:390-1 My 23 '18
- Priming centrifugal pumps. *Il diags plan Coal Age* 13:226-7 F 2 '18
- Priming centrifugal pumps. H. L. Thompson. *diag Power* 47:272 F 19 '18
- Pump for cooling compound manufactured by the Volym pump co. *Il Iron Age* 103:1716 Je 26 '19
- Pump primed and started automatically. B. E. Rurey. *diag Elec W* 74:836 O 18 '19
- Roturbo centrifugal pumps. *Am Inst Min E Bul* 141:4+ (Ind sec) S '18
- Steam jacketed centrifugal asphalt pump. *Il Eng & Contr* 49:130 Ja 30 '18
- Volym centrifugal pump. *Il Am Mach* 51:89 Jl 10 '19

See also Pumps, Feed water

**Repair**

- Building up a worn pump. *Il Am Lumberman* 2310:58 Ag 23 '19; Same. *Sci Am* 121:207+ Ag 30 '19
- Repairing a turbine-driven centrifugal pump. C. B. Hudson. *diags Power* 50:398 S 2 '19

**Testing**

- Centrifugal pumps of St Paul water department. *Munic J* 44:279-80 Ap 6 '18
- Test shows over 82 per cent efficiency of motor-driven centrifugal pump. F. W. Capellen. *Power* 50:217 Ag 5 '19; Same abr. *Eng & Contr* 52:305-6 S 10 '19
- Tests determine effect of air in centrifugal pump. A. P. Blackstead. *diags Eng N* 82:618 Mr 27 '19

**Pumps, Feed water**

- Constant excess-pressure regulator for motor-driven pumps. C. H. Sonntag. *diags Power* 49:602-3 Ap 22 '19
- Economy of belt-driven vs. direct-steam feed pump. *Power* 48:681 N 5 '18
- How to keep main feed pump gland tight. E. B. Dell. *diags Int Marine Eng* 23:713 D '18
- Improved centrifugal pump. *Il Int Marine Eng* 23:663 N '18
- Jennings turbine pump. *Il Ind Management* 56:254 S '18

- Repairs made on a cracked pump cylinder. J. P. Knoblauch. *diags Int Marine Eng* 23:84-5 F '18
- Required size of duplex boiler-feed pump. *Power* 47:413 Mr 19 '18

**Pumps, Vacuum. See Vacuum pumps****Punched card system**

- Mechanical devices in railroad accounting. S. O. Price. *Il Ry R* 65:600-1 O 25 '19
- Using punched cards for controlling materials. A. E. Van Bibber. *Am Mach* 51:295-300 Ag 14 '19

**Punching**

- Blanking and trimming tools for wood. F. A. Tibbals. *diags Am Mach* 49:1048 D 5 '18
- Cost of blndery operations—slotted-hole punching. R. T. Porte. *Inland Ptr* 61:173-6 My '18
- Hot punching of holes in armor plate. *Am Mach* 49:1089 D 5 '18
- Punching and coping metal sills for railway cars. C. M. Rogers. *Il diag Am Mach* 50:173 Ja 23 '19
- Relation between force, energy and work. D. S. Kimball. *diags Am Mach* 49:757-8 O 24 '18

**Punching machinery**

- Adjustable punch and die. A. E. Holaday. *diag Am Mach* 49:314 Ag 15 '18; Discussion. 49:312 O 31 '18
- Automatic spacing and punching machine for structural work. S. A. Hand. *Il diags Am Mach* 49:1-8 Jl 4 '18
- Buffalo universal slitting shear. *Il Am Mach* 48:1124 Je 27 '18; *Iron Age* 101:1549 Je 13 '18
- Combination plate punching, trimming and shearing machine. *Il Iron Age* 103:236 Ja 23 '19
- Compact punch press of new type. *Il Iron Tr R* 63:557-8 S 5 '18
- Electric drive for punching, shaping and slotting machines. C. E. Clewell. *Il Am Mach* 50:439-44 Mr 6 '19
- Gag punch for structural punch press. J. V. Hunter. *Il diags Am Mach* 48:274-6 F 14 '18
- Hanna shipyard riveting and punching machine. *Il Iron Age* 102:575 S 5 '18
- Improved double-acting punch and die for button coils. W. C. Winkelman. *diags Am Mach* 49:129-30 Jl 18 '18
- Multiple punch for car underframes. G. P. Thomas. *Il Ry Mech Eng* 93:385-7 Je '19
- Muscle and brain—speeding up operations. W. Thomas. *Am Mach* 47:1081 D 20 '17
- Muzzling the punch press. C. H. Biron. *Am Mach* 50:96 Ja 16 '19
- New idea in dieing machinery. *Il Sci Am* 119:442 N 30 '18
- Notching and assembling punch and die for shell fuse socket. D. A. Baker. *diags Mach* 24:1022 Jl '18
- Parker hand punch. *Il Metal Work* 90:516-17 N 1 '18
- Pneumatic punching machine. F. J. Borer. *Il diags Ry Mech Eng* 91:695-6 D '17
- Press tools for knife parts. A. C. Lindholm. *diags Am Mach* 48:75-7 Ja 10 '18
- Punch and die for cutting and punching T-iron. E. A. Walters. *diags Mach* 25:1068-9 Jl '19
- Punch and die for experimental work. J. Calcaterra. *diags Am Mach* 48:127 Ja 17 '18
- Punch of wide adaptability. *Il Iron Age* 104:48-9 Jl 8 '19
- Punch-press brake release. H. Ginsburg. *Il Am Mach* 48:548 Mr 28 '18
- Punch press operations on T-iron bars. J. Clarkson. *diags Mach* 26:270 N '19
- Ryerson quintuple punching and shearing machine. *Il Iron Age* 104:299 Jl 31 '19; *Am Mach* 51:237-8 Jl 31 '19
- Safe punch press operation. W. W. Roach. *Iron Age* 102:1076-7 O 31 '18
- Samson hand and bench punches. *Il Am Mach* 47:1058-9 D 13 '17
- Simple automatic feeding device for punch-press tools. G. R. Smith. *diag Am Mach* 49:957 N 21 '18
- Using a punch press in lieu of bending rolls. J. V. Hunter. *Il diags Am Mach* 49:243-5 Ag 8 '18

See also Dies; Drifts (tool)

**Safety devices**

- Safety starting device for punch presses. *diags Iron Age* 102:1314-15 N 28 '18

**Punctuation**

- Apostrophes in corporation names. F. H. Teall. *Inland Ptr* 64:81 O '19
- Art of punctuation. F. H. Teall. *Inland Ptr* 61:451-2 Jl '18
- Need of punctuation. F. H. Teall. *Inland Ptr* 62:201-2 N '18

**Purchasing**

- Art of buying. G. G. Slaughter. *Textile World* 53:5478 My 11 '18
- Authorized list of U.S. government purchasing agents. *Am Mach* 49:79-81 Jl 11 '18; Same cond. *Iron Tr R* 63:99-100 Jl 11 '18
- Buying methods. Factory 16:192+, 370+, 620+, 17:276+, 440+, 598+, 688+, 18:94+, 280+, 598+, 770+, 946+, 19:84+, 280+, 442+, 654+, 926+, 20:560+, 718+, 1016+, 21:536+, 22:314+, 1054+, 23:120+, 526+, 1378+ Ap. Je. S '16-F. Ap-O. D '17, Mr-Mr. S '18, F, My, Jl, S, D '19
- Columbus board of purchase. *Munic J* 46:311-12 Ap 26 '19

**Purchasing—Continued**

- Don't wait too long before rejecting goods. E. J. Buckley. *Metal Work* 89:775 Je 14 '18
- Factory management in garment trades. M. Gordon. *Il Ind Management* 57:446-51 Je 19
- Facts about contracts; details about business transactions governing action of both parties. R. H. Butz. *Textile World* 54:134 Ji 6 '18
- Functions of the purchasing agent. W. G. Astle. *Iron Tr R* 61:1381-4 D 27 '17
- Great buying power, its dangers and duties. W. C. Redfield. *Ry R* 64:769-71 My 24 '19; Same. *Ry Age* 66: 1263-5 My 23 '19
- How purchasing agents may serve the nation in their work. C. A. Woodroof. *Automotive Ind* 39:533-4 S 26 '18
- Method of purchase expediting. H. M. Sutton. *charts Ind Management* 57:230-1 Mr '19
- National association of purchasing agents Pittsburgh convention. J. E. Schipper. *Automobile* 37:676-6 O 18 '17
- New purchasing system for War department. *Iron Tr R* 63:457 Ag 22 '18; Same. *Ry R* 62: 276-7 Ag 24 '18
- Ordering, distribution and use of supplies. G. G. Yeomans. *Ry R* 61:797-800 D 29 '17
- Organizing a purchasing department. G. S. Small. *Ind Management* 55:228-31 Mr '18
- Other side of buying. *Factory* 21:421-2 S '18
- Principles for stabilizing prosperity. G. S. Small. *Ind Management* 58:24-8 Ji '19
- Principles of purchasing and storing. D. T. Farnham. *Ind Management* 57:33-8 Ja '19
- Purchasing agent, and—why? R. Elisman. *Am Gas Eng J* 109:73-5 Ji 27 '18
- San Diego's purchasing bureau. *Munic J* 45: 147 Ag 24 '18
- War department centralizes purchasing control. *Eng N* 81:246 Ag 1 '18; *Am Mach* 49: 274-5 Ag 8 '18; *Chem & Met Eng* 19:174 Ag 15 '18
- Warring on waste. W. C. Hirsch. *Factory* 20: 494+ Mr '18
- When goods reach you in bad condition. E. J. Buckley. *Metal Work* 90:162-3 Ag 9 '18
- See also Electric railroads—Purchasing; Railroads—Purchasing
- Purdue university**  
Maintain industrial fellowships! C. H. Benjamin. *Il Ry Mech Eng* 92:18-19, 302 Ja, Je 18
- Pure food laws.** See Food laws
- Purification of water.** See Water purification
- Purple**  
Purple and fine linen. *Sci Am* 121:60 Ji 19 '19
- Puttees**  
Puttee cloth coming too narrow. *Textile World* 54:747 Ag 17 '18
- Specifications for knitted spiral woolen puttees. *Textile World* 54:405 Ji 27 '18
- Pyranometer**  
Pyranometer; an instrument for measuring sky radiation. C. G. Abbot and L. B. Aldrich. *diags Sci Am S* 85:364-5 Je 8 '18
- Pyrazole**  
Reactions of the formamidines; the constitution of some pyrazole derivatives. F. B. Dains and R. N. Harger. *Am Chem Soc J* 40:562-9 Mr '18
- Pyrazolines**  
Colored condensation products from ketonic pyrazoline derivatives. E. P. Kohler and L. L. Steele. *Am Chem Soc J* 41:1105-8 Ji '19
- Pyrazolone**  
Condensation of 1-phenyl-3-methyl-5-pyrazolone with anhydrides. S. C. Chatterjee and A. K. Das. *Am Chem Soc J* 41:707-9 Ap '19
- Pyrenees**  
Industrial future of the Pyrenees. *Engineer* 126:51 Ji 19 '18
- Pyrehellometer**  
Some characteristics of the Marvin pyrehellometer. P. D. Foote. *Il diags U S Bur Stand Bul* 14:605-35 Ji 12 '19

**Pyridine**

- Compounds of phenol and the cresols with pyridine. F. W. Skirrow and T. V. Binmore. *Am Chem Soc J* 40:1431-42 S '18
- Researches of pyridines; the synthesis of cytosine aldehyde. T. B. Johnson and L. A. Mikeska. *Am Chem Soc J* 41:810-17 My '19
- Studies on the official method for pyridine in ammonium nitrate. R. M. Ladd. *Il diags J Ind & Eng Chem* 11:552-5 Je '19
- Pyrimidine**  
Development of pyrimidine chemistry. T. B. Johnson. *J Ind & Eng Chem* 10:306-12 Ap '18
- Researches on pyrimidines; alkylation of 5-amino-uracil. T. B. Johnson and I. Matsuo. *Am Chem Soc J* 41:782-9 My '19
- Pyrite**  
Coal as a by-product of coal mines. *Sci Am* 118:265+ Mr 23 '18
- Coal pyrite resources of Tennessee. E. A. Holbrook and W. A. Nelson. *flow sheets Coal Age* 15:1077-9 Je 12 '19
- Commercial recovery of pyrite from coal. S. H. Davis. *Am Inst Min Bul* 152:1469-70 Ag '19; Same. *Eng & Min J* 108:462 S 13 '19; Same. *Coal Age* 16:776 N 13 '19; Discussion. *Am Inst Min Bul* 154:2948-51 O '19
- Occurrence and origin of finely disseminated sulfur compounds in coal. R. Thiesen. *Il Am Inst Min Bul* 153:sup2431-44 S '19; Same. *Coal Age* 16:668-73 O 23 '19
- Principal consumers of pyrite; list made by the War minerals committee. *Eng & Min J* 105:287 F 9 '18
- Pyrite and pyrrhotite resources of Ducktown, Tenn. J. H. Taylor. *Am Inst Min E Bul* 134: 529-33 F '18
- Pyrite deposits in Ohio coal. W. M. Tucker. *maps Econ Geol* 14:198-219 My '19
- Pyrite deposits of Georgia. *Eng & Min J* 106: 213 Ag 3 '18
- Pyrite deposits of Leadville, Colo. H. S. Lee. *Am Inst Min E Bul* 140:1223-8 Ag '18; Excerpts. *Eng & Min J* 106:384-5 Ag 31 '18
- Pyrite in 1917. *Eng & Min J* 105:136 Ja 12 '18
- Pyrite mining at Kershaw, South Carolina. J. H. Watkins. *Il Eng & Min J* 106:517-21 S 21 '18
- Pyrites, sulphur, and sulphuric acid. *Eng & Min J* 107:130-1 Ja 11 '19
- Recovery of pyrite from washery refuse. E. A. Holbrook. *flow sheets Coal Age* 15: 848-51 My 8 '19
- Results of further coöperative work on the determination of sulfur in pyrite check sample no. 4. H. C. Moore. *J Ind & Eng Chem* 11:45-9 Ja '19
- Situation in regard to manganese, sulphur, pyrite, and some other war minerals; with discussion. J. E. Johnson, jr. *Eng Soc W Pa* 33:652-5 Ja '18
- Sulphur, pyrite and sulphuric acid in 1917. *Eng & Min J* 105:973-4 My 25 '18
- Valuable pyrite in Illinois coal beds. G. H. Cady. *Il Coal Age* 16:136-40 Ji 24 '19
- See also Pyrrhotite; Sulfides
- Pyrogallol ethers**  
Synthesis of certain substituted pyrogallol ethers, including a new acetophenide derived from the ethyl ether of syringic acid. M. T. Bogert and J. Ehrlich. *Am Chem Soc J* 41:798-810 My '19
- Pyroligneous acid.** See Acetic acid
- Pyrometers and pyrometry**  
Application of pyrometers to ceramic industry. J. F. Goheen. *Il Am Inst Min Bul* 153:sup 2255-64 S '19
- Application of pyrometers to core ovens. G. W. Keller. *Il Foundry* 47:72-4 F '19
- Application of pyrometry to problems of lamp design and performance. I. H. Van Horn. *Il diags Am Inst Min Bul* 153:sup2247-53 S '19
- Application of pyrometry to the ceramic industries. C. B. Thwing. *Am Inst Min Bul* 153:2139-42 S '19; Discussion. 155:3025-6 N '19

**Pyrometers and pyrometry—Continued**

- Application of pyrometry to the manufacture of gas-mask carbon. K. Marsh. *Il Am Inst Min Bul* 153:1611-26 S '19; Discussion. 156:3133-4 D '19
- Automatic compensation for cold-junction temperatures of thermocouple pyrometers. F. Wunsch. *diags Am Inst Min Bul* 153:2065-71 S '19
- Automatic control and measurement of high temperatures. R. P. Brown. *J Ind & Eng Chem* 10:133-5 F '18; Same abr. *Met & Chem Eng* 17:691-2 D '15 '17; Same cond. *Am Mach* 48:157-9 Ja 24 '18; Same cond. *Mach* 24:512-14 F '18; Excerpts. *Iron Age* 100:1478-9 D 20 '17
- Brown compensated heatmeter. *Il diag Mach* 26:79-80 S '19; *Ind Management* 58:254 S '19; *Iron Age* 104:768 S 18 '19; *Power* 50:540 S 30 '19
- Brown temperature measuring instruments. *Il Ind Management* 55:153-4 F '18
- Checking calibration of thermocouples and pyrometers. *diags Elec R* 74:56-9 Ja 11 '19
- Combustion control meter. *diags Power* 48:599-600 O 22 '18; Excerpt. *Am Soc M E J* 40:1051-2 D '18
- Devices and methods for measuring high and low temperatures with special reference to engineering problems. H. H. Albers. *bibliog Il diags Stevens Ind* 36:67-103 Ap '19
- Electrical controlling pyrometer. *Il diag Chem & Met Eng* 19:210-11 Ag 15 '18
- Emissive powers and temperatures of non-black bodies. A. G. Worthing. *Il diags Am Inst Min Bul* 153:1895-1927 S '19
- Fundamental laws of pyrometry. C. E. Mendenhall. *Am Inst Min Bul* 153:2125-33 S '19
- Heat-measuring instruments. C. E. Clewell. *Il diags Am Mach* 49:1021-5 D 5 '18
- Heat treatment and temperature measuring for shells. J. R. Van Wyck. *diags Am Mach* 47:1089-90 D 20 '17
- Helps on proper maintenance of pyrometers. A. Gemmell. *diags Elec R* 73:980-1 D 21 '18
- High-temperature control. C. O. Fairchild and P. D. Foote. *Il diags Am Inst Min Bul* 153:1701-15 S '19
- High temperature scale and its application in the measurement of true, brightness, and color temperatures. E. P. Hyde. *Am Inst Min Bul* 153:1969-74 S '19
- Hoskins multiple recording pyrometer. *Il Iron Age* 103:177 Ja 16 '19
- How to test pyrometer efficiency: Brown automatic signaling pyrometer. *Il diags Iron Tr R* 64:158-9 Ja 9 '19; *Am Gas Eng J* 110:36-7 Ja 11 '19; *Am Mach* 50:181-2 Ja 23 '19; *Iron Age* 103:245 Ja 23 '19
- Industrial applications of disappearing-filament optical pyrometer. F. E. Bash. *Il diags Am Inst Min Bul* 152:1285-99 Ag '19
- Intelligence is required in the use of pyrometers. S. A. Main. *Iron Age* 101:448 F 14 '18
- Iron ball pyrometer. *Power* 47:813 Ja 4 '18
- Leeds & Northrup optical pyrometer. *Il Elec R* 74:159 Ja 25 '19
- Measuring furnace temperature. G. K. Burgess. *Iron Tr R* 65:1248-9 N 6 '19
- New compensated heatmeter. C. P. Frey. *Il diags Chem & Met Eng* 21:259-61 S 1 '19
- Optical and radiation pyrometry. P. D. Foote and C. O. Fairchild. *Il diags Am Inst Min Bul* 152:1389-1415 Ag '19
- Optical pyrometer for works' use. *Il diag Metal Ind* 15:357-8 Ag '17
- Porcelain for pyrometric purposes. F. H. Riddle. *Il diags Am Inst Min Bul* 153:2207-17 S '19
- Power-operated electrical instruments for measuring and controlling temperatures. *Il Elec R* 73:231-2 Ag 10 '18
- Power operated type of pyrometer. *Il diag Iron Age* 102:579 S 5 '18
- Production of high temperature and its measurement. E. F. Northrup. *Il diags Met & Chem Eng* 17:688-9 D 15 '17; Abstract. *Sci Am S* 84:405 D 29 '17
- Pyrometer for brass and bronze. *Il Chem & Met Eng* 20:436-7 Ap 15 '19; *Iron Age* 103:944 Ap 10 '19; *Metal Ind* 17:186 Ap '19
- Pyrometer porcelains and refractories. R. W. Newcomb. *Am Inst Min Bul* 153:1975-7 S '19; Discussion. 156:3174-5 D '19
- Pyrometer protection tubes. F. A. Harvey. *Am Inst Min Bul* 153:1609-10 S '19
- Pyrometer protection tubes. O. Hutchins. *Il Am Inst Min Bul* 153:1811-16 S '19
- Pyrometer shortcomings in glass-house practice. W. M. Clark and C. D. Spencer. *Am Inst Min Bul* 152:1455-8 Ag '19
- Pyrometer system for annealing furnaces. W. P. Thomas. *diags Elec W* 71:152 Ja 19 '18
- Pyrometers. R. P. Brown. *Metal Ind* 15:268-9 Je '17
- Pyrometers, their construction and repair. J. A. Lucas. *Il diags Am Mach* 49:471-7 S 12 '18
- Pyrometry and pyrometers; discussion by Faraday society. *Engineer* 124:402, 424 N 9-16 '17; Discussion. S. A. Main. *Engineer* 125:52 Ja 18 '18
- Pyrometry and steel manufacture. A. H. Miller. *Am Inst Min Bul* 152:1501-10 Ag '19; Same cond. *Iron Tr R* 65:427-8+ Ag 14 '19
- Pyrometry applied to bottle-glass manufacture. R. L. Frink. *diags Am Inst Min Bul* 153:sup2233-40 S '19
- Pyrometry as applied to manufacture of optical glass. C. W. Keuffel. *diags Am Inst Min Bul* 153:2151-3 S '19
- Pyrometry in blast-furnace work. P. H. Royster and T. L. Joseph. *Am Inst Min Bul* 153:1953-67 S '19; Same cond. *Iron Tr R* 65:1452-6 N 27 '19; Discussion. *Am Inst Min Bul* 156:3199-3203 D '19
- Pyrometry in rotary Portland cement kilns. L. I. Dana and C. O. Fairchild. *Am Inst Min Bul* 153:1661-73 S '19
- Pyrometry in the manufacture of clay wares. F. K. Pence. *Am Inst Min Bul* 153:2107-9 S '19
- Pyrometry in the manufacture of optical glass. A. J. Walcott. *Am Inst Min Bul* 153:1851-4 S '19
- Pyrometry in the tool-manufacturing industry. J. V. Emmons. *Am Inst Min Bul* 153:2155-8 S '19
- Recent improvements in pyrometry. R. P. Brown. *Il Am Inst Min Bul* 153:1979-94 S '19; Discussion. 156:3023-4; 156:3150-1 N-D '19
- Recent progress in pyrometry; abstracts. C. R. Darling. *diag Sci Am S* 84:413-14 D 29 '17; *Mach* 24:1025-6 J '18
- Recording pyrometry. C. O. Fairchild and P. D. Foote. *Il diags charts Am Inst Min Bul* 153:1627-54 S '19; Discussion. 156:3198-9 D '19
- Recording thermocouple pyrometers. L. Behr. *Il diags Am Inst Min Bul* 153:1655-60 S '19
- Refractory materials and high temperature-measurements. C. W. Kanolt. *J Fr Inst* 188:489-505 O '19
- Report of pyrometer committee of National research council. G. K. Burgess. *diags Am Inst Min Bul* 153:sup2271-2300 S '19; Discussion. 156:3194-8 D '19
- Self-checking galvanometer pyrometer. H. F. Porter. *diags Am Inst Min Bul* 153:1803-5 S '19; Discussion. 156:3179-81 D '19
- Simple and efficient pyrometer. *diag Sci Am* 120:16+ Ja 4 '19
- Temperature indicating and controlling systems. F. D. Jones. *Il diag Mach* 25:1015-23, 1138-45; 26:12-17 JI-S '19
- Temperature measurements of incandescent gas mantles. H. E. Ives. *Am Inst Min Bul* 153:1681-6 S '19
- Temperature of a burning cigar. T. S. Sligh, Jr., and H. R. Kraybill. *Il diags Am Inst Min Bul* 153:sup2241-6 S '19; Discussion. 156:3181 D '19
- Temperature of liquid steel; abstracts. C. Johns. *Met & Chem Eng* 18:152 F 1 '18; *Sci Am S* 85:27 Ja 12 '18
- Temperatures of incandescent-lamp filaments. B. E. Shackelford. *Am Inst Min Bul* 153:sup2265-9 S '19



**Pyrometers and pyrometry—Continued**

- Theory and accuracy in optical pyrometry with particular reference to the disappearing-filament type. W. E. Forsythe. *Il diags Am Inst Min Bul* 153:sup2547-78 S '19; Discussion. 155:3033-4 N '19
- Thermo-electric pyrometers for plant use. A. O. Aseman. *Il diags Chem & Met Eng* 21:85-7 JI 15 '19
- Thermoelectric pyrometry. P. D. Foote, T. R. Harrison and C. O. Fairchild. *Il diags Am Inst Min Bul* 153:sup2631-86 S '19; Discussion. 155:3032-3; 156:3124-30 N-D '19
- Tin: an ideal pyrometric substance. E. F. Northrup. *Am Inst Min Bul* 152:1443-4 Ag '19
- Use of optical pyrometers for control of optical-glass furnaces. C. N. Fenner. *diags Am Inst Min Bul* 151:1001-11 JI '19
- Wedge optical pyrometer. *Il diags Engineer* 128:229-30 S 5 '19
- Weighing high temperatures in an electric balance. J. M. Bird. *Il Sci Am* 120:430-14 Ap 26 '19

**See also Thermocouples****Standardization**

- Metals for pyrometer standardization. C. W. Waidner and G. K. Burgess. *Am Inst Min Bul* 152:1511-12 Ag '19
- Standardization of base-metal thermocouples. P. D. Foote, T. R. Harrison and C. O. Fairchild. *Il Met & Chem Eng* 18:403-9 Ap 15 '18
- Standardization of rare-metal thermocouples. P. D. Foote, T. R. Harrison and C. O. Fairchild. *Il diags Met & Chem Eng* 18:343-8 Ap 1 '18
- Standards of temperature and means of checking pyrometers. *Il diags Am Mach* 50:541-5 Mr 20 '19

**Study and teaching**

- Teaching pyrometry. O. L. Kowalke. *Am Inst Min Bul* 152:1425-7 Ag '19
- Teaching pyrometry in our technical schools. G. V. Wendell. *Am Inst Min Bul* 153:2097-2106 S '19
- Teaching pyrometry in technical schools. C. E. Mendenhall. *Am Inst Min Bul* 153:2143-5 S '19

**Pyrophoric alloy**

- American pyrophoric-alloy industry. A. Hirsch. *Chem & Met Eng* 19:510-12 S 28 '18; Same. *J Ind & Eng Chem* 10:849-51 O '18

**Pyrovolter**

- Production of high temperature and its measurement. E. F. Northrup. *Il diags Met & Chem Eng* 17:687-8 D 15 '17

**Pyrrhotite**

- Magnetic concentration of pyrrhotite ores. J. P. Bonardi. *Chem & Met Eng* 20:266-70 Mr 15 '19
- Pyrite and pyrrhotite resources of Ducktown, Tenn. J. H. Taylor. *Am Inst Min Bul* 134:529-33 F '18
- Pyrrhotite deposits of southwest Virginia. J. A. Van Mater. *map Eng & Min J* 105:198-9 Ja 26 '18

**Pyruvic acid**

- Role of atmospheric oxygen and alkali in the oxidation of acetone with potassium permanganate, pyruvic acid as an intermediate product. E. J. Witzemann. *Am Chem Soc J* 39:2657-71 D '17

**Q****Quantity system of estimating**

- Architectural office organization. W. G. Smith. *Am Arch* 115:204 F 5 '19
- Quantity survey. W. G. Smith. *Am Arch* 116:430-1 S 24 '19
- Quantity surveys for buildings. C. E. Flamboe. *Eng & Contr* 50:507 N 27 '18

**Quarries and quarrying**

- Central plant for sharpening drill steels saves money in quarrying. *Il diags plans Eng N* 81:929-30 N 21 '18

Cost of quarrying and crushing limestone for a road improvement. *Eng & Contr* 51:154 F 5 '19

Draining a deep quarry. *Concrete* 15:sup77 N '19

Electrically operated quarry and rock-crushing plant in Chicago. *Il Elec R* 72:1067-9 Je 29 '18

French quarries inspected by U. S. engineers. R. K. Tomlin, jr. *Il Eng N* 80:421-3 F 28 '18; Same. *Eng & Min J* 105:636-8 Ap 6 '18

Hydraulic stripping in quarrying. *Il Eng & Contr* 50:564-5 D 18 '18

Labor saving at limestone quarries. O. Bowles. *U S Bur Mines Tech Pa* 203:1-23 '19; Same. *Concrete* 13:sup51-5, sup61-3 N-D '18; Excerpts. *Eng & Contr* 50:478-9 N 20 '18

Limestone quarry methods and quarry costs. O. Bowles. *Concrete* 14:sup55-6 My '19

Limestone quarry practice. J. Van Lear and H. G. Ireland. *Concrete* 13:sup20 Ag '18

Manless car operation in a stone quarry. *Il Elec Ry J* 52:337-8 Ag 24 '18; Excerpt. *Eng & Contr* 50:276 S 18 '18

Plans for the fourteenth census of mines and quarries. *Eng & Min J* 108:688-9 O 25 '19

Problems in limestone quarry practice; discussion. O. Bowles and I. Warner. *Concrete* 12:sup17-19 F '18

Quarry with modern electrical equipment. *Elec R* 72:842 My 18 '18

Rock quarrying for cement manufacture. O. Bowles. *Il diags plans U S Bur Mines Bul* 160:1-150 '18; Excerpts. *Eng & Contr* 50:571-2; 51:56-7 D 18 '18, Ja 15 '19

Shooting rock for steam shovel quarrying. M. B. Garlier, jr.; L. H. Hawblitz. *Concrete* 15:sup44 S '19

Suggestions on the use of explosives in quarrying. *Eng & Contr* 49:622-3 Je 19 '18

28th engineers—a quarrying regiment. H. W. Edmondson. *Il Eng & Min J* 106:571-2 S 28 '18

**See also Blasting; Mines and mineral resources**

**Accidents**

Quarry accidents in the United States during the calendar year 1916. A. H. Fay. *U S Bur Mines Tech Pa* 193:1-57 '18

Quarry accidents in the United States during the calendar year 1917. A. H. Fay. *U S Bur Mines Tech Pa* 213:1-60 '19

**Safety measures**

Accident prevention in quarry operation. W. H. Baker. *Eng & Contr* 50:59-61 JI 17 '18

Quarry safety rules. 57p '18 California Industrial accident comm., 525 Market st, San Francisco

Safety rules for quarrying. *Eng & Contr* 51:658 Je 18 '19

**Quartz**

Optical tests upon quartz. *Sci Am* 121:227 S 6 '19

Quartz lamps. *See Electric lamps, Mercury vapor*

Quay walls. *See Wharves*

Quebec (city)

**Bridges**

Quebec bridge. *Il diags Engineer* 125:138-40 F 15 '18

**Quenching**

Autographic measurements of the quenching power of liquids; abstract. N. B. Pilling. *J Fr Inst* 187:507-8 Ap '19

Cooling properties of technical quenching liquids. N. B. Pilling and T. D. Lynch. *Il diags Am Inst Min Bul* 153:sup2347-67 S '19; Discussion. 156:3176-9 D '19

**Quenching machine**

Quenching machine for hardening small drawing dies. *Il diags Am Mach* 49:1045-6 D 5 '18

Quicksilver. *See Mercury*

**Quinaldine**

Intermediates used in the preparation of photosensitizing dyes; quinaldine bases. L. A. Mikeska, J. K. Stewart and L. E. Wise. *J Ind & Eng Chem* 11:456-8 My '19

**Quincy, Illinois****Water supply**

How the city of Quincy purchased a \$1,000,000 water works plant with \$280,000. W. R. Gelston. *Munic Eng* 56:84-6 Mr '19

**Quincy, Massachusetts****Architecture**

Government's housing project. S. Baxter. *il diags plans Arch Rec* 45:242-61 Mr '19

**Quinoline**

Intermediates used in the preparation of photosensitizing dyes; quinoline bases. L. A. Mikeška, J. K. Stewart and L. E. Wise. *J Ind & Eng Chem* 11:456-8 My '19  
New addition compounds of quinoline with certain inorganic salts. J. H. Walton and C. L. Liang. *Am Chem Soc J* 41:1027-8 Je '19

Quinone-phenolate theory of indicators. See Indicators and test papers

**R**

Rabbits, Angora. See Angora rabbits

**Racewinite**

Racewinite: a peculiar mineral from ore deposits in Utah. A. N. Winchell. *diag Econ Geol* 13:611-15 D '18

**Radiation**

Calculation of the constants of Planck's radiation equation: an extension of the theory of least squares. H. M. Roeser. *diag U S Bur Stand Bul* 14:237-53 Je 17 '18

Emissive powers and temperatures of non-black bodies. A. G. Worthing. *il diags Am Inst Min Bul* 153:1895-1927 S '19

Emissivity of straight and helical filaments of tungsten. W. W. Coblenz. *il diags U S Bur Stand Bul* 14:115-31 Ap 6 '18

Luminous radiation from a black body and the mechanical equivalent of light. W. W. Coblenz and W. B. Emerson. *bibliog U S Bur Stand Bul* 14:255-66 Je 17 '18

Minimum energy visible to the eye as light. *Illum Engr* 11:217-18 S '18

Minimum radiation perceptible to the eye. F. Reeves. *Illum Engr* 10:292 N '17

Present status of radiation constants. W. W. Coblenz. *Am Inst Min Bul* 152:1283-4 Ag '19

Pyranometer: an instrument for measuring sky radiation. C. G. Abbot and L. B. Aldrich. *diags Sci Am S* 85:364-5 Je 8 '18

Radiation and the electron. R. A. Millikan. *diag Sci Am S* 86:60-1, 74 JI 27-Ag 3 '18

Radiation from system of electrons. *Sci Am S* 85:375 Je 15 '18

Relative sensibility of the average eye to light of different colors and some practical applications to radiation problems. W. W. Coblenz and W. B. Emerson. *bibliog il diags U S Bur Stand Bul* 14:167-236 Je 17 '18; *Excerpts. Sci Am S* 86:83, 96 Ag 10 '18

Remarks on the temperature of space. C. Fabry. *Sci Am S* 85:363 Je 8 '18

Spectral energy distribution in the acetylene flame. W. W. Coblenz. *J Fr Inst* 188:399-401 S '19

Spectroradiometric investigation of the transmission of various substances. W. W. Coblenz, W. B. Emerson and M. B. Long. *U S Bur Stand Bul* 14:653-76 JI 12 '19

Visibility of radiation. E. P. Hyde, W. E. Forsythe and F. E. Cady. *J Fr Inst* 185:829-31 Je '18

Visibility of radiation. P. Reeves. *diags Illum Eng Soc* 13:101-8 no 1 '18; *Abstract. J Fr Inst* 185:711-13 My '18

Visibility of radiation in the blue end of the spectrum. L. W. Hartman. *J Fr Inst* 185:709 My '18

See also Black body; Heat; Heat radiation; Heating—Tables, calculations, etc.; Light;

Radiators; Radioactivity; Radiography; Radiometer; Radium; Sound; Spectra; Ultra-violet rays; X rays

Radiation, Solar. See Solar radiation

Radiator fans. See Automobiles—Fans

**Radiators**

American two-column Rococo radiators. *il diags Heat & Ven* 15:67-8 F '18

Answering fuel needs with a new heating system. G. S. Barrows. *diags Am Soc Heat & V E* 24:143-56 '18; Same (Operating the Rector gas heating system). *Am Gas Eng J* 108:124-30 F 9 '18; Discussion. *Am Soc Heat & V E* 24:157-63 '18

Basement radiator connections. *diag Heat & Ven* 16:39 O '19

Comparative cost of pipe coils and radiators. *Heat & Ven* 15:58-9 My '18

Computing radiation. *Heat & Ven* 15:67-70 Ja '18

Concealed or recessed radiators. *diags plan Heat & Ven* 16:47-8 Ag '19

Finish of radiating surfaces. *Am Arch* 113:195 F 13 '18

H. B. Smith co.'s princess five-column radiators for steam and water. *diags Heat & Ven* 15:66 Ag '18

H. B. Smith co.'s princess one-column radiators for steam and water. *Heat & Ven* 15:68 My '18

Hawks ventilating gas radiator. *il diag Metal Work* 89:376 Mr 15 '18

Heating of industrial buildings—the Industrial air heater. *il diags Engineer* 124:502-3 D 7 '17

How to connect radiators to overhead main. *diags Dom Eng* 85:405-6 D 14 '18

How two noisy radiators were made silent. W. H. Wakeman. *diags Dom Eng* 86:472-3 Mr 15 '19

Kewanee boiler company's 1 and 2-column Kewanee radiators for steam and water. *diags Heat & Ven* 15:67-8 N '18

Maintaining the circulation in an isolated radiator. *diag Heat & Ven* 16:44 N '19

Modified systems of heating. F. Grant. *diags Dom Eng* 89:113-15 O 18 '19

New ideas embodied in a radiator trap. *il Heat & Ven* 16:61-2 Ag '19

Novel method of enclosing radiators. *diags Heat & Ven* 15:59-60 My '18

Paint affects heat radiation. *Am Arch* 113:806 Je 12 '18

Placing hot water radiators below boiler level. W. Hutton. *diags Dom Eng* 88:297-9 Ag 16 '19

Pressweld radiators. *Am Arch* 114:598 N 13 '18

Princess radiators for steam and water. *Heat & Ven* 15:63-4 JI '18

Radiating vessels for vacuum and vapor air return line systems. G. Desson. *diags Dom Eng* 88:148-9 JI 26 '19

Radiator connections. *Heat & Ven* 16:67 O '19

Radiator connections. *diag Power* 47:812; 48:208, 501 Je 4, Ag 6, O 1 '18

Radiator connections for various types of heating systems. F. Grant. *diags Dom Eng* 86:424-6+ Mr 8 '19

Radiator foundry to use iron molds. *il diags plan Foundry* 47:821-2 N 15 '19

United States radiator company's one-column Florentine radiators for steam and water. *il Heat & Ven* 15:81-2 S '18

United States radiator corporation's 3 and 4-column Florentine radiators for steam and water. *il diag Heat & Ven* 15:67-8 O '18

Welding cracked cast iron radiators. D. Baxter. *il diags Metal Work* 91:83-5 Ja 17 '19

See also Airplanes—Radiators; Automobiles

—Radiators; Heating; Hot water heating; Steam heating; Tractors—Radiators

**Testing**

Electric method of testing radiators. J. E. Emswiler. *il diags Am Soc Heat & V E* 24:285-93 '18; Same. *Metal Work* 90:90-2 JI 26 '18; Discussion. *Am Soc Heat & V E* 24:294-6 '18

Recent tests on pressed steel radiators. *Heat & Ven* 15:61-3 Je '18

**Radiators—Testing—Continued**

Report of committee on standard method of testing radiators. *diag* Am Soc Heat & V E 24:113-20 '18

**Radiators, Automobile.** See Automobiles—Radiators

**Radio corporation of America**

Radio corporation of America to absorb American Marconi co. *Elec R* 75:744 N 1 '19

**Radio telephony.** See Wireless telephone

**Radio transmitters.** See Wireless telegraph

**Radioactive substances**

Photometric tests of the brightness of radioactive self-luminous materials. W. C. Clinton. *Illum Engr* 11:260-3 N '18

Radioactive lead latest white metal discovery. T. W. Richards. *Dom Eng* 81:402 D 8 '17

Radioactive luminous materials. W. Savage. *II Chem & Met Eng* 19:515-17 S 28 '18  
System of radio-active elements. I. W. D. Hackh. *flow sheet bibliog Chem & Met Eng* 19:751-2 D 1 '18

See also Mesothorium; Radium; Thorium

**Radioactivity**

Acquired radio-activity. W: Crookes. *Sci Am* S 88:14-15, 29 JI 5, 19 '19

Age of the earth. H. Shapley. *Sci Am* S 87:34-5+ Ja 18 '19

Complexity of the chemical elements. F: Soddy. *Sci Am* S 85:78-80, 94-6 F 2-9 '18

Luminescence due to radio-activity. E. Kar-  
rer and D. H. Kabakjian. *diags J Fr Inst* 186:317-40 S '18

Radium. R: B. Moore. *Am Inst Min E Bul* 140:1165-82 Ag '18; Discussion. 143:1672-4 N '18

Radium and radio-activity. C: H. Viol. *Chem & Met Eng* 19:752 D 1 '18

Radium and radio-activity. C: H. Viol. *Sci Am* S 87:194-5, 214-15, 239 Mr 29-Apr 12 '19

Ratio of mesothorium to thorium. H. N. McCoy and L. M. Henderson. *Am Chem Soc J* 40:1316-26 S '18

What is a chemical element? F: Soddy. *II diag Sci Am* S 88:69+ Ag 2 '19

See also Carnotite; Electrons; Helium; Ionization of gases; Phosphorescence; Radioactive substances; Radiography; Radium; X rays

**Radiography**

Applying X-ray to study of steel. W. E. Ruder. *Iron Tr R* 65:1188-9 O 30 '19

Photographic action of X-rays. N. E. Luboshey. *Sci Am* S 86:152 S 7 '18

Physical characteristics of X-ray fluorescent intensifying screens; abstract. M. B. Hodgson. *J Fr Inst* 187:357-8 Mr '19

Radiometallography. Engineer 127:432-3; 128:80-1 My 2, JI 25 '19; Same (pt. 1). *Sci Am* S 88:18-19 JI 12 '19

Sensitometry of Röntgenographic materials; abstract. M. B. Hodgson. *J Fr Inst* 186:557-9 Ap '18

Single-impulse instantaneous photography. *Sci Am* S 86:383 D 14 '18

Single-impulse radiography (instantaneous): its limitations and possibilities. R. Knox. *Inst E E J* 56:352-3; Discussion. 358-66 Je '18

X-ray photographs of plants and their parts. M. Tevis. *Sci Am* 121:354 O 4 '19

X-rays and metal structure; important French results from increasing the intensity of the light. *Iron Age* 102:390 Ag 15 '18; Same. *Sci Am* 119:262+ S 28 '18

**Radiometer**

Application of the radiometer to the measurement of electric current. T: D. Cope. *diag J Fr Inst* 187:787-44 Je '19

How wireless helps the mariner; keeping navigation posted by means of the radiometer and the radiophore. R. A. Lavender. *II diags Sci Am* 118:340+ Ap 13 '18

Measuring visible and invisible light. *Sci Am* 120:327+ Mr 29 '19

Photo-electric cell and other selective radiometers. W. W. Coblenz. *diags U S Bur Stand Bul* 14:507-36 JI 12 '19; Abstract. *J Fr Inst* 186:250-1 Ag '18

**Radiophore**

How wireless helps the mariner; keeping navigation posted by means of the radiometer and the radiophore. R. A. Lavender. *II diags Sci Am* 118:340+ Ap 13 '18

**Radioscope**

Radioscope in the treatment of wounded men; abstract. *Elec W* 71:1046 My 18 '18

**Radiotelegraphy.** See Wireless telegraph

**Radiotelephony.** See Wireless telephone

**Radium**

Bisulfate method of determining radium. H. H. Barker. *II diag J Ind & Eng Chem* 10:525-7 JI '18

Chemical action produced by radium emanation; the chemical effect of recoil atoms. S. C. Lind. *Am Chem Soc J* 41:551-9 Ap '19

Chemical action produced by radium emanation; the combination of hydrogen and oxygen. S. C. Lind. *diag Am Chem Soc J* 41:531-51 Ap '19

Experiments on the extraction of radium from American pitchblende ores by chlorination. Mrs R. Cable and H. Schlundt. *Met & Chem Eng* 18:460-2 My 1 '18; Excerpts. *Eng & Min J* 106:216 Ag 3 '18

How excessive amounts of radium in the rocks nearly prevented tunneling of the Alps. *Eng & Contr* 49:378 Ap 17 '18

Radium. R: B. Moore. *Am Inst Min E Bul* 140:1165-82 Ag '18; Excerpts. *Eng & Min J* 106:389, 392-3, 410-12 Ag 31 '18; Discussion. *Am Inst Min E Bul* 143:1672-4 N '18

Radium and radio-activity. C: H. Viol. *Sci Am* S 87:194-5, 214-15, 239 Mr 29-Apr 12 '19

Radium industry and reconstruction. J: S. MacArthur. *Eng & Min J* 107:605-6 Ap 5 '19

Radium, the substance that has revolutionized our conception of the constitution of matter. *Eng & Contr* 49:376 Ap 17 '18

Uranium and radium in 1918. *Eng & Min J* 107:134 Ja 11 '19

See also Carnotite; Radioactivity

**Therapeutic use**

Medicolegal aspects of radium-therapy. J. B. Bissel. *Sci Am* S 87:167 Mr 15 '19

**Radium sulfate**

Solubility of pure radium sulfate. S. C. Lind. J. E. Underwood and C. F. Whittemore. *Am Chem Soc J* 40:465-72 Mr '18

**Rafters**

Cuts of hip and valley rafters. *diags Bldg Age* 39:446-7; 40:30-1 Ag '17, Ja '18

Framing hip and valley rafters. W. S. Wilkin. *diag Bldg Age* 40:154 Mr '18

How rafters for a Gothic-roof barn were laid out. C. E. Kelly. *II Bldg Age* 40:284-5 Je '18

**Rafts**

How log rafts are put together and launched. *II Sci Am* 121:83+ JI 26 '19

Timber cargo to be its own vessel. *II Am Lumberman* 2280:35 Ja 25 '19

**Ragweed**

Protein extract of ragweed pollen. F: W. Heyl. *Am Chem Soc J* 41:870-82 Ap '19

**Raiders.** See Torpedoes**Rail. See Rails****Rail bonds**

Bonds for temporary and permanent track construction. G. H. McKelway. *II Elec Ry J* 54:114-17 JI 19 '19

Conditions govern the choice of rail bonds. G. H. McKelway. *II Elec Ry J* 53:591-2 Mr 22 '19

Convex versus concave bonding compressor screw terminals. G. H. McKelway. *II Elec Ry J* 51:527-8 Mr 16 '18

Do not neglect the return circuit. H. T. Bell. *Elec Ry J* 52:54 JI 13 '18

Erico portable bonding and welding apparatus. W. E. Huber. *II Coal Age* 14:100-1 JI 20 '18

Importance of rail bonding. E. Steck. *Coal Age* 15:1167-8 Je 26 '19

**Rail bonds—Continued**

- Importance of the proper bonding of mine rails. C. C. Beck. *diags* Coal Age 16:90-3 JI 17 '19
- Intimate relation between bond and joint maintenance. G. B. Moist. *il diags* Elec Ry J 53:573-4 Mr 22 '19
- Methods used in third-rail bonding. G. H. McKelway. *il diags* Elec Ry J 53:1154-6 Je 14 '19
- New type of mine bonds. E. Steck. *il* Coal Age 16:237-8 Ag 7 '19
- 140-lb. welding outfit for rail bonds and arc welding. *il* Elec Ry J 51:580 Mr 23 '18
- Preventing theft of rail bonds. G. H. McKelway. *il* Elec Ry J 53:375-6 F 22 '19
- Rail bonding and drilling. F. Huskinson. *diags* Coal Age 13:274 F 9 '18
- When is a rail joint well bonded? G. H. McKelway. *Elec Ry J* 52:111-12 JI 20 '18

*See also* Rail joints

**Rail failures. See Rails—Failures****Rail fastenings. See Spikes (railroad)****Rail fissures. See Rails—Failures****Rail handling**

- Loading rails with ditcher at cost of 2 cents per rail. *Eng & Contr* 50:358 O 16 '18
- Non-teetering rail tong. *il diags* Eng & Contr 49:295 Mr 20 '18
- Tongs for picking up two rails at once. *diags* Eng & Contr 49:299 Mr 20 '18

**Rail joints**

- Cutting most of the compromise out of the compromise joint. *il diags* Elec Ry J 53:1108 Je 7 '19
- Dayton rail-joint booster. *il* Elec Ry J 52:845-6 N 9 '18
- Early experimental study of rail wear. R. C. Cram. *il diags* Elec Ry J 51:168-72 Ja 26 '18
- Hardening rail joints on Southern Pacific electrified division at Oakland. *Elec Ry J* 53:1148 Je 14 '19
- Intimate relation between bond and joint maintenance. G. B. Moist. *il diags* Elec Ry J 53:573-4 Mr 22 '19
- Modern welding and cutting. E. Viall. *il diags* Am Mach 50:479-83, 529-32 Mr 13-20 '19
- New insulated joint provides for wave motion in rails. *diags* Eng N 80:537 Mr 14 '18
- New type of electrically-welded joint successful. *il* Elec Ry J 53:182-3 Ja 25 '19
- New types of joint plates for welded joints. *diags* Elec Ry J 51:532 Mr 16 '18
- Rail joint simulates continuous rail. W. M. Pegram. *diag* plan Eng N 83:829 O 30 '19
- Rail joint to carry rails by the heads. W. M. Pegram. *diag* Eng N 82:1278 Je 26 '19
- Rail joints improved by base supports. F. S. Parrigin. *diags* Eng N 80:926 My 9 '18
- Rail joints made without bolts. *il* Elec Ry J 54:348 Ag 16 '19
- Reclamation of electric railway track by welding and grinding by the Connecticut company. H. J. Tippet. *il* Elec Ry J 53:773-6 Ap 19 '19
- Rehabilitating track joints with an arc welder. *il* Elec Ry J 54:82 JI 12 '19
- Standard specifications for extra-high-carbon steel splice bars; English and Spanish. *diag* U S Bur For & Dom Com Ind Stand 30:1-15 '19
- Standard specifications for high-carbon steel splice bars; English and Spanish. *diags* U S Bur For & Dom Com Ind Stand 6:1-15 '18
- Standard specifications for medium-carbon steel splice bars; English and Spanish. *diags* U S Bur For & Dom Com Ind Stand 5:1-15 '18
- Standard specifications for quenched high-carbon steel splice bars; English and Spanish. *diag* U S Bur For & Dom Com Ind Stand 31:1-15 '19
- Welded rail joints. M. Schreiber. *il diags* Elec Ry J 51:190-2 Ja 26 '18
- When is a rail joint well bonded? G. H. McKelway. *Elec Ry J* 52:111-12 JI 20 '18

*See also* Rail bonds

**Rail laying. See Railroads—Track****Rail wagons. See Bonner rail wagon system****Railings**

- Building a durable and economical balustrade. E. V. Laughlin. *diag* Bldg Age 40:343-4 JI '18

- How to find the minor and major axis of a face mold with unequal tangents. M. Williams. *diags* Bldg Age 40:526-7 N '18

*See also* Guard rails

**Railroad accidents. See Railroads—Accidents****Railroad accounting. See Railroads—Accounting****Railroad association, American. See American railroad association****Railroad associations**

- Amalgamation of railway associations. *Ry Age* 64:1263-4 My 24 '18
- Classified lists of associations approved under general order no. 6. *Ry R* 62:966-7 Je 29 '18
- Is the amalgamation of railway associations advisable? *Ry Age* 64:1310-11 My 31 '18
- Past and future of the mechanical associations. W. Schlafke. *Ry R* 62:904-6 Je 22 '18; Same cond. *Ry Age* 64:1515-16 Je 21 '18

- Proposed amalgamation of railway associations. *Ry Age* 65:199-200 Ag 2 '18

**Railroad bonds. See Railroads—Securities****Railroad bridges. See Bridges, Railroad****Railroad construction. See Railroads—Construction****Railroad crossings. See Grade crossings; Railroads—Crossings****Railroad employees. See Railroads—Employees****Railroad engineering**

- Engineering aspects of government operation of railroads are broad. C. W. Stark. *Eng* N 81:23-5 JI 4 '18
- Why not take advantage of college and university facilities. *il* *Ry Mech* Eng 92:18-20, 302 Ja, Je '18
- Work of the sixteenth engineers; abstracts. O. F. C. Randolph. *il* *Ry R* 64:503-7 Ap 6 '19; *Ry Age* 66:889-90 Ap 4 '19
- See also* Grade crossing elimination; Locomotives; Railroad surveying; Railroads—Construction; Railroads—Maintenance and repair; Railroads—Track

**Railroad engineers**

- Another day with the railwaymen in France. *il* *Ry Age* 63:1069-71 D 14 '17
- Better conditions for railway engineers. C. R. Richards. *Eng* N 82:368 F 20 '19
- Difficulties in handling French equipment. J. N. McVey. *Ry R* 63:581-4 O 19 '18
- Doings of the eleventh (railway) engineers over there. R. W. Raymond. *Am Inst E E* Pro 37:supl10-12 Ap '18
- Professional engineers given hearing. *Ry Age* 66:963 Ap 11 '19
- Railroad engineer has a new opportunity. *Eng* N 81:396-7 Ag 29 '18
- Railway engineers commended for part in battle of Picardy. *Ry Age* 64:1083-4 Ap 26 '18
- Railway engineers meet at Chicago at request of fuel conservation section of U.S. Railroad administration. *Power* 48:473 S 24 '18
- Railway regiment handles jobs of all kinds in France. R. K. Tomlin, jr. *il* *Eng* N 80:707-10 Ap 11 '18
- Railwaymen get into fight at Cambrai. *il* map *Ry Age* 63:1029-30 D 7 '17
- Transportation and engineering in France. *Ry R* 63:47 JI 13 '18
- Will railroads experience a shortage of engineers? *Ry Age* 65:673-4 O 11 '18
- Work of the railway engineers. *Ry Age* 64:282 F 1 '18

*See also* Locomotive engineers

**Salaries**

- Classification and compensation of railroad engineers. *Am Inst E E* Pro 38:168-70 My '19 [sec 1]
- Engineering council urges more pay for railroad men. *Eng* N 80:465 Mr 7 '18
- Pay and position of engineers in railway service. C. W. Baker. *Eng* N 82:228-31 Ja 30 '19

**Railroad engineers—Salaries—Continued**

- Pay of railway technical engineers. Eng & Contr 51:186-7 F 19 '19
- Principles and procedure in classification and standardization of salaries of railroad professional engineering positions. J. L. Jacobs. Munic Eng 56:151-2 Ap '19
- Railroad engineers' conference adopts wage scale. Eng N 82:612-13 Mr 27 '19
- Reasons why railway technical men should have better compensation. Eng & Contr 49: 299-300 Mr 20 '18
- Salary schedule for railway technical engineers adopted at Chicago conference. Eng & Contr 51:393 Ap 16 '19

**Railroad fares. See Railroads—Fares****Railroad finance. See Railroads—Finance****Railroad fires. See Railroads—Fire protection****Railroad labor. See Railroads—Employees****Railroad labor dispute, 1916. See Adamson act, 1916****Railroad land**

- When railroad lands are used for carrier purposes; Interstate commerce commission allows purchase of lands needed for future terminal expansion. Eng N 81:628-9 O 3 '18

**Railroad law**

- Amending section four of the act to regulate commerce. G. W. Luce. Ry Age 67:887-8 O 31 '19
- Annual report of the division of law. Ry R 64:260-2 F 15 '19
- Compulsory federal incorporation. A. W. Smith. Ry Age 67:151-3 JI 25 '19
- Esch railroad bill; synopsis. Ry R 64:827-8 Je 7 '19
- New England and the fourth section. Ry R 65:15 JI 5 '19
- Railroad labor legislation of 1917. Ry R 63: 774-5 N 30 '18
- Rules for competitive bidding under the Clayton law. Ry Age 66:1009-10 Ap 18 '19
- Senate committee's tentative railroad bill. Ry Age 67:448-51 S 5 '19
- Text of the Esch railroad bill. Ry R 65:718-30 N 15 '19
- 28-hour law regulating the interstate transportation of live stock; its purpose, requirements, and enforcement. H. Goding and A. J. Raub. II diag plans U S Agric Bul 589:1-19 '18

*See also* Carriers; Grade crossing elimination; Interstate commerce law; Locomotives—Inspection; Public utilities—Law; Public utilities—Regulation; Railroads—Rates; Railroads—Valuation; Railroads and state

**Railroad management. See Railroads—Management****Railroad master blacksmiths' association, International. See International railroad master blacksmiths' association****Railroad motor cars. See Motor cars (railroad)****Railroad publicity. See Railroads—Public relations****Railroad rates. See Railroads—Rates****Railroad records. See Railroads—Records****Railroad regulation. See Railroads and state****Railroad securities. See Railroads—Securities****Railroad shops. See Electric railroads—Shops; Railroads—Shops****Railroad signals. See Railroads—Signals****Railroad stations. See Railroads—Stations****Railroad supplies. See Railroads—Equipment and supplies****Railroad supplies industry**

- Assistance available for the exporter. Ry Age 64:857-62 Ap 5 sec 1 '18
- Far Eastern markets for railway materials, equipment, and supplies. F. Rhea. II map U S Bur For & Dom Com 180:1-339 '19; Abstract. Ry Age 67:411-14 Ag 29 '19; Excerpts. Ry R 65:289-94, 371-6 Ag 30, S 13 '19

- How the export houses help in foreign trade. H. C. Johnstone. Ry Age 64:867-8 Ap 5 sec 1 '18

**Import situation in England and France.**

- R. E. Thayer. Ry Age 67:343-4 Ag 22 '19
- Is the supply held interested in free ports? E. S. Swazey. II Ry Age 64:302-5 Ap 5 sec 1 '18
- Japanese view of railway exports to the East. A. Kasama. Ry Age 64:409-10 F 22 '18
- Mexico as a potential market for railway supplies. E. S. Swazey. II Ry Age 65:868-70 N 15 sec 1 '18
- National railway appliances association; exhibition in Chicago. Iron Tr R 62:734-5 Mr 21 '18
- Neglecting the railroads. B. F. Dimick. Ry R 64:263-4 F 15 '19
- New railway construction in foreign countries. P. H. Middleton. Ry Age 64:39-42 Ja 4 '18
- Opportunities for railway supply exports. S. O. Dunn. Ry Age 66:53-6 Ja 3 '19
- Our foreign trade in railway supplies; an exploration of the purchasing commissions and export houses in New York. P. H. Middleton. Ry Age 64:983-5 Ap 12 '18
- Plea for the railway supply manufacturers. G. A. Post. Ry Age 64:457-8 Mr 1 '18
- Possibilities for supply manufacturers abroad. R. E. Thayer. Ry Age 67:301-3 Ag 15 '19
- Railroad equipment exhibit, Atlantic City, June 18-25. Iron Age 103:1698 Je 26 '19
- Railroad purchases as a stabilizer of business. F. B. Ernst. charts Ry Age 66:934-6 Ap 11 '19
- Railway business association addresses Mr Hines. Ry Age 66:293-4 Ja 31 '19
- Railway materials, equipment and supplies in Australia and New Zealand. F. Rhea. II U S Bur For & Dom Com 156:1-164 '18; Same (Conclusions). Ry Age 64:697-702 Mr 22 '18
- Railway mechanical conventions and railway supply exhibit at Atlantic City. Ry R 64: 991-2 Je 28 '19
- Railway supplies for the Dutch East Indies. J. W. Evans. Ry Age 67:461-2 S 5 '19
- Railway supplies in Mexico. Ry Age 66:1374-5 Je 6 '19
- Railway supply field—prospects for 1918. Ry Age 64:896-6 Ap 5 sec 1 '18
- Railway supply industry is hard hit. Ry Age 66:337-41, 396 F 7-14 '19
- Railway surplus and business prosperity. E. B. Leigh. charts Ry R 65:413-19 S 20 '19; Excerpts. Ry Age 67:561-2 S 19 '19; Abstract. Iron Age 104:875 S 25 '19
- Railways and industrial readjustment. E. B. Leigh. chart Am Ind 19:23-7 Mr '19; Same cond. Ry Age 66:379-81 Ap 4 '19; Same cond. Ry R 64:561-3 Ap 12 '19
- Restoration of railway development. A. B. Johnson. Ry Age 67:393-4 Ag 29 '19
- Supply field expects continuing good business. Ry Age 65:859-60 N 15 sec 1 '18
- Supply industry's output of war products. Ry Age 66:71-3 Ja 3 '19
- Supplymen tell of experiences in railway offices. Ry Mech Eng 92:55-7 Ja '18
- Tips from chief clerks to supplymen. Ry Mech Eng 92:30-2 Ja '18
- Trade acceptance in the supply field. Ry Age 64:463-5, 1235-7 Mr 1, My 17 '18
- Traveling engineers' association 26th convention, Chicago, Sept. 10; list of exhibitors. Ry Age 65:507-8 S 13 '18; Ry Mech Eng 92: 555-6 O '18
- Two years' exports of railway supplies; tabulation. Ry R 63:619 O 26 '18
- What the South African railways buy. Ry Age 66:864-5 Mr 28 '19
- Work of the supply engineer. W. E. Woodward. Ry Age 66:851-3 Mr 28 '19
- World market for American railway supplies. A. Stephens. Ry Age 64:838-42 Ap 5 sec 1 '18

***See also* Railroad ties****Railroad surveying**

- Diagram helps in laying out railroad curves from long chords. H. N. Gahan. diag Eng N 80:1224 Je 27 '18

**Railroad surveying—Continued**

Early survey for a railroad through the Big-horn canyon. G. W. Pease. Ry R 63:310-11 Ag 31 '18

See also Railroad engineering; Railroads—Curves and turnouts

Railroad switches. See Railroads—Switches, frogs, etc.

Railroad terminals. See Locomotive terminals; Railroads—Stations; Railroads—Terminals

**Railroad tie plates**

Specifications of American society for testing materials for steel tie plates. Ry Age 65:28 J1 5 '18

Wood tieplates found to be poor substitute for steel. Eng N 80:866 My 2 '18

Railroad tie producers, National association of. See National association of railroad tie producers

**Railroad ties**

Advantages of mechanical ties. II Elec Ry J 51:146 Ja 19 '18

American machines for dressing railway sleepers. II Engineer 128:392-3 O 17 '19

Annual meeting of the Railway signal association; zinc-treated ties, take-siding indicators, etc., are considered. Ry Age 65:579-81 S 27 '18

Average life of ties for valuation purposes. R. S. Rhodes. Ry Age 64:101 Ja 11 '18; Discussion, J. W. Burke. 64:298 F 8 '18

Better railroad ties. O. P. M. Goss. II Sci Am 117:453 D 15 '17

Chicago rehabilitation track standards prove successful. II diags Elec Ry J 53:864-9 My 3 '19

Comparative costs and results of hand and machine tamping of ties. G. W. Vaughan. Eng & Contr 50:359-60 O 16 '18

Comparison of methods for purchasing ties. J. W. Fristoe. Ry R 64:242-4 F 15 '19

Complete wood preserving plant mounted on cars. II Ry Age 67:453-5 S 5 '19; Same abr. Eng & Contr 52:334 S 17 '19

Congressional hearing on substitutes for wood ties. Ry R 65:195, 265-9 Ag 9, 23 '19

Contractor's view of the situation. H. Andrews. Ry R 63:684-5 O 19 '18

Cost of the tamping with pneumatic tamper. Eng & Contr 49:491 My 15 '18

Criticism of purchasing policy. R. D. Lusk. Am Lumberman 2284:33-4 F 22 '19

Experience of Chicago & Alton R. R. with Peerless steel ties. H. T. Douglas, Jr. Eng & Contr 52:335 S 17 '19

Experience of Santa Fe system with treated ties. Eng & Contr 51:544 My 21 '19

Federal inspection of ties criticized. R. Abeles, Jr. Am Lumberman 2287:42 Mr 15 '19

How to tamp ties economically with pneumatic tools. Eng & Contr 49:376 Ap 17 '18

Improved sleepers for railroads. Sci Am 120:31 Ja 11 '19

Increasing use of zinc chloride in treating ties. Ry R 64:323-4 Mr 1 '19

Influence of zinc ties on track circuits. Ry Age 66:305-6 Ja 31 '19

Longitudinal sleepers for railways and tramways. II diag plan Sci Am S 85:172 Mr 16 '18

Machine dress railroad ties before treatment. diags Eng N 81:679-80 O 10 '18

Present aspect of the tie situation. J. Foley. Ry R 63:494-5 O 5 '18; Same cond. Ry Age 65:582-3 S 27 '18

Railroads must play big part in conserving timber. A. Gibson. Ry Age 65:815-16 N 8 '18

Rainfall influence on durability of zinc-treated cross-ties. C. H. Teesdale and S. W. Allen. Eng N 82:234-5 Ja 30 '19; Same. Ry R 64:721 My 17 '19

Raison d'être of the tie contractor. W. Poleman. Ry R 64:227-9 F 8 '19

Recent developments in railroad tie situation. Ry Age 66:1305-8 My 30 '19

Relation between average life of ties and percentage of renewals. M. E. Thorne. Ry R 62:133-5 Ja 26 '18

Separate prices for ties in three states, Missouri, Oklahoma and Arkansas. Am Lumberman 2259:3 Ag 31 '18

Service tests of cross ties. P. R. Hicks. Ry Age 65:1128 D 20 '18

Seventeen years life from treated ties. Ry Age 64:1073-4 Ap 26 '18; Same. Eng & Contr 49:617-18 Je 19 '18

Some aspects of tie preservation. Ry R 63:776-7 N 30 '18

Standard specifications for cross ties. diags Ry Age 65:72-3 J1 12 '18; Same cond. Am Lumberman 2251:44 J1 6 '18; Same cond. Ry R 63:63-4 J1 13 '18

Statistics of the renewals on roads under federal control. Ry Age 66:1351 Je 6 '19

Systematic handling of ties. A. Meyer. Am Lumberman 2281:74-5 F 1 '19

Tie and timber conservation in Canada. H. K. Wicksteed. Eng & Contr 51:534 My 21 '19

Tie logging in the Himalayas. T. S. Woolsey, Jr. II Am Lumberman 2273:55 D 7 '18

Tie producers discuss conditions in industry. Ry Age 66:343-8 F 7 '19

Tie renewal cost reduction deserves serious study. R. C. Cram. II diags Elec Ry J 53:308-15 F 15 '19

Tie renewal situation. W. F. Goltra. Ry R 64:579 Ap 19 '19

Tie situation. W. F. Goltra. Ry R 63:602 O 26 '18

Tie specifications criticized. Ry R 63:534-5 O 12 '18

To effect equitable cross-tie purchasing. Am Lumberman 2300:49-50; 2302:60-1 Je 14, 28 '19; Same. Ry R 65:51-5 J1 13 '19; Excerpts. Ry Age 67:9-11 J1 4 '19

Use and handling of lumber and cross ties; abstracts. M. E. Townner. Ry R 64:172-4 F 1 '19; Am Lumberman 2281:47 F 1 '19

Various uses of the tamping outfits. W. P. Burn. Eng & Contr 52:219-20 Ag 20 '19

Waterproofing railway ties to preserve them. H. K. Wicksteed. Ry Age 66:849-50 Mr 28 '19; Same. Eng & Contr 51:537-8 My 21 '19

Zinc as an alternative for creosote in treating railway ties. Eng N 82:609 Mr 27 '19

Zinc chloride treatment for railroad ties. Eng & Contr 51:394-5 Ap 16 '19

See also Railroads—Construction; Railroads—Track

**Railroad ties, Concrete**

Concrete railway ties (Muzak system). diags plan Eng & Contr 52:496 O 29 '19

New concrete railroad tie. II diags Munic Eng 55:212-13 D '18; Elec Ry J 53:100 Ja 11 '19

Reinforced concrete railway tie. diags plan Eng & Contr 51:471 Ap 30 '19

Reinforced concrete ties of Italian state railways. diags plan Eng & Contr 52:519-20 O 29 '19

Reinforced concrete ties on Southern Pacific. II diags plans Ry R 63:557-8 O 19 '18

Resilient chairs and reinforced concrete ties for railway track. diags Eng & Contr 50:419 O 30 '18

**Railroad ties, Steel**

Old rails used for ties in street railway track. II Eng & Contr 50:368 O 16 '18; Same. Elec Ry J 52:845 N 9 '18

Steel tie retains advantages of wood. II diag Elec Ry J 51:532 Mr 16 '18

**Railroad tracks. See Railroads—Track****Railroad trains. See Railroads—Trains****Railroad wage commission**

Government direction of railways. Ry R 63:116-17 Ja 26 '18

Hearings before Railroad wage commission. Ry Age 64:253-4, 301-2, 366-8, 411-14 F 1-22 '18; Ry R 62:167-9, 229-31, 269-70, 304-7 F 2, 16-Mr 2 '18

McAdoo puts wage increase into effect. Ry Age 64:1325-30 My 31 '18; Ry Mech Eng 92:811-14 Je '18; Ry R 62:785-92 Je 1 '18

Railway wage commission to investigate labor questions. Ry Age 64:201-2 Ja 25 '18; Ry Mech Eng 92:85-6 F '18

Special session of commission: employment of women on railroads. Ry R 62:334-5 Mr 9 '18

To investigate wage demands. Ry Age 64:103-4 Ja 11 '18

**Railroad yards. See Railroads—Yards**

**Railroads**

Coming industrial expansion of the world: report issued by the Guaranty trust company of New York. Ry Age 65:911-13 N 22 '18;  
Same cond. Ry R 63:753-5 N 23 '18  
Institution of civil engineers; presidential address. Engineer 126:401, 421-3 N 8-15 '18  
New railways in foreign lands. Ry R 62:440-1 Mr 23 '18  
New railways planned in foreign countries. Ry R 65:679-82, 794-7 N 8, 29 '19  
President's address, A. R. E. A. convention. C. A. Morse. Ry R 64:440-3 Mr 22 '19  
Railroads as feeders to waterways. W. D. Hines. Ry R 64:312-13 Mr 1 '19  
Railway developments in foreign countries. Ry Age 66:907-10, 957-62, 1011-13 Ap 4-18 '19  
Railway equipment, labor and rates. W. D. Hines. Ry R 65:804-5 N 29 '19  
Steam railroad in its relation to the city plan. E. J. Fort. Eng N 82:1099 Je 5 '19  
20th annual convention of the Railway engineering association, Chicago. Ry R 64:435-40, 446-8 Mr 22 '19

See also Air brakes; Bridges, Railroad; Cableways; Carriers; Cars; Electric railroads; Elevated railroads; Express service; Freight car service; Freight cars; Grade crossings; Hospital trains; Interurban railroads; Locomotive shops; Locomotive terminals; Locomotives; Motor cars (railroad); Private car lines; Railroad engineering; Railroad land; Railroad ties; Railroads in war; Rails; Railway mail service; Round-houses; Ship railroads; Street railroads; Subways; Terminals; Train dispatching; Train ferries; Train resistance; Transportation; Trestles; Tunnels and tunneling; also names of railroads, e.g. Chicago and North-western railway, Pennsylvania railroad

**Accidents**

Accident bulletin no. 69. Ry Age 67:63 Jl 11 sec 1 '19  
Accident record under government operation. Ry Age 67:138-9 Jl 25 '19  
Accidents at railway grade crossings. Good Roads n s 18:164+ O 1 '19  
Accidents on railroads reported by Interstate commerce commission. Eng N 82:185 Ja 23 '19  
British railway accidents in 1918. H. R. Wilson. Ry R 65:103 Jl 19 '19  
Circus train disaster. Ry Age 65:3 Jl 5 '18  
Derailment through broken carriage axle in England. Engineer 125:213 Mr 8 '18  
Disastrous collision at Shepherdsville, Kentucky. Ry Age 63:1185; 64:488-9, 498 D 28 '17, Mr 8 '18  
Flagging and its relation to railroad accidents. C. C. McChord. Ry Age 66:1528-30 Je 20 '19  
Government operation and railroad accidents. Ry Age 65:115-16 Jl 19 '18  
Interstate commerce commission accident bulletins. Ry Age 66:547-9 Mr 7 '19  
I. C. C. report on Ivanhoe collision. Ry Age 65:628-4 O 4 '18  
Investigation of the Ivanhoe collision. Ry Age 65:30 Jl 5 '18  
Nashville collision. Ry Age 65:134 Jl 19 '18  
New York report on South Byron collision. Ry Age 66:491-3 F 28 '19  
Official report on the recent wreck at Elwood, N.J. Ry R 65:368-70 S 13 '19  
Pennsylvania railroad accident at Elizabethtown, Pa. Ry Age 64:790-1 Mr 29 '18  
Personal injuries due to locomotive failures. J. L. Mohun. Ry Age 67:113-18 Jl 18 '19;  
Same. Ry Mech Eng 93:458-63 Ag '19  
Question of safety. Ry Age 66:878 Ap 4 '19  
Railway accidents in 1917. Engineer 126:43 Jl 12 '18  
Rear end collision at Ivanhoe, Ind., on Michigan Central. Il plan Ry Age 64:1570-1 Je 23 '18  
Report of Elwood collision. Ry Age 67:738 O 10 '19  
Report on collision of Atlantic City trains. C. S. Lake. Ry Age 67:514-15 S 12 '19  
Report on Larmond collision, Oct. 21. Ry Age 63:1171 D 28 '17

Report on Nashville collision. Ry Age 65:664-5 O 11 '18

Report on South Byron collision. W. P. Borland; W. H. Elliott. Ry Age 66:1010-11 Ap 18 '19

Splice bar causes railway accident. Eng N 80:449 Mr 7 '18

Thirty-four passengers killed in collisions. Il Ry Age 66:212 Ja 17 '19

Three hundred and fifteen passengers killed. Ry Age 65:652 O 11 '18

Train accidents; monthly summaries published in the Railway age gazette

Transverse rail fissures and the derailment at Juniper, Ga. J. E. Howard. Il diag Ry R 63:305-8 Ag 31 '18

See also Bridge accidents; Electric railroads—Accidents; Railroads—Safety devices and measures; Railroads—Signals; Railroads—Trespassing; Street railroads—Accidents

**Accounting**

Accounting department war problems. Ry Age 63:1182-3 D 28 '17  
Accounting officers to co-operate with Railroad administration. Ry Age 65:776-7 N 1 '18  
Accounting; report of committee. Ry Age 66:287-9 Ja 31 '19  
Accounting under federal control. Ry Age 64:970 Ap 12 '18  
Calculating machines in railroad accounting. C. O. Price. Ry R 64:972-6 Je 28 '19  
Financial and corporate offices not to be charged to operating expenses. Ry Age 64:702 Mr 22 '18  
Inadequacy of present depreciation accounts. O. Ely. Ry Age 65:553-6 S 20 '18; Discussion. D. J. Kerr. 65:764 N 1 '18  
Labor saving devices in railroad offices. Il Ry R 64:215-18, 245-8, 347-50 F 8-15, Mr 8 '19  
Machine system of interline freight accounts. Il Ry R 64:825-7 Je 7 '19  
Mechanical devices for disbursement accounting; report of railway accounting officers' committee. A. P. Disbrow. Ry Age 64:1433-6 Je 14 '18; Same. Ry R 62:924-9 Je 22 '18  
Mechanical devices in railroad accounting. C. O. Price. Ry R 65:527-30, 600-1 O 11, 25 '19  
P. S. & A. circulars no. 37 and 38. Ry R 63:714 N 16 '18  
Railroad corporate accounting during federal control. F. Nay. Ry R 65:172-5, 209-12 Ag 2-9 '19; Same abr. Ry Age 66:1535-8 Je 20 '19  
Railway accounting officers association 31st annual meeting. Ry Age 66:1425-33 Je 13 '19  
Repairs to equipment; general order no. 47. Ry R 63:645 N 2 '18  
Report on public service and accounting. W. G. McAdoo. Ry R 64:218-19 F 8 '19  
Saving labor in shop accounting. Ry Age 66:896-7 Ap 4 '19  
Simplified accounting practices. Ry Age 64:1464-6 Je 21 '18  
True cost finding—what it can do for the railroads. M. L. Cooke. Ind Management 57:40-2 Ja '19  
See also Railroads—Records; Railroads—Valuation

**Automatic stop**

Automatic train control. C. C. Anthony and A. G. Shaver. Ry Age 67:613-14 S 26 '19  
Automatic train control. J. P. Kelly. Ry Age 65:205 Ag 2 '18  
Exhibition of automatic train stop on the Chesapeake & Ohio. Il Ry Age 66:846-7 Mr 28 '19; Ry R 64:541-6 Ap 12 '19  
Mr Sprague's automatic-stop proposals. Ry Age 66:1816-17 Je 27 '19  
National automatic train control board. Ry R 64:105-6 Ja 18 '19  
Need of development of automatic train stops. Ry R 63:52-3 Jl 13 '18  
New York commission on the collision problem. Ry Age 66:1553-5 Je 20 '19  
New York report on South Byron collision. Ry Age 66:491-3 F 28 '19  
Rellostop, mechanical brake control system for railways. Il diag Engineer 126:58-60 Jl 19 '18

**Railroads—Automatic stop—Continued**

Requisites for automatic train control devices. Ry Age 66:364 F 7 '19; Same. Ry R 64:244-5 F 15 '19  
 Ruthven electro-magnetic control system. Ry R 62:356-7 Mr 9 '18  
 Tests of Oroville automatic train stops. Ry Age 67:55-6 Jl 11 sec 1 '19  
 Train control: automatic brake operation. Sci Am S 84:404 D 29 '17  
 Trial of Schweyer automatic train-stop. Ry Age 65:36 Jl 5 '18  
 What lessons do collisions teach? Ry Age 64:1547-8; 65:116 Je 28, Jl 19 '18

**Brakes**

*See* Air brakes; Brakes

**Buildings and structures**

American railway bridge and building association 28th annual convention, Chicago. Ry R 63:559-61 O 19 '18  
 Concrete moulding plant, Pennsylvania, R. R. 11 diags plans Ry R 64:425-32 Mr 22 '19  
 Essentials of bridge and building maintenance. C. A. Morse. Ry R 63:561-3 O 19 '18  
 Minor buildings of a large freight terminal. 11 plans Ry R 65:481-2 O 4 '19

*See also* Bridges, Railroad; Car houses; Coaling stations; Culverts; Freight houses; Locomotive shops; Locomotive terminals; Railroads—Shops; Railroads—Stations; Railroads—Terminals; Railroads—Ticket offices; Railroads—Train sheds; Roundhouses; Warehouses

**Cars**

*See* Baggage and express cars; Car lighting; Car trucks; Cars; Dining cars; Freight cars; Motor cars (railroad); Refrigerator cars; Sleeping cars; Tank cars

**Claims**

Assessment and collection of charges. Ry R 63:786-7 N 30 '18  
 Dolings of the United States Railroad administration. Ry Age 66:899-900 Ap 4 '19  
 Handling claims. Ry Age 66:551-2 Mr 7 '19  
 Inter-road freight claims for loss and damage; Director general, order no. 41. Ry Age 65:433 S 6 '18; Same. Ry R 63:357-8 S 7 '18  
 Lost freight and its prevention. E. P. Nowlin. Ry R 64:331-3 Mr 15 '19  
 Reducing claims by a publicity campaign. 11 Ry R 64:509-12 Ap 5 '19

*See also* Packing for shipment

**Collisions**

*See* Railroads—Accidents

**Construction**

American-built railroad cutoff will relieve traffic congestion in France. R. K. Tomlin, Jr. 11 Eng N 81:832-5 N 7 '18  
 Big Four increases capacity at congested points. 11 diags map Ry Age 66:1545-8, 1818-19 Je 20-27 '19  
 Building a seven-mile railroad in 32 days' time. 11 Ry Age 64:1317-18 My 31 '18  
 Constructing logging railroad with a ditcher. A. M. Wolf. 11 Ry R 62:60-1 Ja 12 '18  
 Heavy railway construction along Mexican border. 11 map Ry Age 66:931-4 Ap 11 '19  
 Illinois Central reduces grades on Kentucky line. 11 diag map Ry Age 65:1103-6 D 20 '18  
 Kanawha & West Virginia builds a new line. 11 map Ry Age 67:297-9 Ag 15 '19  
 Lackawanna improvements in Orange, N.J. 11 diags Ry Age 65:845-50 N 15 sec 1 '18  
 Line revision on Cincinnati Southern railroad. diags Eng N 82:873-5 My 1 '19  
 Murman railroad: new outlet to sea in Russia. V. Goriachkovsky. 11 map Eng N 82:1023-6 My 22 '19  
 New Pennsylvania entrance into Indianapolis: a 41-mile line between Ben Davis and Frankfort. 11 maps Ry Age 64:195-8 Ja 25 '18  
 Only a small addition to main track mileage. 11 Ry Age 66:93-102 Ja 3 '19  
 Piercing the mountain barrier between France and Spain. F. Honoré. 11 maps Sci Am 121:186-7 Ag 23 '19

Progress of the Alaskan railroad. F. K. Lane. 11 Ry Age 66:543-7 Mr 7 '19

Railroad construction in spite of snow, glaciers, floods and forest fires. W. Gerig. Ry Age 66:944 Ap 11 '19  
 Relocation of railways near Dayton, Ohio. 11 diag plan map Ry R 64:165-70 F 1 '19  
 Second track construction on the Hocking Valley. map Ry Age 66:493-4 F 28 '19

*See also* Ballast; Bridges, Railroad; Cars (spreader); Culverts; Elevated railroads; Grade crossing elimination; Rail handling; Railroad engineering; Railroad ties; Railroads—Buildings and structures; Railroads—Crossings; Railroads—Curves and turnouts; Railroads—Earthwork; Railroads—Electrification; Railroads—Grades; Railroads—Location; Railroads—Maintenance and repair; Railroads—Stations; Railroads—Terminals; Railroads—Track; Rails; Trestles; Tunnels and tunneling

**Cost of construction**

Cost of Hetch Hetchy R. R. Eng & Contr 53: 83 Jl 16 '19  
 Costs of Hetch Hetchy railroad. Eng N 81: 890 N 14 '18  
 Progress of the Alaskan railroad. F. K. Lane. 11 Ry Age 66:543-7 Mr 7 '19

**Cost of operation**

Approximate cost of stopping a train. Ry Age 64:708 Mr 23 '18  
 Car costs at terminals. R. M. Woolley. Ry R 65:537 O 11 '19  
 Causes of increases in operating expenses. Ry Age 65:245-6 Ag 9 '18  
 Cost of British railways during the war. H. R. Wilson. Ry R 65:125-6 Jl 26 '19  
 Failures and costs. O. O. Carr. Ry R 64:399-400 Mr 15 '19  
 Light-traffic railway vs. highway and motor truck. C. C. Williams. Eng N 81:984-5 N 28 '18  
 Mounting railroad expenses. Ry R 63:315-16 Ag 31 '18  
 Nine months of federal railway control. Ry R 63:772 N 30 '18  
 Operating expenses for first six months of 1918 show increase of \$461,000,000. Ry Age 65:384-5 Ag 30 '18  
 What does it cost to stop a tonnage train? C. C. Anthony. Ry Age 66:1105-7 My 2 '19

**Crossings**

Alexander continuous-rail crossing. 11 plan Ry R 62:44-5 Ja 5 '18  
 Balkwill articulated manganese steel crossing. 11 diag Ry R 62:448-51 Mr 23 '18; Ry Age 65:138 Jl 19 '18  
 Improvements in flangeways for manganese steel crossings. diags Ry R 63:930-1 D 28 '18  
 Shockless railroad crossing. 11 Sci Am 120:16-17 Ja 4 '19

*See also* Grade crossing elimination; Grade crossings

**Curves and turnouts**

Assembled curves and radii diagram aid in railroad drafting. D. Gerber. diag plan Eng N 82:664 Ap 3 '19  
 Causes of railway curve resistance. J. G. Sullivan. Eng & Contr 51:532 My 21 '19  
 Curve chart for railway resurvey. J. G. Wetherell. chart Eng N 83:506 S 11 '19; Discussion. H. P. Boardman. 83:898 N 13 '19  
 Effect of curvature on railway maintenance of way. Eng & Contr 51:397 Ap 16 '19  
 Externals instead of tangent distances for lining railroad curves. C. E. Newell. diag Eng N 80:173 Ja 24 '18; Discussion. 80:528-9, 730 Mr 14, Ap 11 '18  
 General solution of problems in railway compound curves. A. Liano. diags Eng N 82: 1070-2 My 29 '19  
 History and use of easement curves for railroads. P. O. Macqueen. Eng N 82:924-5 My 8 '19  
 Mechanics of curved resistance. J. G. Sullivan. diags Ry R 63:527-31 O 12 '18; Abstract. Ry Age 66:665-6 O 11 '18



## Railroads—Continued

## Development work

Railroad administration's new advertising campaign. Ry Age 66:1085-6 My 3 '19  
 Railroad research work. L. Jackson. Chem & Met Eng 20:558 Je 1 '19

## Drainage

Report on drainage. Ry Age 67:577-8 S 19 '19

## Earthwork

Dump cars and wagons enlarge railway fills. diags Eng N 82:419-20 F 27 '19  
 Interesting reconstruction work on the Erie; 35-mile section of double track line. 11 diags map Ry Age 65:248-52 Ag 9 '18  
 Method and cost of filling in high trestles on Southern Pacific Ry. W. E. Burns. Eng & Contr 49:608-9 Je 19 '18  
 Opening old railroad fill reveals reasons for track trouble. R. Reimann. diags Eng N 83:126-7 Jl 17 '19

See also Culverts; Earthwork; Railroads—Grades

## Electric equipment

Association of railway electrical engineers' 10th convention, Chicago. Ry R 63:629-33 N 2 '18

## Electrification

Address at A.I.E.E. midwinter convention, Feb. 15, 1918. E. W. Rice, jr. Am Inst E E Pro 37:195-201 Mr '18; Same. Elec Ry J 51:367-9 F 23 '18; Same. Elec R 72:335-7 F 23 '18; Same. Gen Elec R 21:171-5 Mr '18; Same cond. Elec W 71:323 F 9 '18; Same cond. Power 47:310-11 F 26 '18; Excerpts. Eng N 80:403-4 F 28 '18; Excerpts. Ry R 62:442-3 Mr 23 '18  
 Advantages of electrification explained to Canadian engineers. F. H. Shepard. Elec R 74:787 My 17 '19  
 Advantages of railway electrification. Coal Age 18:467 Mr 9 '18  
 British proposals for standardization of railway equipment. Elec R 73:1005 D 28 '18  
 British railway electrification; abstract. P. Dawson. Elec W 73:1334 Je 21 '19  
 Chicago, Milwaukee & St Paul electrification in Washington. W. A. Scott. 11 Elec R 74:16-18 Ja 4 '19  
 Conservative views of electrification. Elec Ry J 53:605-8 Mr 22 '19  
 Developments in electric transportation. 11 Elec R 74:7-8 Ja 4 '19  
 Efficiency engineer's views on the electrification of railways. H. Emerson. Ry Age 67:299-300 Ag 15 '19  
 Electric operation of the Germantown and Chestnut Hill branch of the Pennsylvania railroad. 11 Elec Ry J 51:672 Ap 6 '18  
 Electric traction in Italy; abstract. Elec W 71:55 Ja 5 '18  
 Electric traction on the Central Argentine railway. 11 diags plan (supp) maps Engineer 126:324-8, 330, 343-6, 367-71 O 18-N 1 '18; Excerpt (pt. 1). Power 48:550-4 O 15 '18  
 Electrification of Chicago railroads made possible. Elec W 74:200-1 Jl 26 '19  
 Electrification of main line railroads. W. B. Potter and S. T. Dodd. 11 diag Gen Elec R 22:430-7 Je '19; Same abr. Ry R 64:843-5 Je 7 '19; Same cond. Elec Ry J 53:825-8 Ap 26 '19; Abstract. Elec R 74:676-7 Ap 26 '19  
 Electrification of main line railways. Engineer 124:563-4 D 28 '17  
 Electrification of New York Connecting railroad. 11 map Ry Age 64:1367-70 Je 7 '18; Same. Ry R 62:779-85 Je 1 '18  
 Electrification of railways in Switzerland. Elec R 74:1082 Je 23 '19  
 Electrification of steam railroads in 1919. E. B. Katté. Ry Age 67:921-2 N 7 '19  
 Electrification of steam railroads; tabulation from the report of the committee on electricity of the American railway engineers' association. Eng & Contr 51:547 My 21 '19  
 Electrification of Swiss railways. R. E. Schoenfeld. Ry R 63:698-9 N 16 '18  
 Electrification of the California railroads urged. Elec W 72:1095 D 7 '18

Electrification of the Montreal tunnel zone. W. G. Gordon. 11 Am Inst E E Pro 37:1285-96 D '18; Abstract. Elec Ry J 52:962-5 N 30 '18  
 Electrification of the mountain division of California railroads recommended. Elec Ry J 52:894 N 16 '18; Same, with table. Eng N 81:941-2 N 21 '18  
 Electrification of trunk line railroads; abstracts. W. B. Potter and S. T. Dodd. Elec Ry J 53:825-8 Ap 26 '19; Elec R 74:676-7 Ap 26 '19  
 Electrification problem in England. P. Dawson. Ry Age 67:462 S 5 '19  
 Electrification progress in Scandinavia. A. Groothoff. Elec Ry J 51:652 Ap 6 '18  
 Electrification progress on Milwaukee & St Paul railway. Elec R 73:214 Ag 10 '18  
 Electrification system proposed to be adopted on French railways. Ry Age 67:853-4 O 24 '19  
 Electrification work to be pushed forward in Sweden. Elec Ry J 54:225-7 Ag 2 '19  
 European electrification proposals. A. McCallum. Elec Ry J 54:474 S 6 '19  
 Extension of railway electrification. L. F. Wilson. 11 Ry R 62:815-17 Je 8 '18  
 Extensive electrification proposed for Sweden. 11 diags map plans Ry Age 67:61-3 Jl 11 sec 1 '19  
 French commission returns; one member comments on American electrifications. A. Maucluit. Elec Ry J 54:834-5 N 1 '19  
 Fuel oil saving in railway electrification. map J Elec 42:204 Mr 1 '19  
 Further railroad electrification important. F. H. Shepard. 11 diags Elec Ry J 51:4-7 Ja 5 '18  
 Future electrification. P. Dawson. Elec Ry J 53:1160-1 Je 14 '19  
 Heavy electric traction on the Central Argentine. 11 diags map Elec Ry J 52:604-9 O 5 '18  
 High-speed circuit breaker prevents flash-overs on Milwaukee electrification. 11 diags Elec Ry J 52:154-6 Jl 27 '18; Same. Elec R 73:266-8 Ag 17 '18  
 Japanese railways report favors electrification. Elec Ry J 54:815 S 13 '19  
 New-type cars for Melbourne suburban electrification. 11 Elec Ry J 51:718 Ap 13 '18  
 1918 data for the pioneer constant-speed electrification. E. Marshall. 11 chart Elec Ry J 53:1217-18 Je 21 '19  
 Norfolk & Western electrification; fifty per cent increase in the mountain grade capacity has saved millions of tons of coal. 11 map Elec Ry J 52:322-5 Ag 24 '18; Abstract. Eng N 81:499 S 12 '18  
 Operating experiences on the Philadelphia-Paoli electrification; abstract. L. M. Wilson. Elec W 70:1109-10 D 8 '17  
 Operating results under electrification C. M. & St P. Ry. Ry R 61:796-7 D 29 '17  
 Overhead structures a feature of electrification of New York Connecting railroad. 11 Eng N 80:1093-5 Je 6 '18  
 P. R. R. extends Philadelphia electrification to Chestnut Hill. 11 diags map Elec Ry J 51:798-803 Ap 27 '18; Ry Age 64:1177-81 My 10 '18; Ry R 62:633-8 My 4 '18  
 Plans completed for the electrification of Swiss railways. Elec R 73:833 D 7 '18  
 Power supply for the Central Argentine electrification. 11 diag Elec Ry J 52:646-50 O 12 '18  
 Progress of St Paul electrification out of Seattle. chart Elec Ry J 52:408 S 7 '18  
 Progress on the Midi railway Pyrenean electrification. L. A. H. Pahin. 11 diag map Elec Ry J 54:475-7 S 6 '19  
 Prospective steam railroad electrification. F. H. Shepard. Ry R 65:564-5 O 18 '19; Same. Elec R 75:950 D 6 '19  
 Railroad electrification as a fuel-conservation measure. W. J. Davis, jr. 11 Gen Elec R 22:196-9 Mr '19; Same cond. Mech Eng 41:268-9 Mr '19  
 Railroad electrification as a war measure. F. E. Wynne. Elec Ry J 51:81-2 Ja 12 '18  
 Railroad electrification discussed at Boston meeting of A. I. E. E. Elec R 74:464-6 Mr 22 '19  
 Railway electrification in Australia. 11 diags map plan Ry R 65:631-8 N 1 '19

**Railroads—Electrification—Continued**

Railway electrification in Brazil. Ry Age 66:1424 Je 13 '19  
 Railway electrification in France and Belgium. R. E. Thayer. Ry Age 67:93-4 Jl 18 '19  
 Railway electrification in South Africa. Engineer 128:462 N 7 '19  
 Railway electrification in Washington. J Elec 42:311-13 Ap 1 '19  
 Reasons for steam railroad electrification. Q. W. Hershey. Il Ry Age 64:1431-2 Je 14 '18  
 Results of the operation of the Berne-Loetschberg-Simplon railway. M. Thorman. Eng & Contr 49:551-3 My 29 '18  
 Savona-Ceva (Italy) mountain railway electrification. W. Lesniewski. Il diags map Elec Ry J 50:1150-3 D 29 '17  
 Scope of railway electrification investigation in the West. J Elec 43:72-3 Jl 15 '19  
 Some possibilities of steam railroad electrification as affecting future policies. C. Townley. Am Inst E E Pro 38:541-7 Ap '19; Same. Elec R 74:452-4 Mr 22 '19; Same. Ry Age 66:765-8 Mr 21 '19; Same. Ry R 64:615-16 Ap 26 '19; Same cond. Elec Ry J 53:605-8 Mr 22 '19; Same cond. Eng & Contr 51:541-2 My 21 '19; Excerpts. J Elec 43:74 Jl 15 '19  
 Sources of power for California railroad electrification. F. H. Fowler and R. Sibley. Il map J Elec 43:371-3 O 15 '19  
 Status of Swiss electrification. Elec Ry J 54:227 Ag 2 '19; Elec W 74:467 Ag 30 '19  
 Swiss railways extend electrification. F. Dosenbach. Ry R 65:123-4 Jl 26 '19; Same. Elec R 75:194-5 Ag 2 '19; Same. Sci Am S 88:156+ S 6 '19; Same. J Elec 43:469-70 N 15 '19  
 Tendencies in electrification. E. A. Palmer. Ry R 63:176-8 Ag 3 '18  
 Transportation and western power problems. J. H. Lewis. J Elec 42:14-15 Ja 1 '19  
 Types of third-rail used in railway electrification. Il diags Elec Ry J 53:1143-8 Je 14 '19  
 Utah electrification embodies latest developments. diag Elec Ry J 50:1070-1 D 15 '17  
 Value of electric power in relieving coal shortage. Ry R 62:273 F 23 '18; Same. Coal Age 13:504 Mr 16 '18  
 Will railway electrification be hastened as a result of the war? Eng & Contr 49:471 My 15 '18  
**See also Electric locomotives; Third rails**

**Employees**

Americanization of railway shop men. Ry Age 67:64-5 Jl 11 sec 1 '19  
 Bi-partisan labor boards. W. N. Doak. Ry Age 67:212-14 Ag 1 '19  
 Blunders in handling labor and the solution. Ry Age 64:1109-10 My 3 '18  
 Boarding camp for track laborers of Baltimore & Ohio R. R. E. Stimson. Eng & Contr 49:392 Ap 17 '18  
 British railways tied up by sudden strike. Ry R 65:497-9, 532-4 O 4-11 '19  
 Claim agent places responsibility of transportation efficiency upon employees. Ry R 62:692 My 11 '18  
 Classification of technical employees in the northwestern region. Ry Age 67:352 Ag 22 '19; Same. Eng & Contr 52:324 S 17 '19  
 Classification, working conditions and wages of mechanical department employees; text of order. W. G. McAadoo. Ry R 63:154-7 Ag 3 '18; Same. Ry Age 65:253-5 Ag 9 '18; Excerpts. Iron Age 102:368 Ag 8 '18  
 Commercial bribery. Ry R 63:911-13 Je 22 '18  
 Company residences for railroad employees. Il diags plans Ry R 63:197-200 Ag 10 '18  
 Cost of feeding men at company operated boarding camps. W. J. Backes. Eng & Contr 49:393 Ap 17 '18  
 Discipline in the signal department. R. B. Elsworth. Ry Age 64:469-70 Mr 1 '18  
 Doings of the United States railroad administration; adjustment of labor controversies. Ry Age 65:513-16 S 13 '18

Duties and responsibilities of engineers and firemen. V. S. Clark. Ry Age 64:373-4 F 16 '18  
 Effect of federal control on railway labor. W. S. Carter. Ry Age 65:1061-4 D 13 '18; Same abr. Ry R 63:836-9 D 14 '18  
 Explanation of the increased number of railroad employees. W. D. Hines. Ry R 65:37-8 Jl 5 '19  
 Federal employment agency to supply railway labor. Ry R 62:612 Ap 27 '18  
 Feeding and housing railway maintenance of way and construction employees. Eng & Contr 49:383-6 Ap 17 '18  
 Frank talk on railroad labor questions. W. D. Hines. Ry Age 66:1302-4 My 30 '19; Abstract. Ry R 64:799 My 31 '19  
 General order no. 8, governing labor conditions. Ry Age 64:449-50 Mr 1 '18  
 General order no. 48. Ry R 63:614-15 O 26 '18  
 Give the expert a show. Ry Age 63:1016 D 7 '17  
 Government and the railway labor situation. M. G. Kibbe. Ry Age 65:560 S 20 '18  
 Green firemen—one out of three. Ry Age 64:242 F 1 '18  
 How the railway labor shortage can be overcome. Eng N 80:866-8 My 2 '18  
 Improved apprenticeship methods on the Pennsylvania. J. H. Yoder. Il Ry Mech Eng 92:8-10 Ja '18  
 Improving efficiency of track labor. C. A. Morse. Ry R 65:409-12 S 20 '19; Same. Eng & Contr 52:436-8 O 15 '19; Same cond. Ry Age 67:574-5 S 19 '19; Abstract. Eng N 83:697 O 9 '19  
 Labor conditions during federal control; abstract of chapter from Director General McAadoo's forthcoming report to the President. Ry Age 66:181-6 Ja 17 '19; Same cond. Ry R 64:187-90 F 1 '19  
 Labor efficiency in railroad maintenance. F. S. Schwinn. Ry R 64:711-12 My 17 '19; Same abr. Eng & Contr 52:80 Jl 16 '19  
 Labor recruiting conference at Chicago. Ry Age 66:243-4 Ja 24 '19  
 Labor shortage in the maintenance department. Ry Age 64:865-7 Ap 5 sec 1 '18  
 Labor situation and its effect upon clerical forces. Ry Age 64:491-2 Mr 8 '18  
 Length of service of hobo labor. Eng & Contr 49:393 Ap 17 '18  
 Making Americans out of the foreign born. S. Rea. Il Am Lumberman 2256:49 Ag 10 '18; Same. Am Mach 49:673-6 O 10 '18; Same abr. Ry R 62:693-5 My 11 '18  
 Mobilizing intelligence—the need of corporation schools. N. Collier. Ry R 62:316-19 Mr 2 '18; Same cond. Ry Age 64:419-21 F 22 '18  
 National agreement for maintenance of way employees. Ry Age 67:835-8 O 24 '19  
 Nearly quarter million men in service. Ry Age 66:25-6 Ja 3 '19  
 Necrology of American railway officials, prominent employees and members of the railway supply fraternity for 1917. Ry R 62:72-4 Ja 12 '18  
 New instruction car for the Southern Pacific. Il Ry Age 67:366-6 Ag 22 '19  
 Number and compensation of employees. Ry Age 66:1060-2 Ap 25 '19  
 Old box cars made habitable. Il Ry R 63:275-6 Ag 24 '18  
 Over seventy thousand railway men join colors; names of officers and employees who have received commissions. Il Ry Age 64:22-35 Ja 4 '18  
 Pennsylvania railroad and its foreign labor. S. Rea. Ry R 64:786 My 31 '19  
 Political order criticized. Ry R 63:541-2 O 12 '18  
 Practical results from modern apprenticeship. H. S. Rauch. Ry Mech Eng 92:20 Ja '18  
 Railroad brotherhoods and labor slackers. Am Mach 49:119-20 Jl 18 '18  
 Railroad industrial army. W. S. Carter. Ry Age 64:1288-9 My 24 '18; Same abr. Ry Mech Eng 92:314 Je '18  
 Railroad men's mountain home. Ry R 62:721 My 18 '18  
 Railroad men's mountain home association. Il Ry Age 64:1284 My 24 '18

**Railroads—Employees—Continued**

Railroad roll of honor. Ry Mech Eng 92:11-14 Ja '18  
 Railway developments in foreign countries; British government makes compromise with railwaymen. II Ry Age 66:1011-13 Ap 18 '19  
 Railway labor under private operation. Ry Age 66:571-2 Mr 14 '19  
 Railway women employees. W: G. McAdoo. Ry Mech Eng 93:149-50 Mr '19  
 Remarkable record made by Southern at Sheffield. II diagrs plans Ry Age 66:206-8 Ag 2 '18  
 Securing and holding railroad bridge and building crews. W. E. Alexander; J. P. Wood. Eng & Contr 49:64-5 Ja 16 '18  
 Some phases of government control; shall railroad labor be considered to be affected with a public interest. W: C. Osborn. Ry Age 66:1197-8 My 16 '19; Excerpts. Ry R 64:714-15 My 17 '19  
 Striking shopmen decide to return to work. Ry R 65:231-4 Ag 16 '19  
 System of labor compensation; a combination of the Taylor, piecework and Prusso-Hessian methods developed in Russian railway shop. M. K. Smogorjevsky. Ry Mech Eng 93:325-9 Je '18  
 Time is the important consideration; need for greater activity in maintenance work. Ry Age 64:1360-1 Je 7 '18  
 Training employees on Imperial government railways of Japan. Ry R 62:272-3 F 23 '18  
 Unrest growing among maintenance men. Ry Age 67:629-31 S 26 '19  
 When ladies learn the art of railroading. II Sci Am 118:571 Je 23 '18  
 Why track laborers quit; record of Chicago, Rock Island & Pacific railway. Ry Age 64:1079-80 Ap 26 '18  
 Women fill men's places in shops. Ry Mech Eng 92:23-6 Ja '18  
 Women in railway work. II Ry R 63:122-3 Ji 27 '18  
 Women in the offices of the Canadian railways. J. L. Payne. Ry Age 65:821-3 N 8 '18  
 Women in the railroad service. F. Goldmark. Ry R 63:857-9 D 14 '18; Abstract. Elec Ry J 53:102 Ja 11 '19  
 Women workers in railroad shops. II Ry Mech Eng 91:702-4 D '17  
 Year of prosperity for railway labor. Ry Age 66:37-42 Ja 3 '19  
*See also* Locomotive engineers; Locomotive firemen; Railroad engineers; Railroads—Freight agents; Railroads—Management; Railroads—Officials; Railroads—Ticket agents; Railroads—Wages

**Equipment and supplies**  
 Conservation of material by the store department; abstracts. J. G. Stuart. Ry Age 66:497-500 F 28 '19; Ry R 64:644-5 My 3 '19  
 Conservation of railway material. M. K. Barnum. Ry Mech Eng 91:670-2 D '17  
 Consulting specialist and service. A. L. Humphreys. Ry Age 66:853-4 Mr 28 '19; Same. Ry R 64:599-601 Ap 19 '19  
 Developments with the Kalamazoo railway supply company. II Ry R 64:414-15 Mr 15 '19  
 Efficiency in the handling of railway supplies; methods employed by the Santa Fe. C: E. Parks. II Ry Age 65:423-7, 491-3 S 6-13 '18  
 Heat treatment of railroad materials. C. B. Bronson. Iron Age 104:25-7 Ji 3 '19; Same. Ry R 65:71-3 Ji 12 '19; Excerpts. Eng & Contr 52:339 S 17 '19  
 How railway equipment effects operation. B. V. Crandall. Ry R 64:333-5 Mr 1 '19  
 Labor-saving devices in bridge and building maintenance. F. E. Weise. Ry R 63:558-9 O 19 '18  
 Letter to Director General McAdoo on the proposed standardization of railway equipment. G: A. Post. Ry R 62:319-20 Mr 2 '18  
 Multiple unit equipment for English railway. G: Hughes. diagrs Ry Age 67:625-8 S 26 '19  
 Ordering, distribution and use of supplies. G. G. Yeomans. Ry R 61:797-800 D 29 '17

Questionnaire on new equipment, additions and betterments. W: G. McAdoo. Ry Age 64:321-2 F 8 '18

Railroads need large quantities of material. Ry Age 64:853-4 Ap 5 sec 1 '18  
 Railway storekeepers' association 14th convention, Chicago; abstracts of papers. Ry Age 66:285-9 Ja 31 '19; Ry R 64:171-4, 229-31 F 1-8 '19  
 Railway supply industry and the railroads. Ry Age 66:851-5 Mr 28 '19  
 Rushing material for the mechanical department. Ry R 61:756-8 D 22 '17  
 Status of 1918 railway improvement program. Eng & Contr 51:69-70 Ja 15 '19

*See also* Air brakes; Brakes; Car couplings; Cars; Freight cars; Locomotives; Railroad supplies industry; Railroad ties; Railroads—Electric equipment; Railroads—Electrification; Railroads—Fuel; Railroads—Maintenance and repair; Railroads—Management; Railroads—Purchasing; Railroads—Safety devices and measures; Railroads—Scrap material; Railroads—Shops; Railroads—Signals; Railroads—Standards; Railroads—Water supply; Rails; Track scales; Turntables

**Exhibitions**

Mechanical section of American railroad association meets at Atlantic City. Elec Ry J 53:1214-16 Je 21 '19

**Equipment trust**

Executives favor equipment trust. Ry R 65:161 Ag 2 '19  
 Financing equipment. Ry R 65:33-4 Ji 5 '19

**Fares**

Increased passenger rates on Southern Pacific opposed. Ry R 65:664-5 N 1 '19  
*See also* Electric railroads—Fares; Railroads—Passes; Street railroads—Fares

**Fences**

Railroad fence construction; abstracts of Roadmasters' committee report. diagrs Ry R 63:421-2 S 21 '18; Ry Age 65:558-9 S 20 '18

**Finance**

Advance of rates needed under either government or private operation. Ry Age 66:748-9 Mr 21 '19  
 Advances and interest facts. Ry R 63:678-9 N 9 '18  
 Authorizations and expenditures in connection with work chargeable to capital account as of December 1, 1918. Ry Age 66:1055 D 13 '18; Same. Ry R 63:889 D 21 '18  
 Average net operating income for years 1916, 1916 and 1917. Ry Age 64:166-9 Ja 13 '18  
 Billion dollars for capital improvements. Ry Age 64:1267-71 My 24 '18  
 Boston & Maine statement before the Interstate commerce commission. J. H. Hustis. map Ry Age 63:1014-15 D 7 '17  
 Buffalo, Rochester & Pittsburgh. map Ry Age 66:1034-6 Ap 25 '19  
 Canadian government and the Grand Trunk Pacific. map Ry Age 66:1065-6 Ap 25 '19  
 Cash disbursements. Ry Age 64:808 Mr 29 '18  
 Causes of the decline in railroad credit. J: S. Williams. Ry Age 64:499-502 Mr 8 '18  
 Cleveland, Cincinnati, Chicago & St Louis. map Ry Age 66:1343-4 Je 6 '19  
 Distribution of additions and betterments. Ry Age 64:1313-16 My 31 '18  
 Doings of the United States Railroad administration. Ry Age 66:301-4 Ja 31 '19  
 Downward trend in net earnings. S. Thompson. Ry R 64:531-2 Ap 5 '19  
 Equitable versus confiscatory return on investment devoted to public use. S: Rea. Ry R 61:738-40 D 15 '17  
 Expenses of the U.S. Railroad administration. Ry Age 66:1093-6 My 2 '19  
 Experience of French argument against guaranteed incomes. F. H. Fayant. Ry Age 66:911-12 Ap 4 '19; Same abr. Ry R 64:526-7 Ap 5 '19  
 Financial needs of the railways. F. Trumbull. Ry R 61:724-5 D 15 '17

**Railroads—Finance—Continued**

Four months under federal operation show deficit of \$250,000,000. Ry R 62:958 Je 29 '18  
 Heavy losses of railway net income. Ry Age 64:1220-1 My 17 '18  
 Influence of regulation on railroad credit. C. C. McChord; F. H. Sisson. Ry R 64:200-3 F 1 '19  
 Investment bankers' association of America; report of committee on railroad securities. Ry Age 67:791-5 O 17 '19  
 Investment in American railroads. L. F. Loree. Ry Age 64:930-3 Ap 5 sec 2 '18  
 Michigan Central railroad. Ry Age 66:1342-3 Je 6 '19  
 Mr Hines explains financial situation. Ry Age 66:1159-61 My 9 '19  
 New York Central. map Ry Age 66:1344-5 Je 6 '19  
 Norfolk & Western; financial statistics. map Ry Age 66:928-30 Ap 11 '19  
 119 roads earned less than standard return. Ry Age 66:771-2 Mr 21 '19  
 Pere Marquette. map Ry Age 66:1033-4 Ap 25 '19  
 Plan to finance federal purchase of railroads. G. Lindenthal. Eng N 83:504-6 S 11 '19  
 Progress toward financing railroad requirements. Ry Age 66:768-70 Mr 21 '19  
 Proposed plans of railroad financing. Ry R 64:404-5 Mr 15 '19  
 Railroad appropriation bill before the House. Ry Age 66:431-6 F 21 '19  
 Railroad credit. C. C. McChord. Ry Age 67:699-700 O 3 '19  
 Railroad rental as fixed by the Interstate commerce commission. Ry Age 65:1075-7 D 13 '18  
 Railroad troubles due to inadequate revenues. W. J. Meyers. Ry Age 67:5-6 J1 4 '19  
 Railway capital invested with no return. Ry R 62:399-400 Mr 16 '18  
 Railway earnings and expenses. Ry R 63:323-5 Ag 31 '18  
 Railway earnings and expenses for the year 1917. F. H. Dixon. Ry Age 64:43-5 Ja 4 '18  
 Railway income saved by passenger traffic. Ry R 64:946-7 Je 21 '19  
 Railway insolvencies in 1917. Ry R 62:24 Ja 5 '17  
 Railway returns for 1918. Ry Age 66:448-9 F 21 '19  
 Railway revenues and expenses in 1918. J. H. Parmelee. charts Ry Age 66:27-30 Ja 3 '19  
 Railway stockholders: December 31, 1917. Bur Railway Econ misc ser 33:1-13 '19; Same cond. Ry Age 66:1243-4 My 23 '19; Same cond. Ry R 65:165-6 Ag 2 '19  
 Receiverships and foreclosure sales in 1917. Ry Age 64:46-8 Ja 4 '18  
 Receiverships and foreclosure sales in 1918. Ry Age 66:34-5 Ja 3 '19  
 Reestablishment of railroad credit. P. M. Warburg. Ry R 65:151-6 Ag 2 '19; Same. Ry Age 67:206-10 Ag 1 '19  
 Results of federal operation of the Lehigh Valley. map Ry Age 66:1239-40 My 23 '19  
 Rising flood of railroad expenses. Ry Age 64:1009-10 Ap 19 '18  
 Six months' earnings and expenses under existing rates. Ry Age 66:425-6 F 21 '19  
 Six months income 39.8 per cent of standard return. Ry Age 67:361-5 Ag 22 '19  
 Some comments on the railroad problem. R. S. Lovett. Ry Age 67:173-5, 197-202 J1 25-Ag 1 '19  
 Southern railway report, June 30, 1917 to December 31, 1917, and the calendar year 1917. map Ry Age 65:724-5 O 25 '18  
 Status of railway earnings. S. Thompson. Ry R 65:124-5 J1 26 '19  
 Three year operating returns of railroads that will be certified by the Interstate commerce commission. Ry R 63:613-14 O 26 '18  
 \$295,000,000 advanced to railroad companies. Ry Age 65:617-18 O 4 '18  
 Why and whereof of that 1200 million for Railroad administration. W. D. Hines. Ry R 64:989-90; 65:19-23 Je 28-J1 5 '19  
 Will state tax commissions reduce railroad assessments? Ry Age 66:294 Ag 16 '18  
 Will the Mexican railway system come back? P. H. Middleton. Ry Age 66:579-81 Mr 14 '19

Wreckage of railway earnings under federal control. Ry R 65:748-9 N 15 '19

See also Railroads—Accounting; Railroads—Cost of operation; Railroads—Equipment trust; Railroads—Fares; Railroads—Management; Railroads—Rates; Railroads—Securities; Railroads—Valuation

**Fire protection**

Fire protection association's 5th annual meeting, Chicago. Ry R 63:801-3 D 7 '18  
 Fire pumps on switch engines. diag Ry Mech Eng 93:332 Je '19  
 Prevention of fires: maintaining the interest of officers and employees. R. Scott. Ry Age 65:1080-1 D 13 '18  
 Railway fire protection equipment. C. R. Knowles. diag Ry R 65:645-8, 660 N 1 '19  
 Suggestions for fire protection of railroad properties. Ry Age 63:1093 D 14 '17

**Fires**

Railroad fire losses in 1918. Ry Age 67:795 O 17 '19

**Forms, blanks, etc.**

Forms for equipment inventory. Ry Age 64:807 Mr 29 '18  
 Standardization of forms, Southern Pacific co. E. B. Stewart. Ry R 63:599-601 O 26 '18

**Freight**

Annual report of the Exports control committee of the U.S. Railroad administration. Ry Age 66:317-18 Ja 31 '19  
 Car-lot shipments of fruits and vegetables in the United States in 1916. P. Froehlich. U S Agric Bul 667:1-196 '18  
 Controlling the traffic at its source. W. D. Hines. Ry Age 67:266 Ag 8 '19  
 Export freight in trainloads. Ry Age 64:318 F 8 '18  
 Freight operations of steam railways for 1916, 1916 and 1917. Ry Age 64:1470-1 Je 21 '18  
 Freight operations under the Railroads' war board. Ry Age 64:905-6 Ap 5 sec 1 '18  
 Getting enough goods and getting them through. E. J. Buckley. Metal Work 89:859-60 Je 28 '18  
 Handling freight under embargo, Pennsylvania R. R. Ry R 62:271-2 F 23 '18  
 How railroads may expedite freight movement; suggestions of Merchants' association of New York. Ry R 62:401-2 Mr 16 '18  
 Increased movement of essential traffic. Ry Age 65:369 Ag 30 '18  
 Lining and floor racks for cars handling perishable freight. diag Ry Age 66:369 F 7 '19; Same. Ry Mech Eng 93:139-40 Mr '19  
 National industrial traffic league, meeting, Buffalo, N.Y. Ry Age 65:453-5 S 6 '18  
 Our transportation in the present crisis. J. F. Lent. Ry R 62:522-4 Ap 6 '18  
 Proper methods of handling freight. E. P. Nowlin. Ry R 64:5-6 Ja 4 '19  
 Reducing loss in the transportation of perishable freight. C. W. Hicks. Ry Age 64:297 F 8 '18  
 Regulations for reconsignment of carload freight. Ry Age 64:991-4 Ap 12 '18  
 Relative economy of freight transport by railway and by motor truck. C. W. Baker. Eng N 83:52-67 J1 10 '19  
 Rule for uniform marking l. c. l. freight. Ry R 62:355 Mr 9 '18; Same. Ry Age 64:458 Mr 1 '18  
 Rules for handling freight for the War department. Ry Age 64:497-8 Mr 8 '18  
 Saving car mileage in order to haul more freight. Ry Age 65:57-8 J1 12 '18  
 Store-door delivery of freight in New York city; report by Commissioner Harlan. Ry R 63:39-43 J1 13 '18; Excerpt. Ry Age 65:64 J1 12 '18; Excerpt. Textile World 54:669+ Ag 10 '18  
 Store door delivery plan prepared by the Traffic bureau of the Merchants' association. Textile World 54:667+ Ag 10 '18  
 Store-door delivery proposed in New York by directors of the Merchants' association of New York city. Ry Age 64:276-7 F 1 '18  
 Traffic conditions at eastern ports. Ry R 63:597-9 O 26 '18

**Railroads—Freight—Continued**

Train-lot plan of moving freight in West. Ry Age 64:1275-7 My 24 '18  
 Universal interline freight waybill adopted. Ry Age 64:794-5 Mr 29 '18

*See also* Freight; Freight car service; Freight cars; Freight handling; Priority; Railroads—Rates; Railroads—Routing; Railroads—Terminals; Railroads—Train load; Railroads—Yards; Refrigerator cars; Terminals; Track scales

**Freight agents**

Local freight agent responsible for unjust criticism of railroads. C. Brand. Ry Age 64:780 Mr 29 '18

**Freight trains**

*See* Railroads—Trains

**Frogs**

*See* Railroads—Switches, frogs, etc.

**Fuel**

Conservation of fuel on the railroads; papers before the New York railroad club. Ry Age 65:913-16 N 22 '18  
 Coxton coal mixing plant, Lehigh Valley R. R. II diag plan Ry R 64:885-7 Je 14 '19  
 Every branch of operating department influences fuel consumption. E. McAuliffe. Ry R 63:779-80 N 30 '18  
 Fuel conservation section activities. Ry Mech Eng 92:495-6 S '18  
 Fuel economy at stationary plants; abstracts. Ry Age 65:516-17 S 13 '18; Ry R 63:477-9 S 28 '18; Ry Mech Eng 92:556-8 O '18  
 Fuel efficiency in railroad stationary plants. Ry R 65:24-5 JI 5 '19  
 Railroad fuel controversy settled. Coal Age 13:1020 Je 1 '18  
 Railroads and their relation to the fuel problem. R. H. Aishton. Ry Age 64:1339-40 My 31 '18  
 Railway fuel conservation; abstracts. E. McAuliffe. Ry Age 65:500-1 S 13 '18; Ry R 63:432-3 S 21 '18; Ry Mech Eng 92:550-2 O '18  
 Railway fuel economy; report of committee of American railway master mechanics' association. Ry R 63:47-9 JI 13 '18  
 Statistical statements fuel conservation section. E. McAuliffe. Ry R 64:525-6 Ap 5 '19  
 Storage of coal by railroads during 1918. H. H. Stoek. Ry Age 66:1311-12 My 30 '19; Same. Ry Mech Eng 93:435-7 JI '19; Excerpt. Ry R 64:793 My 31 '19  
 Suggestions for saving coal. T. Britt. Ry Age 64:1340 My 31 '18; Same abr. Ry Mech Eng 92:354 Je '18  
 Transportation department and fuel economy. H. C. Woodbridge. II diag plans Ry R 64:865-7 Je 14 '19  
 What yardmen can do to save fuel. A. E. West. Ry Age 66:911 Ap 4 '19  
 Work of the fuel conservation section of the U.S. Railroad administration. E. C. Schmidt. Ry R 63:769-72 N 30 '18; Same cond. Ry Age 65:959-61 N 29 '18

*See also* Coaling stations; Locomotives—Fuel

**Fuel departments**

Fuel department organization. T. D. Smith. Ry Age 66:1312-13 My 30 '19  
 Fuel organization for trunk line R. R. chart Ry R 65:6 JI 5 '19

**Gages**

*See* Railroads, Narrow gage

**Government ownership**

*See* Government ownership; Railroads and state

**Grades**

Illinois Central reduces grades on Kentucky line. II diag map Ry Age 65:1103-6 D 20 '18  
 Improvements on the Yazoo & Mississippi Valley. II map Ry Age 64:781-4 Mr 29 '18  
 Increasing trainloads by reducing grades. S. S. Roberts. Ry Age 66:955-6 Ap 11 '19

*See also* Grade crossings

**Labor**

*See* Railroads—Employees

**Laboratories**

Testing laboratory, Southern railway, Alexandria, Va. II Ry R 63:151-2 Ag 3 '18

**Law**

*See* Railroad law

**Lighting**

Lighting of railways. Illum Engr 12:53-5 Mr '19  
 Railway illumination. Ry R 65:665 N 1 '19  
 Railway lighting and its maintenance. A. Cunningham. II diag Illum Engr 12:59-76 Mr '19; Abstract. Elec R 74:1084 Je 28 '19; Discussion. Illum Engr 12:76-88 Mr '19  
*See also* Car lighting; Locomotive terminals—Lighting

**Location**

Miami flood works involve radical railway changes. II diag maps plan Eng N 83:313-15 Ag 14 '19  
 Montreal terminal tunnel from an economic point of view. H. K. Wicksteed. II plan Ry R 65:145-51 Ag 2 '19  
 New York Central relocates lines to cross barge canal at the Tonawandas. B. S. Voorhees. maps Eng N 81:393-6 N 14 '18  
 Relocation of railways near Dayton, Ohio. II diag plan map Ry R 64:165-70 F 1 '19  
*See also* Railroad surveying; Railroads—Construction; Railroads—Curves and turnouts

**Maintenance and repair**

Administration's maintenance program. Ry R 64:406-8 Mr 15 '19  
 Deferred railroad maintenance—an increasing public debt. F. S. Schwinn. Ry Age 66:1188 My 16 '19  
 Efficient utilization of labor in railway maintenance. W. C. Nisbet. Eng & Contr 51:402 Ap 16 '19  
 Essential work. C. A. Morse. Ry Age 65:706-7 O 18 '18  
 Inspection of shop and maintenance of way tools. G. L. LaFountain. Ry R 65:701-2 N 8 '19  
 Labor efficiency in railroad maintenance. F. S. Schwinn. Ry R 64:711-12 My 17 '19; Same abr. Eng & Contr 52:80 JI 16 '19  
 Maintenance work is being seriously delayed. Ry Age 65:65-7 JI 12 '18  
 New regulations governing repairs to equipment. Ry Age 65:738 O 25 '18  
 Review of maintenance conditions. Ry Age 64:12-13 Ja 4 '18  
 Roadmaster's don'ts. Ry R 63:91-2 JI 20 '18  
 30 labor saving devices or kinks for railway maintenance of way work. Eng & Contr 51:288-90 Mr 19 '19

*See also* Cars—Repair; Freight cars—Repair; Railroad ties; Railroads—Equipment and supplies; Railroads—Management; Railroads—Shops; Railroads—Snow protection and removal; Railroads—Track; Rails

**Maintenance of way**

*See* Railroads—Track

**Management**

Arithmetic of railroad operation. W. J. Cunningham. Ry R 64:316-18, 355-7 Mr 1-8 '19  
 Calculating machines in railroad offices. C. E. Parks. Ry R 64:759-61, 807-9 My 24-31 '19  
 Company mail handling system, Oregon short line. Ry R 62:643 My 4 '18  
 Constructive rehabilitation pays. J. E. Muhlfield. Ry Age 64:1162 My 10 '18  
 Creation of service department on railways recommended. L. C. Fritch. Ry Age 63:1015-16 D 7 '17  
 Decreasing engine terminal delay; prize essays. O. T. Dickens; T. S. Grant; K. R. Mitchell. II Ry Mech Eng 91:697-701 D '17  
 Decreasing the man mileage. O. E. Fisher. Ry Age 66:604 Mr 14 '19

**Railroads—Management—Continued**

Development of Santa Fe reading room system. C. E. Parks. *Il Ry Age* 65:179-83 *Jan 26 '18*  
 Does the engineer make a good railroad operator? C. W. Stark. *Eng N* 81:796-7 *O 31 '18*  
 Efficiency in the car department. W. K. Willmott. *Il Ry Mech Eng* 92:461-2 *Ag '18*  
 Efficiency in the handling of railway supplies; methods employed by the Santa Fe. C. E. Parks. *Il Ry Age* 65:423-7, 491-3 *S 6-13 '18*  
 French Chef de gare system and train operation. F. A. Delano. *Ry Age* 65:823-4 *N 8 '18*  
 Functions of railway corporate organizations. *Ry Age* 65:671-2 *O 11 '18*  
 Glances of conditions in congested railway field. *Il Ry R* 82:176-8 *F 2 '18*  
 How operating capacity can be increased. E. H. Lee. *Ry Age* 67:34-6 *Jan 4 '19*  
 How the railway labor shortage can be overcome. *Eng N* 80:866-8 *My 2 '18*  
 Importance of unit operation of large terminals. H. J. Pfeiffer. *Ry Age* 65:773-4 *N 1 '18*  
 Labor saving devices in railroad offices. *Il Ry R* 64:215-18, 245-8, 347-50 *F 8-15, Mr 8 '19*  
 Logarithmic chart in the analysis of railroad operations. F. J. Deesen. *Ry Age* 67:570-1 *S 19 '19*  
 Mechanical achievements of United States Railroad administration. F. McManamy. *Am Mach* 50:1163-6 *Je 19 '19*  
 Motive power conditions during the past winter. *Ry Age* 64:907-8 *Ap 5 sec 1 '18*  
 One way to improve operating methods. M. E. Burk. *Ry Age* 67:37-8 *Jan 4 '19*  
 Organization for purchasing and stores. H. B. Spencer. *Ry Age* 67:617-19 *S 26 '19*; Same. *Ry R* 65:447-9 *S 27 '19*  
 Organization maintenance. A. R. Ayers. *Ry Age* 64:257-8 *F 1 '18*; Same. *Ry Mech Eng* 92:210-11 *Ap '18*  
 Pocahontas region—study of operating conditions. map *Ry Age* 66:835-7 *Mr 28 '19*  
 Position of the traffic man in the present crisis. F. E. Scott. *Ry R* 63:205-7 *Ag 10 '18*  
 Railroad adequacy under war conditions. F. McManamy. *Ry R* 63:578-80 *O 19 '18*; Same. *Ry Age* 65:729-31 *O 25 '18*  
 Railroad problem and economics. C. A. Morse. *Ry Age* 66:207-11 *Jan 17 '19*; Same. *Ry R* 64:135-9 *Jan 25 '19*  
 Railroads to be operated by federal managers. *Ry Age* 64:1271-2 *My 24 '18*  
 Reasons for excessive labor turnover. *Ry Mech Eng* 93:551-2 *S '19*  
 Recent operating difficulties on Pennsylvania R.R. *Il Ry R* 62:307-10 *Mr 2 '18*; Same. *Ry Age* 64:44-9 *Mr 1 '18*; Same cond. *Ry Mech Eng* 92:143-5 *Mr '18*  
 Relation of the transportation department to the mechanical department. T. E. Grace. *Ry R* 65:248-9 *Ag 16 '19*  
 Report on public service and accounting. W. G. McAdoo. *Ry R* 64:218-19 *F 8 '19*  
 Severe winter hampers railway operation. *Ry Age* 64:851-2 *Ap 5 sec 1 '18*  
 Short line railroad contract. *Ry Age* 65:763, 777-8 *N 1 '18*  
 Turn around service on the Western Maryland. *Ry Age* 67:260 *Ag 8 '19*  
 Unified corporate control of the railways after the war. A. C. Dennis. *Eng N* 81:711-12 *O 17 '18*  
 Unnecessary telegraphing. J. L. Coss. *Ry Age* 64:328 *F 8 '18*  
 Vindication of the railway managers. *Ry Age* 64:1407 *Je 14 '18*  
 Who wastes the fuel? *Ry Age* 64:305-6 *F 8 '18*; Discussion. 64:442, 696 *Mr 1, 22 '18*  
 Work of the Division of operation. W. G. McAdoo. *Ry Age* 66:139-50 *Jan 10 '19*; Same cond. *Ry R* 64:69-76 *Jan 11 '19*; Abstract. *Eng N* 82:178-80 *Jan 23 '19*

*See also* Car inspection; Freight car service; Freight handling; Railroads—Claims; Railroads—Employees; Railroads—Equipment and supplies; Railroads—Finance; Railroads—Fuel departments; Railroads—Maintenance and repair; Railroads—Public relations; Railroads—Rates; Railroads—Records; Railroads—Routing; Railroads—

Safety devices and measures; Railroads—Traffic; Railroads—Yards; Railroads, Pooling of; Train dispatching; Traingrams

**Mechanical departments**

Co-ordination in the mechanical department. W. U. Appleton. *Ry R* 63:773-4 *N 30 '18*  
 Mechanical department organization, Chicago. Milwaukee & St Paul Ry. diag *Ry R* 63:203-5 *Ag 10 '18*  
 Mechanical department supervision. F. McManamy. *Ry Mech Eng* 92:591, 597-8 *N '18*  
 Mechanical engineer. *Ry Mech Eng* 92:27-9 *Jan '18*  
 More service from the equipment; brief suggestions from men in charge of mechanical departments. *Ry Mech Eng* 92:21-2 *Jan '18*  
 Shop labor situation in 1918. *Ry Mech Eng* 93:22-4 *Jan '19*  
 Unified mechanical department. W. U. Appleton. *Ry Mech Eng* 93:130-3 *Mr '19*  
 United States railroad administration mechanical department; abstract of Mr McAdoo's report. *Ry Mech Eng* 93:69-71 *F '19*

**Officials**

Attempting to discredit railway officers. W. G. Lee. *Ry Age* 67:189-90 *Ag 1 '19*  
 Changes in railroad control as affecting official and employee. C. B. Roberts. *Ry R* 64:670-1 *My 3 '19*  
 Duties of traffic officials. W. D. Hines. *Ry R* 64:259-60 *F 15 '19*  
 Officers of the railroads under federal control. *Ry Age* 65:supp 2 *D 20 '18*  
 Railroad administration and the railway officers. *Ry Age* 64:1361-3 *Je 7 '18*  
 Railroad salaries and New York offices under investigation. *Ry Age* 64:471 *Mr 1 '18*  
 Reorganization of the Southwestern region. *Ry Age* 66:552-4 *Mr 7 '19*

**Salaries**

Facts versus fiction about railway salaries. *Ry Age* 64:437-8 *Mr 1 '18*  
 Salaries of railroad officers in 1917. *Ry Age* 67:751-2 *O 10 '19*

**Operation*****See* Railroads—Management****Passenger traffic**

Chicago suburban lines demonstrate efficiency. *Il map Ry Age* 67:272-4 *Ag 8 '19*  
 Grand Central terminal handled 189,838 passengers. *Il Ry Age* 67:366-7 *Ag 22 '19*  
 Passenger car distributor and his war job. J. W. Roberts. *Il Ry Age* 64:1127-8 *My 3 '18*  
 Passenger traffic statistics. *Ry Age* 65:1109-10 *D 20 '18*  
 Railway passenger service during federal control. G. Fort. *Ry Age* 66:316 *Jan 31 '19*

**Passes**

Patented pass form. *Il Ry Age* 63:1086 *D 14 '17*  
 Rules for the issuance of passes. C. R. Gray. *Ry Age* 65:545-6 *S 20 '18*; Same. *Ry R* 63:442 *S 21 '18*

**Public relations**

Are the railroads fair to the public? *Ry Age* 66:117 *Jan 10 '19*  
 Railroad bureau for brickbats and bouquets. T. H. Price. *Ry Age* 65:749-52 *O 25 '18*  
 Relation of the railroad to the farmer: development of farm bureaus in New York state. G. A. Cullen. *Ry Age* 64:323-4 *F 8 '18*  
 Service work for freight and passenger traffic. B. L. Winchell. *Ry Age* 65:1073-4 *D 13 '18*; Same. *Ry R* 63:896-7 *D 21 '18*

*See also* Railroads and state

**Purchasing**

Comparison of methods for purchasing ties. J. W. Fristoe. *Ry R* 64:242-4 *F 15 '19*  
 Criticism of purchasing policy. R. D. Lusk. *Am Lumberman* 2284:33-4 *F 22 '19*  
 Great buying power, its dangers and duties. W. C. Redfield. *Ry R* 64:769-71 *My 24 '19*; Same. *Ry Age* 66:1263-5 *My 23 '19*

**Railroads—Purchasing—Continued**

- Irregularities in rate of purchasing equipment. W. F. M. Goss. Ry Age 66:854-5 Mr 28 '19
- Objections to proposed rules for competitive bids under Clayton law. Ry Age 66:1209-11, 1280 My 16-23 '19
- Organization for purchasing and stores. H. B. Spencer. Ry Age 67:617-19 S 26 '19; Same. Ry R 65:447-9 S 27 '19
- Selling to railroads under government control. Ry Age 64:543-4 Mr 15 '18
- To effect equitable cross-tie purchasing. Am Lumberman 2300:49-50; 2302:60-1 Je 14, 28 '19; Same. Ry R 65:51-5 Jl 12 '19; Excerpts. Ry Age 67:9-11 Jl 4 '19

**Rails**

See Rails

**Rates**

- Action on proposed scales of class rates. Ry Age 65:857 N 15 '18; Ry R 63:740-1 N 23 '18
- Advance in rates. Ry Age 64:1316 My 31 '18
- Comparative freight rates. J. Kruttschnitt. Ry R 64:390-1 Mr 15 '19
- Compensatory scale of rates. C. B. Aitchison. Ry R 65:602-3 O 25 '19
- Decision on Indiana protest against Illinois freight rates. Ry R 65:514-15 O 4 '19
- Eastbound rate changes are imminent. Am Lumberman 2276:58 D 28 '18
- Freight and passenger rates increased; general order no. 28. Ry R 62:792-5 Je 1 '18
- Freight charges and high prices. J. Kruttschnitt. Ry R 65:547-8 O 11 '19
- French railroads must have higher freight rates. Ry Age 63:1043-5 D 7 '17
- Higher freight and passenger rates ordered. Ry Age 64:1319-23 My 31 '18
- Increases in rates in New England allowed. Ry Age 64:1129-32 My 3 '18
- Inter-mountain rate case; decision handed down by the Interstate commerce commission. Iron Age 101:384 F 7 '18
- Interstate commerce commission decides eastern rate case. Ry R 62:426-7 Mr 23 '18; Ry Age 64:712-13 Mr 22 '18
- Interstate commerce commission holds railroad control act has not deprived it of authority to decide on relations of rates. Ry Age 65:767-9 N 1 '18
- I. C. C. recommends consolidated classification. Ry Age 67:644-6 S 26 '19
- Is there economic justification for recognizing water competition in fixing railway rates? Eng & Contr 49:375 Ap 17 '18
- President Wilson vetoes the railway rate-making bill. Ry R 65:768 N 22 '19
- Procedure in increasing rates or charges. Ry R 61:732-3 D 15 '17
- Producers of gravel urge freight rate reduction. E. G. Sutton. Concrete 14:sup36 Mr '19
- Proposed rule on rate making. W. W. Salmon. Ry Age 67:153-4 Jl 25 '19
- Railway executives to ask for rate advance. Ry Age 67:693-4 O 3 '19
- Railway wages and freight rates. Ry Age 66:1434 Je 13 '19
- Rate-making powers of the Director general. Ry Age 66:1141-4 My 9 '19
- Rates on wool; I. C. C. opposes propriety of requirement of 19 lb. per cubic foot density. Textile World 54:133 Jl 6 '18
- Seasonal freight rates. Coal Age 13:209, 386, 561 Ja 26, F 23, Mr 23 '18
- Shippers protest freight rate increase on sand, gravel, crushed stone and slag. Concrete 14:sup26 F '19
- Standard scales of class rates are proposed. map Ry Age 65:781-3 N 1 '18; Same (tables). Ry R 63:682-3 N 9 '18
- Status of rate cases before the Interstate commerce commission. Ry R 63:21 Jl 6 '18
- Tariffs to be prepared for resumption of private operation. Ry Age 67:748 O 10 '19
- Transcontinental rates to be increased. Ry Age 64:312 F 8 '18

See also Railroads—Fares; Railroads—Passes

**Records**

- Individual fuel performance records, Baltimore & Ohio R. R. W. L. Robinson. Ry R 62:205-9 F 9 '18; Same cond. Ry Age 63:1131-6 D 21 '17
- Maintenance of way records and reports. Ry R 63:667-8 N 9 '18
- Shop story with a moral; need of eliminating unnecessary reports and statements. Ry Mech Eng 92:112-13 F '18

See also Railroads—Forms, blanks, etc.

**Regulation**

See Railroads and state

**Repair shops**

See Railroads—Shops

**Reports**

- Revised annual report forms for 1918. Ry Age 65:774-6 N 1 '18

**Robberies**

- Campaign against theft shows results. Ry R 63:207 Ag 10 '18
- National conference to suppress freight car robberies. Il Ry R 63:120-2 Jl 27 '18
- Police work on the Chicago terminals. Ry Age 65:367 Ag 30 '18

**Rolling stock**

- General characteristics of Chinese rolling stock. Il Ry Mech Eng 93:585-6 O '19
- Kalka-Simla railway and rolling stock. Il diag plans Engineer 126:455-8 N 29 '18
- Motive power and rolling stock situation. Ry Age 66:68-70 Ja 3 '19
- Open letter to the Director General from the Railway business association on standardization. Ry Mech Eng 92:145-6 Mr '18
- Problem of car supply. S. O. Dunn. Ry Age 64:1013-16 Ap 19 '18
- Rolling stock of 1919. H. T. Walker. Il diag Sci Am 121:250-1+ S 13 '19
- See also Baggage and express cars; Cars; Freight cars; Locomotives; Motor cars (railroad); Railroads—Equipment and supplies; Railroads—Maintenance and repair; Railroads—Standards; Refrigerator cars; Sleeping cars

**Routing**

- Distribution of overseas traffic. map Ry Age 65:637-8 O 4 '18; Same cond. Ry R 63:476-7 S 28 '18

**Safety devices and measures**

- Aims and purposes of the safety section United States railroad administration. A. F. Duffy. Ry R 65:588-9 O 13 '19
- Annual report of I. C. C. Bureau of safety. W. P. Borland. Ry Mech Eng 93:89-90 F '19
- Annual report of the Bureau of safety. H. W. Belnap. Ry Age 63:1177-80 D 28 '17
- Derailer to protect track workers. Il Sci Am 119:462 D 7 '18
- Derails and where they should be used. Il diag Ry Age 66:1361-7 Je 6 '19
- Importance of organized safety work. H. W. Belnap. Ry Age 64:1188-90 My 10 '18
- I. C. C. safety inspector's report. Ry Mech Eng 92:17 Ja '18
- New York Central safety-first department. Ry Age 64:1575-8 Je 28 '18
- Proceedings of the railroad section; seventh annual congress at St Louis. Ry R 63:423-6, 463-5 S 21-28 '18
- Progress of safety work. A. F. Duffy. Ry R 64:734 My 17 '19
- Safety council discusses conservation of man power. Ry Age 65:589-92 S 27 '18
- Safety first and the golden rule. Ry Age 64:1249 My 17 '18
- Safety for the standing train. G. S. Paine. Sci Am 130:225 Mr 8 '19
- Safety program of Railroad administration. H. W. Belnap. Ry R 63:426-8 S 21 '18
- Trespassing on railroad property—communication. S. A. Senter. Ry R 61:792-4 D 29 '17
- Why don't daddy come? O. D. Boyle. Il Ry Mech Eng 92:517-18 S '18

**Railroads—Safety devices—Continued**

- Yielding barrier that is fool-proof. *Il Sci Am* 118:22 Ja 5 '18  
 Yielding gates designed to stop autos at open draws. *diags Eng N* 80:1008 My 23 '18  
*See also* Air brakes; Derails; Explosives—Transportation; Railroads—Automatic stop; Railroads—Signals

**Sanitation**

- Bearing of malaria on railroad operation. H. W. Van Hovenberg. *Il Ry Age* 65:23-6 JI 5 '18; Excerpt. *Eng & Contr* 50:203-3 Ag 21 '18  
 Sanitarian's work is valuable to a railroad. A. E. Campbell. *diags Ry Age* 64:550-2 Mr 15 '18  
 Southern railroads and the problem of malaria control. R. C. Derivaux. *Ry R* 63:230-3 Ag 17 '18

**Schedules**

- Changing standard time. *Ry Age* 64:784 Mr 29 '18  
 Extensive reductions in western passenger service. *Ry Age* 64:1176 My 10 '18

**Scrap material**

- Billerica reclamation plant. *Il Ry Mech Eng* 92:671-2 D '18  
 Conservation of material. J. G. Stuart. *Ry R* 64:380-1 Mr 15 '19  
 Conservation of railway material. M. K. Barnum. *Ry Mech Eng* 91:670-2 D '17  
 Conservation of railway materials in the southern territory. *Ry R* 62:840-3 Je 8 '18  
 Conservation of track materials. *Ry Age* 65:557-8 S 20 '18  
 Conserve and reclaim material. C. H. Markham. *Ry Mech Eng* 92:333-4 Je '18  
 Eliminating a railroad waste. *Il Sci Am* 120:176-4 F 22 '19  
 Handling scrap. W. F. Jones. *Ry R* 64:546-7 Ap 12 '19  
 Junk pile transformed into gold. G. H. Manlove. *Il diag Iron Tr R* 62:1173-6 My 9 '18  
 Manufacturing scrap iron into locomotive parts. P. H. Cain. *Il Ry Mech Eng* 92:576 O '18  
 Prevention of waste vs. reclamation of scrap. H. J. Miller. *Ry Mech Eng* 92:470-1 Ag '18  
 Railroad utilizes old steel spans in road bridges. *diags plan Eng N* 81:320-1 Ag 15 '18  
 Reclaiming scrap in the railroad shop. W. Constance. *Ry Age* 67:428-9 Ag 29 '19; Same. *Ry Mech Eng* 93:546 S '19  
 Reclamation. G. Yeomans. *Ry R* 65:525-6 O 11 '19  
 Reclamation in Northwestern region. *Ry R* 64:738-8 My 17 '19  
 Reclamation on Chicago Milwaukee & St Paul. *Ry R* 63:903-5 D 28 '18  
 Reclamation on the Southern Pacific. F. A. Stanley. *Il Ry Mech Eng* 92:381-6, 505-6 JI, S '18  
 Reclamation plant of the Mobile & Ohio R. R., Murphysboro, Ill. *Ry R* 62:516-17 Ap 6 '18  
 Retrenchment by reclamation. M. F. Cox. *Il diags Ry R* 62:861-3 Je 15 '18  
 Scrap handling and reclamation. Chicago. Rock Island & Pacific Ry. A. T. Kipping. *Il plan Ry R* 65:219-22 Ag 16 '19  
 Scrap reclamation on the Atchison, Topeka & Santa Fe Ry. C. E. Parks. *Il Ry R* 62:122-5, 156-60 Ja 26-F 2 '18  
*See also* Railroads—Equipment and supplies

**Securities**

- Distribution of security holdings of steam roads. *Ry R* 64:527-31 Ap 5 '19; Same, without tables. *Ry Age* 66:882 Ap 4 '19  
 Effect of war on railroad securities. F. H. Sisson. *Ry R* 63:515-17 O 5 '18  
 Fair play for investors in stocks and bonds of American railways. J. Speyer. *Ry R* 61:764-6 D 22 '17  
 How will the railroad securities be affected? *Ry Age* 64:159-61 Ja 18 '18  
 National association of owners of railroad securities. S. D. Warfield. *Ry R* 62:136-8 Ja 26 '18

- New railroad financing; report of committee on railroad securities of the investment bankers' association. *Ry Age* 64:271-3 F 1 '18  
 No one can tell what interest rates will be. *Ry Age* 67:790 O 17 '19  
*See also* National association of owners of railroad securities

**Shops**

- American railroad repair shops in France. R. K. Tomlin, Jr. *Il diag plans Am Mach* 49:933-8 N 21 '18  
 Baltimore & Ohio shops, Cumberland, Md. *Il plan Ry R* 65:557-9 O 18 '19  
 Bolt manufacture in railway shops. M. H. Williams. *diags Ry Mech Eng* 92:465-70 Ag '18  
 British railway workshops in war time. *Il Engineer* 127:576-9, 604+, 630; 128:104-5, 178-9, 200-2, 228-9, 232, 326-7, 334, 375, 402-3, 484-5, 490, 581-2 Je 13-27, Ag 1, 23-S 5, O 3, 17-24, N 14, D 12 '19  
 Car building plants and railroad repair shops; census report for 1914. *Ry Age* 64:515-17 Mr 8 '18  
 Car department of the Milwaukee. *chart Ry Mech Eng* 92:615-20 N '18  
 Car wheel drop pit. J. V. Henry. *diags Ry Mech Eng* 92:358 Je '18  
 Census statistics of railroad repair shops. *Ry Mech Eng* 92:255-6 My '18  
 Chilean railroad shops of American design. W. W. Nowak. *Il plans Iron Age* 102:131-5 JI 13 '18  
 Concrete roadway system in a shop yard. C. E. Parks. *Il Ry Age* 64:111-14 Ja 11 '18  
 Concrete roadways for shops of the A. T. & S. F. Ry., at Topeka, Kan. C. M. Buck. *Il diags plan Ry R* 62:568-73 Ap 20 '18; Same *cond. Eng N* 80:1038-40 My 30 '18  
 Essential factors in promoting shop output. G. W. Armstrong. *Ry Mech Eng* 93:493-4 Ag '19  
 Fireproof terminal oil house. A. P. Sharp. *Il diags plans Ry Mech Eng* 93:579-80 O '19  
 Large appropriations for shops allowed by Railroad administration. *Ry Mech Eng* 92:849-50 Je '18  
 Losses in a small power plant. *Ry Mech Eng* 92:422 JI '18  
 Method of regulating shop output. E. T. Spidy. *Ry Mech Eng* 92:527-9 S '18  
 Milling practice in railway shops. F. A. Stanley. *Il diags Ry Mech Eng* 92:521-4 S '18  
 Munitions production by British railways. *Ry R* 63:671-2 N 9 '18  
 New car repair shed, Baltimore & Ohio R. R. *Il diags plan Ry R* 64:515-16 Ap 5 '19  
 New Grand Trunk car shops at Port Huron. *Il diags plans Ry Age* 64:1331-4 My 31 '18  
 New shops and engine terminals, Buffalo, Rochester & Pittsburgh Ry. *diags plans Ry R* 62:907-11 Je 23 '18  
 New shops of the Chilean state railways. E. G. Donoso. *Il plans Ry R* 64:967-73 Je 23 '19  
 New York Central steel car shop at Ashtabula, O. *Il diags Ry Mech Eng* 93:315-19 Je '19  
 Piece work system in railway shops. W. J. McClennan. *Ry Mech Eng* 93:411-16 JI '18  
 Proposed expenditures for shops and shop equipment. *Ry R* 62:923-4 Je 23 '18  
 Railroad repair shop efficiency. F. McManamy. *Ry R* 65:638-42 N 1 '19  
 Railroad repair shops in France equipped and operated by American forces. R. K. Tomlin, Jr. *Il plans Eng N* 81:1178-82 D 26 '18  
 Railway shop tool room. M. H. Williams. *Il diags Ry Mech Eng* 92:335-40 Je '18  
 Repair shop train used on narrow gage in Flanders. F. C. Coleman. *Il plan Ry Age* 66:1139-40 My 9 '19  
 Report on shop operation, methods and practices. *Ry R* 64:666-7 My 3 '19  
 Safeguards in railroad shops. F. A. Stanley. *Il Ry Mech Eng* 93:93-6 F '19  
 Safety first in shop and enginehouse service. W. T. Gale. *Ry Age* 67:521-2 S 12 '19; Same *abr. Ry Mech Eng* 93:602-3 O '19  
 Saving labor in shop accounting. *Ry Age* 66:896-7 Ap 4 '19



**Railroads—Shops—Continued**

Shop improvements for the Rutland railroad. *Il plans Ry R 65:789-91 N 29 '19*  
 Shop scheduling on the B. R. & P. Ry Mech Eng 92:219-21 Ap '18  
 Shop story with a moral; need of eliminating unnecessary reports and statements. Ry Mech Eng 92:112-13 F '18  
 Steel car repair shop, New York Central R. R., Ashtabula, O. *Il diags plan Ry R 64:647-8 My 3 '19*  
 Up-to-date railroad blacksmith shop. G. Fraser. Ry Age 67:426-8 Ag 29 '19; Same. Ry Mech Eng 93:544-5 S '19; Same. Ry R 65:490-1 O 4 '19  
 Welding methods at Columbus shops. *Il diags Ry Mech Eng 92:473-4 Ag '18*  
 Well organized repair shop. *Il diag Ry Mech Eng 92:303-11 Je '18*  
 West Burlington shops of the C. B. & Q. *Il diags plans Ry Mech Eng 93:5-16 Ja '19*  
 Western railroad repair shop. F. A. Stanley. *Il diags Am Mach 49:249-52 Ag 8 '18*  
 Women fill men's places in shops. D. C. Buell; H. D. Wolcomb; M. Lampert. Ry Mech Eng 92:23-6 Ja '18  
*See also* Car houses; Electric railroads—Shops; Locomotive shops; Locomotive terminals; Paint shops; Railroads—Terminals; Roundhouses

**Equipment**

Automatics in railroad shops. M. H. Williams. *Il diags Ry Mech Eng 93:303-10 Je '19*  
 Brass-working tools in a railroad shop for making blow-off valves and their fittings. F. A. Stanley. *Il diags Am Mach 49:1081-4 D 12 '18*  
 Improve the equipment of the railway shops. H. L. Burrhus. Ry Age 64:355-6 Ap 5 sec 1 '18  
 Interesting shop devices at Transcona. S. Lewis. *diags Ry Mech Eng 93:150-1 Mr '19*  
 Labor saving devices on the Southern. J. O. Johnson. *Il Ry Mech Eng 92:221-2 Ap '18*  
 Machine tool equipment needed by railroads. Ry Mech Eng 92:209-10 Ap '18  
 Miscellaneous equipment at the Shoreham shops. F. W. Seelert. *Il diags Ry Mech Eng 92:227-8 Ap '18*  
 New and improved machine tools and shop equipment. *Il Ry Mech Eng 93:341-96 Je '19*  
 New devices in Soo wheel shop. *Il diags Ry Mech Eng 92:577-9 O '18*  
 Plain knee type and similar milling machines. M. H. Williams. *diags Ry Mech Eng 92:41-6 Ja '18*  
 Railroads need better machine tool equipment. Ry Age 64:900-1 Ap 5 sec 1 '18

**Signals**

American railroad association, signal division, 1st annual convention, Chicago. Ry Age 67:613-16 S 26 '19  
 Annual government signal bulletin. Ry Age 64:1181 My 10 '18  
 Annual government signal bulletin. Ry Age 67:56 J 11 sec 1 '19  
 Automatic block signals as time savers. Ry R 62:276 F 23 '18  
 Block signals in 1918. Ry R 65:107-8 J 19 '19  
 Concrete trunking in signal work. B. A. Lundy. *diags plan Ry R 64:549-50 Ap 12 '19*  
 Discipline in the signal department. R. B. Elsworth. Ry Age 64:469-70 Mr 1 '18  
 Electrical signalling and control on railways. C. M. Jacobs. *diags Inst E E J 56:136-42; Discussion. 142-52, 199-204, 344-7 F-Mr, My '18*  
 Flagging and its relation to railroad accidents. C. C. McChord. Ry Age 66:1523-30 Je 20 '19  
 How about eliminating the flagman? Ry Age 67:342, 447 Ag 22, S 5 '19  
 How signals can increase track capacity. C. C. Anthony. *Il Ry Age 64:1383-6 Je 7 '18*  
 Improvement in railway signalling. *Il Engineer 127:262 Mr 14 '19*  
 Increased signalling on the York (Pa.) railways. *Il diag Elec Ry J 54:120 J 19 '19*  
 Influence of zinc ties on track circuits. Ry Age 66:305-6 Ja 31 '19

June meeting of the Signal division, American railroad association. Ry Age 67:31-4 J 4 '19  
 Lamps for daylight signals on railways. *Engineer 126:520 D 13 '18*  
 Meeting of signal division, American railroad association, Chicago. Ry R 64:433-4 Mr 22 '19  
 Opportunities for American signaling in Far East. F. Rhea. Ry Age 67:557-8 S 19 '19  
 Position-light signals for railroad service. A. H. Rudd. *Sci Am S 86:139 Ag 31 '18*  
 Position-light signals on Pennsylvania railroad. A. H. Rudd. *diags Ry Age 65:177-8 J 26 '18*  
 Progress in railroad signaling during the year 1917. *Il Ry Age 64:73-9 Ja 4 '18*  
 Progress in railway signaling during 1917. Ry R 62:33-5 Ja 5 '18  
 Relation between train handling and the caution signal. F. H. Nicholson. *diags Ry Age 64:1295-6 My 24 '18*  
 Removing a signal-box bodily. *Il Engineer 125:237 Mr 15 '18*  
 Results of signal department reorganization on Rock Island. J. A. Hofmann. Ry Age 65:262-3 Ag 9 '18  
 Review of railway signaling for the past year. Ry Age 66:75-81 Ja 3 '19  
 Should government operation affect signaling? A. G. Shaver. Ry Age 66:137-8 Ja 10 '19  
 Signal department encounters new problems. Ry Age 64:846-8 Ap 5 sec 1 '18  
 Signals required to facilitate traffic in Australia. C. B. Byles. Ry Age 65:819-20 N 8 '18  
 Spring meeting of the Railway signal association, Chicago. Ry R 62:425-6 Mr 23 '18  
 Torpedoes as fog signals on Belgian state railways. L. Welassenbruch. *diags Ry Age 64:1087-8 Ap 26 '18*  
 Train operation by signal indication on the Erie. H. M. Sperry. *Il diags Ry Age 65:5-10 J 5 '18; Same cond. Ry R 63:9-14 J 6 '18; Abstract. Elec Ry J 52:246 Ag 10 '18*  
 Vibrophone. *Il Ry Age 65:824 N 8 '18*  
 What does it cost to stop a tonnage train? C. C. Anthony. Ry Age 66:1105-7 My 2 '19  
 What time saved by signals means in equipment. Ry Age 65:1165-7 D 27 '18  
 Why these unnecessary stops? A. M. Burt. Ry Age 63:1158 D 28 '17  
*See also* Electric railroads—Signals; Railroads—Automatic stop

**Snow protection and removal**

Breaking the snow blockade in Chicago terminals. *Il Ry R 62:395-7 Mr 16 '18*  
 Concrete snow sheds on the Union Pacific. *Il diags map Ry Age 63:1159-64 D 28 '17; Excerpts. Eng & Contr 49:294-5 Mr 20 '18*  
 Electric heaters keep track switches clear of snow and ice. *Il diags Eng N 81:1120 D 19 '18*  
 Electric snow melting device. *Il Ry Age 65:520 S 13 '18; Elec Ry J 52:881-2 N 16 '18*  
 Fighting snow drifts on the railways. *Il Sci Am S 85:164 Mr 16 '18*  
 Planting trees as protection against drifting snow. *Il Ry Age 64:706 Mr 22 '18*  
 Pulling the Chicago terminals out of the snow. *Il Ry Age 64:369-71 F 15 '18*  
 Ray snow plow and flanger. *Il diags Ry R 63:651-2 N 2 '18*  
 Recent operating difficulties on Pennsylvania R.R. *Il Ry R 62:307-10 Mr 2 '18; Same. Ry Age 64:447-9 Mr 1 '18; Same cond. Ry Mech Eng 92:143-5 Mr '18*  
 Severe winter hampers railway operation. Ry Age 64:851-2 Ap 5 sec 1 '18  
 Snow shed construction in the Cascades. *Il diags Ry Age 63:1087-91 D 14 '17*  
 Southern Pacific's snow shed problem. G. W. Rear. Ry Age 64:1116 My 3 '18  
 Telescope sections for latest timber snowsheds developed by Southern Pacific. *Il diags Eng N 80:44-5 Ja 3 '18*  
 Tree planting to control snow and wind. W. C. Palmer. *Il Sci Am S 85:356-7 Je 8 '18*  
 Union Pacific adopts unit-member concrete snowsheds. W. R. Armstrong. *Il diags plans Eng N 80:80-2 Ja 10 '18; Abstract. Sci Am 118:59 Ja 12 '18*

**Railroads—Snow protection—Continued**

Why not use machinery for snow removal at railway terminals? Eng N 82:217 Ja 30 '19  
 Wooden scrapers for handling snow on the C. & N. W. Ry. Il Ry R 62:282-3 F 23 '18

**Bibliography**

Winter railroading. Bureau of railway economics, Washington, D.C. 53p '18 (mime.)

**Standards**

British proposals for standardization of railway equipment. Elec R 73:1005 D 28 '18  
 Economy in maintenance and operation of locomotives. G. Greenough. Ry R 62:625-8 Ap 27 '18; Excerpt. Ry Age 64:1045-6 Ap 19 '18; Excerpt. Ry Mech Eng 92:248 My '18  
 Equipment standardization. W. G. McAadoo. Ry Age 64:559-60 Mr 15 '18; Same. Ry R 62:362-3 Mr 16 '18  
 Equipment standardization in Belgium and France. R. E. Thayer. Ry Age 67:169 Jl 25 '19; Same. Ry Mech Eng 93:463-4 Ag '19  
 Immutability laws. Ry R 62:720 My 18 '18  
 Latest developments in locomotive standardization. Ry Age 64:1085-6 Ap 26 '18  
 Loss to America from the delay in standardizing railway rolling stock nearly \$200,000,000. Eng & Contr 49:470-1 My 15 '18  
 Modern versus standardized railway equipment. J. E. Muhfeld. Ry Age 64:1066-7 Ap 26 '18  
 Open letter to the Director General from the Railway business association on standardization. Ry Mech Eng 92:145-6 Mr '18  
 Progress toward standardization. Ry Age 64:509-10 Mr 8 '18  
 Question of standard locomotives. Ry Mech Eng 92:186 Ap '18  
 Railroad administration's motive power problems. A. B. Johnson. Ry Age 64:965-8 Ap 12 '18; Same. Ry R 62:536-9 Ap 13 '18; Excerpt. Ry Mech Eng 92:246-8 My '18; Abstract. Coal Age 13:931 My 18 '18; Discussion. Ry Age 64:1018 Ap 19 '18  
 Standardization of forms. Southern Pacific co. E. B. Stewart. Ry R 63:599-601 O 26 '18  
 Standardization of freight cars and locomotives. W. G. McAadoo. Sci Am S 86:261 O 26 '18  
 Standardization of Indian railways' locomotives. E. C. Poultney. diags Ry Age 64:1425-30 Je 14 '18  
 Standardization of railway equipment; report by the Advisory council of the Ministry of reconstruction. Engineer 126:445-6 N 22 '18; Abstract. Am Soc M E J 41:180 F '19  
 Standardization of railway equipment; views of the railway supply trade. A. B. Johnson. Ry R 65:534-6 O 11 '19  
 Standardized cars take much steel. Iron Tr R 62:923 Ap 11 '18  
 Standardized railroad equipment. Eng N 80:982 My 23 '18  
 Standards. M. F. Cox. Ry Age 64:1108 My 3 '18  
 Status of standard locomotives. diags Ry Mech Eng 92:251-4 My '18  
 Tentative specifications for standard locomotives. diags Ry Age 64:1039-41 Ap 19 '18; Ry R 62:575-6 Ap 20 '18  
 United States standard cars; specifications and principal drawings; abstracts, diags plans Ry Mech Eng 92:189-208 Ap '18; Ry Age 64:785-8, 869-83 Mr 29-Ap 5 sec 1 '18; Ry R 62:469-68, 503-6, 533-5 Mr 30-Ap 13 '18  
 United States standard steel sheathed box car. diags plan Ry Age 64:987-90 Ap 12 '18; Same. Ry Mech Eng 92:267-70 My '18  
 Why standardize equipment now? Ry Age 64:779-80 Mr 29 '18

**Station service**

Ways of reducing overtime in railway station work. W. H. Millard. Ry R 64:630-1+ Ap 26 '19

**Stations**

Chicago Union station to spend \$5,300,000 in 1919. Il plan Eng N 82:528-9 Mr 18 '19

Construction program is developed for Union station at St. Paul. diags plans Eng N 80:1184-6 Je 30 '18

Features in the design of passenger stations. Ry R 62:723-4 My 18 '18

Illinois Central will build new Chicago terminal. Il plans Ry Age 67:51-4 Jl 11 sec 1 '19

Lackawanna improvements in Orange, N.J. Il diags Ry Age 65:845-50 N 15 sec 1 '18

New passenger station at Norfolk, Va. plan Ry R 64:376-7 Mr 15 '19

New passenger station completed at Richmond, Va. Il plans map Ry Age 66:401-6 F 14 '19; Same cond. Ry R 64:239-42 F 15 '19

New plan for a union station at Cleveland, Ohio. Il diags maps plan Ry Age 66:755-8 Mr 21 '19; Ry R 64:469-72 Mr 29 '19

Proposed new passenger terminal in Chicago. Il map Ry R 65:57-60 J 12 '19

Railway station at Baldwin, L.I.; views and plans. Arch Rec 46:774-6 S '19

Railway station of Illinois Central railroad is combined with tall office building. diags plan Eng N 80:181-2 Ja 24 '18

Safety conditions in and about passenger stations. Ry R 62:731-4 My 18 '18

Santa Fe erects depot at San Bernardino, Cal. Il plans Ry R 64:123-6 Ja 25 '19; Same. Ry Age 66:481-2 F 28 '19

Station detailed for cut stone is built of concrete. Il Concrete 13:82 S '18

Suggestions regarding use of concrete for station platforms. Eng & Contr 49:228-9 F 27 '18

Terminal railroad station; second preliminary competition for the twelfth Paris prize. Am Arch 115:pl 176-8 My 28 '19

Umbrella vs. butterfly sheds for railway stations. Eng & Contr 51:561 My 28 '19

Union passenger station, Richmond, Va. Il plan Am Arch 116:31-8, pl 10-18 Jl 9 '19

Union station (Indianapolis) is rebuilt without interrupting traffic. Il diags plans Eng N 83:84-7 Jl 10 '19

See also Railroads—Terminals; Railroads—Ticket offices

**Statistics**

Compilation of operating statistics reports. Ry Age 66:1353-60 Je 6 '19

Construction activities during the year 1917. Ry Age 64:61-8 Ja 4 '18

Effects of unwise regulation illustrated by 1917 statistics. Ry Age 64:10-11 Ja 4 '18

Freight traffic statistics for October. Ry Age 66:154-5 Ja 10 '19

Freight train operating statistics for the month of August compared with that of last year. Ry R 63:721-2 N 16 '18

Logarithmic chart in the analysis of railroad operations. F. J. Deesen. Ry Age 67:570-1 S 19 '19

Mileage of main track completed in 1918 lowest since Civil war. Eng & Contr 51:65 Ja 15 '19

Railway construction in the United States and Canada—1917. Ry R 62:29-32 Ja 5 '18

Railway revenues and expenses in 1917. Ry Age 64:548-9 Mr 15 '18

Railway statistics for 1917. Ry R 63:800-1 D 7 '18

Standardizing of operating statistics. W. J. Cunningham. Ry Age 66:43-8 Ja 3 '19

Statistics of railways, 1906-1916. map Bur Railway Econ misc ser 30:1-58 '18

Steam railway statistics, 1916; Interstate commerce commission's annual abstract. Ry Age 64:1191-3 My 10 '18

See also Railroads—Accidents; Railroads—Finance

**Stops**

Approximate cost of stopping a train. Ry Age 64:708 Mr 22 '18

What does it cost to stop a tonnage train? C. C. Anthony. Ry Age 66:1105-7 My 2 '19

**Stores systems**

Organization for purchasing and stores. H. B. Spencer. Ry Age 67:617-19 S 26 '19; Same. Ry R 65:447-9 S 27 '19

**Supplies**

See Railroads—Equipment and supplies

**Railroads—Continued****Surveying****See Railroad surveying****Switches, frogs, etc.**

- Continuous rail at cross-overs. F. C. Perkins. *Il Sci Am* 121:394 O 18 '19  
 Hubbard automatic switch lock. *Il Ry R* 63:255-6 Ag 17 '18  
 New method for thawing switches. *diags Ry R* 62:451 Mr 23 '18  
 New switch stands for U.S. military railways. *diags Ry R* 62:447-8 Mr 23 '18  
 Reclaiming frogs and switch points by oxy-acetylene welding process. A. W. Talbert. *Eng & Contr* 51:553 Je 18 '19  
 Substitute for the frog. *Il Ry Age* 64:219-20 Ja 25 '18  
 Walls swing rail frog. *Il Ry R* 65:249-50 Ag 16 '19

**See also Railroads—Crossings****Switching**

- Electric switch machines with distant control. *diags Ry Age* 64:1041-3 Ap 19 '18  
 Good advice in switching. *Ry R* 62:115-16 Ja 26 '18  
 Low voltage switch machines facilitate traffic. G. S. Pfasterer. *Il diag Ry Age* 64:1323-4 My 31 '18

**Terminals**

- Car costs at terminals. R. M. Woolley. *Ry R* 65:537 O 11 '19  
 Chicago terminal situation. E. J. Noonan. map plans W Soc E J 24:282-99 My '19; Same abr. *Ry R* 64:716-18, 774-6 My 17-24 '19; Discussion. W Soc E J 24:299-306 My '19  
 Chicago's \$140,000,000 lake-front improvement plans. map *Eng N* 83:216 J1 31 '19; Correction. 83:360 Ag 21 '19  
 Comparison of railroad terminal projects at Cleveland. maps *Eng N* 82:240-3 Ja 30 '19  
 Distributed versus centralized passenger terminals. *Eng N* 82:751-2, 932 Ap 17, My 8 '19  
 Engineering of the St Paul passenger terminal. plan *Ry R* 63:595-7 O 26 '18  
 Engineers convert French beet-sugar fields into advance depot. R. K. Tomlin, Jr. *Il Eng N* 81:27-32 J1 4 '18  
 Federal Street freight station of the Pennsylvania railroad at Philadelphia. *Il diags plan Ry R* 61:717-24 D 15 '17  
 How operating capacity can be increased. E. H. Lee. *Ry Age* 67:34-6 J1 4 '19  
 Importance of unit operation of large terminals. H. J. Pfeifer. *Ry Age* 65:773-4 N 1 '18  
 Interurban freight terminal. *Il plans Am Arch* 113:451-2 Ap 10 '18  
 Jersey Central is building a modern coal pier. *Il map plan Ry Age* 67:388-92 Ag 29 '19  
 Maintenance of passenger and freight terminal tracks. *Ry R* 65:472-3 S 27 '19; Same cond. *Ry Age* 67:572-3 S 19 '19  
 Markham yards, Illinois Central R. R. plan *Ry R* 62:270-1 F 23 '18  
 Minor buildings of a large freight terminal. *Il plans Ry R* 65:481-2 O 4 '19  
 Montreal terminal tunnel from an economic point of view. H. K. Wicksteed. *Il plan Ry R* 65:145-51 Ag 2 '19  
 Need for storage facilities. F. L. Stuart. *Ry Age* 63:1181-2 D 28 '17; Same abr. *Eng N* 79:1175-6 D 20 '17  
 New division terminals built to meet labor law; standardized layouts at ends of shortened runs. *diag plan Eng N* 81:439-41 S 5 '18  
 New freight station of the New York Central lines in Cleveland. *Il diags plans Ry R* 63:703-9 My 18 '18; *Ry Age* 65:117-22 J1 19 '18  
 New freight terminal of P. C. & St L. Ry., at Indianapolis. *Il diags plan Ry R* 62:233-7 F 16 '18  
 New Haven improvements at South Boston terminal. *Il map Ry Age* 65:1149-52 D 27 '18  
 New passenger station completed at Richmond, Va. *Il plans map Ry Age* 66:401-6 F 14 '19; Same cond. *Ry R* 64:239-42 F 15 '19

- New plan for a union station at Cleveland, Ohio. *Il diag maps plan Ry Age* 66:755-8 Mr 21 '19; *Ry R* 64:469-72 Mr 29 '19  
 New terminal for the Michigan Central. *Il diag plan Ry R* 64:373-6 Mr 15 '19  
 New York Central builds \$4,000,000 high-level freight terminal at Cleveland. W. E. Phelps. *Il diags plans Eng N* 80:495-502 Mr 14 '18  
 North British railway improvements at Glasgow. F. C. Coleman. *Il plan Ry Age* 66:843-6 Mr 28 '19  
 Novel features in new D. & R. G. freight terminal. *Il diags plan Ry Age* 66:1083-5 My 2 '19  
 Operating methods of transfer railroads. E. H. Lee. *Il Ry R* 63:490-3 O 5 '18; Excerpts. *Eng N* 81:618-19 O 3 '18  
 Operation of New York Central's Cleveland freight terminal. W. E. Phelps. *Il plan Eng N* 82:508-10 Mr 13 '19  
 Passenger car terminal repairs. C. V. Fryer. *Ry Mech Eng* 92:400 J1 '18  
 Perishable commodities need storage room in terminals. G. C. White. *Ry Age* 63:1116-17 D 21 '17  
 Proposed new passenger terminal in Chicago. *Il map Ry R* 65:57-60 J1 12 '19  
 Proposed port terminal of the Jersey Central and Lehigh Valley railroads at New York harbor. *Il Ry R* 65:9-11 J1 5 '19  
 Railway terminal improvements on the San Francisco water front. C. W. Geiger. *Il diags plans Ry R* 64:571-6 Ap 19 '19  
 Railway terminal problem. J. F. Wallace and E. J. Noonan. *Ry R* 62:551-4 Ap 13 '18; Excerpts. *Ry Age* 64:1016-18 Ap 19 '18  
 Railway terminal problem at the port of New York. *Il Sci Am* 120:256 Mr 15 '19  
 Railways form industrial district at St Paul. *diags Eng N* 82:186-7 Ja 23 '19  
 Reconstruction of the Oldham road freight station, at Manchester, England. *Il plans Ry R* 61:687-91 D 8 '17  
 River terminal at Alton, Ill., has machinery for handling freight. *diags Eng N* 80:448-9 Mr 7 '18  
 Speeding up the operation of terminals. M. E. Burk. *Ry Age* 64:1125-6 My 3 '18  
 Structural features of 130 ft. tower of new Pennsylvania freight station in Chicago. J. E. Love. *Il diags Eng & Contr* 48:523-4 D 26 '17  
 Terminal improvements in East St. Louis, Ill. *Il diags map plan Ry R* 65:405-6 S 20 '19  
 Terminal on the Jersey flats. *Il Sci Am* 121:103-4 Ag 2 '19  
 Two large railway terminals being built by the Illinois Central and the New Haven. plans map *Ry Age* 64:1164-8 My 10 '18  
 Unification of terminal facilities in the West. *Ry Age* 65:633-4 O 4 '18  
 Unification of the Puget Sound terminals. *Ry Age* 67:203-4 Ag 1 '19  
 Union package freight terminal at Jersey City. map *Ry Age* 64:455-7 Mr 1 '18  
 Unit operation of large terminals. H. J. Pfeifer. *Ry R* 63:458-9 S 28 '18  
 Unit operation of railroad terminals; recommendations of A. R. E. A. committee. *Ry R* 63:455-8 S 28 '18; Same abr. *Ry Age* 65:692-4 S 27 '18; Same abr. *Ry R* 63:455-8 S 28 '18  
 Unit operation of terminal zones. J. F. Wallace. *Eng N* 80:779 Ap 18 '18  
 Why not use machinery for snow removal at railway terminals? *Eng N* 82:217 Ja 30 '19  
**See also Electric railroads—Terminals; Locomotive terminals; Railroads—Stations; Railroads—Yards; Terminals**

**Ticket agents**

- Ticket agent as a salesman; abstracts. G. A. Cullen. *Ry Age* 66:943-4 Ap 11 '19; *Ry R* 64:613-14 Ap 26 '19

**Ticket offices**

- Chicago consolidated ticket offices. *Il plan Ry R* 63:796-800 D 7 '18; *Ry Age* 65:30-1, 1050 J1 5, D 18 '18  
 Schenectady ticket office. F. J. Lyon. *Ry Age* 64:133 Ja 11 '18  
 Union ticket offices. *Sci Am* 118:512 Je 1 '18

**Railroads—Continued****Tickets**

Enameled metal season tickets. *Il Ry R 65: 685 N 8 '19*  
 New scrip book. *Ry R 63:89 JI 20 '18*  
 Standard ticket forms approved. *Ry Age 65: 1082 D 13 '18*

**Ties**

See Railroad ties

**Time tables**

Timetables in border territory. *Ry Age 65: 1167-8 D 27 '18*

**Tools**

Inspection of shop and maintenance of way tools. *G. L. LaFontaine. Ry R 65:701-2 N 8 '19*  
 Standard devices for locomotive. *E. J. McKernan. diags Ry Mech Eng 93:613-15 O '19; Excerpt. Ry Age 67:471-2 S 5 '19*

See also Railroads—Shops—Equipment

**Track**

Action of railway track studied; depression and rail stress tests made by track-stress committee of the American society of civil engineers and the American railway engineering association. *diags plan Eng N 80: 517-22 Mr 14 '18*  
 Ballast gang organization. *diag Eng & Contr 51:334 Ap 16 '19*  
 Bell tracklaying machine. *Il Ry R 61:725-7 D 15 '17*  
 Big Four increases capacity at congested points. *Il diags map Ry Age 66:1545-8 Je 20 '19*  
 Broad rails versus deep rails. *G. H. Barbour. diags Eng Soc W Pa 33:327-44 JI '17; Discussion. 33:345-78; 34:364-76 JI '17. My '18*  
 Completing the double track on the Union Pacific. *Il diag map Ry Age 64:1552-6 Je 28 '18*  
 Conclusions of screw spike and tie plate test of Pennsylvania R. R. *Eng & Contr 49: 63-4 Ja 16 '18*  
 Concrete-base track gives good results on Northern Pacific railway. *Il diags plan Eng N 81:1071-4 D 12 '18; Elec Ry J 53:239-40 F 1 '19*  
 Concrete for railway soft spots. *J. T. Bowser. Concrete 14:144 Ap '19*  
 Concrete for railway track support. *Eng N 83:165, 333-4 JI 24, Ag 14 '19*  
 Concrete in railway track construction. *Eng & Contr 51:403-4 Ap 16 '19*  
 Concrete roadbed on the Northern Pacific Ry. *diags Il Concrete 12:221; 13:132 Je, O '18; Same. Eng & Contr 50:55-6 JI 17 '18*  
 Concrete support for track. *A. C. Irwin. Il diags plans Ry R 65:93-9 JI 19 '19; Same. Concrete 15:63-8 Ag '19*  
 Contract system for ballasting track disapproved by engineers. *Eng N 80:811 Ap 25 '18*  
 Cost of cleaning yard tracks. *Eng & Contr 52:341-2 S 17 '19*  
 Derails and where they should be used. *Il diags Ry Age 66:1361-7 Je 6 '19*  
 Double-track improvement on Big Four railroad. *diag Eng N 82:524-5 Mr 13 '19*  
 Equating track section for maintenance of way work. *Eng & Contr 51:299 Mr 19 '19*  
 Grading and tracklaying for logging railroad with a ditcher. *Il Eng & Contr 50:58-9 JI 17 '18*  
 Gravity track system at anthracite coal breakers. *F. N. Rupprecht. plans Eng N 80: 1003-6 My 23 '18; Same. Coal Age 13:1068-5 Je 8 '18*  
 Improve railroads and save money with concrete roadbed. *diags Concrete 14:59 F '19*  
 Improving efficiency of track labor. *C. A. Morse. Ry R 65:409-12 S 20 '19; Same. Eng & Contr 52:436-8 O 15 '19; Same cond. Ry Age 67:574-5 S 19 '19; Abstract. Eng N 83: 697 O 9 '19*  
 Interesting reconstruction work on the Erie; 35-mile section of double track line. *Il diags map Ry Age 65:248-52 Ag 9 '18*

Labor saving appliances in rail renewing on the Chicago Burlington & Quincy railroad. *Il Ry R 63:229-30 Ag 17 '18; Same. Eng & Contr 50:363-4 O 16 '18*

Labor saving devices. *J. B. Baker. Il Ry Age 67:576-7 S 19 '19*

Labor-saving devices for track maintenance. *E. Stimson. Il Ry R 63:172-6 Ag 3 '18; Same cond. Eng & Contr 51:53-5 Ja 15 '19*

Large expenditures needed for maintenance of way. *Ry Age 64:911-12 Ap 5 sec 1 '18*

Maintenance of passenger and freight terminal tracks. *Ry R 65:472-3 S 27 '19*

Maintenance work is being seriously delayed. *Ry Age 65:65-7 JI 13 '18*

Marine terminal railway. *H. M. Harding. Int Marine Eng 24:741-2 N '19*

New machines facilitate track maintenance work. *Il Eng N 80:506-7 Mr 14 '18*

New method of bracing shimmied rails. *Il diags Eng & Contr 52:451 O 15 '19*

Pennsylvania system rejects screw spikes. *diags Ry Age 64:294, 307-11 F 8 '18; Conclusions. Ry R 62:384-5 Mr 16 '18*

Problems in track maintenance. *F. B. Tapley. Ry R 62:262-4 F 23 '18*

Rail-creep. *F. Reeves. Ry R 62:393-4 Mr 16 '18; Same. Sci Am S 85:170 Mr 16 '18; Same cond. Eng & Contr 50:119-20 JI 31 '18; Discussion. J. Jervis. Eng & Contr 50:358 O 16 '18*

Rail creeping evils remedied by oxy-acetylene torch. *Il Ry R 63:69-70 JI 13 '18*

Railroad encounters some remarkable sink holes. *Il Ry Age 66:217-18 Ja 17 '19*

Railroad track defects. *G. H. Barbour. Iron Age 101:440 F 14 '18*

Report of A.R.E.A. committee on ballast. *Ry R 62:420-1 Mr 23 '18*

Report of A.R.E.A. committee on roadway. *Ry R 62:422 Mr 23 '18*

Report on drainage. *Ry Age 67:577-8 S 19 '19*

Results from concrete subgrade construction. *diags Ry Age 67:219-21 Ag 1 '19*

Roadmasters' and maintenance of way association 37th convention, Chicago. *Ry R 65: 426-8 S 20 '19*

Roadmasters 36th annual convention, Chicago. *Ry Age 65:557-61, 581-3 S 20-27 '18; Ry R 63:419-21 S 21 '18*

Scientific study of railway track under load; report of special joint committee of the American society of civil engineers and the American railway engineering association. *diags Ry Age 64:403-7 F 22 '18; Abstract. Am Soc M E J 40:353-4 Ap 18*

Subsidence tests for valuation made under difficulty. *Il Eng N 80:460-1 Mr 7 '18*

Tests of the holding power of track spikes. *Il diags Ry R 65:757-61, 797-801 N 22-29 '19*

Time is the important consideration; need for greater activity in maintenance work. *Ry Age 64:1360-1 Je 7 '18*

Union station (Indianapolis) is rebuilt without interrupting traffic. *Il diags plans Eng N 83:84-7 JI 10 '19*

Wheel contacts on railheads. *G. H. Barbour. diags Eng Soc W Pa 33:489-99 N '17; Abstract. Iron Age 101:1225 My 9 '18; Discussion. Eng Soc W Pa 33:499-522; 34:364-76 N '17, My '18*

See also Ballast; Electric railroads—Track; Grade crossings; Mine tracks; Railroad ties; Railroads—Construction; Railroads—Crossings; Railroads—Curves and turnouts; Railroads—Grades; Railroads—Switches, frogs, etc.; Rails; Spikes; Street railroads—Track

**Track depression**

City designs forms for Portland grade separation. *Il diags plans Eng N 80:1132-4 Je 13 '18*

Oregon-Washington railway separates grades for three miles at Portland. *Il diags plans Eng N 80:1097-1101 Je 6 '18*

**Track elevation**

Committee analyzes track-elevation costs on Rock Island work in Chicago. *Eng N 82:83-5 Ja 9 '19*

Detroit plans comprehensive scheme for grade crossing removal. *Il plan Eng N 82: 511-13 Mr 13 '19*

**Railroads—Track elevation—Continued**

- Extensive grade separation work at Indianapolis. II diag plans Ry Age 67:95-101 JI 18 '19
- Illinois Central rebuilds early track elevation. C. C. Westfall. II diag maps Ry Age 65:159-63 JI 26 '18
- Omaha track-elevation bridges vary in type to meet local conditions. diags Eng N 82:380-2 F 20 '19
- Skew subway bridges require special design. diags Eng N 81:540-2 S 19 '18
- Track elevation of the P. C. C. & St L Ry. in Indianapolis. II diag plans Ry R 62:415-17 Mr 23 '18
- Track elevation on the Indianapolis Union railroad. diags Eng N 83:265-6 Ag 7 '19
- Track elevation work of the P. C. C. & St L Ry. in Cincinnati. II diag plans Ry R 62:85-8 Ja 19 '18

*See also* Elevated railroads

**Traffic**

- Increased traffic shown by report for the seven months ending July 31. Ry Age 65:639 O 4 '18
- Traffic conditions in central western region. Ry R 63:648-50 N 2 '18
- Unparalleled delays by storms. Ry Age 64:327 F 8 '18

*See also* Railroads—Passenger traffic

**Train load**

- Adjusting tonnage of slow freight trains for average speed of twelve miles an hour. Ry Age 67:583-5 S 19 '19; Same. Ry R 65:560-2 O 18 '19; Excerpts. Ry Mech Eng 93:570-2 O '19
- Equated tonnage and fuel consumption. R. N. Begien. Ry Mech Eng 93:464 Ag '19
- Increasing trainloads by reducing grades. S. S. Roberts. Ry Age 67:955-6 Ap 11 '19
- Railway bridge design loadings and actual engine loads. B. R. Leffler. Eng N 82:1270-1 Je 26 '19
- Train and engine loading. T. H. Williams. Ry R 64:507-8 Ap 5 '19; Same cond. Ry Age 66:1051-2 Ap 25 '19

**Train sheds**

- Large train-shed raised without traffic interruption. diags plan Eng N 83:460-2 S 4 '19
- Raising a large train shed under traffic. II diags plan Ry Age 67:609-12 S 26 '19

**Trains**

- Arithmetic of railroad operation. W. J. Cunningham. Ry R 64:316-18 Mr 1 '19
- Best methods of preparing air brakes at terminals to avoid train shocks and break-in-tows; report of Air brake association committee, 1918; abstracts. Ry R 62:678-81 My 11 '18; Ry Mech Eng 92:318-20 Je '18
- Caution signal. J. P. Kelly. Ry Age 65:4 JI 5 '18
- Importance of personnel in freight train operation. Ry Age 65:204-5 Ag 2 '18
- Passenger train resistance. E. C. Schmidt and H. H. Dunn. diags III U Eng Exp Sta Bul 110:1-39 '18
- Profitable and unprofitable trains. O. O. Carr. Ry R 65:471-2 S 27 '19
- Relation between train handling and the caution signal. F. H. Nicholson. diags Ry Age 64:1295-6 My 24 '18
- Slack action in long passenger trains; Air brake association committee report, 1918; abstracts. Ry R 62:675-7 My 11 '18; Ry Age 64:1245-6 My 17 '18; Ry Mech Eng 92:315-17 Je '18
- Time lost in slowdowns. W. V. Turner. Ry Mech Eng 92:497-501 S '18
- Train handling. G. H. Wood. Ry R 62:27-9 Ja 5 '18
- Train operation by signal indication on the Erie. H. M. Sperry. II diags Ry Age 65:5-10 JI 5 '18; Same cond. Ry R 63:9-14 JI 6 '18; Abstract. Elec Ry J 52:246 Ag 10 '18

*See also* Freight car service; Hospital trains; Railroads—Signals; Railroads—Train load; Train dispatching; Train resistance

**Trespassing**

- Duty of the public to punish trespassers on railroads. W. H. Briggs. Ry Age 64:1107-8 My 3 '18
- Importance of organized safety work. H. W. Belnap. Ry Age 64:1188-90 My 10 '18
- Trespassing evil. Ry Age 64:148-9, 1312 Ja 18, My 31 '18
- Trespassing on railroad property—communication. S. A. Senter. Ry R 61:792-4 D 29 '17

**Valuation**

- Actuary theory of depreciation of physical property values. E. J. Kates. Ry Age 64:1133-5 My 3 '18
- Average life of ties for valuation purposes. R. S. Rhodes. Ry Age 64:101 Ja 11 '18; Discussion. J. W. Burke. 64:298 F 8 '18
- Commerce commission makes first final valuation report in Texas Midland case. Eng N 81:476-7, 488-90 S 12 '18
- Depreciation of railroad property. G. C. Hand. Ry Age 63:1035-8 D 7 '17; Discussion. 63:1116; 64:150-2, 695-6 D 21 '17, Ja 18, Mr 22 '18
- Depreciation of railroad property and its relation to valuation. F. S. Schwinn. Ry R 64:645-7 My 3 '19
- Developments in federal valuation of the railroads. F. H. Lee. Ry R 63:868-9; 64:193-4, 648-50 D 21 '18, F 1, My 3 '19
- Developments in railway valuation. T. W. Hulme. Ry R 63:44-6 JI 13 '18
- Developments in railway valuation. H. C. Phillips. Ry R 62:88-93 Ja 19 '18
- Discussion of the theory of depreciation; abstract of brief filed with Interstate commerce commission in Texas Midland railroad case. W. A. Glasgow, Jr. and L. L. G. Benedict. Gas Age 41:458-62 My 15 '18; Discussion. 41:543-4; 42:69-70 Je 16, JI 15 '18
- Eliminate unnecessary valuation details. J. P. Nelson. Ry Age 63:1067 D 14 '17
- Final valuation of the Winston-Salem Southbound. Ry Age 66:1265-70 My 23 '19
- Future of the federal valuation work. Ry Age 64:894-5 Ap 5 sec 1 '18
- Hearings on valuation of the Kansas City Southern railway. H. C. Phillips. Ry R 62:659-61 My 4 '18; Abstract. Ry Age 64:714-15 Mr 22 '18
- I. C. C. report on valuation of Texas Midland. Ry Age 65:377-82 Ag 30 '18
- Interstate commerce report on Texas Midland valuation. diags Ry R 63:343-7 S 7 '18
- Land computations for railway valuation. H. H. Cartwright. Eng N 80:1232 Je 27 '18
- Other values and elements of value, as applied to a going railroad; Kansas City Southern Ry. co. hearing. Eng N 81:277-80 Ag 8 '18
- Plumb plan arouses new interest in valuation. Eng N 83:340 Ag 14 '19
- Present status of valuation. Ry Age 65:63-9 JI 12 '18
- Progress and state of valuation work. C. A. Prouty. Ry R 65:603-4 O 25 '19
- Progress report on the valuation work. C. A. Prouty. Ry Age 66:36 Ja 3 '19
- Railroad views on the valuation act. Ry Age 63:1123-9 D 21 '17
- Solidification as a factor in railway valuation. H. M. Taylor. Ry Age 64:176-7 Ja 18 '18
- Status of federal valuation. Ry R 63:539 O 12 '18
- Status of federal valuation of railroads. Ry R 64:939-41 Je 21 '19
- Use of the railograph in valuations for taxation purposes. C. E. Reeves. Ry Age 66:556-7 Mr 7 '19
- Valuation of the railroads—Is it worth while? Eng N 81:668-9 O 10 '18
- Valuation progress. Ry Age 66:320 Ja 31 '19
- Valuation report on the Winston-Salem Southbound. Ry Age 65:489-90 S 13 '18
- What the land appraisers of the Delaware and Hudson company are doing. G. H. Burgess. Eng N 80:503-6 Mr 14 '18
- When railroad lands are used for carrier purposes; Interstate commerce commission allows purchase of lands needed for future terminal expansion. Eng N 81:628-9 O 3 '18
- See also* Electric railroads—Valuation

## Railroads—Continued

## Wages

Application of the wage increases to shopmen. Ry Mech Eng 92:301 Je '18  
 British railway labor, wages, and living under government control. Ry R 62:863-7 Je 15 '18  
 British railways under war conditions. Engineer 126:371-2 N 1 '18  
 Classification, working conditions and wages of mechanical department employees; text of order. W. G. McAdoo. Ry R 63:154-7 Ag 8 '18; Same. Ry Age 65:253-5 Ag 9 '18; Excerpts. Ry Mech Eng 92:470 Ag '18  
 Coach cleaners' wages. Ry Mech Eng 92:564 O '18  
 Comment on report of the Railroad wage commission. Ry Age 64:1266 My 24 '18  
 Compensatory scale of rates. C. B. Aitchison. Ry R 65:602-3 O 25 '19  
 Director general reports on railroad wages; December, 1917, and each month from January to July, 1919. Ry Age 67:911-16 N 7 '19  
 Dissatisfaction with wage increases. Ry Mech Eng 93:117 Mr '19  
 Engineers' brotherhood appeals to the president. Ry Age 67:225 Ag 1 '19  
 Firemen ask more pay and modern equipment. Ry R 65:262-3 Ag 23 '19  
 Firemen given hearing before wage board. Ry Age 67:695-7 O 3 '19  
 Further increase in wages to mechanical department men. Ry Mech Eng 92:545-6 O '18  
 Hearing on wage demands of the trainmen. Ry Age 67:267-71 Ag 8 '19  
 Interpretation of order increasing wages of shop employees. Ry Age 65:692-3 O 18 '18; Same. Ry R 63:575-7 O 19 '18; Same. Ry Mech Eng 92:623-4 N '18  
 Labor leaders fight to prevent return of roads. Ry Age 67:243-9 Ag 8 '19  
 McAdoo puts wage increase into effect. Ry Age 64:1325-30 My 31 '18; Ry Mech Eng 92:311-14 Je '18; Ry R 62:785-92 Je 1 '18  
 Maximum earnings of engineers and conductors. Ry Age 67:468 S 5 '19  
 New cycle of railway wages. Ry Age 66:874 Ap 4 '19  
 New light on present railway wages. Ry Age 66:1080-1 My 2 '19  
 New wage increase for telegraph and telephone operators. Ry Age 65:916-17 N 22 '18  
 Number and compensation of employees. Ry Age 66:1060-2 Ap 25 '19  
 Pay and position of engineers in railway service. C. W. Baker. Eng N 82:228-31 Ja 30 '19  
 President calls a halt on wage increases. Ry Age 67:403-9 Ag 29 '19  
 President Smith of New York Central proposes efficiency wages. Ry R 65:433-4 S 20 '19  
 President Wilson and striking railroad shopmen. Ry R 65:193-4, 298-302 Ag 9, 30 '19  
 Proposed advances in railway wages. Ry Age 64:1219 My 17 '18  
 Railroad administration to consider wage demands. Ry Age 67:320-5 Ag 15 '19  
 Railroad employees' earnings. Ry R 64:321 Mr 1 '19  
 Railroad wage commission recommends increases of \$300,000,000. Ry Age 64:1163 My 10 '18  
 Railroad wage increase question in Congress. Ry R 65:191-2 Ag 9 '19  
 Railway wages and retail prices. S. Thompson. Ry R 65:222-3 Ag 16 '19  
 Railwaymen's wages. Engineer 128:328-30 O 3 '19  
 Report of Railway wage commission; abstracts. Ry R 62:671-5 My 11 '18; Ry Age 64:1237-45 My 17 '18  
 Report of the eight-hour day commission. Ry Age 64:259-67 F 1 '18; Ry R 62:169-72 F 2 '18; Iron Age 101:382-3 Ja 31 '18  
 Shop labor situation in 1918. Ry Mech Eng 93:22-4 Ja '19  
 Shopmen's wage increase refused. Ry Mech Eng 93:517-21 S '19  
 Shopmen's wages are increased. Ry Mech Eng 92:525-7 S '18  
 Should engineers be paid overtime? Ry Age 67:188-9 Ag 1 '19

System of labor compensation; a combination of the Taylor, piecework and Prusso-Russian methods developed in Russian railway shop. M. K. Smogorjevsky. Ry Mech Eng 92:325-9 Je '18  
 Telegraph operators receive increase. Ry Age 66:103-5 Ja 3 '19  
 Telegraphers get increase. Ry R 63:784-5 N 30 '18  
 Time and one-half for overtime in freight service. Ry Age 67:753-4 O 10 '19  
 Train employees granted wage increase. Ry Age 66:985-91 Ap 18 '19  
 Trainmen's proposals; Brotherhood of railway trainmen and the Order of railway conductors request changes in wages. Ry R 61:705-6 D 8 '17  
 Wage advance. Ry R 62:724-5 My 18 '18  
 Wage awards and signal department. C. L. Sandrus. Ry Age 66:237 Ja 24 '19  
 Wage awards and the shortage of labor. Ry Age 64:1455-6 Je 21 '18  
 Wage demands for 1919. Ry Age 66:597-8 Mr 14 '19  
 Wage increase. Ry R 63:335-9 S 7 '18  
 Wage increase for agents, clerks and laborers. Ry Age 65:444-7 S 6 '18  
 Wage increase granted. Ry R 63:614 O 26 '18  
 Wage increases aggregate over \$600,000,000. Ry Age 65:576-7 S 27 '18  
 Wage order amendments. Ry R 63:548-9 O 12 '18  
 Wage statistics. Ry R 64:664-5 My 3 '19  
 Wages in the signal department. P. Bogg. Ry Age 66:324 Mr 28 '19  
 Wages of railway shop employees. Ry Mech Eng 93:118 Mr '19  
 Wages of railway technical engineers. Eng & Contr 50:371-2 O 16 '18  
 What four cents an hour to shopmen will cost the public. Ry R 65:348 S 6 '19  
 See also Railroad engineers—Salaries; Railroad wage commission; Railroads—Officials—Salaries

## War measures

See Railroads in war

## Water supply

Drinking water supply for troop trains. diag. Ry R 63:163 Ag 3 '18  
 Improvements in water softening practice on the Chicago & Eastern Illinois R.R. W. H. Hobbs. Ry R 62:161-3, 167-70; 63:633-5 F 2, Ag 3, N 2 '18; Discussion. 62:167, 188-90, 311-13, 484-5 F 2-9, Mr 2, 30 '18  
 New water treating plants for the Burlington. II diag plans Ry R 63:661-6 N 9 '18  
 Quality of feed water and quantity consumed. W. R. Toppan. Ry R 63:sup 9; 64:sup 21 D 28 '18-Ja 4 '19  
 Railway water supply from wells. C. R. Knowles. Ry R 63:669-70 N 9 '18  
 Sources of railway water supply. Ry Age 65:707-8 O 18 '18  
 Standards of purity for water used in railroad coaches. Z. Zentmire. Am Water Works Assn J 6:490-5 S '19  
 Treatment of railway water supplies. W. M. Barr. Ry R 63:16-17 Jl 6 '18

## Yards

Army intermediate depot in France; problem in getting labor and supplies. R. K. Tomlin, jr. II diag plans Eng N 81:478-83 S 12 '18  
 Completion of North McGregor yard improvements. C. M. & St P. Ry. II map Ry R 64:619 Ap 26 '19  
 15,000-car hump yard near Chicago planned by Illinois Central railroad. plan Eng N 81:313-16 Ag 15 '18  
 Flood lighting of Erie Avenue yard, Philadelphia and Reading railway. II diag plan Ry R 64:945-6 Je 21 '19  
 How can we do the same amount of yard work with fewer men? S. W. Wherry. II Ry Age 63:1164-5 D 28 '17  
 Importance of yard projects recognized. Ry Age 64:1406-7 Je 14 '18  
 Pennsylvania builds large gravity yard at Indianapolis. diag plans Eng N 80:614-16 Mr 14 '18

**Railroads—Yards—Continued**

Terminal shop and classification yard lighting. *Il diag plan* Ry R 63:625-7 N 2 '18  
 War emergency yard improvements; abstracts of report of committee on yards and terminals of the American railway engineering association. Ry R 62:372-9 Mr 16 '18; Eng N 80:561-2 Mr 21 '18

**See also Railroads—Switching****Africa**

*See* Katanga railway

**Alaska**

Additional appropriation for the Alaska railroad. Ry Age 67:515-17 S 12 '19  
 Alaska government railway nearly half completed. *Il map* Eng N 82:46-8 Ja 2 '19  
 Alaska railroad operations to date. Ry R 65:685 N 8 '19  
 Alaska government railway. *Il map* Engineer 127:347-8, 349 Ap 11 '19  
 Construction progress on the Alaskan railroad. F: Mears. *map* Ry Age 64:1458-60 Je 21 '18  
 Government railroad building in Alaska. W: C. Edes. Ry R 63:195-7 Ag 10 '18  
 Progress of the Alaskan railroad. F. K. Lane. *Il* Ry Age 66:543-7 Mr 7 '19  
 Railroad construction progress in Alaska. *Il maps* Ry R 63:487-90, 537-9 O 5-12 '18

**America**

2d Pan-American commercial conference. Ry Age 66:1419-22 Je 13 '19

**Argentina**

Electric traction on the Central Argentine railway. *Il diag plan (supp) maps* Engineer 126:324-8, 330, 343-6, 367-71 O 18-N 1 '18; Excerpt (pt. 1). Power 48:550-4 O 15 '18  
 Heavy electric traction on the Central Argentine. *Il diag map* Elec Ry J 52:604-9 O 5 '18  
 Power supply for the Central Argentine electrification. *Il diag* Elec Ry J 52:646-50 O 12 '18  
 Railroad development of the Argentine. *Il map* Ry Age 66:1001-5, 1047-50 Ap 18-25 '19

**Asia**

*See* Bagdad railway

**Australia**

Australian transcontinental line completed. *map* Ry Age 63:1187; 64:268-70 D 28 '17, F 1 '18  
 Australian transport facilities. R. Slessor. *map* Eng & Min J 106:1112-14 D 28 '18  
 Australia's first transcontinental railroad. *Il map* Sci Am 118:212-13 Mr 9 '18  
 Construction features of the Trans-Australian railway. Eng & Contr 50:413-14 O 30 '18  
 Miles of railway through waterless country. Sci Am 117:497 D 29 '17  
 Railway electrification in Australia. *Il diag map plan* Ry R 65:631-8 N 1 '19  
 Railways of the Australian commonwealth. J. S. Cormack. *Il* Ry R 65:597-600 O 25 '19  
 Trans-Australian railway. *map* Engineer 126:56-7, 78-9 Jl 19-26 '18

**Austria**

Austrian railways seriously crippled. Ry Age 65:447 S 6 '18

**Belgium**

Belgian railwaymen and German oppression. Ry Age 66:501-2 F 28 '19  
 Railway electrification in France and Belgium. R. E. Thayer. Ry Age 67:93-4 Jl 18 '19  
 Reconstruction of Belgian industries. Engineer 127:382-3, 393-4 Ap 18-25 '19  
 Reconstruction of the Belgian railways. R. E. Thayer. *Il maps* Ry Age 67:769-76 O 17 '19  
 Torpedoes as fog signals on Belgian state railways. L. Welssenbruch. *diag* Ry Age 64:1087-8 Ap 26 '18

**Bolivia**

Bolivia's railways—progress and prospects. W: A. Reid. *Il map* Ry R 64:385-90 Mr 15 '19

New Trans-Andine railway. C. T. Sorzano. *Il* Ry R 65:562-4 O 18 '19  
 Railways of Bolivia. P. W. Henry. Ry Age 66:1259-61 My 23 '19

**Brazil**

Concession granted for railway to be built in Pará. *map* Ry Age 66:864 Mr 28 '19  
 Development of the Brazilian railways. *Il* Ry Age 65:701-4 O 18 '18; Same. Ry R 63:586-7 O 19 '18  
 Railway electrification in Brazil. Ry Age 66:1424 Je 13 '19  
 Survey of Brazil's railways. Ry R 63:715-18 N 16 '18

**California**

Electrification of the mountain division California railroads recommended. D. F. Folsom. Elec Ry J 52:894 N 16 '18; Same, with table. Eng N 81:941-2 N 21 '18

**Canada**

Brain-racking problems for Canadian roads. J. L. Payne. Ry Age 64:849-51 Ap 5 sec 1 '18  
 Canada's big railway year, 1917. Ry Age 64:1438-9 Je 14 '18  
 Canadian Pacific assets. T: G. Shaughnessy. Ry R 62:690-1 My 11 '18  
 Canadian Pacific railway's military record. E. W. Beatty. *Il* Ry R 64:401-4 Mr 15 '19  
 Canadian railroads' situation. Ry R 63:700-2 N 16 '18  
 Canadian railway progress during 1917-1918. J. L. Payne. Ry Age 66:1558-7 Je 20 '19  
 Canadian railway situation. T: G. Shaughnessy. Ry Age 64:128 Ja 11 '18  
 Canadian railway statistics for fiscal year 1917. Ry R 63:66 Jl 13 '18  
 Canadian railways and the war. Ry Age 64:408 F 22 '18  
 Confused railway situation in Canada. J. L. Payne. Ry Age 66:31-4 Ja 3 '19  
 President's address at the A.R.E.A. convention. J: G. Sullivan. Ry R 62:437-9 Mr 23 '18  
 Proposed measure to meet the railway situation in Canada. Ry R 62:478 Mr 30 '18  
 Railway progress in Canada during the year 1917. J. L. Payne. *Il* Ry Age 64:36-8 Ja 4 '18  
 Report on railway mail pay in Canada. J. L. Payne. Ry Age 67:633-4 S 26 '19  
*See also* Railroads and state—Canada; also Canadian Northern railroad

**Chile**

Chilean railroad shops of American design. W. W. Nowak. *Il plans* Iron Age 102:131-5 Jl 18 '18  
 New shops of the Chilean state railways. E. G. Donoso. *Il plans* Ry R 64:967-72 Je 28 '19  
 Railways of the republic of Chile. C. S. Cooper. *Il map* Ry R 64:305-9, 351-5 Mr 1-8 '19

**China**

Car conservation problem solved in China. J: E. Baker. *Il* Ry Age 64:303-5 F 8 '18  
 China's greatest need today is transportation. *Il map* Ry Age 64:797-802 Mr 29 '18; Discussion. F. Lavis. 65:4 Jl 5 '18  
 Chinese and Japanese railways compared. F. Rhea. *Il* Ry Age 64:1567-9 Je 28 '18; Correction. 65:330 Ag 23 '18  
 Condition of Chinese railroads. Ry R 63:627-9 N 2 '18  
 Economic aspects of the control of North China. F. Rhea. *map* Ry Age 66:1144-6 My 9 '19  
 Extension of railway mileage in China. Ry R 63:65-6 Jl 13 '18  
 Far Eastern markets for railway materials, equipment, and supplies. F. Rhea. *Il map* U S Bur For & Dom Com 180:1-139 '19; Abstracts. Ry Age 67:411-13 Ag 28 '19; Ry R 65:289-94, 371-6 Ag 30, S 13 '19; Excerpts. Ry Mech Eng 93:585-6 O '19  
 Growth of railroads in China. *Il Sci Am* 118:346 Ap 13 '18  
 Japan's growing interest in Chinese railway affairs. *map* Ry Age 66:517 F 28 '19  
 Opportunities for American signaling in Far East. F. Rhea. Ry Age 67:567-8 S 19 '19

**Railroads—China—Continued**

Proposed unification of railways in China—special correspondence from Peking. map Ry Age 66:958-60 Ap 11 '19  
 Railroad to an isolated Chinese province. Am Ind 19:43 S '18  
 Railway notes from China. Ry Age 65:122, 828, 1169-70; 66:1220-1 Jl 19, N 8, D 27 '18, My 16 '19

**Colombia**

Railway construction in Colombia. map Ry Age 67:437-8 Ag 29 '19

**Colorado**

Railroading two miles above sea level. 11 maps Ry Age 65:1157-60 D 27 '18

**Cuba**

Cuba's sugar cane railways a large market. J: P. Risque. 11 Ry Age 67:787-90, 829-32, 871-3 O 17-31 '19

**Dutch East Indies**

Railway supplies for the Dutch East Indies. J. W. Evans. Ry Age 67:461-2 S 5 '19

**England**

See Railroads—Great Britain

**France**

American railway yard and terminal development in France presents many new problems. R. K. Tomlin, jr. Eng N 80:348-9 F 21 '18

Equipment standardization in Belgium and France. R. E. Thayer. Ry Age 67:169 Jl 25 '19; Same. Ry Mech Eng 93:463-4 Ag '19

French and American railroads contrasted. W. W. Atterbury. Ry Age 67:462 S 5 '19

French Chef de gare system and train operation. F: A. Delano. Ry Age 65:823-4 N 8 '18  
 French equipment used by American army; photographs. Ry R 63:240-1 Ag 17 '18

French opinions of American methods of railroading. F. Jaques. Ry Age 67:869-70 O 31 '19

French railways during the war. Ry Age 65:226-7 Ag 2 '18; Abstract. Iron Tr R 63:495 Ag 29 '18

French state railways in the war years. H. G. Villard. Ry Age 66:52 Ja 3 '19

Further light on work of railway men in the war. diags Ry Age 66:385-7 F 14 '19

Further observations on French equipment. W: R. Harlan. Ry R 64:480-1 Mr 29 '19

Line of the 45th parallel. map Engineer 126:552 D 27 '18

Piercing the mountain barrier between France and Spain. F. Honoré. 11 maps Sci Am 121:186-7 Ag 23 '19

Progress on the Midi railway Pyrenean electrification. L. A. H. Pahn. 11 diag map Elec Ry J 54:475-7 S 6 '19

Railway electrification in France and Belgium. R. E. Thayer. Ry Age 67:93-4 Jl 18 '19

Railway work in France by American soldiers. I. A. Miller. Ry R 62:842-3 Je 8 '18

Rebuilding the French railways. 11 Sci Am 121:441 N 1 '19

Reconstruction program for French railways. R. E. Thayer. 11 maps Ry Age 67:191-6, 251-5 Ag 1-8 '19

Transportation and engineering in France. Ry R 63:47 Jl 13 '18

United States railways in France. Ry R 62:785 Je 1 '18

Wanton destruction of railways by the Germans. map Ry Age 67:13-15 Jl 4 '19

War situation and service of European railways. S: O. Dunn. Ry Age 66:762-4 Mr 21 '19

Work of Canadian railway troops in France. Ry R 64:65 Ja 11 '19

See also Railroads and state—France

**Germany**

Germany's railway situation is most serious. Ry Age 64:459-61 Mr 1 '18

See also Railroads and state—Germany

**Great Britain**

All-metal passenger cars for British railways. F. E. Gobey. Ry Mech Eng 93:537-8 S '19

British railways in 1917. Engineer 125:280 Mr 29 '18

British railways in 1918. Engineer 127:8+ Ja 3 '19

British railways lose a half billion in 1918. Ry R 64:739-40 My 17 '19

British railways under war conditions. Engineer 126:214-15, 246-7, 268-9, 284-5, 310-11, 321, 371-2, 390-1, 410-12, 454-5, 490-1, 528-9, 556-7; 127:38-9, 73-5 S 13-O 18, N 1-15, 29-D 6, 20-27 '18, Ja 10, 24 '19

Coal and mineral traffic. H. Kelway-Bamber. Engineer 125:546-7 Je 21 '18

Cost of British railways during the war. H. R. Wilson. Ry R 65:125-6 Jl 26 '19

Electrification problem in England. P. Dawson. Ry Age 67:462 S 5 '19

Engineering and operating problems of English railways. J: A. F. Aspinall. Ry Age 66:30 Ja 3 '19

English journalist's views of the English railway system. P. W. Wilson. Ry Age 64:135 Ja 11 '18

Future of British railways. Engineer 124:475-6, 513-14, 535-6, 565 N 30, D 14-28 '17; Same (pt. 1). Ry Age 64:169-70 Ja 18 '18

Future of the railways of the United Kingdom. H. R. Wilson. Ry R 64:517-18, 579-81 Ap 5, 19 '19

Great Britain faces serious railway situation. S: O. Dunn. Ry Age 65:1145-9 D 27 '18

Great Britain's nine-day railway strike. R. E. Thayer. 11 Ry Age 67:727-34 O 10 '19

How to make the railways pay for the war, or the transport problem solved, by R. Horniman. Review. Engineer 125:179-80 Mr 1 '18

Labor difficulties in Great Britain. Ry Age 66:375 F 7 '19

Multiple unit equipment for English railway. G: Hughes. diags Ry Age 67:625-8 S 26 '19

New railway in South Yorkshire. 11 diags map Engineer 128:171-3, 182 Ag 22 '19

Railway reform. Engineer 125:187-8 Mr 1 '18

Railway year of 1918. Engineer 127:198-9 F 28 '19

Railways in 1917. Engineer 125:35-6 Ja 11 '18  
 Restrictive loading gages on English railways. J: A. F. Aspinall. Ry R 63:928-30 D 28 '18

Status of British railways. R. Barret and others. 11 Ry R 62:203-5 F 9 '18

Status of the British railways. C. H. Claudy. Sci Am 120:336 Ap 5 '19

War situation and service of European railways. S: O. Dunn. Ry Age 66:762-4 Mr 21 '19

See also Railroads and state—Great Britain

**Bibliography**

List of references on the relation of British railways to the European war; comp. by the Library of the Bureau of railway economics. Special Libraries 9:79-83, 120-4 Mr, My '18

**India**

High-capacity goods wagons for Indian railways. Engineer 127:110 Ja 31 '19

How England built her Sind-Pishin railway to protect the Indian frontier from invasion. map Ry Age 64:565-9 Mr 15 '18

Indian railways in 1916-17. Engineer 125:460 My 24 '18

Indian railways in 1917-18. Engineer 127:341 Ap 4 '19

Standardization of Indian railways' locomotives. E. C. Poultney. diags Ry Age 64:1425-30 Je 14 '18

**Italy**

Problem of railway transportation in Italy. Ry Age 66:1373-4 Je 6 '19

Savona-Ceva (Italy) mountain railway electrification. W. Lesniewski. 11 diags map Elec Ry J 50:1150-3 D 29 '17

See also Railroads and state—Italy



**Railroads—Continued****Japan**

- American's observations on the railways of Japan. Ry Age 65:449-50 S 6 '18  
 Chinese and Japanese railways compared. F. Rhea. Il Ry Age 64:1567-9 Je 28 '18; Correction. 65:380 Ag 23 '18  
 Far Eastern markets for railway materials, equipment, and supplies. F. Rhea. Il U S Bur For & Dom Com 180:141-73 '19; Abstract. Ry Age 67:413-14 Ag 29 '19  
 Japanese railways report favors electrification. Elec Ry J 54:515 S 13 '19  
 Opportunities for American signaling in Far East. F. Rhea. Ry Age 67:557-8 S 19 '19  
 Public conduct on Japanese railways. Ry R 62:260-1 F 23 '18  
 Railways and politics in Japan. Ry R 62:658-9 My 4 '18  
 Railways of Japan. K. Yamaguchi. Ry Age 66:1262 My 23 '19; Same. Sci Am S 88:78 Ag 2 '19  
 Railways under the state. Am Ind 18:45 Mr '18  
 Russian railway service corps studies Japanese railways. T. H. Lantry. Ry R 62:352-3 Mr 9 '18  
 Training employes on Imperial government railways of Japan. Ry R 62:272-3 F 23 '18

**Kentucky**

- B. & O. completes the Long Fork railway. A. C. Clark. Il map Ry Age 66:663-4 O 11 '18

**Kongo, Belgian**

- Ant-hills and railway construction in Africa. E. A. Browning. Eng & Contr 50:134-5 Jl 31 '18

**Korea**

- Japanese operated railroads of Korea. Il map Ry Age 64:511-15 Mr 8 '18

**Manchuria**

- Far Eastern markets for railway materials, equipment, and supplies. F. Rhea. U S Bur For & Dom Com 180:191-219 '19

**Mexico**

- Carranza's railroad program calls for 1,500 miles of new line. Ry Age 66:1550 Je 20 '19  
 Mexican railroad properties in a ruinous condition. Ry Age 64:281-2 F 1 '18  
 Mexican railway executives visit New York. P. H. Middleton. Ry Age 66:863-4 Mr 28 '19  
 Mexico as a potential market for railway supplies. E. S. Swazey. Il Ry Age 65:868-70 N 15 sec 1 '18  
 Railway supplies in Mexico. Ry Age 66:1374-5 Je 6 '19  
 Serious condition of the railways in Mexico. Ry Age 65:307-9 Ag 16 '18; Excerpts. Il Ry R 63:238-9 Ag 17 '18  
 Trip over the railway lines of Mexico. P. H. Middleton. Il map Ry Age 66:1297-1301, 1531-4 My 30, Je 20 '19  
 United States engineer officer who located the Mexican railway. E. Low. Eng N 81:552 S 19 '18  
 Wartime conditions on Southern Pacific lines in Mexico. Ry Age 67:222 Ag 1 '19  
 Will the Mexican railway system come back? P. H. Middleton. Ry Age 66:579-81 Mr 14 '19

**Montana**

- Flathead valley branch, Northern Pacific Ry. Il Ry R 65:443-4 S 27 '19

**Near East**

- Railway construction in the Near East. Engineer 126:300-1 O 11 '18

**Nicaragua**

- Improved railway conditions in Nicaragua. W. H. Holmes. Il map Ry R 64:207-11 F 8 '19

**Nova Scotia**

- Some chapters in Canadian government ownership. H. G. Villard. Ry Age 67:119-23 Jl 18 '19

**Ontario**

- Some chapters in Canadian government ownership. H. C. Villard. Ry Age 67:215-17 Ag 1 '19

**Persia**

- Between the Tigris and the Indus; a region of great future commercial importance. T. H. Holdich. Sci Am S 84:394-5 D 22 '17

**Peru**

- Peru and its principal railways. C. S. Cooper. Il Ry R 64:1-5, 61-5, 99-103 Ja 4-18 '19  
 Peru's railways need many connecting links. Il map Ry Age 66:531-5 Mr 7 '19  
 Proposed longitudinal railway for northern Peru. Ry R 62:691-2 My 11 '18

**Philippine Islands**

- Far Eastern markets for railway materials, equipment, and supplies. F. Rhea. Il U S Bur For & Dom Com 180:221-42 '19

**Prince Edward Island**

- Some chapters in Canadian government ownership. H. G. Villard. Ry Age 67:158-60 Jl 25 '19

**Russia**

- American railway commission and Russian railroads. J. E. Greiner. Ry R 63:170-2 Ag 3 '18; Same cond. Eng & Contr 50:56-8 Jl 17 '18  
 General railway situation in Russia. A. I. Lipetz. Ry Age 66:1257-9 My 23 '19  
 Murman railroad: new outlet to sea in Russia. V. Goriachkovsky. Il map Eng N 82:1023-6 My 22 '19  
 Murman railway. V. Goriachkovsky. Ry R 63:235-6 Ag 17 '18; Same. Sci Am S 86:217 O 5 '18  
 Railroad conditions in Russia. O. M. Saylor. Ry R 64:127 Ja 25 '19  
 Russia as a field for American railway genius. A. A. Boublikoff. Ry Age 66:1819-22 Je 27 '19  
 Russia's outlet on the Arctic ocean. Am Ind 19:43-4 Ag '18  
 Side lights on the Russian railroad situation. B. O. Johnson. Il Ry Age 66:1063-4 Ap 25 '19

**Siam**

- Siam's purchases of railway material. Ry Age 66:419 F 14 '19

**Siberia**

- Railway systems of Siberia. Il Ry R 62:587-92 Ap 20 '18

**South Africa**

- Railway electrification in South Africa. Engineer 128:462 N 7 '19  
 What the South African railways buy. Ry Age 66:864-5 Mr 28 '19

**South America**

- New railway construction in foreign countries. P. H. Middleton. Ry Age 64:39-42 Ja 4 '18

**Spain**

- Important development in the railways. F. Lavis. Il map Ry Age 66:825-31, 892-4, 945-9 Mr 28-Apr 11 '19  
 Spain has a locomotive shortage. Ry Age 64:293-4 F 8 '18

**Sweden**

- Electrification work to be pushed forward in Sweden. Elec Ry J 54:225-7 Ag 2 '19  
 Extensive electrification proposed for Sweden. Il diags map plans Ry Age 67:61-3 Jl 11 sec 1 '19

**Switzerland**

- Electrification of Swiss railways. R. E. Schoenfeld. Ry R 63:698-9 N 18 '18  
 Electrification work. Engineer 127:273 Mr 21 '19  
 New single-phase locomotives for the Swiss bundesbahn. H. Studer. diags Elec Ry J 52:411-13 S 7 '18  
 Oerlikon locomotives for Switzerland. J. Buchli. Sci Am S 88:156+ S 6 '19

**Railroads—Switzerland—Continued**

Swiss railways extend electrification. F. Dos-  
senbach. Ry R 65:123-4 J1 26 '19; Same.  
Elec R 75:194-5 Ag 2 '19; Same. Sci Am  
S 88:156+ S 6 '19; Same. J Elec 43:469-70 N  
15 '19

**United States**

Allegheny region—operating conditions. map  
Ry Age 65:331-4 Ag 23 '18  
American railway efficiency during the war.  
Il Ry Age 64:18-21 Ja 4 '18  
Central Western region; first annual report.  
Ry Age 66:463-5 F 21 '19  
Central Western, the largest railroad region.  
Ry Age 66:489-91 F 28 '19  
Laying the rails for future business. F. H.  
Slisson. Am Mach 48:741-5 My 2 '18; Ex-  
cerpts. Ry Age 64:1012-13 Ap 19 '18  
More railway lines abandoned than built. Ry  
Age 66:57-8 Ja 3 '19  
N. W. region; a group of well-managed roads.  
Ry Age 65:482-5 S 13 '18  
Possible solution of the railroad problem.  
F. J. Lisman, maps Ry Age 66:883-9 Ap 4  
'19  
Railroad conditions next winter. Iron Age 102:  
764-5 S 26 '18  
Railroad construction work in eastern Ken-  
tucky coal fields. W. B. Webb. Ry R 62:574-5  
Ap 20 '18  
Railroad problem and economics. C: A.  
Morse. Ry Age 66:207-11 Ja 17 '19; Same.  
Ry R 64:135-9 Ja 25 '19  
Railway construction about to begin; appor-  
tionment of appropriation. Eng & Contr 50:  
71 J1 17 '18  
Railway operation during the Civil war. Ry  
R 61:753-4 D 22 '17  
Review of prospects for railway maintenance  
and improvement work in 1918. Eng N 80:  
864-6 My 2 '18  
Some possibilities of steam railroad electrifi-  
cation as affecting future policies. C. Town-  
ley. Am Inst E E Pro 38:541-7 Ap '19; Same.  
Elec R 74:452-4 Mr 22 '19; Same. Ry Age  
66:765-8 Mr 21 '19; Same. Ry R 64:615-16  
Ap 26 '19; Same cond. Elec Ry J 53:605-8  
Mr 22 '19; Same cond. Eng & Contr 51:  
541-2 My 21 '19; Excerpts. J Elec 48:74  
J1 15 '19  
Statistics of railways, 1906-1916. map Bur  
Railway Econ misc ser 30:1-58 '18  
1300 miles of railroad abandoned. Ry Age 64:  
49-50 Ja 4 '18  
United States railroad system. Il Sci Am 118:  
49 Ja 12 '18  
Water transportation for relieving railroad  
congestion. map Coal Age 13:831-2 My 4 '18  
Western railway club opens with keynote  
meeting. Ry Age 65:599-601 S 27 '18  
What the railways have done. A. H. Smith.  
Eng & Min J 105:753 Ap 20 '18  
What will happen when railroads are re-  
turned. W. D. Hines. Ry Age 67:817-18 O 24  
'19  
*See also* Council of national defense—Rail-  
roads' war board; Interstate commerce  
commission; Railroads—Statistics; Rail-  
roads, Pooling of; Railroads and state—  
United States; also names of railroads, e.g.  
Great Northern railroad

**Government operation, 1917-**

*See* Railroads and state—United States—  
Government operation

**Uruguay**

Railways of Uruguay. W: A. Reid. Il map Ry  
R 64:583-6 Ap 19 '19

**Venezuela**

Railways of Venezuela. C: W. Jones. Il map  
Ry R 65:181-5 Ag 9 '19  
Railroads, Electric. *See* Electric railroads  
Railroads, Elevated. *See* Elevated railroads  
Railroads, Industrial  
Bolt light railway track sections to crossing  
railway to prevent derailments. Il Eng N 81:  
510 S 12 '18  
Constructing logging railroad with a ditcher.  
A. M. Wolf. Il Ry R 62:60-1 Ja 12 '18

Hetch Hetchy railroad. R. W. Van Norden.

Il J Elec 42:203-3 Mr 1 '19  
Hints and data on the use of industrial rail-  
ways for road construction. Eng & Contr  
49:233 Mr 6 '18

Industrial railways in road building. R. P.  
Mason. Concrete 14:199 My '19

Linking up isolated mineral districts by the  
loco-tractor transport system. F. Dutton.  
Il Eng & Min J 107:313-14 F 15 '19

Manless car operation in a stone quarry. Il  
Elec Ry J 52:337-8 Ag 24 '18; Excerpt. Eng  
& Contr 50:276 S 18 '18

Narrow-gage railway operation at munition  
plant. J. A. Silsbee. Eng N 83:127-8 J1  
17 '19

Plant railroad hazards. C. H. Baltzell. Iron  
Age 102:815 O 3 '18

Shippers required to own and maintain in-  
dustry tracks. Ry Age 64:804 Mr 29 '18

Simple method of staking out a logging spur.  
B. G. Pasco. Eng & Contr 51:191-2 F 19 '19

*See also* Locomotives, Industrial

Railroads, Interurban. *See* Interurban railroads

Railroads, Marine. *See* Ship railroads

**Railroads, Military**

Along the British front by light railway; de-  
scription of the narrow-gage system and its  
use in salvaging material. R. K. Tomlin, jr.  
Il Eng N 80:1119-22 Je 13 '18

Army's light-railway practice in France. P.  
McGeehan. Il Eng N 83:653-5 O 2 '19  
Cruisers of the rails. Sci Am S 85:215 Ap 6  
'18

Dwarf railways of the front line trenches.  
J. E. Sellers. Il Eng N 82:774-5 Ap 17 '19

800 miles of railway at front in 1918. Ry Age  
64:793-4 Mr 29 '18

Large mileage of light railways will serve  
American troops at the front. R. K. Tom-  
lin, jr. Il Eng N 80:508-11 Mr 14 '18

Letter from the front. W. G. Arn. Ry R 62:  
131-3 Ja 26 '18

Light railroads at the front. Ry R 63:90-1 J1  
20 '18

Light railway along the British front at close  
range; maintenance and operation. R. K.  
Tomlin, jr. Il plan Eng N 80:1162-9, 1170-2  
Je 30 '18

Light railways. F. G. Jonah. Il Ry R 63:270-  
1 Ag 24 '18

Operation of the U.S. military railways in  
France. J. G. Porter. Il Ry Age 65:549-51 S  
20 '18

Railway construction and operation in the  
fighting zone in France. L. F. Van Hagan.  
Eng & Contr 49:53-4 Ja 16 '18

Repair shop train used on narrow gage in  
Flanders. F. C. Coleman. Il plan Ry Age  
66:1139-40 My 9 '19

Use of light military railways. Il Ry Age 65:  
185-6 J1 26 '18

Work of the twenty-first engineers. Ry R 64:  
611-12 Ap 26 '19

*See also* Bridges, Military; Repair trains

Railroads, Mountain. *See* Mountain railroads

**Railroads, Municipal**

San Francisco's venture in railroad construc-  
tion. A. J. Cleary. Il map Ry Age 65:1047-50  
D 13 '18

*See also* Street railroads, Municipal

**Railroads, Narrow gage**

Along the British front by light railway; de-  
scription of the narrow-gage system and its  
use in salvaging material. R. K. Tomlin, jr.  
Il Eng N 80:1119-22 Je 13 '18

Army's light-railway practice in France. P.  
McGeehan. Il Eng N 83:653-5 O 2 '19

Large mileage of light railways will serve  
American troops at the front. R. K. Tom-  
lin, jr. Il Eng N 80:508-11 Mr 14 '18

Light railroads at the front. Ry R 63:90-1  
J1 20 '18

Light railway along the British front at close  
range; maintenance and operation. R. K.  
Tomlin, jr. Il plan Eng N 80:1162-9, 1170-2  
Je 30 '18

Light railways. F. G. Jonah. Il Ry R 63:270-1  
Ag 24 '18

**Railroads, Narrow gage—Continued**

Use of light military railways. *Il* Ry Age 65:185-6 *Jl* 26 '18

**Railroads, Pooling of**

Eastern operating committee issues its first orders. Ry Age 63:1023-4 *D* 7 '17

General operating committee. Ry R 61:704-5 *D* 8 '17

Government operation of railways imminent. F. Harrison. Ry Age 63:1073-6 *D* 14 '17

Impending government control of railroads. Ry Age 63:1062-4 *D* 14 '17

Pooling railroad equipment and facilities; discussion of the physical problems of pooling equipment and the needlessness of government control. S: G. Thomson. Ry Age 63:1081-3 *D* 14 '17

Pooling the facilities of the eastern railroads. Ry Age 63:1175-6 *D* 28 '17

Unified government control. C: C. McChord. Ry Age 63:1079-80 *D* 14 '17

See also Railroads and state—United States—Government operation

**Railroads, Ship. See Ship railroads****Railroads, Short line**

Light-traffic railway vs. highway and motor truck. C. C. Williams. Eng N 81:984-5 N 28 '18

Plight of a short line railroad. Ry Age 67:605-6 S 26 '19

Revised short line contracts. Ry Age 66:505-6 F 28 '19

Short line problems discussed at Washington. Ry Age 66:1377-80 *Je* 6 '19

Will motor trucks stop the building of short branch line railways? Eng & Contr 51:184-5 F 19 '19

**Railroads, Street. See Street railroads****Railroads, Transfer**

Operating methods of transfer railroads. E. H. Lee. *Il* Ry R 63:490-3 O 5 '18; Excerpts. Eng N 81:618-19 O 3 '18

**Railroads, Underground. See Subways****Railroads and state**

Government operation opposed. W: Hoy. Ry Age 66:299-301 *Ja* 31 '19

State ownership of railways. W: W. Hoy. Ry R 62:714 *My* 18 '18

War administration of British and American railways. Engineer 126:397-8 N 8 '18

See also Electric railroads and state; Government ownership; Government regulation of industry; Interstate commerce commission; Parcel post; Public utilities—Regulation; Public utilities commissions; Railroad law; Railroads—Purchasing; Railroads—Rates; Railroads—Valuation

**Bibliography**

List of publications pertaining to government ownership of railways. Bul 62 sup 38p Bureau of railway economics, Washington, D.C. '19 (Typew)

List of references to the more important books and articles on government control and operation of railroads [in the United States, Great Britain and Canada]. Bureau of railway economics, Washington, D.C. F '19

**Canada**

Canadian government and the Grand Trunk Pacific. map Ry Age 66:1065-6 *Ap* 25 '19

Canadian railway situation. R. B. Bennett. Ry R 62:244-5 F 16 '18

Canada's extension of railway nationalization. maps Ry Age 67:906-10, 973-6, 1007-10 N 7-21 '19

Confused railway situation in Canada. J. L. Payne. Ry Age 66:31-4 *Ja* 3 '19

Government railways in Canada. Ry R 64:39 *Ja* 4 '19

Partial government ownership of railroads in Canada. Eng N 82:1188-9 *Je* 19 '19

Some chapters in Canadian government ownership. H. G. Villard. Ry Age 67:119-23, 158-60, 215-17 *Jl* 18-*Ag* 1 '19

See also Railroads—Canada

**France**

Experience of France in state operation of railways. A. J. County. Eng & Contr 52:63-4 *Jl* 16 '19

Experience of French argument against guaranteed incomes. F. H. Fayant. Ry Age 66:911-12 *Ap* 4 '19; Same abr. Ry R 64:526-7 *Ap* 5 '19

Government ownership and the labor situation on French railroads. Ry Age 67:506-7 S 12 '19

**Germany**

State railway working results in Germany. Engineer 127:585-6 *Je* 13 '19; Same. Eng & Contr 52:113-14 *Jl* 30 '19

**Great Britain**

British point of view of government ownership. Eng & Contr 51:433-5 *Ap* 30 '19

British railway labor, wages, and living under government control. Ry R 62:863-7 *Je* 15 '18

British railways in 1918. Engineer 127:8+ *Ja* 3 '19

British railways under government control. F. A. McKenzie. Ry Age 63:1118-21 *D* 21 '17

British railways under war conditions. Engineer 126:214-15, 246-7, 268-9, 284-5, 310-11, 321, 371-2, 390-1, 410-12, 454-5, 490-1, 528-9, 556-7; 127:38-9, 73-5 S 13-O 18, N 1-15, 29-D 6, 20-27 '18, *Ja* 10, 24 '19

British railways under war control. Eng & Contr 50:400-1 O 30 '18

British transport bill becomes a law. R. E. Thayer. Ry Age 67:455-6 S 5 '19

British transport bill severely criticized. Ry Age 66:861-3 *Mr* 28 '19

Future of British railways. Engineer 124:475-6, 513-14, 535-6, 565; 127:83-4 N 30, *D* 14-28 '17, *Ja* 24 '19

Future of British railways. H. R. Wilson. Ry R 65:761-4 N 22 '19

Government ownership from a British point of view. Ry Age 66:253-4 *Ja* 24 '19; Same. Ry R 64:185-7 F 1 '19

Nationalised railways. Engineer 126:511-12 *D* 13 '18

Problem of the British railways. F. H. Fayant. Ry Age 66:775-6 *Mr* 21 '19

Railroad situation in Great Britain. S: O. Dunn. Ry Age 66:197-201 *Ja* 17 '19

Transport bill passed by House of Commons. R. E. Thayer. Ry Age 67:161-2 *Jl* 25 '19

Transport report; the railway evidence. Engineer 127:85-6, 123-4 *Ja* 24, F 7 '19

**Italy**

Italian railways under government management. *Il* map Ry Age 64:1117-19, 1279-81 *My* 3, 24 '18

Nationalized railways of Italy. P. Lanino. Ry Age 67:535-6 S 12 '19

**United States**

Acute railway situation demands prompt action. S: O. Dunn. Ry Age 66:436-9 F 21 '19

Advocates a partnership between the government and the railways. T. P. Shonta. Eng & Contr 49:192-3 F 20 '18; Excerpt. Ry R 62:209-10 F 9 '18

Analysis of the railroad problem. E. Root. Ry R 64:767-8 *My* 24 '19

Chamber of commerce discusses railroad situation. Ry Age 66:1134-7 *My* 9 '19

Chamber of commerce on railway legislation. *Il* Ry R 65:331-6 S 6 '19

Commerce chamber committee railroad report. Eng N 82:1281-2 *Je* 26 '19

Commerce members endorse committee recommendations. Ry Age 67:221-2 *Ag* 1 '19

Committee hearings on railway legislation. Ry R 65:223-9, 263-5 *Ag* 16-23 '19

Comprehensive revised interstate commerce law. L. F. Loree. Ry Age 67:105-8 *Jl* 18 '19

Concerning today's railroad problem. O: H. Kahn. Ry R 64:329-30 *Mr* 1 '19; Excerpts. Ry Age 66:465-6 F 21 '19

Conditions for transportation progress. W. W. Salmon. Ry R 64:265-9 F 15 '19; Excerpts. Ry Age 66:409-10 F 14 '19

Congressional opinion. Ry R 63:810-11 *D* 7 '18

- Railroads and state—United States—Continued**  
 Continued government operation. R. M. La Follette. Ry Age 67:842-4 O 24 '19  
 Daniel Willard testifies. Ry R 64:282-6 F 22 '19; Same cond. Ry Age 66:452-5 F 21 '19  
 Department of transportation proposed by railway executives. Ry Age 66:1360 Je 6 '19  
 Discussion of the railroad problem. W. D. Hines. Am Lumberman 2292:1, 64-66b Ap 19 '19  
 Equitable versus confiscatory return on investment devoted to public use. S: Rea. Ry R 61:738-40 D 15 '17  
 Essentials of sound railroad policy; Judge George W. Anderson. Ry R 65:336-9 S 6 '19  
 Executives plan for the future of railways; government regulation of privately operated roads with responsibility and authority vested in federal agencies. Ry Age 66:131-3 Ja 10 '19  
 Federal control of railways. L. F. Loree. Ry R 64:735-6 My 17 '19  
 Federal purchase of railroads at fair value. Eng N 83:820-1 O 30 '19  
 Financier on the railroad problem. C: E. Mitchell. Ry Age 66:1107-8 My 2 '19  
 Fourteen point plan of railroad management. C: F. Hunt. Ry R 64:581-2 Ap 19 '19  
 Fourteen points essential to establishing a sound railway policy. L. C. Fritch. Eng N 82:18-20 Ja 2 '19  
 Frelinghuysen bill. A. B. Johnson. Ry R 65:496-7 O 4 '19  
 Frelinghuysen's railway bill. Ry R 65:408-9 S 20 '19  
 Future of the railroads of the United States. F. J. Lisman. Ry Age 65:91-4 sec 2 Jl 12 '18  
 Government ownership and war taxation. O. H. Kahn. Ry Age 65:882-6 N 15 sec 2 '18  
 Governmental control vs. government ownership. Ry R 62:320-2 Mr 2 '18  
 Hard knocks for McAdoo five-year plan. Ry Age 65:1117-20 D 20 '18  
 How will Congress determine the future of our railways? L. C. Fritch. Eng N 83:17-18 Jl 3 '19  
 Howard Elliott's statement; abstracts. Ry Age 66:455-8 F 21 '19; Ry R 64:286-8 F 22 '19  
 Interstate commerce commission on railway legislation. Ry R 64:56-9 Ja 11 '19  
 I.C.C. opposes government railroad operation. Ry Age 66:133-7 Ja 10 '19  
 Interstate commerce commissioner favors federal operation. J. B. Eastman. Ry R 65:68-70 Jl 12 '19; Same cond. Ry Age 67:57-8 Jl 11 sec 1 '19  
 Interstate commerce commissioner's views. R. W. Woolley. Ry R 65:660-2 N 1 '19; Same. Ry Age 67:891-2 O 31 '19  
 Investment bankers' association of America: report of committee on railroad securities. Ry Age 67:791-5 O 17 '19  
 Is a five-year test of government operation of railways necessary? W: G. McAdoo. Eng & Contr 50:583-4 D 25 '18  
 Is it wise to unify the railways nationally? F. W. Noxon. Ry Age 65:98-9 sec 2 Jl 12 '18  
 Labor and government ownership of railways. Ry Age 66:426-7 F 21 '19  
 Labor leaders adopt more conservative policy. Ry Age 67:457-60 S 5 '19  
 Labor leaders fight to prevent return of roads. Ry Age 67:243-9 Ag 8 '19  
 Mr Warfield's statement; abstracts. Ry Age 66:459-61 F 21 '19; Ry R 64:288-9 F 22 '19  
 National transportation conference. Ry R 65:127-31 Jl 26 '19  
 Need of a national railway policy. E. O. Edgerton. Ry R 61:693-5 D 8 '17  
 Newlands committee on interstate commerce concludes series of hearings begun December 10. Ry Age 63:1166 D 28 '17  
 No government ownership sentiment. Ry R 64:314-15 Mr 1 '19  
 Organization of our railroads after the war. E. P. Ripley. Ry Age 65:881 N 15 sec 2 '18  
 Organized labor opposes anti-strike legislation. Ry Age 67:691-2 O 3 '19  
 Pennsylvania railroad's annual report. S: Rea. Ry R 64:346-7 Mr 8 '19  
 Permanent solution of the railroad problem. W. D. Hines. Ry Age 67:18-20 Jl 4 '19  
 Plan for private operation of federalized railways. W: J. Wilgus. Eng N 83:496-7 S 11 '19  
 Plan of security owners for return of roads. S. D. Warfield. Ry Age 66:350-2 F 7 '19  
 Plan to finance federal purchase of railroads. G. Lindenthal. Eng N 83:504-6 S 11 '19  
 Plans for new railroad legislation. Ry Age 66:583-5 Mr 14 '19; Excerpt. Ry R 64:491-3 Mr 29 '19; Excerpt. Eng N 82:658-9 Ap 3 '19  
 Plight of a short line railroad. Ry Age 67:605-6 S 26 '19  
 Pooling railroad equipment and facilities; discussion of the physical problems of pooling equipment and the needlessness of government control. S: G. Thomson. Ry Age 63:1081-3 D 14 '17  
 Possible solution of the railroad problem. F. J. Lisman. Ry Age 66:831-4, 883-9 Mr 28-Ap 4 '19; Comments. Ry Age 66:1221-2 My 16 '19  
 President Wilson on the railway problem. Eng & Contr 50:574-5 D 18 '18  
 Pro and con of government railroad ownership. Automotive Ind 40:194 Ja 16 '19  
 Proposals for disposition of the railroads. Ry Age 66:183-6 Ja 10 '19  
 Railroad bill in the Senate. G: P. McLean. Ry R 62:278-82 F 23 '18  
 Railroad hearings before House committee. Ry Age 67:143-54, 205-14, 353-61, 415-24, 463-8, 619-20, 1205-9 Jl 25-Ag 1, 22-S 5, 26, D 19 '19  
 Railroad policy discussed. W. D. Hines. Ry Age 65:1096-1101 D 20 '18; Same cond. Ry R 63:875-9 D 21 '18  
 Railroad policy formulated by New York traffic club. Ry R 64:602-3 Ap 19 '19  
 Railroad problem. A. B. Cummins. Ry Age 66:1031-2, 1041-5 Ap 25 '19  
 Railroad problem. J. P. Hallihan. Ry R 64:846-8 Je 7 '19  
 Railroad problem. W. D. Hines. Ry Age 66:848-9 Mr 28 '19; Same. Ry R 64:493-5 Mr 29 '19  
 Railroad problem discussed at national conference, Chicago. Ry Age 67:517-18 S 12 '19  
 Railroad problems. H. Elliott. Ry R 65:295-6 Ag 30 '19  
 Railroad prospects are still uncertain: five-year plan side-tracked. Ry Age 66:503-5 F 28 '19  
 Railroad security owners present their case. Ry R 65:352-4 S 6 '19  
 Railroads expected to be returned January 1. Ry Age 67:689-90 O 3 '19  
 Railway executives' plan. R. S. Lovett. Ry R 65:297-8 Ag 30 '19  
 Railway executives' plan for regulation of railways. T. D. Cuyler. Ry R 64:54-6 Ja 11 '19  
 Railway problem. C: W. Baker. Eng N 83:752-8, 789-96 O 23-30 '19  
 Rate-making powers of the Director general. Ry Age 66:1141-4 My 9 '19  
 Recommendations for remedial railroad legislation. Ry R 64:950-1 Je 21 '19  
 Reestablishment of railroad credit. P. M. Warburg. Ry R 65:151-6 Ag 2 '19; Same. Ry Age 67:206-10 Ag 1 '19  
 Referendum on remedial railroad legislation. Ry Age 66:1409-13 Je 13 '19  
 Relinquishment of government control of railroads. L: J. Spence. Ry Age 65:1081-2 D 13 '18; Same (Competitive service—not competitive waste). Ry R 63:823-4 D 7 '18  
 Requisites of adequate railroad legislation. A. P. Thom. Ry Age 67:781-3 O 17 '19; Same abr. Ry R 65:685-7 N 8 '19  
 Restoration of railway development. A. B. Johnson. Ry Age 67:393-402 Ag 29 '19  
 Reward of being conspicuously good; abstracts. L. F. Loree. Ry Age 67:11-12 Jl 4 '19; Ry R 65:55-6 Jl 12 '19  
 Security owners' counsel replies to Judge Lovett's criticism. F. Johnston. Ry R 65:185-90 Ag 9 '19  
 Security owners' plan of railway regulation. S. D. Warfield. Ry R 64:777-8 My 24 '19

**Railroads and state—United States—Continued**

- Senate hearings on railroad legislation. W. D. Hines. Ry Age 64:212-15, 231-3 F 8 '19; Excerpts. Ry Age 66:353-61 F 7 '19
- Senate hearings on railway legislation. Ry R 64:52-4, 93-5, 149-51, 179-81, 249-52, 281-9, 297-9, 332-7 Ja 11-F 1, 15-Mr 1 '19
- Shall American railways be Prussianized? A. B. Johnson. Ry Age 66:156-8 Ja 10 '19; Same. Ry R 64:113-15 Ja 18 '19
- Shipper's view of the railroad problem. F. B. Montgomery. Ry Age 66:59-60 Ja 3 '19
- Short line problems discussed at Washington. Ry Age 66:1377-80 Je 6 '19
- Solution of rail problem. F. A. Good. Am Lumberman 2312:50-1 S 6 '19
- Solution of the railroad problem. Sci Am 120: 112 F 8 '19
- Solution of the railway problem based on plans presented to Congress. L. C. Fritch. Eng N 82:504-7 Mr 13 '19
- Solving the railroad problem. Ry Age 66:177-9 Ja 17 '19
- Some comments on the railroad problem. R. S. Lovett. Ry Age 67:173-5, 197-202 Jl 25-Ag 1 '19; Same cond. Ry R 65:89-93 Jl 19 '19
- Some phases of government control; shall railroad labor be considered to be affected with a public interest. W. C. Osborn. Ry Age 66:1197-8 My 16 '19; Excerpts. Ry R 64:714-15 My 17 '19
- State commissioners before Newlands committee. Ry Age 63:1137-8 D 21 '17
- Statement by Samuel Rea. Ry Age 66:458-9 F 21 '19
- Statement of Southern traffic league. Ry R 64:454-6 Mr 22 '19
- Suggestion concerning today's railroad problem. O. H. Kahn. Ry Age 66:465-6 F 21 '19
- Suggestions for railway legislation. C. A. Prouty. Ry R 64:887-90 Je 14 '19; Same cond. Ry Age 66:1835-6 Je 27 '19
- Summary of views on the railroad problem. Ry R 64:32-6 Ja 4 '19
- Supply industry's opinion of railway problems. Ry R 63:909-11 D 28 '18
- To-day's railroad problem. T. P. Shonts. Eng & Contr 50:575-6 D 13 '18
- Transportation conference plan. Ry Age 67: 186-7 Ag 1 '19
- Unified corporate control of the railways after the war. A. C. Dennis. Eng N 81:711-12 O 17 '18
- View on the railroad problem. C. C. McChord. Ry R 64:820-5+ Je 7 '19; Excerpts. Am Mach 50:1207-9 Je 19 '19
- Views on future regulation. W. D. Hines. Ry R 64:592-4 Ap 19 '19
- Weak and strong road problem. W. C. Raymond. Ry Age 67:242 Ag 8 '19
- What railroad plan should the country adopt? S. Rea. Ry Age 66:1147-51 My 9 '19
- What return of railroads means to automotive industry. A. Sinsheimer. Automotive Ind 40:1226-7 Je 5 '19
- What shall be done about the railroad question? F. L. Stuart. Eng N 82:275-6 F 6 '19; Same. Eng & Contr 51:188-9 F 19 '19
- What the future holds in store for the railroads. Ry Age 65:625-7 O 4 '18
- What's to become of the railroads? Ry Age 65:945 N 29 '18
- Will new legislation cause railroad expansion? S. O. Dunn. Ry Age 67:735-7 O 10 '19
- Wisconsin state commissioner testifies before Newlands committee. Ry Age 63:1085 D 14 '17
- See also Interstate commerce commission; Railroads—Valuation*
- Cummins bill**
- Amendments suggested for the Cummins bill; abstracts. A. P. Thom. Ry R 65:453-8 S 27 '19; Ry Age 67:545-8 S 19 '19
- Cummins and Esch bills. S. D. Warfield. Ry R 65:801-4 N 29 '19
- Cummins bill for the control of the railways, and its cardinal weakness. Eng & Contr 52: 425-6 O 15 '19
- Cummins bill's proposed limitation of railway profits. Ry Age 67:493-4 S 12 '19

- Cummins railroad bill reported to Senate. Ry Age 67:679-87 O 3 '19
- Cummins railroad bill reported to Senate. Ry R 65:339-42 S 6 '19
- Labor makes protest against the Cummins bill. Ry Age 67:622-4 S 26 '19
- Newman Erb on the Cummins bill. Ry R 65: 376 S 13 '19
- Railroad bill taken up in Senate. Ry Age 67: 920 N 7 '19
- Railway business association on the Cummins bill. A. B. Johnson. Ry Age 67:554-6 S 19 '19; Summary. Ry R 65:419 S 20 '19
- Railway executives file an objection to the Cummins bill. Ry R 65:386-7 S 13 '19
- Report on the Senate committee's railroad bill. A. B. Cummins. Ry Age 67:1023-9 N 21 '19; Excerpts. Ry R 65:736-8, 764-8 N 15-22 '19
- Senate committee's tentative railroad bill. Ry Age 67:448-51 S 5 '19
- Senator Cummins' plan. Ry R 64:828-9 Je 7 '19
- Senator Lenroot criticizes the Plumb plan and Cummins bill. Ry R 65:467 S 27 '19

**Esch bill**

- Cummins and Esch bills. S. D. Warfield. Ry R 65:801-4 N 29 '19
- Esch bill passed by the House. Ry Age 67:739-47 O 10 '19
- Esch railroad bill. Ry Age 67:814 O 24 '19
- Esch railroad bill; synopsis. Ry R 64:827-8 Je 7 '19
- Esch railroad bill; text. Ry R 65:718-30 N 15 '19
- Railroad regulation bill passed by the House. Ry Age 67:777-80 O 17 '19

**Government operation, 1917-**

- Accomplishments of the United States Railroad administration. F. McManamy. Ry R 64:152-4 Ja 25 '19
- Accounting under federal control. Ry Age 64:970 Ap 12 '18
- Activities of the Director-General. Ry Mech Eng 92:133-5 Mr '18
- Activities of the Railroad administration. Ry Age 64:255-7, 299-300, 345-6 F 1-15 '18
- Administration bill for control of railroads, with text of bill. Ry Age 64:129-33 Ja 11 '18
- Allocation of the 100,000 standard cars. Ry Mech Eng 92:512 S '18
- Annual reports of the regional directors. Ry Age 66:361-2, 393-5 F 7-14 '19
- Basis of compensation for the railroads. J. H. Parmelee. Ry Age 64:127-8 Ja 11 '18
- Business press and the railway question. S. O. Dunn. Ry Age 64:1122-4 My 3 '18
- Capital expenditures approved by Railroad administration. Ry R 62:768-71 My 25 '18
- Car and locomotive specialties ordered. Ry R 62:885-6 Je 15 '18; Ry Mech Eng 92:395 Jl '18
- Cash disbursements. Ry Age 64:808 Mr 29 '18
- Chapters from Railroad administration report. Ry Age 66:311-14 Ja 31 '19
- Chronological history of government control. Ry Age 66:73-4 Ja 3 '19
- Class 1 roads under federal control August 20, 1918, giving name and address of the regional director, federal manager and corporate officer. Ry R 63:sup Ag 24 '18
- Comment on government control of railways. Ry Age 64:16 Ja 4 '18
- Commission and administration rates. Ry R 62:953 Je 29 '18
- Compensation contract. Ry R 63:88-9 Jl 20 '18
- Compensation of railroads under federal control. J. M. Souby. Ry Age 66:751-4 Mr 21 '19
- Consolidation of Texas railroads under federal operation. Eng N 81:622 O 3 '18
- Corporate and operating organizations separated. Ry Age 64:910 Ap 5 sec 1 '18
- Criticism of government operation; abstracts. H. Elliott. Ry R 64:405 Mr 15 '19; Ry Age 66:578 Mr 14 '19
- Director General McAdoo approves compensation contract. Ry Age 65:435-42, 469-70 S 6-13 '18; Same cond. Ry R 63:384-93 S 14 '18; Abstract. Eng N 81:511-12 S 12 '18

- Railroads and state—U.S.—Govt. operation—Cont.**  
 Director General of railroads McAdoo on the job. Ry Age 64:115-18 Ja 11 '18  
 Director general reviews his stewardship. Ry R 65:585-8 O 18 '19  
 Director general reviews railroad conditions. W. D. Hines. Ry R 64:595-6 My 10 '19  
 Director general's reply to Howard Elliott's criticism of government operation. W. D. Hines. Ry R 64:405-6 Mr 15 '19  
 Distribution of standard locomotives to the railroads. Ry Mech Eng 92:386 J1 '18  
 Doings of the United States Railroad administration. See weekly numbers of Railway age beginning April 19, 1918  
 Draft contract for federal railway operation is unfair. Eng N 81:218-20 Ag 1 '18  
 Duty of railroad accounting officers. R. A. White. Ry Age 65:31-2 J1 5 '18  
 Effect of war on railroad securities. F. H. Sisson. Ry R 63:515-17 O 5 '18  
 Efficiency of government operation of the railroads. T. H. Price. Eng N 81:564 S 26 '18  
 Efficiency under government and private management. Ry Age 65:413-20 S 6 '18  
 Embargo rules of the Railroad administration. Ry Age 64:408 F 22 '18  
 Engineering aspects of government operation of railroads are broad. C. W. Stark. Eng N 81:223-5 J1 4 '18  
 Equipment standardization. W. G. McAdoo. Ry Age 64:559-60 Mr 15 '18; Same. Ry R 62:362-3 Mr 16 '18  
 Fancies and facts regarding government operation. Ry Age 66:283-4 Ja 31 '19  
 Federal control of the railways. Ry Mech Eng 92:4 Ja '18  
 Federal railroad operation and betterments policy. Eng N 83:615-16 S 25 '19  
 Financial and corporate offices not to be charged to operating expenses. Ry Age 64:702 Mr 22 '18  
 Financial results of the operation of railroads by the United States Railroad administration during the month of December and for the entire year 1918. Ry R 64:296-7 F 22 '19  
 First three months of government control. Ry Age 64:325-30 Ap 5 sec 1 '18  
 Four months under federal operation show deficit of \$250,000,000. Ry R 62:958 Je 29 '18  
 General and district freight traffic committees are appointed. Ry R 63:136-7, 334-5 J1 27, S 7 '18  
 General order no. 8, governing labor conditions. Ry Age 64:449-50 Mr 1 '18  
 Government and the railroads. J. B. Walker. Il Sci Am 118:314-15+ Ap 6 '18  
 Government assumes responsibility for railway operation, maintenance, and profits, for duration of war—proclamation issued by the President of the United States, December 26, taking effect at noon, December 28, 1917. Ry R 61:777-80 D 29 '17  
 Government control of railway traffic departments. Ry Age 64:909 Ap 5 sec 1 '18  
 Government direction of railways. Ry R 62:3-5, 54-8, 116-18, 150-3, 190-3, 226-9, 264-9, 298-301 Ja 5-12, 26-Mr 2 '18  
 Government in control of railroad operation. Elec W 70:1254-5 D 29 '17  
 Government operation of railroads: legal aspects. R. Walker. Ry Age 64:937-9 Ap 5 sec 2 '18  
 Government operation of railways imminent. F. Harrison. Ry Age 63:1073-6 D 14 '17  
 Government purchasing policies. Ry R 63:93 J1 20 '18; Same abr. Ry Age 65:176 J1 26 '18  
 Government railway operation. Eng & Min J 105:29 Ja 5 '18  
 Governmental machine for handling the railroads of the country is rapidly nearing completion. Iron Age 101:694-5 Mr 14 '18  
 Government's deficit in its contract with the railways. Ry R 64:783-4 My 17 '19  
 Government's railroad deficit. W. G. McAdoo. Ry R 64:25-9, 79-80 Ja 4-11 '19  
 Has railroad capital or railroad labor been exploiting? Ry Age 67:340-2 Ag 22 '19  
 How the \$500,000,000 for railway work will be spent. Eng & Contr 50:192 Ag 21 '18  
 Immediate needs of the railroads. Eng N 81:165-7 J1 25 '18  
 Impending government control of railroads. Ry Age 63:1062-4 D 14 '17  
 Important orders of western regional director. Ry Age 64:1386-7, 1430-1, 1476-8, 1556; 65:22 Je 7-J1 5 '18  
 Interstate commerce commissioner's views. R. W. Woolley. Ry R 65:660-2 N 1 '19; Same. Ry Age 67:891-2 O 31 '19  
 Interstate commission and federal control. W. M. Daniels. Ry R 63:693-5 N 16 '18; Same. Ry Age 65:851-4 N 15 '18  
 Invention and progress to be fostered. Ry R 62:361 Mr 16 '18  
 Letter on government purchasing policies. Ry Age 65:311-12 Ag 16 '18  
 List of 500 railroads now under federal control. Ry Age 65:48-9 J1 12 '18  
 McAdoo appoints three regional directors and a wage commission. Ry Age 64:201-3 Ja 25 '18  
 McAdoo proposes extension of federal control. Ry Age 65:1051-3 D 13 '18  
 McAdoo puts wage increase into effect. Ry Age 64:1325-30 My 31 '18  
 McAdoo's instructions to regional directors. Ry Age 64:443-4 Mr 1 '18; Same. Ry R 62:302-3 Mr 2 '18  
 Motive power under government control. G. N. De Guire. Ry Age 67:349-52 Ag 22 '19  
 National association of owners of railroad securities. S. D. Warfield. Ry R 62:136-8 Ja 26 '18; Same cond. Ry Age 64:317 F 8 '18  
 National association of railway and utilities commissioners 30th annual convention. Ry Age 65:851-8 N 15 sec 1 '18; Ry R 63:737-43 N 23 '18  
 National industrial traffic league spring meeting. Ry Age 66:837-8 Mr 28 '19  
 Nation's railroads now under government control. Ry Age 64:1-6 Ja 4 '18  
 Negotiations on form of contract. Ry R 63:236-7 Ag 17 '18  
 New England railroad executives' committee. Ry Age 64:985-6 Ap 12 '18  
 New government control of railroad management. Ry Age 64:7-10 Ja 4 '18  
 New scrip book. Ry R 63:89 J1 20 '18  
 News from the Railroad administration. Ry Mech Eng 92:494-5 S '18  
 119 roads earned less than standard return. Ry Age 66:771-2 Mr 21 '19  
 One year of government control of railroads. Ry Age 66:62-4 Ja 3 '19  
 Opinion and comment. Ry R 63:397-8 S 14 '18  
 Orders of eastern regional director. Ry Mech Eng 93:80 F '19  
 Orders of regional directors. Ry Age 65:135-6, 172, 223, 267-8, 292-3, 352-4, 400-1, 699-700, 799-800, 825-7, 866-7, 973-4; 66:205-6, 256-8, 314-15, 348-50, 392-3, 443-5, 486, 555-6, 602-3, 758-9 J1 19-Ag 30, O 18, N 1-15 sec 1, 29 '18, Ja 17-Mr 21 '19  
 Orders of southern regional director. Ry Age 64:1388, 1416, 1470, 1556; 65:33 Je 7-J1 5 '18  
 Pending railroad contracts. Ry R 63:130-1 J1 27 '18  
 Plans for financing railway needs announced. Eng N 80:531 Mr 14 '18  
 Present status of the contract negotiations. Ry Age 66:49-50 Ja 3 '19  
 President Wilson takes over railroads. Ry Age 63:1170-1 D 28 '17  
 President Wilson's proposed bill for government control of railroads. Ry R 62:7-8 Ja 5 '18  
 President Wilson's railroad message to Congress. Ry Age 64:102-3 Ja 11 '18; Same. Ry R 62:1-2 Ja 5 '18  
 Problem of the short line railroads. S. H. E. Freund. Ry Age 64:1185-7, 1366 My 10, Je 7 '18  
 Property protection section's progress. Ry R 63:106-8 J1 20 '18  
 Proposed expenditures for shops and shop equipment. Ry R 62:922-4 Je 22 '18  
 Proposed legislation for war control of railroads. Ry Age 64:98-9 Ja 11 '18  
 Radical changes take place in traffic field. Ry Age 66:61-2 Ja 3 '19  
 Railroad administration activities. Ry Mech Eng 92:393-5 J1 '18  
 Railroad administration and the railway officers. Ry Age 64:1361-3 Je 7 '18

**Railroads and state—U.S.—Govt. operation—Cont.**  
 Railroad administration news. Ry Mech Eng 92:655-8; 93:81-4 D '18-Ja '19  
 Railroad administration organizes to stop thefts. Ry Age 64:1168 My 10 '18  
 Railroad administration's motive power problems. A. B. Johnson. Ry Age 64:965-8 Ap 12 '18; Same. Ry R 62:536-9 Ap 13 '18; Excerpt. Ry Mech Eng 92:246-8 My '18; Abstract. Coal Age 13:931 My 18 '18; Discussion. Ry Age 64:1018 Ap 19 '18  
 Railroad administration's paint orders. Ry Mech Eng 92:517 S '18  
 Railroad buyers appointed. Iron Age 101:717 Mr 14 '18  
 Railroad construction as affected by the war. Ry Age 64:887-8 Ap 5 sec 1 '18  
 Railroad control bill in Congress. Ry Age 64:325-6, 347-52, 395-402, 461-4, 519-20, 553-7, 703-5 F 8-Mr 22 '18  
 Railroad hearings before senate committee. Ry Age 66:188-94, 306-10, 397-400, 452-63 Ja 17, 31, F 14-21 '19  
 Railroad hearings before senate committee. J. Kruttschnitt. Ry Age 66:258-62 Ja 24 '19; Same. Ry R 64:128-32 Ja 25 '19  
 Railroad man and the war. F. McManamy. Ry R 63:383-4 S 14 '18  
 Railroad regulations. Am Mach 48:911-12 My 30 '18  
 Railroad revolution. W. G. McAdoo. Ry Age 64:1171-2 My 10 '18  
 Railroad traffic activities consolidated or discontinued. Ry Age 64:969 Ap 12 '18  
 Railroads to be operated by federal managers. Ry Age 64:1271-2 My 24 '18  
 Railway bill as adopted by conference committee of U.S. Senate and House of representatives. Ry R 62:337-41 Mr 9 '18  
 Railway corporate interests should be conserved. Eng N 81:546 S 19 '18  
 Railway executives Advisory committee's report unqualifiedly recommends the acceptance of the contract. Ry Age 65:485-8 S 13 '18  
 Railway personnel under government control. Ry Age 64:1036-8 Ap 19 '18  
 Regional reports to the director general. Ry Age 65:595-7 S 27 '18  
 Rejoinder to Mr Hines; charges that the government allowed the St Louis Southwestern R. R. to deteriorate. J. M. Herbert. Ry R 65:569-71 O 18 '19  
 Report of regional director showing accomplishment in eastern district during five months. A. H. Smith. Ry R 62:956-8 Je 29 '18  
 Report of special war committee. Ry Age 65:354-6 N 15 '18; Same abr. Ry R 63:738-40 N 23 '18  
 Report to the President. W. G. McAdoo. map Ry R 63:371-81 S 14 '18  
 Reports of capital expenditures required. Ry Age 64:986-7 Ap 12 '18  
 Requisites of a proper system of regulation; abstracts. A. F. Thom. Ry Age 66:262-4 Ja 24 '19; Ry R 64:93, 95, 97-8, 149-50 Ja 18-25 '19  
 Review of the year, 1918. Ry R 64:19-23 Ja 4 '19  
 Revolutionizing railroad organizations. Ry Age 64:694-5 Mr 22 '18  
 R. S. Lovett director of betterments and additions. Ry Age 64:521 Mr 8 '18  
 Rules for capital expenditures on railroads. Ry Age 64:788 Mr 29 '18  
 Running the railroads under the new regime. Ry Age 64:153-7 Ja 18 '18  
 Selling to railroads under government control. Ry Age 64:543-4 Mr 15 '18  
 Senate and House committee hearings on administration bill for federal control of railroads. Ry Age 64:171-5, 211-15, 243-7 Ja 18-F 1 '18; Ry R 62:118-22, 153-6 Ja 26-F 2 '18  
 Shippers are hostile to government ownership. Ry Age 65:963-4 N 29 '18  
 Shippers required to own and maintain industry tracks. Ry Age 64:804 Mr 29 '18  
 Shopmen's wages are increased. Ry Mech Eng 92:625-7 S '18  
 Short line railroad contract. Ry Age 65:763, 777-8 N 1 '18

Short line railroads object to being left out. Ry Age 64:1081-2 Ap 26 '18; Excerpt. Ry R 62:609-10 Ap 27 '18  
 Some interesting features of federal operation. C. R. Gray. Ry Age 66:1349-51 Je 6 '19  
 Some of the expenditures authorized by the government to the railroads. Am Mach 48:sup 80f Je 6 '18  
 Some results of a year of government railway operation. W. G. McAdoo. Eng & Contr 51:86-7 Ja 15 '19  
 Southern region—operating conditions. Ry Age 66:593-4 Mr 14 '19  
 Standard contracts executed. Ry Age 66:1833-4 Je 27 '19  
 State control of American railways. Engineer 125:16-17 Ja 4 '18  
 (Tentative) form of contract between the government and the railroads. Ry R 62:606-9 Ap 27 '18  
 Testimony before senate committee. W. G. McAdoo. Ry Age 66:118-30 Ja 10 '19  
 Traffic results under government control; extracts from the annual report of Mr McAdoo. Ry R 64:154-7 Ja 25 '19  
 Transportation and food supply. Ry Age 64:445-6 Mr 1 '18  
 Unification of our railroad systems. Sci Am 119:288, 308 O 12-19 '18  
 Unified control of railways. R. H. Alshton. Ry R 63:879-80 D 21 '18  
 Unified government control. C. C. McChord. Ry Age 63:1079-80 D 14 '17  
 United States Railroad administration. See weekly numbers of Railway review beginning March 9, 1918  
 Upkeep of the railways under federal control. Eng N 83:457-9 S 4 '19  
 Vast increases of expenses not due to advances in wages. Ry Age 66:478-9 F 23 '19  
 Wage increase. Ry R 63:335-9 S 7 '18  
 Walker D. Hines appointed director general of railroads. Ry R 64:107-8 Ja 18 '19; Ry Age 66:187-8 Ja 17 '19  
 What the Railroad administration has accomplished. T. H. Price. Ry Age 65:382-3 Ag 30 '18; Same. Ry R 63:309-10 Ag 31 '18  
 Wherein government operation has failed. Ry Age 66:525-6 Mr 7 '19  
 Why test should be made of government operation. C. A. Prouty. Ry Age 66:483-6 F 28 '19  
 Work of the division of operation. W. G. McAdoo. Ry Age 66:139-50 Ja 10 '19; Same cond. Ry R 64:69-76 Ja 11 '19; Abstract. Eng N 82:178-80 Ja 23 '19  
 Work of the fuel conservation section. Ry R 63:157-+ Ag 3 '18  
 Work of the United States Railroad administration for the first seven months of its existence; abstracts. W. G. McAdoo. Ry Age 65:468-9, 477-81 S 13 '18; Eng & Contr 50:277-8 S 18 '18  
 See also Railroad wage commission; United States—Railroad administration

#### Plumb plan

A B C of the Plumb plan. Ry Age 67:189-41 Jl 25 '19  
 Activities of the Plumb plan league—conference of the leaders of national thought. Ry R 65:234-5 Ag 16 '19  
 Analysis of the Plumb plan. Ry Age 67:303-5 Ag 15 '19  
 Engineers protest to president against Plumb plan. Eng N 83:405-7 Ag 28 '19  
 Estimates of the Plumb plan. A. Pomerene. Ry R 65:243-5 Ag 16 '19; Same. Am Ind 20:16-19 S '19  
 Give the Plumb plan of railway democratization a trial, but on a moderate scale. Eng & Contr 52:209-10 Ag 20 '19  
 Government ownership on the Plumb plan. G. C. Sikes. Ry Age 67:785-6 O 17 '19  
 Plumb plan given hearing before house committee. Ry Age 67:275-9, 307-14 Ag 8-15 '19  
 Plumb plan introduced as bill in Congress. Ry Age 67:255-6 Ag 8 '19  
 Plumb plan propaganda. Ry Age 67:101-2 Jl 18 '19

**Railroads and state—U.S.—Plumb plan—Cont.**

- Plumb's Soviet plan of railroad management. Ry Age 67:293-6 Ag 15 '19  
 Railroad hearings before House committee. E. J. Rich. Ry Age 67:559-60 S 19 '19  
 Railroad station agents oppose Plumb plan. E. H. Morton. Ry R 65:510-13 O 4 '19  
 Railway brotherhoods' plan. Eng N 83:290-1 Ag 7 '19  
 Railway executives on federal ownership. Ry R 65:240-1 Ag 16 '19  
 Railway operation by the brotherhoods. Eng N 83:299 Ag 14 '19

**Plumb plan—Bibliography**

- Some comments on the Plumb plan. Bureau of railway economics, Washington, D.C. 20p S 20 '19 (Typew)

**Railroads in war**

- American railway efficiency during the war. Il Ry Age 64:18-21 Ja 4 '18  
 American railway forces in the great war. S: O. Dunn. Il map Ry Age 66:7-23 Ja 3 '19; Excerpts. Ry Mech Eng 93:19-22 Ja '19  
 American railway yard and terminal development in France presents many new problems. R. K. Tomlin, jr. Eng N 80:348-9 F 21 '18  
 Baghdad railway and its part in the war. H. C. Woods. map Ry Age 64:204-6 Ja 25 '18  
 Belgian railwaymen and German oppression. Ry Age 66:501-2 F 28 '19  
 Breakdown of the railroads. J. Keely. Coal Age 13:45-6 Ja 12 '18  
 British army locomotive repairs. H. L. Cole. Il Ry Mech Eng 93:548-50 S '19  
 British railway workshops in war time. Il Engineer 127:576-9, 604+, 630; 128:104-5, 178-9, 200-2, 228-9, 232, 326-7, 334, 375, 402-3, 484-5, 490, 581-2 Je 13-27, Ag 1, 22-S 5, O 3, 17-24, N 14, D 12 '19  
 British railways under war conditions. Engineer 128:214-15, 268-9, 284-5, 310-11, 321, 371-2, 390-1, 410-12, 454-5, 490-1, 528-9, 556-7; 127:38-9, 73-5 S 13-O 18, N 1-15, 29-D 6, 20-27 '18, Ja 10, 24 '19  
 British railways under war control. Eng & Contr 50:400-1 O 30 '18  
 British tramways seriously affected by war. Il Elec Ry J 52:570-8 S 28 '18  
 Canadian Pacific railway's military record. E. W. Beatty. Il Ry R 64:401-4 Mr 15 '19  
 Co-operation. A. M. Schoyer. Ry Age 63:1173 D 28 '17  
 Correlating the militia and the railways. C. H. Sherrill. Ry Age 63:1172 D 28 '17  
 Eastern operating committee makes progress. Ry Age 63:1072 D 14 '17  
 Electric carriers answer the call; transportation in San Francisco, Charleston and Houston. Il diags plan Elec Ry J 52:55-8 Jl 13 '18  
 Electric railway lines in Newport News, Va., Wilmington, N.C., and Charlotte, N.C., help to speed up war work at cantonment, training ground and shipyard. Il map Elec Ry J 51:1048-50 Je 1 '18  
 Electric railways are serving the nation; service in New Orleans, Dallas, Mobile, Beaumont, Staten Island, Norfolk. Elec Ry J 51:1184-8 Je 22 '18  
 Food, fuel and military supplies given priority. Ry Age 63:1084-5 D 14 '17  
 French opinions of American methods of railroading. F. Jaques. Ry Age 67:869-70 O 31 '19  
 French railways during the war. Ry Age 65:226-7 Ag 2 '18; Abstract. Iron Tr R 63:495 Ag 29 '18  
 Further light on work of railway men in the war. diags Ry Age 66:385-7 F 14 '19  
 Gigantic construction program of American engineers in France. Ry Age 64:502-3 Mr 8 '18  
 Hauling shipbuilders to Hog Island—and home again. Il diags map plan Elec Ry J 52:448-51 S 14 '18  
 How an electric railway serves a cantonment; Washington, Baltimore & Annapolis electric railroad and Camp Meade. Il maps Elec Ry J 51:1097-8 Je 8 '18

How the electric railways can help to build ships. Elec Ry J 51:853-7 My 4 '18

- Interstate commerce commission special report to Congress. Ry R 61:691-3 D 8 '17; Same cond. Ry Age 63:1045-6 D 7 '17  
 Meeting the nation's transportation needs; work of Florida, Georgia, Texas and Washington railways. Elec Ry J 52:232 Ag 10 '18  
 Munitions production by British railways. Ry R 63:671-2 N 9 '18  
 \$170,500 to aid shipbuilders; government assists development of Lewiston, Augusta & Waterville street railway. Elec Ry J 52:584 S 28 '18  
 Our job. N. W. Bolen. Elec Ry J 51:865 My 4 '18  
 Over seventy thousand railway men join colors; names of officers and employees who have received commissions. Il Ry Age 64:22-35 Ja 4 '18  
 Pensacola, Florida is alive to war needs. Elec Ry J 52:583-4 S 28 '18  
 Practical patriotism and transportation; how citizens can help the railroad. H. Elliott. Ry Age 63:1038 D 7 '17  
 Putting car wheels under shipbuilders. Il chart map Elec Ry J 52:186-92 Ag 3 '18  
 Question of transportation. Am Mach 47:1061-2 D 13 '17  
 Railroad construction as affected by the war. Ry Age 64:887-8 Ap 5 sec 1 '18  
 Railroad roll of honor. Ry Mech Eng 92:11-14 Ja '18  
 Railroad situation in Great Britain. S: O. Dunn. Ry Age 66:197-201 Ja 17 '19  
 Railroads aided mobilization. Ry R 64:357 Mr 8 '19; Same abr. Ry Age 66:597 Mr 14 '19  
 Railway activities in the war. Ry Age 65:1064-5 D 13 '18  
 Railway officers wanted for service abroad. S. M. Felton. Ry Age 64:507-9 Mr 8 '18  
 Railways and the war cabinet. Engineer 125:345-6 Ap 19 '18  
 Real rapid transit for ship workers; five-car train operation over the lines of the Pacific electric railway. Elec Ry J 52:331 Ag 24 '18  
 Shipbuilding in the Bay cities; key route facilities heavily taxed by war traffic. Il Elec Ry J 52:583 S 28 '18  
 Transport report; the railway evidence. Engineer 127:85-6 Ja 24 '19  
 Transportation facilities of the A.E.F. Ry Age 66:66-7 Ja 3 '19  
 Transportation situation. H. Holden. Ry R 61:706-7 D 8 '17  
 War situation and service of European railways. S: O. Dunn. Ry Age 66:762-4 Mr 21 '19  
 What the war has meant to Canada's lines. Il Elec Ry J 52:538-46 S 28 '18  
 Yankee railroading in France. G: F. Paul. Il Ry R 64:551-2 Ap 12 '19  
 See also Armored cars; Artillery, Railway; Hospital cars; Hospital trains; Railroads, Military; Railroads and state—United States—Government operation, 1917; also Council of national defense—Railroads' war board

**Bibliography**

- List of references on the relation of British railways to the European war; comp. by the Library of the Bureau of railway economics. Special Libraries 9:79-83, 120-4 Mr, My '18

Railroads' war board. See Council of national defense—Railroads' war board

**Rails**

- Bending or flexure of railway rails. diags M. Caufourier. Eng & Contr 49:547-51 My 29 '18  
 British and American tramway rail sections. F. Bland. diag Elec Ry J 51:666 Ap 6 '18  
 Broad rails versus deep rails. G: H. Barbour. diags Eng Soc W Pa 33:327-44 Jl '17; Discussion. 33:345-78; 34:364-76 Jl '17, My '18  
 Car wheel coning and rail canting. Eng & Contr 51:380 Ap 16 '19  
 Cause of brittleness in mine rails. C. J. Creveling; C. Hering. Coal Age 14:237 Ag 1 '18  
 Compound rails with separate heads. diags Eng N 83:336 Ag 14 '19



**Rails—Continued**

- Cure for surface-bent rails. H. K. Sullivan. *Il Elec Ry J* 51:528-9 Mr 16 '18
- Damage to rail by flat spots on freight car wheels. Eng & Contr 51:546 My 21 '19
- Determining when rail should be renewed. C. W. Baldrige. *Il diags Ry Age* 64:1077-8 Ap 26 '18
- Early experimental study of rail wear. R. C. Cram. *Il diags Elec Ry J* 51:168-72 Ja 26 '18
- Effect of curvature on railway maintenance of way. Eng & Contr 51:397 Ap 16 '19
- Evolution of the tramway rail. F. Bland. *Il Elec Ry J* 52:1144-5 D 28 '18
- Hardening rails in track. Ry R 63:281 Ag 24 '18
- Heat treatment of railroad materials. C. B. Bronson. *Iron Age* 104:25-6 JI 3 '19; Same. Ry R 65:71-3 JI 12 '19; Same abr. Ry Age 67:314-16 Ag 15 '19; Excerpts. Eng & Contr 52:339 S 17 '19
- Heat treatment of rails in track. *Il Ry R* 63:106 JI 20 '18
- High cooling and rolling stresses found in steel rails. J. E. Howard. Eng N 80:812 Ap 25 '18
- Improved jack or rail bender. *Il diags Coal Age* 13:860 My 11 '18
- Limitations to the capacity of coal cars. Ry Mech Eng 92:329-30 Je '18
- McNeill rail anti-creeper. *diag Ry R* 63:291 Ag 24 '18
- Manufacture of steel rails. R. W. Hunt. Am Inst Min Bul 153:sup2339-46 S '19; Excerpts. *Iron Tr R* 65:901-2 O 2 '19; Excerpt. Eng & Contr 52:439 O 15 '19; Discussion. G. B. Waterhouse. Am Inst Min Bul 156:3156-8 D '19; Same. *Iron Age* 104:1059-60 N 27 '19
- Middle ordinate for bending rails. *diag Coal Age* 16:249 Ag 7 '19
- More on old compound rail sections. *diags Eng N* 82:1030-1 My 22 '19
- Notes on the history and development of electric railway rails. R. C. Cram. *Il diags Elec Ry J* 54:106-12 JI 19 '19
- Old rails make hanging ways for pile hammer. J. H. Sawkins. *diags Eng N* 81:1143-4 D 19 '18
- Pennsylvania report brings up question of free vertical motion of rails. Eng N 80:441 Mr 7 '18
- Portable rail sawing machines. *Il Sci Am* 120:438+ Ap 26 '19
- Rail-creeper. F. Reeves. Ry R 62:393-4 Mr 16 '18; Same. Sci Am S 85:170 Mr 16 '18; Same cond. Eng & Contr 50:119-20 JI 31 '18; Discussion. J. Jervis. Eng & Contr 50:358 O 16 '18
- Rail orders in 1917. *Iron Tr R* 62:23 Ja 3 '18
- Rail production in 1917; abstracts from bulletin of American iron and steel institute. Ry Age 64:1562 Je 28 '18; Ry R 63:67 JI 12 '18
- Relative life of manganese and open-hearth rail on curves. H. W. Roberts. *diags Elec Ry J* 52:697 O 19 '18; Same cond. Eng & Contr 50:479 N 20 '18
- Rolling temperatures of steels. H. C. H. Carpenter. *Iron Age* 104:295-6 JI 31 '19
- Safe loads for beams of T-rails. S. Smillie. *Coal Age* 13:531 Mr 23 '18
- Scientific study of railway track under load; report of special joint committee of the American society of civil engineers and the American railway engineering association. *diags Ry Age* 64:403-7 E 22 '18; Abstract. Am Soc M E J 40:353-4 Ap '18
- Selection of rails for electric railway service. R. C. Cram. *Il diags Elec Ry J* 54:556-9 S 20 '19
- Shall the roads return to Bessemer rails? Ry Age 64:1106-7 My 3 '18; Discussion. 64:1221-2 My 17 '18; *Iron Age* 101:1229-30 My 9 '18
- Shortage of 10,000,000 tons of rails. C. W. Gennet, jr. *Iron Age* 100:1525-6 D 27 '17
- Some results of rail conservation. W. R. Dunham, jr. *Il diags Elec Ry J* 53:562-5 Mr 23 '19
- Sorbittic treatment for rails. *Il diag Elec Ry J* 54:29-30 JI 5 '19; Eng & Contr 52:225 Ag 20 '19
- Steel rail for hard service. *diag Iron Tr R* 64:703 Mr 13 '19
- Steel rail production in 1918. *Iron Age* 103:1150 My 1 '19; Ry Age 66:1204 My 16 '19
- Steel rails in great demand during year. *Iron Tr R* 64:116 Ja 2 '19
- Straightening brittle mine rails. *Coal Age* 13:847; 14:77 My 4, JI 13 '18
- Tram girder rail for paved streets. M. Schreiber. *Il diag Elec Ry J* 50:997-8 D 1 '17; Discussion. 50:1126-8, 1165-8 D 22-29 '17
- Use of the railograph in valuations for taxation purposes. C. E. Reeves. Ry Age 66:556-7 Mr 7 '19
- Wheel contacts on railheads. G. H. Barbour. *diags Eng Soc W Pa* 33:489-99 N '17; Abstract. *Iron Age* 101:1225 My 9 '18; Discussion. Eng Soc W Pa 33:499-522; 34:364-76 N '17, My '18
- Why rail renewals during the war should not be half as great as in normal times. Eng & Contr 49:605-6 Je 19 '18
- See also Guard rails; Rail bonds; Rail handling; Rail joints; Railroads—Track; Spikes (railroad); Third rails

**Corrugation**

- Production of corrugations on rail surfaces. F. Märtens. Mech Eng 41:844 O '19

**Failures**

- Causes of split-heads in rails. *Il Iron Tr R* 62:544-7 F 28 '18
- Common defects in rail. C. W. Gennett, jr. Ry R 63:498-501 O 5 '18; Same cond. Ry Age 65:581-2 S 27 '18
- Example of kinked rails. *Il Ry Age* 64:1282 My 24 '18
- Influence of internal fissures in rails; abstract. Am Soc M E J 41:60-1 Ja '19
- Investigation of transverse fissures in rails. W. P. Borland. *Il diags Ry R* 63:843-7, 871-5 D 14-21 '18
- Kinked rails and how they occur. Sci Am 119:153 Ag 24 '18
- Limiting of transverse rail fissures. P. Kreuzpointner. *Iron Age* 104:360-2 Ag 7 '19
- Metallographic investigation of transverse-fissure rails with special reference to high-phosphorus streaks. G. F. Comstock. *Il Am Inst Min E Bul* 143:1699-1714 N '18; Same cond. *Iron Tr R* 63:1457-62 D 26 '18; Same cond. *Iron Age* 103:613-16 Mr 6 '19; Excerpt. Ry Age 65:961-3 N 29 '18; Discussion. Am Inst Min E Bul 147:598-602; 149:869-94; 150:963-8 Mr, My-Je '19
- More data required on transverse fissures. C. W. Gennett, jr. Ry Age 64:421-2 F 22 '18
- Rail failure statistics for 1917. M. H. Wickhorst. Ry Age 65:658-9 O 11 '18
- Reheating as cure for rail fissures. G. F. Comstock. *Il Iron Tr R* 63:1467-62 D 26 '18
- Some observations on rail failures. P. H. Dudley. Eng & Contr 51:540-1 My 21 '19
- Transverse fissures in rails and phosphorus segregation. *Il Eng N* 82:532-3 Mr 13 '19
- Transverse fissures in steel rails. J. E. Howard. Am Inst Min E Bul 131:1871-82 N '17; Excerpts. *Iron Tr R* 61:1065-7 N 15 '17; Ry Age 63:996-9 N 30 '17; Ry R 61:644-7 N 24 '17; Discussion. Am Inst Min E Bul 135:706-8; 136:761-91 Mr-Apr '18; Excerpts. *Iron Age* 101:556-7 F 28 '18; Ry Age 64:971-5 Ap 12 '18; *Iron Tr R* 63:662-3 S 19 '18
- Transverse rail fissures and the derailment at Juniper, Ga. J. E. Howard. *Il diags Ry R* 63:305-8 Ag 31 '18

**Joints**

- See Rail joints

**Specifications**

- Railway engineering association has active meeting. Eng N 82:606-9 Mr 27 '19; *Iron Age* 103:819 Mr 27 '19
- Standard specifications for carbon steel rails; English and Spanish. U S Bur For & Dom Com Ind Stand 2:1-27 '18

**Rails—Specifications—Continued**

Standard specifications for open-hearth steel girder and high tee rails; English and Spanish. U S Bur For & Dom Com Ind Stand 3:1-19 '18

**Standards**

Standard rail for Australia. Elec Ry J 52:498-9 S 21 '18

Standardization of rail sections and drillings; discussion. C. A. Morse. Ry R 64: 817-18 Je 7 '19

**Testing**

Action of railway track studied; depression and rail stress tests made by track-stress committee of the American society of civil engineers and the American railway engineering association. diags plan Eng N 80: 517-22 Mr 14 '18

Deep etching and rail and forging defects. F. M. Waring and K. E. Hofmann. Il Iron Age 104:13-14 Jl 3 '19; Same. Ry R 65:11-12 Jl 5 '19; Same cond. Iron Tr R 64:1687-8 Je 26 '19; Excerpts. Ry Age 67: 17-18 Jl 4 '19; Abstract. Eng N 83:15 Jl 3 '19; Discussions. Iron Age 104:14-16 Jl 3 '19; Iron Tr R 65:43-4 Jl 3 '19; Ry R 65: 12-15 Jl 5 '19; Eng N 83:15 Jl 3 '19

Deep etching of steel. Sci Am S 88:217 O 11 '19

Magnetic analysis for determining quality. Iron Age 104:42-4 Jl 3 '19

Magnetic surveys on new and failed rail. P. H. Dudley. diags Ry R 65:204-7 Ag 9 '19; Excerpts. Iron Tr R 64:1685-6 Je 26 '19; Excerpts. Eng & Contr 52:322-4 S 17 '19

New methods of etching show hitherto undiscovered characteristics of rail steel. Sci Am S 88:41 Jl 19 '19

Physical tests. Iron Tr R 63:154 Jl 18 '18

Progress in study of rail quality. Eng N 82: 610-11 Mr 27 '19

Tests for steel rails: Pennsylvania railroad. Engineer 125:542-3 Je 21 '18

Tests of manganese steel rails. Ry Age 64: 162 Ja 18 '18; Same. Iron Age 101:560 F 28 '18

**Rails, Guard.** See Guard rails

**Railway artillery.** See Artillery, Railway

**Railway board of adjustment**

Adjustment of grievances. Ry R 63:783-4 N 30 '18

Labor conditions during federal control; abstract of chapter from Director General McAdoo's forthcoming report to the President. Ry Age 66:181-6 Ja 17 '19; Same cond. Ry R 64:187-90 F 1 '19

Plan for the adjustment of controversies between the railroads and the organizations of train service employees. Ry Age 64:789-90 Mr 29 '18

**Railway bridge and building association, American.** See American railway bridge and building association

**Railway business association**

Annual meeting, Chicago, April 8. Ry Age 64:963-4 Ap 12 '18; Ry R 62:554-6 Ap 13 '18

Annual meeting, Chicago, Jan. 9. Ry Age 66:218-21 Ja 17 '19; Ry R 64:76-9 Ja 11 '19

Business association addresses Mr Hines. Ry Age 66:293-4 Ja 31 '19

Letter on government purchasing policies. Ry Age 65:311-12 Ag 16 '18

Open letter to the Director General from the Railway business association on standardization. Ry Mech Eng 92:145-6 Mr '18

Reorganization. F. W. Noxon. Ry R 63:86-7 Jl 20 '18

Report of the General executive committee. Ry Age 64:537-8 Mr 15 '18

**Railway claim agents.** See Association of railway claim agents

**Railway engineering association, American.** See American railway engineering association

**Railway fire protection association**

5th annual meeting, Chicago, Dec. 8-5. Ry R 63:801-3 D 7 '18

6th annual convention, Chicago, November 18-20. Ry R 65:778-81 N 23 '19

**Railway fuel association, international.** See International railway fuel association

**Railway mail service**

Burleson finds railway mail service perfect. Ry Age 67:919 N 7 '19

Compensation for carrying mail. Elec Ry J 54:sup46 O 11 '19

Electric railway mail pay hearings concluded. Elec Ry J 54:286 Ag 9 '19

Hearing at Washington in railway mail pay case. Ry Age 66:1153-7 My 9 '19

Reorganization of the railway mail service. Ry Age 63:1076 D 14 '17

Report on railway mail pay in Canada. J. L. Payne. Ry Age 67:633-4 S 26 '19

U.S.R.A. business mail. Ry R 64:295-6 F 22 '19

**Railway motors.** See Electric motors, Railway

**Railway signal association** (now American railroad association—Signal division)

Annual meeting; zinc-treated ties, take-siding indicators, etc., are considered. Ry Age 65: 579-81 S 27 '18

Spring meeting, Chicago, March 18. Ry R 62: 425-6 Mr 23 '18

**Railway storekeepers' association**

14th convention, Chicago, Jan. 27-29. Ry Age 66:285-9 Ja 31 '19; Ry R 64:171-4, 229-31 F 1-8 '19

**Railway supply business.** See Railroad supplies industry

**Railway supply manufacturers' association**

Opportunity for the association. O. F. Ostby. Ry Age 64:1410 Je 14 '18

**Railway tool foremen's association, American.** See American railway tool foremen's association

**Railways.** See Railroads

**Rain and rainfall**

Atmospheric pollution and the impurities of rain-water. J. B. C. Kershaw. Engineer 124:443-4 N 23 '17

Energy required to produce rain. J. Patterson. Sci Am S 85:279 My 4 '18

Extraordinary rainfall flooded portions of St Louis. W. W. Horner. charts Eng N 81:672-3 O 10 '18

Frequency of excessive rainfalls. Munic J 45:204-6 S 14 '18; Same cond. Eng & Contr 50:340 O 9 '18

Gunfire and rainfall. Sci Am S 85:405 Je 29 '18

Method of constructing a diagram to show probable droughts. V. V. Tchikoff. diag Eng N 83:554 S 18 '19

More accuracy needed in collecting data on rainfall. J. B. Lippincott; R. E. Horton. Il Eng N 83:830-1 O 30 '19

Precipitation, evaporation and run-off. A. T. Safford. Boston Soc C E J 5:406-14 D '18

Rainfall, absorption and run-off on small rural drainage area. I. E. Houk. Eng N 83: 875-6 My 1 '19

Rainfall and horsepower. H. R. Kempe. Sci Am S 88:110-11 Ag 16 '19

Rainfall in New York city. Il Sci Am 121: 179 Ag 23 '19

Rainfall records at Muscatine, Iowa. W. P. Mollis. Eng N 83:71 Jl 10 '19

Record rainfall at Highland Park, Mich. G. H. Ruhling. Eng N 81:445-6 S 5 '18

Some broader aspects of rain intensities in relation to storm sewer design. R. E. Horton. map Munic Eng 56:218-22; 57:3-9 Je-Jl '19; Correction. 57:157 O '19

Use of rainfall records. L. M. Hastings. Munic J 46:201-3 Mr 15 '19; Same cond. Eng & Contr 51:260 Mr 12 '19

Use of the median in rainfall statistics advocated. Eng N 80:628, 925-6; 81:414-16 Mr 28, My 9, Ag 29 '18

See also Floods; Meteorology; Run-off; Snow; Water storage

**Rain water (water supply)**

African roof water separator. diags Metal Work 91:242 F 21 '19

Atmospheric pollution from the engineer's standpoint. J. B. C. Kershaw. Engineer 123: 197-8 Ag 29 '19

**Rain water (water supply)—Continued**

- Collecting, filtering and pumping rain water for laundry supply. diags plan Dom Eng 87:201-3 My 3 '19  
 Proper construction for rain water filter. C. D. Puckett. diags plan Metal Work 91:491-2 Ap 18 '19

**Rainbow**

- Optics of the air. W. J. Humphreys. diags J Fr Inst 188:462-88 O '19  
 Rainbow. O. Klotz. diags Sci Am S 85:149 Mr 9 '18

**Raisins**

- Electric drive for seeding and packing raisins. Elec R 73:769 N 16 '18

**Raleigh, Sir Walter**

- Raleigh tercentenary. Sci Am S 87:39 Ja 18 '19

**Ramps**

- Curved drive for automobiles in six-story garage. il diags plan Eng N 83:188-9 Jl 24 '19

**Rams, Hydraulic. See Hydraulic rams****Ramsay, Sir William, 1852-1916**

- Sketch; with list of publications. R: B. Moore. por il J Fr Inst 186:29-55 Jl '18

**Rancidity**

- Chemical tests for the detection of rancidity. R. H. Kerr. J Ind & Eng Chem 10:471-5 Je '18

**Rand. See Geology—Transvaal****Rand mines. See Gold mines and mining—Transvaal****Range boilers. See Boilers, Range****Range finders**

- Electrical range finders; patent. diags Engineer 124:464 N 23 '17  
 Genie of France and how they locate enemy guns by sound ranging. C: M. Clement. Eng & Contr 50:22 Jl 3 '18  
 Submarine range-finding by means of reflected sound waves. il diag Sci Am 120:67+ Ja 25 '19

See also Position finders

**Rapid transit. See Electric railroads; Elevated railroads; Employees, Transportation of; Railroads; Street railroads; Subways; also subhead Rapid transit under names of cities, e.g. New York (city)—Rapid transit****Rare earths. See Earths, Rare****Rate regulation. See Public utilities commissions; Railroads—Rates****Rates. See Electric rates; Gas rates; Public utilities—Rates; Railroads—Rates; Water rates****Rating of employees. See Employees—Rating Rates**

- How a house can be made rat-proof. Bldg Age 40:351 Jl '18

- How do rats carry eggs? Sci Am 121:99 Jl 26 '19

- Invasion of the trenches by rats. Sci Am S 86:268-9, 278-9 O 26-N 2 '18

- Rat pest. Sci Am S 87:21 Ja 11 '19

- Rodent menace. Sci Am S 88:239 O 25 '19

**Rattan**

- Rattan—its source and its services. il Sci Am 121:7 Jl 5 '19

**Rattlesnakes**

- Rattlesnake skins acquire war value. Metal Work 90:38 Jl 12 '18

**Ray consolidated copper company**

- Annual report, 1917. Eng & Min J 105:884 My 11 '18

- Plant costs, 1911-1917. L. H. Goodwin. Eng & Min J 106:906 N 23 '18

**Raymond, Rossiter Worthington, 1840-1918**

- Appreciation. E. S. Boalich. Eng & Min J 107:362-3 F 22 '19

- Sketch. por Chem & Met Eng 20:54 Ja 15 '19; Iron Age 103:130-1 Ja 9 '19; Am Soc M E J 41:200 F '19

- Sketch. W. R. Ingalls. pors il Eng & Min J 107:135-42 Ja 18 '19

**Reactance**

- Control of large amounts of power. E. B. Wedmore. diags Inst E E J 56:269-92 My '18; Excerpt (Schedule). Elec R 74:112 Ja 18 '19; Discussion. 56:292-324, 517-30 My, Jl '18; Abstract. Sci Am S 86:185 S 21 '18  
 Graphical representation of resistances and reactances in multiple. H. C. Stanley. diags Gen Elec R 21:138-4 F '18  
 Reactance and short-circuit current. R. E. Doherty. il diags Gen Elec R 21:562-4 Ag '18  
 Reactance of synchronous machines and its applications. R. E. Doherty and O. E. Shirley. bibliog il diags Am Inst E E Pro 37:821-908 Jl '18  
 Reactance values for rectangular conductors. H. B. Dwight. Elec J 16:255-6 Je '19

See also Reactors

**Reaction, Chemical. See Chemical reaction****Reactors**

- Current limiting reactances. il Engineer 125:323-4 Ap 12 '18  
 Installation and care of reactors. M. E. Skinner. diags Elec W 71:324-7 My 4 '18  
 Saturated core reactor for electric furnace loads. Elec R 74:1046 Je 21 '19  
 Some new formulas for reactance coils. H. B. Dwight. diag Am Inst E E Pro 38:1033-60 S '19

**Reading, England****Rapid transit**

- Zone fare in practice. W. Jackson. il map Elec Ry J 53:1258-62 Je 28 '19

**Reagents, Chemical. See Chemical reagents****Real estate**

- Accurate and compact record of city property. Eng N 82:565-6 Mr 20 '19  
 Methods and cost of valuing real estate in Davenport. W. T. Waterman. Eng & Contr 52:175 Ag 6 '19  
 No abnormal tax increase from rapid transit in Philadelphia. map Elec Ry J 51:1196 Je 22 '18

**Real estate boards, National association of. See National association of real estate boards****Real estate business**

- Building operations subject to promotion at this time. Arch Forum 30:162-5 Je '19  
 Capitalizing the lure of light to rent and sell stores. J. E. Bullard. il Am Gas Eng J 110:229-31 Mr 15 '19  
 Organization and administration of an average real estate development company. Arch Forum 31:28-30 Jl '19  
 Selection of a site for a suburban development. Arch Forum 30:185-6 Je '19

**Reamers**

- Adjustable taper reamer. G. E. Baldwin. diags Am Mach 48:927 My 30 '18  
 Boring and reaming tools for 220- and 270-mm. French shells. J. Forrest. diags Am Mach 48:70-2 Ja 10 '18  
 Close quarter drive and old man. diags Ry Mech Eng 92:218 Ap '18  
 Cylinder boring and reaming tools. F. D. Jones. il diags Mach 25:507-15 F '19  
 Davis expansion reamer. il diag Ry Mech Eng 92:557 S '19  
 Emergency reamer. M. L. Lowrey. Am Mach 48:862 My 23 '18  
 Grinding taper reamers in a small shop. J. A. Lucas. il Am Mach 50:259-60 F 6 '19  
 How small tools were made quickly. diags Iron Tr R 62:858-9 Ap 4 '18  
 Latest practice in cutter grinding. il diags Am Mach 51:369-71 Ag 21 '19  
 Reversible reamer. il diags Sci Am 121:192 Ag 23 '19  
 Rifle chamber reamer. H. W. Chard. diags Mach 24:546 F '18  
 Short-blade reamer for use in cramped places. R. Belmont. diags Am Mach 49:1140 D 19 '18  
 Something new in reamers. T. O. Martin. il diag Ry Mech Eng 92:169-70 Mr '18  
 Special adjustable reamer. diags Mach 25:146 O '18

**Reamers—Continued**

- Special reamers for correcting chattered surfaces. F. W. Bach. *Il diags Am Mach* 49: 950-2 N 21 '18  
 Taper holes in shell reamers. *diags Am Mach* 48:148 Ja 24 '18  
 Types of reamers and their use. E. C. Peck. *Il diags Mach* 25:335-7 D '18

**Reasoning**

- How to select those facts that are of greatest utility. H. P. Gillette. *Eng & Contr* 49:401-3 Ap 24 '18

**Rebates of duties.** See Drawbacks

**Receipts.** See Chemistry, Technical

**Recessing tools**

- Recessing tool. M. H. Potter. *diag Mach* 25: 645-6 Mr '19  
 Special internal recessing tool. W. King. *diags Am Mach* 50:335 F 20 '19

**Reclamation of land**

- Ditch and road work combined on drainage project, North Carolina. *diags plan Eng N* 82:623-4 Mr 27 '19  
 Engineers who are studying cut-over lands and drainage. *Eng N* 81:645 O 3 '18  
 Farms for returned soldiers. F. K. Lane. *Il map Sci Am* 119:372-3+ N 9 '18  
 First steps taken in great reclamation plan; preliminary survey of Southern waste lands by government engineers. *Am Lumberman* 2262:42 S 21 '18  
 Highway improvement and land reclamation as means for providing for returned soldiers. F. K. Lane. *Eng & Contr* 50:522-3 D 4 '18

Holland seeks a new province. H. M. Allen. *Il map Sci Am* S 86:392-3 D 21 '18

How Holland will dispose of the Zuyder Zee. R. G. Skerrett. *diag plan Sci Am* 119:245, 251+ S 28 '18

Land drainage in Cambridgeshire. *Il diags maps Engineer* 127:174-6 F 21 '19

Land reclamation offers a wide engineering field. F. H. Newell. *Eng N* 80:119 Ja 17 '18

Land reclamation would provide work and homes for hosts of veterans. A. F. Davis. *Eng N* 81:361-4 Ag 22 '18

Macedonian marshes. *Engineer* 126:55-6 Jl 19 '18

Paltry \$100,000 appropriated by congress for land reclamation surveys, and why. *Eng & Contr* 50:250 S 11 '18

Philippine city's lowland raised by harbor dredging; Iloilo, P.I. W. C. A. Palmer. *Il Eng N* 79:1189-91 D 27 '17

Reclamation by drainage of land in the Mississippi valley. E. T. Perkins. *Il Munic Eng* 57:215-17 N '19

Reclamation of swamp lands in Dane county, Wisconsin. W. G. Kirchoffer. *Munic Eng* 56:65-6 F '19

Swamp and cut-over lands investigation. *Eng N* 81:469 S 5 '18

Vast scheme of land reclamation proposed by Secretary Lane. *Eng & Contr* 49:612-13 Je 19 '18

Waste land and agriculture. E. J. Russell. *Sci Am* S 85:311 My 18 '18

Wet lands of southern Louisiana and their drainage. C. W. Okey. *Il diags plan maps U S Agric Bul* 652:1-67 '18

See also Clearing of land; Dikes; Drainage; Irrigation; Reclamation service (United States)

**Reclamation service (United States)**

Actual quantities of water used on irrigation projects of U.S. Reclamation service. E. A. Moritz. *Eng & Contr* 51:29-31 Ja 8 '19

Expenditures on U.S. reclamation projects amount to \$123,000,000. *Eng & Contr* 49:194 F 20 '18

Preliminary work on great federal irrigation program needed now. *Eng N* 80:392 F 28 '18

Railroads and a new era of agricultural development. *Ry Age* 65:953-4 N 29 '18

Results of the irrigation work of the U.S. reclamation service. *Munic Eng* 55:75 Ag '18

**Recommendations for positions**

- Presentation of recommendations. J. R. Mason. *Ind Management* 58:294 O '19  
 Recommendations and references. J. M. Hadley. *Ind Management* 58:338 Ag '19

**Reconstruction (European war)**

Coming back to a peace basis. E. M. Blacksher. *Sci Am* 119:211 S 14 '18

Coming back to a peace basis. H. Emerson. *Sci Am* 119:89+ Ag 3 '18

Definite plan for the physical reconstruction of the devastated areas of France (or possibly Belgium, Serbia, Poland or Russia). J. V. Schaefer. *Am Lumberman* 2277:50c-50d Ja 4 '19

Diffusion of factories to country points. C. C. McChord. *Metal Work* 90:179-83 Ag 16 '18; Excerpts. *Automotive Ind* 39:281 Ag 15 '18; Excerpts. *Am Arch* 114:330 S 11 '18; Abstract. *Eng N* 81:412 Ag 29 '18

Economic reconstruction; analysis of main tendencies in the principal belligerent countries of Europe. U S Bur For & Dom Com misc ser 73:1-74 '18

Economics of reconstruction. *Sci Am* 119:452 D 7 '18

Engineer and reconstruction. W. F. Staunton. *Eng & Min J* 107:868-9 My 17 '19

Industrial needs of Europe outlined. *Iron Tr R* 65:1197-9 O 30 '19

Justified optimism. *Sci Am* 121:336 O 4 '19

New interest in after-the-war conditions. *Iron Age* 102:982-3+ O 17 '18

Organizing the nation for peace. L. W. Alwyn-Schmidt. *Ind Management* 57:45-8 Ja '19

Plan introduced for reconstructing war devastated countries. *Elec R* 74:65 Ja 11 '19

Problem of returned soldiers. S. A. Goldsmith. *Ind Management* 55:373 My '18

Reconstruction plans of five nations; Great Britain, France, Italy, Japan and Germany. *Am Ind* 19:15 F '19

Reconstruction problems. F. W. Gehle. *J Account* 27:23-32 Ja '19

Reconstruction situation in Europe. *Iron Age* 103:34-6 Ja 2 '19

Reconstruction—what does it mean? *Am Inst Arch J* 6:377-82 Ag '18

Reforms urged to advance reconstruction. *Am Lumberman* 2272:52 N 30 '18

Return of labor to the factory. *Am Mach* 48:740 My 2 '18

Solving post war problems. E. H. Gary. *Iron Age* 102:1211-12 N 14 '18

Trade reconstruction policies of European belligerents. *Automotive Ind* 39:690-2 O 17 '18

Wanted—one million labor-saving machines. A. J. Baldwin. *Il Am Mach* 50:526-8 Mr 20 '19

**Belgium**

Are American engineers and contractors wanted in France? *Eng N* 82:31-2 Ja 2 '19

Reconstruction of Belgian industries. *Engineer* 127:204-5, 216-17, 243-4, 250, 280-1, 304, 306-8, 332-3, 382-3, 393-4, 425 F 28-Ap 4, 18-My 2 '19

Reconstruction of the Belgian railways. R. E. Thayer. *Il maps Ry Age* 67:769-76 O 17 '19

**Canada**

Canada's plans for after the war. *Elec R* 73: 815-16 N 23 '18

Training of returned soldiers in Canada. D. H. McDougall. *Elec W* 71:1254-5 Je 15 '18

**France**

Agricultural reconstruction in France. *Sci Am* 121:404+ O 18 '19

Are American engineers and contractors wanted in France? *Eng N* 82:31-2 Ja 2 '19

Bravo, France! *Sci Am* 121:416 O 25 '19

Facts on the devastation and the present reconstruction efforts in France. G. B. Ford. *Il map Eng N* 82:218-27 Ja 30 '19

France may deny material to Germany. F. Miltoun. *Iron Tr R* 65:158-9 Jl 17 '19

France's economy of wood cut during war will restrict the market for softwoods. *Am Lumberman* 2309:56-7 Ag 16 '19

**Reconstruction (European war)—France—Cont.**  
 French problem of reconstruction. C. H. Claudy. *Il Sci Am* 120:397+, 456, 508, 577+ Ap 19, My 3, 17, 31 '19  
 French reconstruction. G: B. Ford. *Am Arch* 116:38-40 Jl 9 '19  
 Germany restoring factory loot. F. Miltoun. *map Iron Tr R* 65:1386-7 N 20 '19  
 Healing industrial scars of France. W. J. Austin. *Iron Tr R* 64:1083-4 Ap 24 '19  
 Helping France an aid to America. J: V. Schaefer. *Iron Tr R* 64:207-8 Ja 16 '19;  
 Same cond. *Sci Am* 120:201 Mr 1 '19  
 How the American Red cross is providing temporary shelter for France's homeless. *Il Am Lumberman* 2318:50-1 O 18 '19  
 Letters from France. H: J. Harms. *Concrete* 14:96-8 Mr '19  
 New engineering work in France. *Sci Am* 121: 356 O 4 '19  
 Notes on rebuilding in France and Belgium. T. Kimball. *Am Inst Arch J* 6:164-8 Ap '18  
 Plans for the reconstruction of France; views. *Il Am Inst Arch J* 6:299-300 Je '18  
 Problem of rebuilding the devastated regions of France. J. P. Alaux. *Am Inst Arch J* 7: 115-17 Mr '19  
 Rebuilding the French railways. *Il Sci Am* 121: 441 N 1 '19  
 Reconstructing the devastated areas of France; photographs. *Am Inst Arch J* 6: 346-51 Jl '18  
 Reconstruction program for French railways. R. E. Thayer. *Il maps Ry Age* 67:191-6, 251-5 Ag 1-8 '19  
 Reconstruction work in liberated regions of France. *Eng & Contr* 49:648-9 Je 26 '18  
 Restitution and reparation. *Sci Am* 119:370 N 9 '18  
 Small-house reconstruction in France. H: Lavedan. *Il Am Inst Arch J* 6:120-30 Mr '18  
 Unconquerable French spirit turns to reconstruction. F. Miltoun. *Il Iron Tr R* 64:10-18 Ja 2 '19  
 Will devastated France be rebuilt? *Eng N* 82: 256-7+ Ja 30 '19

## Great Britain

British ideals of reconstruction. C. H. Claudy. *Sci Am* 120:141 F 15 '19  
 British preparations for reconstruction. A. H. Bridge. *Elec R* 73:699-700 N 2 '18  
 British reconstruction after the war. *Iron Age* 102:84-5 Jl 11 '18  
 British reconstruction measures. *Elec R* 73: 928 D 14 '18  
 British reconstruction plans. R. P. Skinner. *Am Mach* 48:574-7 Ap 4 '18; *Abstract. Eng & Min J* 105:562 Mr 23 '18  
 Post-war reconstruction arrangements. *Eng & Contr* 50:403-4 O 30 '18  
 Preparation for post-war conditions in Great Britain. *J Ind & Eng Chem* 10:399-400 My '18  
 Reconstruction in Europe. C. H. Claudy. *Sci Am* 120:166-7, 228+, 284+, 336 F 22, Mr 8, 22, Ap 5 '19  
 Reconstruction problem highly complex. *Iron Tr R* 64:145-9 Ja 9 '19  
 Rehearsal of demobilizing plan in Britain. *Am Soc M E J* 40:729 Ag '18  
 Wake up is new slogan of British. J. Horton. *Il Iron Tr R* 64:19-24 Ja 2 '19  
 What the war has done for engineers, and the part engineers have to play in reconstruction. R. E. B. Crompton. *Engineer* 127: 41-2 Ja 10 '19; *Excerpts. Eng & Contr* 52: 517-18 O 29 '19

## United States

Administration plan for reconstruction. *Iron Age* 102:889 O 10 '18  
 After-war problems of the metal trades. A. J. Baldwin. *Iron Age* 102:1042-3 O 24 '18  
 A. I. M. E. meeting at Washington discusses reconstruction. *Eng & Min J* 106:1043-4 D 14 '18  
 Atlantic City meeting of the War service committees. *Chem & Met Eng* 19:798-803 D 15 '18; *Am Arch* 114:736-8 D 18 '18; *Am Lumberman* 2274:85-8 D 14 '18; *Automotive Ind* 39:996-9 D 12 '18; *Elec R* 73:929-33 D 14

'18; *Gas Age* 42:507-10 D 16 '18; *Iron Age* 102:1446-52 D 12 '18; *Ry Age* 65:1041-6 D 13 '18; *Sci Am* 119:492 D 21 '18; *Gen Elec R* 22: 3-8 Ja '19  
 Chamber of commerce to consider reconstruction problems. *Coal Age* 14:947-8 N 21 '18  
 Definite work for War-service committees. H. A. Wheeler. *Am Mach* 50:177-9 Ja 23 '19  
 Economic aspects of industrial reconstruction. *Elec R* 73:799-801 N 23 '18  
 Electric power club talks on reconstruction. *Elec W* 73:140-1 Ja 18 '19  
 Experts talk to business editors; addresses before New York editorial conference. *Elec Ry J* 53:779-81 Ap 19 '19; *Iron Age* 103:1013-15 Ap 17 '19  
 Federal and state coöperation for postbellum reconstruction. *Sci Am* 119:288 O 12 '18  
 International trade after the war. S. H. Bunnell. *Iron Age* 102:1154-7 N 7 '18  
 Municipal peace readjustment. M. I. Koon. *Munic J* 46:63-5 Ja 25 '19  
 Our preparation for after the war. B. C. Hesse. *J Ind & Eng Chem* 10:881-7 N '18  
 Peace catches America unprepared. V. G. Iden. *Il Iron Tr R* 64:2-9 Ja 2 '19  
 President's readjustment and reconstruction commission. W. Bathon. *Am Mach* 48: 971-2, 1005-6, 1087-9, 1115-16 Je 6-13, 27 '18; Same. *Eng N* 80:1031-2, 1092-3, 1177-9, 1198+ My 30-Je 6, 20 '18; Same. *Met & Chem Eng* 18:573-5; 19:13-14, 67-8 Je 1, Jl 1-15 '18; Same cond. *Elec W* 71:1124-5, 1272-3, 1310-11, 1336 Je 1, 15-22 '18  
 Readjustment, not reconstruction. J. R. Finlay. *Eng & Min J* 106:915-17 N 23 '18  
 Readjustment of industries to peace conditions. J. D. Magee. *Mech Eng* 41:374 Ap '19  
 Readjustment problems confronting America. H. A. Wheeler. *Gas Age* 42:511-14 D 16 '18; *Excerpts. Textile World* 54:2872a+ D 7 '18  
 Reconstruction in the United States. *Sci Am* 120:540+ My 24 '19  
 Reconstruction measures. *Ry R* 63:496 O 5 '18  
 Reconstruction problems to be studied. *Eng N* 81:511 S 12 '18  
 Reconstruction programme outlined by War service committees. *Heat & Ven* 16:41-3 Ja '19  
 Reconstruction; what has already been done to restore our industries to a peace basis. W: C. Redfield. *Sci Am* 119:410 N 23 '18  
 Resolutions adopted by reconstruction congress. *Textile World* 54:2969-70 D 14 '18  
 Road back to normal times. S. C. Mason. *Am Ind* 19:18-19 Je '19  
 Views of American industries on industrial readjustment. *Eng & Contr* 50:566-7 D 18 '18

## Records

Accounting. B. L. Van Schaick. *Ind Management* 56:502 D '18  
 Analysis of records leads to real mastery. W. N. Polakov. *diag Ind Management* 56: 217-26 S '18  
 Automatic inventory for hosiery mill; permanent record of goods in process—forms used. *Textile World* 55:3505+; 56:1055+, 3363+ Je 7, Ag 23, D 13 '19 (to be cont)  
 Boiler- and engine-room record sheets. P. R. Duffey. *charts Power* 50:461-3 S 16 '19  
 Boiler log sheet for oil-fired boilers. *diag Elec R* 72:688 Ap 20 '18  
 Chart with which to make various records for coal. W. N. Polakov. *Elec W* 70:911-12 N 10 '17; Same. *Am Soc M E J* 40:105 Ja '18  
 Combined schedule-record-route sheet. E. T. Spidy. *Ind Management* 55:456 Je '18  
 Concrete computations simplified by standard blanks. W. W. Clifford. *Eng N* 81:590-1 S 26 '18  
 Contractors' tool records kept on two form sheets. *Eng N* 83:675 O 2 '19  
 Controlling production by power records. G: H. Perkins. *Textile World* 55:2717+ My 3 '19  
 Controlling production in a jobbing shop. E. L. Shaner. *Il Iron Tr R* 65:623-9 S 4 '19  
 Controlling production in a motor plant. C: Lundberg. *Il Iron Age* 103:1279-84 My 15 '19

**Records—Continued**

- Details of production department. M. H. Potter. Iron Tr R 64:1410-12 My 29 '19
- Developing pride and interest in the job. W. R. Basset. Factory 22:693-6 Ap '19
- Equipment cards carry cost history of plant items. Eng N 81:555 S 19 '18
- Fixing quantities of materials in stock. E. W. Taft. Iron Age 101:855-6 Ap 4 '18
- Functions of the purchasing agent. W. G. Astle. Iron Tr R 61:1831-4 D 27 '17
- Graphic production control. C. E. Knoeppel. Ind Management 56:383-90, 496-502 N-D '18
- Handling costs of Winchester plant. W. E. Freeland. II (supp) Iron Age 101:253-5 Ja 24 '18
- How operation sheets simplify production. M. N. Twyman. II Factory 23:522-3 S '19
- How the Miami conservancy district keeps records of construction equipment and supplies. Eng & Contr 52:213 Ag 20 '19
- How to record materials received. B. J. Yungbluth. Elec Ry J 52:1095-6 D 21 '18
- Idle machine hours. E. Lee. Mach 24:443 Ja '18
- Improving the cost record. Factory 23:202+ JI '19
- Installing management methods in the wood-working industry. C. M. Bigelow. II charts plans Ind Management 58:185-95 S '19
- Keeping close track of shop operation. R. I. Clegg. II diags Iron Age 102:1251-3 N 21 '18
- Keeping coke, iron and steel records. C. E. Lynn. Iron Tr R 65:433-5 Ag 14 '19
- Keeping operating records. C. C. Raitt. Elec W 72:979-82 N 23 '18
- Keeping progress records. W. P. Munger. Ry Age 64:1075-6 Ap 26 '18
- Keeping records of equipment. Factory 20:1008+ My '18
- Keeping tab on repair work. E. A. Hunger. Factory 20:834-6 My '18
- Keeping track of factory material. J. G. Hickman. Factory 22:465-9 Mr '19
- Keeping track of production. H. A. Noar. II diags Am Mach 50:745-7 Ap 17 '19
- Knowing where each machine goes. W. J. Oldroyd. Factory 22:933-5 My '19
- Lodge and Shipley control system; shop inspection and assembly. D. M. Perrill. II Ind Management 55:24-30 Ja '18
- Making profits by recording every sale. II Horseless Age 44:22-4 My 15 '18
- Mechanical devices for industrial records. II Ind Management 58:81 JI '19
- Method of purchase expediting. H. M. Sutton. charts Ind Management 57:230-1 Mr '19
- Organization—a material planning department. C. A. Marston and J. E. Schipper. II Automotive Ind 37:1090-2 D 20 '17
- Organization and management of a machine tool plant. O. Kylin and E. Oberg. II Mach 25:813-18 My '19
- Organizing for work. H. L. Gantt. Ind Management 58:89-93 Ag '19
- Production barometer readings for the manager. Factory 22:461 Mr '19
- Production planning system of the Heald machine company. W. S. Pratt. Am Mach 51:203-8, 501-3 JI 31, S 11 '19
- Record card for shop employees. G. D. Halsey. Ind Management 58:331-3 O '19
- Recording cylinder and piston repairs. M. H. Ball. diags Am Mach 48:210-11 Ja 31 '18
- Records for an electrical repair and maintenance department. R. B. Gerhardt. Elec R 75:624-6 O 11 '19
- Shopping record for passenger cars. II Ry Mech Eng 93:145-7 Mr '19
- Short cuts. Factory 21:482+, 1094+ S, D '18
- Simple drafting room methods. G. F. Hamilton. Ind Management 56:301-4 O '18
- Speeding production by using graphic meters. II diag Elec W 72:588-9 S 28 '18
- System for controlling production. R. H. Wadsworth. Am Mach 51:451-5 S 4 '19
- 10 keynote reports for the executive. Factory 22:700-1 Ap '19
- Tool department of Winchester works. Iron Age 102:1129-33 N 7 '18
- Use of non-financial incentives in industry. R. E. Wolf. Am Soc M E J 40:1035-8 D '18; Abstract. Int Marine Eng 24:109 F '19; Discussion. Am Soc M E J 41:29-30 Ja '19
- Visible index for application forms. E. B. Morgan. II Ind Management 58:246-8 S 19 '19
- Visible record system for expediting construction contracts. Eng & Contr 50:83-4 JI 24 '18
- Visualizing machine equipment. II Factory 20:116+ Ja '18
- Watching the work go through. H. J. Laferty. Factory 20:440-1 Mr '18
- See also Card system in business; Factory management; Industrial management; Progress records; Stores systems; Time clocks; also subdivision Records under various subjects, e.g. Hydroelectric plants—Records, Motor trucks—Records, Railroads—Records, Shipbuilding—Records, Waterworks—Records
- Recreation buildings**  
Recreation building, Detroit, Mich. II Am Arch 114:51, pl 9-11 JI 10 '18
- Rectifiers, Electric current.** See Electric current rectifiers
- Red cedar shingle congress**  
2d annual Red cedar shingle congress. Am Lumberman 2279:420-5 Ja 18 '19
- Red cross**  
Bringing the Red cross into the factory. E. R. Shanahan. II Factory 20:841-3 My '18
- Drafting-room junk for the Red cross. Sci Am 118:121 F 2 '18
- Great white train. Ry R 65:747-8 N 15 '19
- How the American Red cross is providing temporary shelter for France's homeless. II Am Lumberman 2318:50-1 O 18 '19
- Red cross headquarters at Washington, D. C. II Arch Rec 44:553-60 D '18
- What your Red cross dollars do. Power 47:700 My 14 '18
- Red cross motor corps service**  
Women's motor corps united. II Motor Age 34:29 Ag 8 '18
- Red lead**  
Notes on the chemical analysis of red lead. W. F. Edwards. Chem & Met Eng 20:35-7 Ja 1 '19
- Red Rock canyon**  
Red Rock canyon. J. L. Von Blon. II map Sci Am 121:344-5+ O 4 '19
- Reduction, Chemical**  
Application of rotating reductors in the determination of iron. W. Scott. J Ind & Eng Chem 11:1135-7 D '19
- Redwood**  
Dyes from archil and redwood. B. De Puyster. Color Tr J 5:51-4 Ag '19
- New piers built of redwood. C. W. Geiger. II Am Lumberman 2297:50-1 My 24 '19
- Tannin content of redwood. C. C. Scallone and D. R. Merrill. J Ind & Eng Chem 11:643-4 JI '19
- Truck body hollowed out of a redwood tree. II Am Lumberman 2232:73 F 23 '18; Sci Am 118:191 Mr 2 '18
- Re-education.** See Disabled—Rehabilitation
- Reeling machines**  
Novel auto reel. F. C. Perkins. II Sci Am 119:172 Ag 31 '18
- Reels**  
Reel support made in the field. diags Elec R 72:525 Mr 23 '18
- Reference books**  
Ready reference books for the engineer. R. Canavan. Eng N 82:578-9 Mr 20 '19
- Reference books for the business library. L. B. Krause. J Elec 43:175-6, 216-17 Ag 15-S 1 '19
- Selection of reference books for a financial library. Special Libraries 10:128 Je '19
- Some reference books of value to engineers. L. B. Krause. J Elec 42:31-2 Ja 1 '19
- Reflection (light)**  
Detection of ghosts in prisms. T. Smith. Sci Am S 87:92-4, 108 F 8-15 '19

**Reflection (light)—Continued**

Diffused reflexion and transmission of light. A. P. Trotter. *diags Illum Engr* 12:243-67 S '19

Optics of the air; reflection phenomena. W. J. Humphreys. *diags J Fr Inst* 188:641-6 N '19

Reflecting power of stellite and lacquered silver. W. W. Coblenz and H. Kahler. *U S Bur Stand Sci Pa* 342:215-17 '19

Reflecting power of tungsten and stellite. W. W. Coblenz and W. B. Emerson. *diags U S Bur Stand Bul* 14:307-16 Je 17 '18

See also Reflectors

**Reflectors**

Benjamin luminous-top reflector with opal-glass hood. *il Elec R* 75:884 N 22 '19

Experiments on the eye with pendant opaque reflectors differing in lining, dimensions and design. C. E. Ferree and G. Rand. *il diags plan Illum Eng Soc* 12:464-87 no 9 '17

Fundamentals of illumination design; reflectors and enclosing glassware. W. Harrison. *il diags Gen Elec R* 21:484-90 J1 '18

Glass searchlight mirrors. H. D. Minchin. *il Gen Elec R* 22:660-3 S '19

Ivanhoe-Regent works announces metal reflectors with glass tops. *il Elec R* 75:884 N 22 '19

Manufacture of industrial lighting equipment; abstract. J. P. Eaton. *Elec R* 74:907 My 31 '19

Metal mirrors for searchlights. R. B. Hussey. *il Gen Elec R* 22:652-5 S '19

Modern development in polishing and plating steel automobile lamp reflectors. C. H. Proctor. *il Metal Ind* 15:149-52 Ap '17

Parabolic searchlight mirrors. *il Sci Am* 120:691 Je 28 '19

Progress in mill lighting practice. H. H. Magdick. *il Textile World* 55:497+ Ja 11 '19

R L M dome reflectors. *il Textile World* 54:1083 S 7 '18

Reflecting and diffusing light. W. Harrison. *diags Textile World* 54:2107+, 2447+, 2573+, 2683 N 2-30 '18

Reflectors with white diffusing interiors. *Illum Engr* 12:267 S '19

Selecting equipment for industrial lighting. W. Harrison and H. H. Magdick. *il diags Elec W* 74:7-11 J1 5 '19

Selection of lighting units. D. H. Tuck. *il diag Elec W* 72:552-4 S 21 '18; Discussion. W. Harrison. 72:705 O 12 '18

Standardized steel reflectors developed for industrial lighting. *Elec R* 73:174 Ag 3 '18

See also Light projection; Prisms

**Reforestation.** See Forest planting; Forests and forestry

**Reformatories**

Training school and home for young girls, Brooklyn, N.Y. plan *Am Arch* 115:761-2, pl 171-3 My 28 '19

**Refraction**

Optics of the air; refraction phenomena: refraction by ice crystals. W. J. Humphreys. *il diags J Fr Inst* 188:607-41 N '19

**Refractive Index**

Measurements on the index of refraction of air for wave lengths from 2218 Å to 9000 Å. W. F. Meggers and C. G. Peters. *il diags U S Bur Stand Bul* 14:697-740 J1 12 '19; Abstract. *J Fr Inst* 186:747-9 D '18

Refractive index and solubilities of the nitrates of lead isotopes. T. W. Richards and W. C. Schumb. *Am Chem Soc J* 40:1403-9 S '18

Studies on the nitrotoluenes; refractive indices of mixtures of *p*-nitrotoluene, 1,2,4-dinitrotoluene and 1,2,4,6-trinitrotoluene. J. M. Bell and E. O. Cummings. *diag J Ind & Eng Chem* 11:1028-9 N '19

**Refractometer**

Determination of potassium and sodium as chlorides through use of the refractometer. B. A. Shippy and G. H. Burrows. *Am Chem Soc J* 40:185-7 Ja '18

Differential refractometer. G. A. Shook. *diags J Ind & Eng Chem* 10:553-4 J1 '18

Use of the dipping refractometer. W. W. Randall. *J Ind & Eng Chem* 10:629-30 Ag '18

**Refractories manufacturers' association**  
Work of the technical division. R. M. Howe. *J Ind & Eng Chem* 11:1145-6 D '19

**Refractory materials**

American pebbles and kiln linings. Concrete 13:sup32 S '18

Basic refractories for the open hearth. J. S. McDowell and R. M. Howe. *il Am Inst Min E Bul* 146:291-309 F '19; Excerpt. *Eng & Min J* 107:648-50 Ap 12 '19; Discussion. *Am Inst Min Bul* 149:784-6; 150:961-3 My-Je '19

Carborundum refractories. S. C. Linbarger. *Chem & Met Eng* 19:489-91 S 27 '18; Same. *J Ind & Eng Chem* 10:847-9 O '18

Care of the brass furnace. J. A. Fletcher, jr. *il Metal Ind* 16:310 J1 '18

Ceramic society conference at Sheffield, England. *Engineer* 125:431 My 17 '18

Ceramic society conference at Swansea. *Engineer* 126:332-3 O 13 '18

Characteristics of fire clay and silica refractories. O. L. Kowalke. *Am Gas Eng J* 108:316+ Ap 6 '18

Corindite, a new refractory; abstracts. A. Bigot. *Eng & Min J* 106:255 Ag 10 '18; *Chem & Met Eng* 19:685 N 1 '18

Crushing strength of magnesia-silica mixtures at high temperatures. O. L. Kowalke and O. A. Hongren. *Met & Chem Eng* 18:508 My 15 '18

Difficult repairs made with hytemplate. *il diag Gas Age* 41:426-7 My 1 '18

Facts concerning refractories in the iron and steel industry. C. E. Nesbitt and M. L. Bell. *il J Ind & Eng Chem* 11:1149-51 D '19; Same. *Iron Tr R* 65:1112-14 O 23 '19

Fyrite, a new high temperature cement. *Metal Ind* 16:378 Ag '18

Hot patching with cement. *il Gas Age* 40:581-2 D 15 '17

Melting point of refractory materials. L. I. Dana. *diag Am Inst Min Bul* 153:1571-86 S '19; Discussion. 156:3153 D '19

New fields for lime developed by war. F. A. Jones. *Concrete* 18:sup 3-4 J1 '18

New refractory material. *Foundry* 46:391 Ag '18

Palmerton zinc refractories. C. P. Flske. flow sheets plans *Am Inst Min E Bul* 130:1719-38 O '17; Excerpts. *Met & Chem Eng* 18:97 Ja 15 '18; Discussion. *Am Inst Min E Bul* 133:68-70 Ja '18

Plastic refractory for baffles. *Elec W* 71:594 Mr 16 '18

Properties and uses of zirconium and its compounds. H. G. Meyer. *Eng & Min J* 105:330-1 F 16 '18

Raw materials for silica products; abstract. A. Bigot. *Chem & Met Eng* 19:686 N 1 '18

Recent developments in ceramics. A. V. Bleininger. *J Ind & Eng Chem* 10:844-5 O '18

Refractories; patents. *Chem & Met Eng* 19:46 J1 1 '18

Refractory magnesias. R. C. Gosrow. *Met & Chem Eng* 17:415-17 O 1 '17; Excerpt. *Eng & Min J* 104:1132 D 29 '17

Refractory materials and high temperature-measurements. C. W. Kanolt. *J Fr Inst* 188:489-505 O '19

Refractory materials and the glass industry. *Sci Am S* 87:329 My 24 '19

Refractory materials during the war. *Engineer* 127:510 My 23 '19

Refractory materials used in casting plants. H. C. Arnold. *Foundry* 46:252-5, 326-9 Je-J1 '18

Refractory problems of the gas industry. W. H. Fulweiler and J. H. Taussig. *il diags J Ind & Eng Chem* 11:1153-7 D '19

Refractory products. A. Mallnovsky. *Chem & Met Eng* 19:768-9 D 1 '18

Refractory properties of silica. H. Le Chatelier and B. Bogitch. *Eng & Min J* 105:505 Mr 16 '18

Resisto furnace paint and putty. *il Power* 47:759 My 28 '18

Selection of refractories for industrial furnaces. W. F. Rochow. *il diags J Ind & Eng Chem* 11:1146-9 D '19

**Refractory materials—Continued**

- Superior refractories. R. C. Purdy. *J Ind & Eng Chem* 11:1151-3 D '19  
 Superior refractories; with discussion. R. C. Purdy. *Chem & Met Eng* 21:462-4 O 8 '19  
 Symposium on refractories. *Chem & Met Eng* 21:289-90 S 15 '19  
 Unusual conditions as to refractories. *Iron Age* 101:624-5 Mr 7 '18  
 Uses of zirconia as a refractory. J. A. Audley. *Iron Age* 102:72-3 Jl 11 '18  
 Work of the technical division of the Refractories manufacturers' association. R. M. Howe. *J Ind & Eng Chem* 11:1145-6 D '19  
 Zirconia as a refractory material. L. Bradford. *Foundry* 46:429 S '18  
*See also* Fire brick; Magnesite; Zircon; Zirconia

**Testing**

- Furnace for testing refractory materials under load at high temperatures. R. J. Montgomery. *Il diags Met & Chem Eng* 18:18-20 Ja 1 '18  
 Research laboratories for coal and by-products. F. W. Sperr, Jr. *Il Gas Age* 44:281-8 O 1 '19  
**Refrigerating engineers, American society of.**  
*See* American society of refrigerating engineers  
**Refrigeration and refrigerating machinery**  
 Absorption refrigerating machines. F. C. Spangler. *diags Power* 47:274-7 F 19 '18  
 Advantages of electrical refrigeration for the butcher. *Il Elec R* 72:243-4 F 9 '18  
 Air drying for blast furnaces. L. Cammen. *diag Eng Soc W Pa* 33:199-204 Ap '17; *Abstract. Am Soc M E J* 39:566 Je '17; *Abstract. Iron Age* 100:1429 D 13 '17  
 Ammonia program for 1918. C. W. Merrill. *J Ind & Eng Chem* 10:480-2 Je '18  
 Ammonia required for new refrigerating plant. J. Killian. *Power* 49:849 Je 3 '19  
 Care of small refrigerating machines. F. J. Byrne. *diag Power* 50:586-7 N 22 '19  
 Centralization of heating, lighting and refrigeration for groups of dwelling houses and apartments. C. L. Hubbard. *diags Dom Eng* 87:422-4, 471-3 Je 7-14 '19  
 Changed ammonia-condenser piping. W. T. Meiner. *diags Power* 50:102-3 Jl 15 '19  
 Cold accumulators and their application. E. S. H. Baars. *diags Power* 48:31-3 Jl 2 '18  
 Commercial freezing and storing of fish. E. D. Clark and L. H. Almy. *Il U S Agric Bul* 635:1-9 '18  
 Day with the refrigerating troubleman. E. W. Miller. *Power* 47:798-9 Je 4 '18  
 Design of CO<sub>2</sub> machines. J. E. Starr. *Mech Eng* 41:774 S '19  
 Economy of refrigerating power plants. V. J. Azbe. *Power* 47:414-16 Mr 19 '18  
 Engine-room management in the ice plant. E. N. Friedman. *Power* 47:68-9 Ja 8 '18  
 Finding lost ammonia in refrigerating plants. E. W. Miller. *Power* 48:734-5 N 19 '18  
 Freezing process in shaft sinking. W. C. Gordon. *Eng & Contr* 49:394 Ap 17 '18  
 Getting a refrigerating plant out of a critical situation. J. C. Moran. *Il Power* 50:429-30 S 9 '19  
 Iceless electric refrigerating machine. *Il Elec W* 72:426-7 Ag 31 '18  
 Industrial applications of refrigeration. C. L. Hubbard. *Il diags plan Ind Management* 58:289-94 O '19  
 Large government storage plant for Chicago. *Il diag Power* 50:528-31 S 30 '19  
 Low-temperature compression system in practice. H. Sloan. *diags plan Power* 48:896-7 D 17 '18  
 Machinery of refrigeration. C. L. Hubbard. *Il diags Ind Management* 55:394-9 My '18  
 Making a neglected refrigerating plant give capacity. E. W. Miller. *plan Power* 48:810-12 D 3 '18  
 Making a packing-house refrigerating plant carry its load. J. C. Moran. *diags Power* 50:328-9 Ag 26 '19  
 Meeting emergencies in refrigerating plants. E. W. Miller. *Power* 49:234-5 F 18 '19  
 Method for refrigerating fish. *Sci Am S* 85:263 Ap 27 '18

- Multi-stage compression plant of Central cold storage co. *Il plan Power* 47:74-8 Ja 15 '18  
 Needed information on refrigerants. J. E. Starr. *Power* 50:211 Ag 5 '19  
 Practical side of the low-temperature compression system; abstract. H. Sloan. *Am Soc M E J* 40:869-70 O '18  
 Principles of refrigeration. C. L. Hubbard. *Il diags Dom Eng* 87:146-9+, 193-5, 244-5, 272 Ap 26-My 10 '19  
 Qualifications of employees in Russian refrigerating industries. *Power* 47:277 F 19 '18  
 Refrigerating equipment of the Pennsylvania hotel. *Il diags Power* 49:522-4 Ap 8 '19  
 Refrigerating installations in 1918 as compared with 1917. *Power* 49:357 Mr 11 '19  
 Refrigerating plant data. *Power* 49:467-8 Mr 25 '19  
 Refrigerating plant efficiency; with discussion. V. J. Azbe. *diags Mech Eng* 41:362-8 Ap '19; *Same abr. Power* 49:547-50 Ap 8 '19  
 Refrigerating plant, intermediate depot for American army in France. R. K. Tomlin, Jr. *Il Power* 48:596-8 O 22 '18  
 Refrigerating plant no. 1, American expeditionary forces. J. V. Fisher. *Il Power* 49:920-2 Je 17 '19  
 Refrigerating troubles in a packing house plant. J. C. Moran. *diags Power* 50:469-61 S 16 '19  
 Refrigeration a side line for plumbing and heating contractors. *Il diags Metal Work* 89:513-16 Ap 19 '18  
 Refrigeration and ice making. C. L. Hubbard. *Il diags plan Ind Management* 56:105-9 Ag '18  
 Refrigeration in relation to air conditioning in war industries. *Heat & Ven* 18:41-3 Je '19  
 Refrigeration requirements of chemical warfare. A. M. Heritage. *Il Mech Eng* 41:806-10 O '19  
 Relation between efficiency of refrigerating plants and the purity of their ammonia charge. F. W. Frerichs. *Il diags J Ind & Eng Chem* 10:202-11 Mr '18  
 Remodelling suction gas mains. Anheuser-Busch brewery. R. H. Karl. *Il charts diags plans Power* 50:48-54 Jl 8 '19  
 Saving ammonia and coal. B. Lamb. *Power* 47:703 My 14 '18  
 Small refrigerating units. *Il diags Heat & Ven* 15:47-8 Ap '18  
 Special applications of small air-cooling systems. *diags plan Heat & Ven* 16:43-6 Ja '19  
 Synchronous-motor drive for ice machines. J. R. Watson. *Power* 49:626-7 Ap 22 '19  
 Tentative code for the regulation of refrigeration plants. *diags Power* 49:948-50 Je 17 '19  
 Test of a 2-ton Clothel refrigerating machine; abstract. M. C. Stuart. *diags Mech Eng* 41:801 N '19  
 Use of refrigeration in air conditioning. I. Nussbaum. *Il Am Soc Heat & V E* 23:671-8 '17  
 Utilizing the heat of a pound of coal. H. L. Alt. *Heat & Ven* 15:15-19 Ja '18  
 Vapor refrigeration processes. P. Ostertag. *diags Mech Eng* 41:401-3 Ap '19  
 Watch the ammonia receiver. J. E. Starr. *diags Power* 50:142-3 Jl 22 '19  
 Westinghouse-Leblanc non-gaseous refrigeration machine. *Il diags Heat & Ven* 15:45-7 Ap '18  
*See also* Ammonia compressors; Ammonia condensers; Cold storage; Cooling; Ice—Manufacture; Refrigerator cars; Refrigerators; Tunnel air

**Accidents**

- Carelessness in refrigerating plants. E. W. Miller. *Power* 49:193-4 F 11 '19

**Records**

- Refrigeration-plant log sheets. *Power* 49:389 Mr 18 '19

**Safety devices and measures**

- Refrigerating engineers approve tentative safety code. *Power* 49:871-2 Je 3 '19



- Refrigeration on shipboard**  
Equipped nine refrigerator ships. *Il* *diags*  
Marine R 49:417-18 S '19
- Refrigerator cars**  
Appreciation of the Moore system of transit  
refrigeration. Ry R 62:322-3 Mr 2 '18  
Car-icing plant accommodates twenty-eight  
cars. E. F. Ackerman. *Il* Eng N 82:276-7 F  
6 '19  
Development of a standard refrigerator car. M.  
E. Pennington. Ry Age 65:1115-17 D 20 '18;  
Same *abr.* Ry R 63:912-14 D 28 '18; Same  
cond. Ry Mech Eng 93:82-4 F '19  
Development of the refrigerator car pool. Ry  
Age 66:591-3 Mr 14 '19  
Heating test of the A. B. C. system of perish-  
able commodity transportation. Ry R 62:  
485-6 Mr 30 '18  
Lining and floor racks for cars handling  
perishable freight. *diags* Ry Age 66:369 F 7  
'19; Same. Ry Mech Eng 93:139-40 Mr '19  
Modern refrigerator equipment. L. L. Yates.  
Ry Mech Eng 93:481-2 Ag '19  
Refrigerator cars for the Baltimore & Ohio.  
*diags* Ry Age 63:981-4 N 30 '17; Same. Ry  
Mech Eng 91:685-8 D '17; Abstract. Am Soc  
M E J 40:109-10 Ja '18  
Refrigerator cars for the Michigan Central. *Il*  
*diags* plan Ry Age 64:561-4 Mr 15 '18; Same.  
Ry Mech Eng 92:149-52 Mr '18  
Repairs to refrigerator cars. *diags* plan Ry R  
63:699-700 N 16 '18  
Standard U. S. R. A. refrigerator. *diags* plan  
Ry Mech Eng 92:663-8 D '18  
Steel frame refrigerator cars. E. G. Goodwin.  
*Il* *diags* Ry Mech Eng 92:401-5 JI '18  
Transportation of perishable commodities.  
M. E. Pennington. *diags* charts Ry Age 64:  
119-24 Ja 11 '18  
United States standard refrigerator car. *diags*  
plan Ry Age 65:906-10 N 22 '18; Ry R 63:  
865-8 D 21 '18
- Refrigerators**  
Drain pipe and tin bucket provide iceless re-  
frigerator. *diag* Eng N 81:332 Ag 15 '18  
How to make an iceless refrigerator. Metal  
Work 89:631-2 My 17 '18
- Refuse, Utilization of**  
American garbage disposal industry and its  
chemical relation. R. Wells. J Ind & Eng  
Chem 10:567-8 JI '18  
Army's utilization of camp wastes. F. C.  
Bamman. *Il* Munic J 46:304-8, 322-5 Ap 26-  
My 3 '19  
Baltimore adopts feeding for disposal of gar-  
bage. W. E. Lee. Munic Eng 56:96-8 Mr '19;  
Same cond. Eng N 82:287-9 F 6 '19; Same  
cond. Eng & Contr 51:268-9 Mr 12 '19; Ab-  
stract. Munic J 46:220-1 Mr 22 '19  
Contract for garbage disposal by feeding  
awarded by Newark, N.J. J. W. Costello.  
Munic Eng 57:151-2 O '19  
Corn husks and garbage utilization. Munic J  
45:189 S 7 '18  
Davenport (Iowa) garbage is utilized. Eng  
N 81:413-14 Ag 29 '18  
Effect of the war on the production of gar-  
bage and methods of disposal. I. S. Osborn.  
Eng & Contr 48:483-4 D 12 '17; Abstract.  
Munic J 44:112 F 9 '18  
Feeding city garbage to hogs; information  
and instructions furnished by the U.S. De-  
partment of agriculture. *diags* plans Munic  
J 44:206-8 Mr 9 '18  
Feeding garbage to hogs; discussion by fed-  
eral officials, meat packers and others. Chi-  
cago, Dec. 7, 1917; abstracts. Eng N 79:1222  
D 27 '17; Munic J 44:163-4 F 23 '18  
Food administration's garbage utilization  
campaign. Munic J 45:135-6 Ag 17 '18  
Fuel from household waste. Sci Am 120:358-  
9 Ap 5 '19  
Garbage disposal by feeding successfully  
practiced at Lansing, Michigan. E. C. W.  
Schubel. *Il* Munic Eng 57:23-5 JI '19  
Garbage disposal by feeding to hogs. Eng &  
Contr 50:550 D 11 '18  
Garbage disposal in Columbus, O. Munic J 44:  
259-60 Mr 30 '18  
Garbage utilization work of the United States  
Food administration. F. C. Bamman. Munic  
Eng 55:146-7 O '18  
Hog feeding in Worcester, Mass. Munic J 44:  
164-5 F 23 '18  
Making soaps and munitions from the garbage  
pail. Sci Am 119:200 S 7 '18  
Making the war help win the war. Eng N 81:  
387 Ag 29 '18  
Municipal contribution to conservation  
through garbage utilization. E. D. Very.  
J Ind & Eng Chem 10:563-7 JI '18  
Newark garbage-feeding contract. J. W.  
Costello. Eng N 83:456 S 4 '19  
Power from refuse. J Ind & Eng Chem 10:74  
Ja '18  
Refuse disposal in London; how St Maryle-  
bone screened its refuse. J. Gair. Munic J  
46:263-4 Ap 12 '19  
Saving fats from garbage; American chemical  
society offers to aid Food administration. J  
Ind & Eng Chem 10:320 Ap '18  
Statistics of garbage collection and garbage  
grease recovery in American cities. R.  
Pearl. J Ind & Eng Chem 10:927-30 N '18  
Turning garbage into dollars; advantages of  
hog raising. Munic J 44:394-5 My 11 '18  
Utilizing waste in Liverpool. J. J. Beckett.  
Munic J 44:6 Ja 5 '18  
War service by waste collection. Munic J 45:  
261-4 O 5 '18  
War's influence on the garbage pail. F. C.  
Bamman. Eng N 82:373-8 F 20 '19  
Washing furnace and domestic ash for fuel  
recovery. M. Meredith. Coal Age 13:783 Ap  
27 '18  
Waste products for steam generation. *diags*  
Engineer 126:400-1 N 8 '18  
Waste products of cities and the war. W. T.  
Knowlton. Munic J 45:510-13 D 28 '18  
Wichita, Kansas, shares profits from feeding  
garbage to hogs. Eng N 80:1180-2 Je 20  
'18  
*See also* Refuse disposal—Reduction plants
- Refuse collection**  
Checks on garbage collection in Philadelphia.  
R. C. Hicks. Eng & Contr 51:161-2 F 12 '19  
Collecting rubbish by motor trucks. Sci Am  
118:552+ Je 15 '18  
Collection and disposal of refuse. F. W.  
Brookman. Eng & Contr 52:515-16 O 29 '19  
Efficiency in city scavenging. *Il* Munic J 46:  
309-11 Ap 26 '19  
Garbage collection and disposal under war  
conditions. M. N. Baker. Eng N 81:715-20  
O 17 '18  
Garbage collection in Chicago. H. A. Allen.  
Munic J 44:222 Mr 16 '18  
Garbage disposal report; recent information  
concerning methods at Baltimore, Chicago,  
etc. Munic J 45:461-4, 486-7 D 14-21 '18  
Garbage wagons in use in Ottawa, Ontario.  
A. F. Macallum. *Il* Munic Eng 54:32 Ja '18  
Methods of garbage and rubbish collection  
and disposal in larger American cities. J. A.  
Sauer, F. F. Booth and J. C. Slippy. Eng  
& Contr 50:544-6 D 11 '18  
Motor trucks on long haul garbage collection  
at Los Angeles. Eng & Contr 50:270 S 11 '18  
Public co-operation in refuse collection. *Il*  
Munic J 47:35-7 JI 19 '19  
Recommended garbage and rubbish disposal  
methods for Baltimore, Md.; abstracts. W.  
E. Lee. Eng & Contr 49:273 Mr 13 '18;  
Eng N 80:522-3 Mr 14 '18  
Refuse collection and the present demand for  
garbage. S. A. Greeley. Munic Eng 55:65-7  
Ag '18  
Refuse collection in Rochester. *Il* Munic J  
46:464-6; 47:4-7, 16-19 Je 28-JI 12 '19  
Refuse collection in Spokane. A. E. Peterson.  
*Il* Munic J 45:381-2 N 16 '18  
Statistics of garbage collection and garbage  
grease recovery in American cities. R.  
Pearl. J Ind & Eng Chem 10:927-30 N '18  
Trend in municipal refuse collection and dis-  
posal—estimating costs. R. Hering. Munic  
Eng 57:107-12 S '19  
War's influence on the garbage pail. F. C.  
Bamman. Eng N 82:373-8 F 20 '19  
*See also* Ash collection; Garbage cans;  
Refuse receptacles

## Refuse collection—Continued

## Cost

- Cost of ash collection at Philadelphia with motor trucks. Eng & Contr 50:347 O 9 '18  
 Cost of garbage collection and reduction at Cleveland, O. F. L. Stockberger. Eng & Contr 50:559 D 11 '18  
 Cost of maintaining city owned teams. Eng & Contr 52:21 J1 2 '19  
 Cost of motor truck operation for refuse collection. Eng & Contr 52:11-13 J1 2 '19  
 Garbage collection and disposal at Utica, New York. Il Eng N 83:810-12 O 30 '19  
 Horses vs. motor trucks in refuse collection. Munic J 47:110-11, 119-20 Ag 16-23 '19  
 Refuse collection and disposal in Hampstead. Munic J 47:124 Ag 23 '19  
 Refuse collection in Rochester. Il Munic J 46:464-6 Je 28 '19  
 St Paul's street cleaning and waste disposal. Munic J 47:87 Ag 9 '19

## Laws and regulations

- Cleaning streets and removing garbage; liability of municipalities for damage or other torts committed in connection with such service. J. Simpson. Munic J 45:126-8 Ag 17 '18  
 Municipal powers as to garbage. J. Simpson. Munic J 46:382-3 My 31 '19

## Refuse disposal

- Analysis of refuse. D. Currie. Eng & Contr 50:404 O 30 '18  
 Baltimore receives bids for garbage disposal as part of general plan for improved collection and disposal of municipal waste. W. E. Lee. Munic Eng 55:34-7 J1 '18  
 Collection and disposal of refuse. F. W. Brookman. Eng & Contr 52:515-16 O 29 '19  
 Effect of the war on the production of garbage and methods of disposal. I. S. Osborn. Eng & Contr 48:483-4 D 12 '17; Abstract. Munic J 44:112 F 9 '18  
 Effect of war conditions upon production and disposal of municipal refuse. R. Hering. Munic Eng 55:146 O '18  
 Evolution in refuse disposal. Munic J 45:11-12 J1 6 '18  
 Experience of Los Angeles, Cal. with Cobwell method of garbage disposal. Munic Eng 54:28 Ja '18  
 Food wastes—some causes and remedies. L. P. Brown. Il diag J Fr Inst 185:585-610 My '18  
 Garbage collection and disposal at Utica, New York. Il Eng N 83:810-12 O 30 '19  
 Garbage crematory with self-respect; Spokane, Washington. A. E. Peterson. diag Munic J 46:204-5 Mr 15 '19  
 June collections of camp wastes. Eng N 81:446 S 5 '18  
 Palo Alto (Cal.) refuse disposal records. Eng N 80:454 Mr 7 '18  
 Quantity and quality of garbage lowered by war conditions. Eng N 79:1092 D 13 '17  
 Recommended garbage and rubbish disposal methods for Baltimore, Md.; abstracts. W. E. Lee. Eng & Contr 49:273 Mr 13 '18; Eng N 80:522-3 Mr 14 '18  
 Recommended methods for the collection and disposal of refuse in Louisville, Ky. S. A. Greeley. Il Munic Eng 53:246-9 D '17  
 Refuse disposal. R. Hering. W Soc E J 22:623-33; Discussion. 633-44 N '17  
 Refuse disposal at the cantonments. Il Munic J 45:6-7 J1 6 '18  
 Refuse disposal in England. Munic J 47:68 Ag 2 '19  
 Refuse disposal in London. J. Gair. Munic J 46:263-4 Ap 12 '19  
 Street cleaning and refuse collection in Newark. Il Munic J 47:180-2, 200-2 S 20-27 '19  
 Street cleaning and refuse disposal in Savannah. Munic J 46:44-5 Ja 18 '19  
 Syracuse garbage-digester explosion. Il Power 47:529 Ap 9 '18  
 Trend in municipal refuse collection and disposal—estimating costs. R. Hering. Munic Eng 57:107-12 S '19

- War-time disposal of garbage. Munic J 44:109-10, 162-3 F 9, 23 '18

See also Refuse, Utilization of; Refuse collection; Refuse incinerators; Sewage disposal; Street cleaning; Trade waste; Waste products; Waste removal; Water pollution

## Contracts

- City of Springfield contract for collection and disposal of rubbish. Good Roads n s 15:24-5 Ja 12 '18  
 Contract plans and specifications for obtaining refuse incineration works on the most economical basis. R. Hering. Munic Eng 53:201-3 N '17  
 Garbage disposal costs and contracts. Munic J 46:223-4 Mr 22 '19

## Reduction plants

- Cost of garbage collection and reduction at Cleveland, O. F. L. Stockberger. Eng & Contr 50:559 D 11 '18  
 Garbage disposal report; recent information concerning methods at Baltimore, Chicago, etc. Munic J 45:461-4, 486-7 D 14-21 '18  
 Garbage reduction works off Staten Island a nuisance. Eng N 81:290 Ag 8 '18  
 Indianapolis garbage-reduction profits. Eng N 82:624 Mr 27 '19  
 New York city has largest and best garbage-reduction works. H. V. Schlefer. Il diag Eng N 80:565-61 Mr 21 '18  
 See also Refuse, Utilization of

## Statistics

- Garbage collection and disposal under war conditions. M. N. Baker. Eng N 81:715-20 O 17 '18  
 Refuse incinerating plants and their operation; tabulation from thirty-seven cities in the United States and Canada. Munic J 45:318-20 O 26 '18

## Refuse incinerators

- Capacity of Toronto refuse destructor exceeds contract provision. I. S. Osborn. Il Eng N 80:257-61 F 7 '18  
 Garbage incinerators at Virginia, Chisholm and Hibbing, Minnesota. E. J. Hawley. Munic J 44:469-70 Je 8 '18  
 Incinerator at Camp Hancock, Ga. Il Metal Work 53:774 D 28 '17  
 Incinerator at Hamtramck, Michigan. E. L. Waterman. Il Munic J 44:387-8 My 11 '18  
 Incinerators used at cantonments. diag plan Munic J 47:120-2 Ag 23 '19  
 Operation of high temperature incinerator plant at Savannah. E. R. Conant. Il Munic Eng 54:60-2 F '18  
 Quitman, Georgia, garbage incinerator ruling. Eng N 81:437 S 5 '18  
 Reconstruction of Spokane (Wash.) incinerator. A. E. Peterson. Il plan Munic J 44:1-3 Ja 5 '18

## Refuse receptacles

- Pivot lock cover for sewers and street sweeping receptacles. Il Munic Eng 53:208 N '17

See also Garbage cans

- Regenerative braking. See Braking, Regenerative

## Registers (heating)

- Another reason against using floor registers. Metal Work 91:676-7 My 30 '19  
 Majestic duplex register. Il Metal Work 90:290-1 S 6 '18  
 Setting the return air face flush. diag Metal Work 90:254 Ag 30 '18

- Regulators, Potential. See Potential regulators

- Rehabilitation. See Disabled—Rehabilitation; Soldiers, Disabled—Rehabilitation

## Reims, France

## Churches

- Basilica of Saint Remy at Rheims. C. Heaton. Il Arch Rec 45:561-6 Je '19  
 Reims cathedral  
 Cathedral at Rheims; plate. L. H. Ruyt. Inland Ptr 60:492 Ja '18  
 War books of the cathedrals. B. Ferree. Arch Rec 43:90-2 Ja '18

**Reims cathedral—Continued**

What shall be done to the cathedral of Reims? J. Greber. *Il Am Inst Arch J* 7: 315-24 J1 '19

**Reinforced concrete.** See Concrete, Reinforced

**Reinforced-concrete poles.** See Poles, Concrete

**Reinforcing bars, Steel.** See Steel reinforcing bars

**Reinsulation**

Reinsulation of large generators. *Il Elec W* 73:1316-18 Je 21 '19

**Relativity (physics)**

Essence of physical relativity. J. Larmor. *Sci Am S* 87:151 Mr 8 '19

Gravitation and the principle of relativity. A. S. Eddington. *Sci Am S* 86:2-3, 22-3 J1 6-13 '18

Physical relativity; a survey of old and new hypotheses. G. W. de Tunzelman. *Sci Am S* 87:346-7 My 31 '19

**Relays**

**Alternating-current plunger-type relays.** V. H. Todd. *Il diags Power* 49:636-9 Ap 29 '19

A.I.E.E. committee proposes standard relay nomenclature. *Elec W* 73:1233 Je 21 '19; Same. *Elec R* 74:1096 Je 28 '19; Same. *Power* 50:123-4 J1 15 '19

**Application of relays to industrial control.** C. E. Clewell. *Il diags Elec W* 72:106-8 J1 20 '18

**Automatic reverse-current relays.** *Il Elec R* 72:553 Mr 28 '18; *Elec W* 71:698 Mr 30 '18; *Power* 47:738 My 21 '18; *Coal Age* 13:1158 Je 22 '18

**Balancing relays in parallel feeders by cross-connected reverse-power relays.** *diags Elec R* 73:301-2 Ag 24 '18; Same abr. *Elec Ry J* 52:69 J1 13 '18

**Considerations affecting operation of overload relays.** A. E. Hester. *diag Elec R* 75:32 J1 5 '19

**Developments in switchboard apparatus.** *Il diags Gen Elec R* 22:535-7 J1 '19

**Differential relays for generator control.** *Elec R* 74:1047 Je 21 '19

**Discussion on relay practice.** *Elec R* 75: 10-11 J1 5 '19

**Economy of cross-connected reverse-power relays.** *diags Elec W* 71:1074 My 25 '18

**Factors to consider in applying relays.** E. A. Hester. *diags Elec W* 72:931-4 N 16 '18

**G. E. high-voltage series relay.** *Il Elec W* 70: 1178 D 15 '17; Same. *Elec R* 72:42-3 Ja 5 '18

**G. E. polyphase induction reverse power relays.** *Il Elec W* 72:186 J1 27 '18; *Elec R* 73: 186 Ag 3 '18; *Elec Ry J* 52:249-50 Ag 10 '18; *Power* 48:298 Ag 27 '18

**How protective relays can be made sluggish.** H. E. Weightman. *Elec W* 74:881 O 25 '19

**Induction-type overload relays—their operation and application.** V. H. Todd. *Il diags Power* 50:583-5 N 22 '19

**Multi-value overload relay for a.-c. motors.** *Il Elec W* 71:1166-7 Je 1 '18

**New clock relay for telegraphic transmission of time signals.** *Il Sci Am* 119:484 D 14 '18

**Protecting the lines with relays.** *diags Elec W* 73:1375-7 Je 28 '19

**Relay practice; discussion at Lake Placid convention of A.I.E.E.** *Elec W* 73:1386-8 Je 28 '19

**Relay protective systems.** G. E. Armstrong. *diags J Elec* 42:349-53 Ap 15 '19; Discussion. 42:489-90 My 15 '19

**Reverse-current relays—principles of operation.** V. H. Todd. *Il diags Power* 50:96-9 J1 15 '19

**Reverse-phase protective relay.** *Il Elec W* 73: 923 My 3 '19

**Reverse phase relay.** *Il Elec W* 71:439 F 23 '18

**Service-restoring relay system.** *diag Coal Age* 14:555 S 19 '18; *Elec W* 72:521-2 S 14 '18

**Time limit induction overload relay.** F. E. Jaquay. *Il Gen Elec R* 21:704-5 O '18

**Transmission line relay protection.** H. R. Woodrow and others. *diags Am Inst E E Pro* 38:631-62 Je '19; Excerpts. *Elec R* 75:13-18 J1 5 '19

**Variable setting for overload relays.** *diag Elec R* 74:760 My 10 '19

**Westinghouse overload relay for alternating-current motors.** *Il Am Mach* 48:1076 Je 20 '18; *Elec R* 72:1015-16 Je 15 '18; *Elec W* 71: 1233 Je 8 '18; *Iron Age* 102:87 J1 11 '18

**Westinghouse relay to protect motors against phase reversal.** *diag Elec Ry J* 52:425-6 S 7 '18

**Westinghouse reversed phase relay.** *Il Elec W* 72:474 S 7 '18

**Westinghouse safety first relay.** *Il Power* 48: 12 J1 2 '18; *Ind Management* 56:155 Ag '18

**Westinghouse temperature relay for overload.** *Il Elec W* 72:378 Ag 24 '18; *Power* 48:310 Ag 27 '18; *Elec R* 73:343-4 Ag 31 '18

**Westinghouse transfer relay for circuit breakers.** *Il Iron Tr R* 63:506 Ag 29 '18; *Elec R* 73:343 Ag 31 '18; *Elec W* 72:523 S 14 '18; *Elec Ry J* 52:626 O 5 '18

See also Electric protective apparatus

**Testing**

**Precautions to be followed in testing and setting relays.** *diag Elec R* 75:166 J1 26 '19

**Testing and setting time-limit relays.** *diag Elec W* 74:527-8 S 6 '19

**Relief maps**

**Relief maps made with nails, sawdust and plaster Paris.** W. C. Muldrow. *Eng N* 80: 628 Mr 28 '18

**Relief work.** See American relief administration; European war—Relief work; Red cross

**Relieving machines**

**Hack high-power universal relieving machine.** *Il Am Mach* 50:766-7 Ap 17 '19

**Remodeled houses.** See Building—Repair and reconstruction

**Renaissance architecture.** See Architecture, Renaissance

**Rennet**

**Animal and vegetable rennets.** F. Faldean. *Il Sci Am S* 87:285 My 3 '19

**Rent**

**How to fan out your space charges.** G. K. Barrett. *Factory* 22:51-3 Ja '19

**What is a fair house rent?** L. H. Allen. *Bldg Age* 41:349-50 O '19

**Repair ships**

**War-time repairs in the navy.** F. A. Stanley. *Il diags Am Mach* 48:729-34, 999-1003, 1091-4; 49:621-4; 50:383-7, 433-7 My 2, Je 13, 27, O 3 '18, F 27-Mr 6 '19

**Repair shops**

**Acres of shops to form ordnance base in France.** *diags Eng N* 80:23-4 Ja 3 '18

**Camp Holabird—largest truck overhaul depot.** *Il Automotive Ind* 39:1052-5 D 19 '18

**Electrical preparation for ordnance base in France.** *Elec W* 71:95 Ja 12 '18

**Keeping tab on repair work.** E. A. Hunger. *Factory* 20:834-6 My '18

**Our Canal-Zone dry docks and repair shops.** R. D. Gatewood. *Il Am Mach* 50:336-9 F 20 '19

**Portable repair shops for the army.** H. S. Lord. *Il Am Mach* 51:317-22 Ag 14 '19

**Southwestern repair shop; El Paso (Tex.) smelting works.** F. A. Stanley. *Il diags plan Am Mach* 48:561-4 Ap 4 '18

**Temporary small-arms repair shop in France.** R. K. Tomlin, jr. *Il Am Mach* 49:535-6 S 19 '18

**Textile mill repair shop.** *Textile World* 53:5479 My 11 '18

**War time work at Balboa shops, Panama canal.** R. D. Gatewood. *Il Am Mach* 50:191-4 Ja 30 '19

**Work in a Texas repair shop.** F. A. Stanley. *Il diags Am Mach* 49:53-6 J1 11 '18

See also Electric railroads—Shops; Mine shops; Railroads—Shops; Repair trains

**Repair shops, Municipal**

**Municipal repair shops; Los Angeles and San Francisco.** *Il Munic J* 45:339-42 N 2 '18

**Repair trains**

**Workshop repair train in Flanders.** *Il Engineer* 126:550-1, 554 D 27 '18

- Repairing.** See Repair ships; Repair shops; also subdivisions Repair and Maintenance and repair under names of subjects, e.g. Locomotives—Repair, Pavements—Maintenance and repair
- Replegle, J. Leonard**  
Steel director for government. por Iron Tr R 62:803 Mr 28 '18
- Reports**  
Progress reports of concrete construction work. Concrete 13:131-2 O '18  
Putting it up to the president. L. Bernstein. Ind Management 65:46-7 Ja '18  
See also Public utilities—Reports; Railroads—Reports
- Reproduction**  
Sex, reproduction, and heredity in pigeons and fowls. Sci Am S 88:245 O 25 '19
- Reproduction in plants.** See Plants, Reproduction in
- Reptiles**  
Anomalies of the animal world; remarkable forms among the reptilia. R. W. Shufeldt. Il Sci Am S 85:308-9 My 18 '18
- Reptiles, Fossil**  
Question of identity; were flying reptiles merely unfeathered birds, or birds merely feathered reptiles? W. H. Ballou. Il Sci Am 120:570-1 My 31 '19
- Republic iron & steel company**  
Report for 1917. Ry Age 64:952 Ap 5 sec 2 '18
- Research.** See Chemical research; Engineering research; Industrial research; Laboratories; Mining research; Scientific research
- Research, Industrial.** See Industrial research
- Research, Scientific.** See Scientific research
- Research bureau.** See American society of heating and ventilating engineers—Research bureau
- Research council, National.** See National research council
- Research information committee**  
National engineering societies and the National research council. G. E. Hale. Am Inst E E Pro 37:1232-5 O '18; Same. Am Soc M E J 40:828-9 O '18
- Organization.** J Ind & Eng Chem 10:324 Ap '18; Same cond. Met & Chem Eng 18:356 Ap 1 '18; Same cond. Am Soc M E J 40:339 Ap '18
- Reservoirs**  
Cabbage Tree Creek reservoir for Brisbane (Australia) water supply. Il Engineer 125:70, 74 Ja 25 '18  
Carriage of alluvium by water courses. F. Drouhet. Eng & Contr 49:522-5 My 29 '18  
Construction methods employed in building the new intake and remodeled reservoirs of the Oakkosh, Wisconsin, water works. T. B. Jorgensen. Il Munic Eng 55:101-3 S '18  
Cost of grass cutting at impounding reservoirs, Panama Canal Zone. G. C. Bunker. Il Eng & Contr 49:272-3 Mr 13 '18  
Cost of removing old wooden roof of reservoir and building new one. Eng & Contr 51:257 Mr 12 '19  
Determining the regulating effect of a storage reservoir. R. E. Horton. Eng N 81:455-8 S 5 '18  
Effect of covering a service reservoir. J. Gaub. Il Am Water Works Assn J 4:532-7 D '17  
Experiences with large-capacity reservoir outlets. J. M. Gaylord. diags Eng N 81:945-50 N 21 '18; Same cond. Eng & Contr 51:43-5 Ja 8 '19  
Failure of reservoir's roof at Pasadena, Cal. S. B. Morris. Eng & Contr 48:494 D 12 '17  
Farm reservoirs. S. Fortier. Il diags plan U S Agric Farmers' Bul 828:1-36 '17  
Flood damage is checked by storage reservoirs on the Yakima river, Washington. R. K. Tiffany. Eng N 81:410 Ag 29 '18  
High-pressure gates in dams for water-works and irrigation reviewed. D. W. Cole. Il Eng N 81:380-4 N 14 '18  
Maintaining reservoirs in tropical countries. Il Munic J 44:197-200 Mr 9 '18
- Method of computing gauge table for circular oil storage reservoir with sloping side walls. E. D. Cole. Eng & Contr 51:577-8 My 28 '19; Same abr. Eng N 82:956-7 My 15 '19
- Need and cost of covering the clear water basins of the St Louis, Missouri, water works. C. M. Daily. diags Munic Eng 57:42-4 Jl '19
- Oil fuel reservoir at Rosyth. Il Engineer 127:324-5 Ap 4 '19
- Plans and specifications for dual connections. diags plan Munic Eng 55:103-4 S '18
- Regulating storage reservoir on the upper Murray river. diag map plan Engineer 128:49-50 Jl 18 '19
- Relation of water-power conservation to fuel saving. C. T. Main. Elec W 72:758-9 O 19 '18
- Sanitary effect of water storage in open reservoirs. A. Wolman and S. T. Powell. diag Eng N 83:804-5 O 30 '19
- Schoharie development of Catskill water supply system for New York city. J. W. Smith. Il diags map plans Am Water Works Assn J 6:639-53 N '19; Same cond. Eng & Contr 52:406-10 O 8 '19
- Slitting up of reservoirs. N. F. Robinson. Eng & Contr 52:294-5 S 10 '19
- Siphon reservoir blow-off. G. C. Bunker. Il Munic J 46:83-4 F 1 '19
- 16,000,000-gallon elevated reservoirs at Buenos Aires. Il diags plan Engineer 125:228-30 Mr 15 '18
- Spillway capacities required for reservoirs in western United States. J. T. Whistler. Eng N 83:28-32 Jl 8 '19
- Tumalo irrigation storage reservoir leaked profusely and erratically. J. P. Newell. diag Eng N 80:749-51 Ap 18 '18
- Waterworks operation: maintenance of reservoirs. Munic J 45:506-7; 46:10-12, 49-50, 65-7, 86-9, 105-7 D 28 '18-Ja 4, 18-F 8 '19
- Why some irrigation canals and reservoirs leak. A. P. Davis. Il Eng N 80:663-5 Ap 4 '18
- See also Cisterns; Dams; Flood control; Irrigation; Retaining walls; Water storage; Water supply; Water supply engineering; Waterworks
- Cleaning**  
Ford car cleans water-works reservoir at Trenton, N.J. W. C. Wills. Il Eng N 81:996 N 28 '18
- Water works operation: reservoir maintenance. Il Munic J 46:105-7 F 8 '19
- Reservoirs, Concrete**  
Circular earth embankment lined with concrete forms oil reservoir. E. D. Cole. Il diags plan Eng N 81:932-5 N 21 '18
- Circular reservoir floor built in concentric rings. C. E. Hasse. diags Eng N 79:1106-7 D 13 '17
- Concrete walls for shallow reservoirs. L. Goodman. diags Bldg Age 40:504-5 O '18; Corrections. 40:527 N '18
- Construction plant and methods employed in building the reinforced concrete reservoir at Highland Park, Mich. Il Munic Eng 54:190-1 My '18
- Design and construction features of circular concrete reservoirs. Leamington, Ont. E. M. Proctor. diags plan Eng & Contr 51:631-2 Je 11 '19
- Design and construction of 1,500,000-gallon reinforced concrete reservoir. H. F. Blomquist. Il Munic Eng 53:189-91 N '17
- Economies of reinforced concrete walls for uncovered reservoirs. H. E. Babbitt. diags Eng & Contr 51:618-20 Je 11 '19
- 18,000,000 gallon reservoir at Winnipeg. Il diags Engineer 126:545-8 D 27 '18
- Flat slab substituted for groined roof of reservoir. H. C. Wight. Il diags plans Eng N 82:1016-17 My 22 '19
- Great concrete reservoir built with portable mixers. E. J. Lieber. Il diags Eng N 80:702-4 Ap 11 '18
- Groined arches or flat roof for concrete reservoirs; symposium. Eng N 83:566-8, 673 S 18, O 2 '19

**Reservoirs, Concrete—Continued**

- High service reservoir of the St Paul, Minn., water works. W. N. Jones. *diags Munic Eng* 56:165-8 My '19
- Highland Park reservoir. *il Munic J* 44:360 My 4 '18
- Lining a reservoir with concrete by the cement gun. E. C. Eaton. *il Eng N* 83:167-8 Jl 24 '19
- Newton, Mass., water-works reservoir. E. H. Rogers. *il Boston Soc C E J* 5:349-56 S '18; Same. *Munic Eng* 54:239-40 Je '18
- Oil-storage tanks and reservoirs. C. P. Bowie. *il diags plans U S Bur Mines Bul* 155:1-76 '18; Abstract. *Eng & Contr* 49:485-6 My 15 '18
- Temperature effects on concrete reservoir. *Munic J* 46:253 Ap 5 '19
- War wage increase met by revising construction plan. *il diags Eng N* 82:96-9 Ja 9 '19

**Resilience**

- Concept of resilience with respect to indicating instruments. F. J. Schlink. *J Fr Inst* 187:147-69 F '19; Abstract. *Mech Eng* 41:396-7 Ap '19

**Resiliometer**

- Widney patent resiliometer. *il Automotive Ind* 38:1089 Je 6 '18; *Ind Management* 55:508-9 Je '18; *Mach* 24:1150-1 Ag '18; *Am Mach* 49:319 Ag 15 '18; *Iron Age* 102:692 S 19 '18

**Resins. See Gums and resins****Resistance, Electric. See Electric resistance****Resistance coils**

- Avoiding interruption by repairing resistors. H. S. Rich. *diag Elec W* 72:1177 D 21 '18

**Resistance of trains. See Train resistance****Resources. See Conservation of resources****Respiratory apparatus**

- Gas masks have industrial limitations. *il Iron Tr R* 64:1559-60 Je 12 '19; *Eng & Min J* 107:472-3 Mr 15 '19; *Chem & Met Eng* 20:220-1 Mr 1 '19; *Sci Am S* 87:254 Ap 19 '19; *Iron Age* 103:755 Mr 20 '19
- Gibbs oxygen rescue apparatus. *il diag Eng & Min J* 105:323-4 F 16 '19
- Mine safety appliances in warfare; Gibbs self-contained oxygen breathing apparatus. F. H. Trego. *Coal Age* 14:504-5 S 12 '18
- New absorbent for ammonia respirators. G. St. J. Perrott, M. Yablck and A. C. Fieldner. *il diag J Ind & Eng Chem* 11:1013-16 N '19
- Pauli breathing apparatus. *Coal Age* 14:864 N 7 '18
- Testing the new Gibbs standard two-hour breathing apparatus. J. Lyons. *il Coal Age* 14:1019-20 D 5 '18
- Use and limitations of respirators, gas masks and oxygen apparatus. *Eng & Min J* 107:472-3 Mr 15 '19; Same cond. *Chem & Met Eng* 20:220-1 Mr 1 '19; Same cond. *Sci Am S* 87:254 Ap 19 '19

**Rest periods**

- Attendance and turnover records of women workers. *Automotive Ind* 40:1222-4 Je 5 '19
- Rest periods in work. *Eng & Min J* 107:1175 Je 28 '19
- 65 per cent more output with less fatigue. C. L. Pool. *il Factory* 21:230-1 Ag '18
- What 60 managers think of rest periods. F. E. Gooding. *il Factory* 21:342-5 N '18

**Rest rooms**

- Rest room in Texas community proves boon for country women. *Am Lumberman* 2233:41 Mr 2 '18
- Rest rooms and their influence on application to work. L. H. Butler. *il Ind Management* 56:63 Jl '18

**Restaurants**

- Hotel and restaurant fuel sales. W. E. Dugdell. *Gas Age* 41:122-3 F 1 '18
- Ventilation of restaurant kitchens. E. V. Hill. *il Dom Eng* 88:52-5, 246-8+ Jl 12, Ag 9 '19

*See also* Hotels; Lunch rooms and cafeterias

**Restraint of trade**

- Combining to compel manufacturers and jobbers to shun on their own side unlawful. E. J. Buckley. *Metal Work* 89:497-8 Ap 12 '18
- Contracts in restraint of trade. R. H. Butz. *Dom Eng* 84:468 S 28 '18
- See also* Joint sales agencies; Monopolies; Trusts, Industrial

**Resuscitation**

- Lives of non-employees saved by utility men. *Elec R* 73:623 O 19 '18
- Resuscitation from electric shock. *il Gen Elec R* 22:487 Je '19
- Various manual resuscitation methods. H. B. Harmer. *Am Gas Eng J* 109:293-5 S 28 '18

**Retail trade****Accounting**

- New system of accounting for retail tradesmen. *Metal Work* 90:579-80, 659+, 708+ N 22, D 13, 27 '18
- Reasons why every retail merchant should keep book accounts. D. C. Roper. *Metal Work* 91:177 F 7 '19
- Retail clothing store accounting. M. Schlesinger. *J Account* 28:25-32 Jl '19

**Retaining walls**

- Cantilevered coping permits use of full width of property. *il diags Eng N* 80:622-3 Mr 28 '18
- Designing a retaining wall when earth slopes at top. *diag Bldg Age* 40:569-70 D '18
- Holding a bulging retaining wall with buttresses. *il diag Eng N* 82:192-4 Ja 23 '19
- How to design a retaining wall. L. Goodman. *diags Bldg Age* 40:305, 349-51, 394-5 Je-Ag '18
- Method of repairing revetment on Belle Fourche dam. B. E. Hayden. *Eng & Contr* 49:380-1 Ap 17 '18
- Novel type of retaining wall and calculations for its design. *diags Eng & Contr* 49:546-7 My 29 '18
- Sixty-one-foot hydraulic-fill dam rests on earth foundation; Junction development of the Consumers' power co., Michigan. W. G. Fargo. *il diags plan Eng N* 81:491-5 S 12 '18
- See also* Dams; Earthwork; Embankments; Railroads—Construction; Reservoirs

**Retaining walls, Concrete**

- Concrete cribbing in railway work. A. M. Wolf. *il diags plans Concrete* 12:133-4 Ap '18
- Concrete I-beams used to make crib retaining wall. *il diags Eng N* 83:651-2 O 2 '19
- Methods and cost of constructing concrete paved bank revetment. G. C. Haydon. *il diag Eng & Contr* 49:283-5 Mr 20 '18
- New type of sectional concrete retaining wall. *il Ry R* 64:690-1 My 10 '19; Excerpts. *Eng & Contr* 51:657 Je 18 '19
- Precast concrete lumber forms cribs to retain fill. *il diags plan Eng N* 81:763 O 24 '18
- Reconstruction of a retaining wall on the Great Central railway. *diags plan Engineer* 126:536-7 D 20 '18
- Sectional concrete cribbing displaces retaining walls at embankments. *il Coal Age* 16:141-3 Jl 24 '19
- Sliding hillside at Cleveland. *il diag Eng N* 83:164 Jl 24 '19
- Stability of reinforced concrete retaining walls. F. Zimmerman. *diags Eng & Contr* 52:94-6 Jl 23 '19
- Unusual concrete retaining wall section has raised heel. R. C. Chaney. *diag Eng N* 83:621 S 25 '19

**Retting**

- Carbone method for retting textile plants. *Sci Am S* 86:147 S 7 '18

**Revegetation**

- Revegetation. *Sci Am S* 87:302 My 10 '19

**Revenue act, 1918. See War revenue act, 1918****Reverberatory furnaces. See Furnaces, Metallurgical****Revetments. See Retaining walls****Revolvers. See Pistols****Rheostats**

- Electrical study course—motor-starting rheostats. *diags Power* 48:299-301 Ag 27 '18

**Rheostats—Continued**

- How rheostat for motion-picture machine may serve as heater in ticket booth. T. J. Coghlan. *diags Elec R* 71:1071-2 D 22 '17
- Lamp bank as a rheostat. M. A. Walker. *diags Power* 47:270 F 19 '18
- Rheostat design. H. L. Dodge. *Sci Am S* 86:357 D 7 '18
- Safety enclosing cover for controlling rheostat. *Il J Elec* 43:283 S 15 '19
- Three-phase iron pipe water rheostat. *Il Elec R* 72:1004 Je 15 '18
- Trouble caused by faulty construction. E. C. Parham. *diags Power* 49:527 Ap 8 '19
- Unsymmetrical connections. E. C. Parham. *diags Power* 49:374 Mr 11 '19
- Ward Leonard inclosed rheostat for garages. *Il Elec W* 71:1348 Je 23 '18
- Ward Leonard rheostats for motion-picture projection. *Il Elec W* 71:1346 Je 23 '18
- See also* Electric controllers; Electric resistance

**Rhine river**

- Freedom of the Rhine. *Engineer* 126:154-5 Ag 23 '18; Same. *Sci Am S* 86:215 O 5 '18

**Rhode Island. See Roads—Rhode Island****Rhodesia. See Mines and mineral resources—Rhodesia****Rhondda, David Alfred Thomas, 1st baron, 1856-1918**

- Sketch. *por Coal Age* 14:66 Jl 13 '18

**Rhone river**

- Rhone river project. *Sci Am S* 86:378 D 14 '18
- Switzerland connected to the Mediterranean. *Sci Am S* 86:148 S 7 '18

**Rhotanium**

- Comparative tests of palau and rhotanium ware as substitutes for platinum laboratory utensils. L. J. Gurevich and E. Wichers. *J Ind & Eng Chem* 11:570-3 Je '19

**Ribbon**

- Silk ribbon substitute and braid for millinery trade made from milkweed and wood pulp with the aid of gas. S. E. Wardell. *Il diag Am Gas Eng J* 108:121-2 F 9 '18

**Rice**

- Electricity makes rice industry possible. W. E. Camp. *Il J Elec* 43:102-4 Ag 1 '19
- Utilization of rice and its by-products. *Sci Am S* 86:377 D 14 '18

**Rice hulls**

- Use of rice hulls as a fuel in Italy. *Sci Am* 117:497 D 29 '17

**Rice polish**

- Nature of rice polish. *J Fr Inst* 185:706 My '18
- Nature of rice polish and its use. *Sci Am* 119:329 O 26 '18

**Richards, Charles Brinkerhoff, 1833-1919**

- Sketch. *por Am Mach* 50:860 My 1 '19

**Richards, Theodore William, 1868-**

- New president of the American association for the advancement of science. *por Sci Am* 117:495 D 29 '17

**Richmond, Virginia****Railroads**

- Union passenger station. *Il plan Am Arch* 116:31-8, pl 10-13 Jl 9 '19

**Richthofen, Max freiherr von**

- Extracts from von Richthofen's diary. *Il Automotive Ind* 39:827-30, 878-81+ N 14-21 '18

**Rickenbacker, Edward V.**

- Airman's story. C. H. Claudy. *por Sci Am* 120:426+ Ap 26 '19
- America's ace of aces; Rickenbacker's record of twenty-six planes and how he made it. D. Beecroft. *Il Motor Age* 35:7-10 F 13 '19
- Captain Eddie Rickenbacker, ace of aces, returns. D. Beecroft. *por Motor Age* 35:15+ F 6 '19

**Riddell, John, 1852-1917**

- Sketch. *por Am Mach* 48:168 Ja 24 '18; *Am Soc M E J* 40:178 F '18; *Gen Elec R* 21:162-4 F '18

**Riddles**

- Electrically-operated gyrratory riddle. C. A. M. Weber. *Il Elec J* 16:263-4 Je '19

**Electrically-operated riddle. Il Foundry 46:226**

My '18

**Maroa portable vibrating foundry riddle. Il**

*Iron Age* 102:891 O 10 '18

**Portable riddle for screening molding sand. Il**

*Foundry* 46:438 S '18

**Rifle lights. See Illuminating rockets****Rifle ranges**

- Gallery range for service rifle built at Camp Upton. *diags plan Eng N* 80:318-19 F 14 '18
- Lesson of the Caldwell range. R. G. Skerrett. *Il Sci Am* 121:310+ S 27 '19
- Shooting university. E. C. Crossman. *Il Sci Am* 120:576+ My 31 '19

**Rifles**

- Altering the Enfield to take the U. S. army cartridge. E. C. Crossman. *Sci Am* 118:105 F 2 '18
- Battle control for the rifle. *Sci Am* 117:474 D 22 '17
- Chamfering the muzzle of a rifle. T. E. Daniel. *Am Mach* 48:496 Mr 21 '18
- Coming of the super-rifle. *Am Mach* 51:342 Ag 14 '19
- Crozier tells of great progress made. *Iron Age* 100:1472-4, 1510-14 D 26 '17
- Gunstocks. *Il Sci Am* 119:270 O 5 '18
- Investigation by the Senate military committee. *Iron Age* 100:1548-9 D 27 '17
- Metallography of rifle-barrel steel. G. F. Butterworth, Jr. *Il Am Inst Min Bul* 151:1107-11 Jl '19; Same. *Iron Age* 104:225-6 Jl 24 '19
- New pressure table for Eley lead crushers; abstract. F. W. Jones. *Am Soc M E J* 40:432-3 My '18
- New U. S. Enfield rifle. *Am Soc M E J* 40:421 My '18
- New warfare of the trenches; how grenades and automatic rifles have altered French infantry tactics. A. C. Leacarbours. *Il Sci Am* 118:274+ Mr 30 '18
- Our rifle output. *Am Mach* 48:475 Mr 14 '18
- Periscopic or altiscopic rifles. *diags Sci Am S* 85:117 F 23 '18
- Preliminary facts concerning the Browning guns. *Il Sci Am* 118:205+ Mr 9 '18; Same cond. *Am Mach* 48:477-9 Mr 21 '18
- Rear sight of air rifle. W. B. Greenleaf. *Il diag Mach* 24:1035 Jl '18
- Rifles and artillery; rapid progress being made at government and private plants. *Iron Age* 101:562 F 28 '18
- Self-loading military rifle. E. C. Crossman. *Sci Am* 119:272 O 5 '18
- Self-loading rifle. L. E. Picolet. *Sci Am* 119:437 N 30 '18

*See also* Firearms; Guns

**Testing**

- Erosion tests of rifle barrels. A. E. Bellia. *Il Am Inst Min Bul* 151:1073-7 Jl '19; Same. *Iron Age* 104:226-8 Jl 24 '19

**Rifling machines**

- Lapointe rifling machine. *Il Am Mach* 48:930 My 30 '18

**Riggs, Thomas, Jr., 1873-**

- Nominated for governor of Alaska by President. *por Eng N* 80:631 Mr 28 '18

**Right-handedness. See Left- and right-handedness****Right of way**

- Verbal agreement for right of way over land not of much value in most cases. *Dom Eng* 85:13-14+ O 5 '18

**Rio de Janeiro, Brazil****Rapid transit**

- Electric buses for city transportation. G. D. Smith. *Il Elec W* 71:1140-1 Je 1 '18

**Riparian rights**

- Recent western water law. A. E. Chandler. *J Elec* 43:80 Jl 15 '19

*See also* Water rights

**Riprapping**

- Methods and cost of riprapping embankment by wire bag method. L. E. Foster. *diags Eng & Contr* 51:180 F 12 '19; Same. *Eng N* 82:301 F 6 '19

**Risers.** See Street railroads—Track

**River currents**  
Motor operated by a river's flow. *Il Sci Am* 118:363 Ap 20 '18

**River flow.** See Stream measurement

**River pollution.** See Water pollution

**River traffic**  
Activity in river transportation developed in 1917. *Eng N* 79:1200-1 D 27 '17  
Ice gorges on Mississippi river sink many vessels. W. H. Bixby. *Eng N* 80:526-7 Mr 14 '18  
Monongahela river navigation. H. W. Stickle. *Il Eng Soc W Pa* 34:245-66; Discussion. 267-77 Ap '18  
Revival of Mississippi river traffic. M. von Fagenhardt. *Il Int Marine Eng* 24:80-2, 160-5, 295-7 F-Ap '19  
See also Magdalena river, Colombia

**Rivers**  
New England rivers have similar run-off characteristics. *Eng N* 82:577 Mr 20 '19  
River bends and meanders; abstracts. Col. Hoc. *diags Sci Am S* 88:134-5 Ag 30 '19; *Eng & Contr* 52:123-5 Jl 30 '19  
See also Dams; Flood control; Floods; Fords; Hydraulics; Ice on rivers, lakes, etc.; Locks (canals and rivers); Riparian rights; River traffic; Stream flow; Water flow; Water pollution; Water power; Water supply; Waterways; also names of rivers, e.g. Mississippi river

**Bank protection**  
Block yard cheaply improvised from old equipment. *Il diags plan Eng N* 83:356-7 Ag 21 '19  
Chaining the Missouri; tubular concrete pile used to check the river's inroads on its banks. H. T. Dobbins. *Il Sci Am* 121:306-8 S 27 '19  
Concrete block river mattresses prove economical. B. Okasaki. *Il Eng N* 81:718-14 O 17 '18  
Hurdle dikes protect river bank at water intakes. W. W. Patton. *Il plan Eng N* 80:899-900 My 9 '18  
Methods and cost of constructing concrete paved bank revetment. G. C. Haydon. *Il diags Eng & Contr* 49:283-5 Mr 20 '18  
Protecting the banks of Savannah river through Augusta. E. C. Garvin. *Il Eng N* 83:410-12 Ag 28 '19  
Rock cribs blanket river bank in California. *Il diags Eng N* 81:364-5 Ag 22 '18  
Skeleton steel jetties for bank protection. *Il Ry R* 64:724-5 My 17 '19; *Ry Age* 66:1279 My 23 '19; *Eng & Contr* 51:653 Je 18 '19  
Some river control work of the C. B. & Q. *Il diags Ry R* 65:365-8 S 13 '19  
Steel spur dikes for shore protection. *Il Eng N* 83:410 Ag 28 '19

**Regulation**  
Check dams, novel and economic method of controlling streams. H. P. Gillette. *Il diags Eng & Contr* 50:339-40 O 9 '18  
Construction plans developed for the Bronx River parkway reservation. L. G. Holleran. *Il maps Eng N* 81:899-903 N 14 '18  
Draglines twice handle spoil from Dayton flood channel. *Il diags map Eng N* 81:814-17 O 31 '18  
Draglines will handle 2,000,000 cu. yds. of excavation for deepening Miami river. *Il Eng & Contr* 51:533-4 My 21 '19  
Kankakee river is improved for drainage of marshes. *Il diags Eng N* 79:1205 D 27 '17  
New river-straightening movement at Cleveland. *plan Eng N* 82:763-4 Ap 17 '19  
Quantity production in bridges; bringing the river to the bridge. *Il Sci Am* 120:79 Ja 25 '19  
Rangoon training wall. *diags Eng & Contr* 50:119 Jl 31 '18  
Waterway plans of the Mississippi valley outlined at annual meeting of the Mississippi valley waterways' association. *Ry R* 64:617-18 Ap 26 '19

Widened channel reduces flood hazard at Columbus, O. *diags Eng N* 83:512-13 S 11 '19

See also Dredging; Flood control

#### Bibliography

Improvement of the upper Mississippi river. W. Gregory. *Minn Affiliated Eng Soc Bul* 3:218-40 '18 (Reprint)

**Riveted joints**  
Design of riveted butt joints. A. A. Adler. *diags plan Mech Eng* 41:433-6 My '19; Abstract. *Eng N* 83:765 O 23 '19  
Double-riveted butt- and double-strap joint efficiency. *Power* 46:841 D 18 '17  
Efficiency of butt and double-strap joint, triple-riveted. *diags Power* 48:541 O 8 '18  
Efficiency of quadruple riveted joint. *diags Power* 48:645 O 29 '18  
Failure of boiler plates and the stresses in riveted joints. E. B. Wolff. *diags Engineer* 124:456-7 N 23 '17; Same cond. *Power* 47:166-7 Ja 29 '18  
One method of failure of quadruple-riveted joint. *diags Power* 48:789 N 26 '18  
Simplification of riveted joint design. H. A. S. Howarth. *diags Eng Soc W Pa* 34:279-314; Discussion. 315-30 My '18  
Tests on pin-riveted joints made by the Schuch process; abstract. *Il diags Mech Eng* 41:770-1 S '19  
Tests to determine the rigidity of riveted joints of steel structures. W. M. Wilson and H. F. Moore. *Il diags Ill U Eng Exp Sta Bul* 104:1-55 '17  
Visits of Inspector Brown. J. E. Terman. *diags Power* 48:704-6 N 12 '18

**Riveting**  
Applying rivets to precision products. *Il Iron Tr R* 64:1087 Ap 24 '19  
Astonishing rivet-driving records. *Eng & Contr* 49:493-4 My 22 '18; *Engineer* 125:413 My 10 '18  
Charles Knight, champion riveter. *Eng & Min J* 105:969 My 25 '18  
Electric rivet heater possesses many advantages over old methods. *Il Elec R* 75:787-8 N 1 '19  
Ford methods in ship manufacture; electric rivet heating. F. E. Rogers. *Il Ind Management* 57:368-9 My '19  
Guards for riveting frames. *Il Automotive Ind* 38:36 Ja 3 '18  
Hanna shipyard riveting and punching machine. *Il Iron Age* 102:575 S 5 '18  
High-speed riveting hammer. *Il Am Mach* 50:869 My 1 '19  
Hot riveting in a press. J. McIntyre. *Il Am Mach* 51:73 Jl 10 '19  
Mechanical riveter for the trunk factory. *Il Sci Am* 118:60 Ja 12 '18  
New rivet-driving records in ship work. *Eng N* 80:1014 My 23 '18  
Pneumatic riveting in British shipyards. *Engineer* 126:149 Ag 16 '18; Same. *Eng & Contr* 50:404 O 30 '18  
Pneumatic riveting practice. A. M. MacFarland. *Il diags Mach* 24:721-8 Ap '18  
Portable rivet heater for shop use. *Il Elec Ry J* 54:488 S 6 '19  
Shipbuilding rivalry. *Int Marine Eng* 23:321-2 Je '18  
Spacing of rivets in lateral bracing. E. Feldman. *diags Eng N* 82:157 Ja 16 '19  
Thomson type C electric riveter. *Il Am Mach* 50:1011-12 My 22 '19  
See also Riveted joints; Rivets

**Rivets**  
American rivet. *diags Power* 48:946 D 31 '18  
Method of forming substitutes for copper rivets. J. V. Hunter. *diags Am Mach* 50:756 Ap 17 '19  
Pneumatic rivet cutter. *Il Ry Mech Eng* 98:273-4 My '19  
Practice in bridge and girder yards. G. Kemworthy. *diags Engineer* 124:5-6 Jl 6 '17; Discussion. 125:382, 476-7 My 8, 31 '18  
Proportions of boiler-rivet heads. *diags Power* 48:317 Ag 27 '18  
Rivets and riveting in Hell Gate arch bridge. *Eng & Contr* 50:394 O 23 '18

**Rivets—Continued**

Standard specifications for boiler rivet steel; English and Spanish. diags U S Bur For & Dom Com Ind Stand 22:1-15 '19  
 Standard specifications for rivet steel for ships; English and Spanish. diags U S Bur For & Dom Com Ind Stand 37:1-17 '19  
 Structure and strength of overheated rivet steel. S. H. Graf. II Eng N 82:280-2 F 6 '19  
 Tight rivets. II Ry Age 66:512 S 13 '18

Road administration. See Highway administration

Road builders' association, American. See American road builders' association

Road foundations. See Roads—Foundations

**Road guides**

Automatic guide for the motorist. II Sci Am 121:192 Ag 23 '19

See also Road maps

Road laws. See Highway law

**Road making machinery**

Austin road machine that scarifies and regrades in one operation. II Eng & Contr 49:116 Ja 30 '18

Earth moving methods and equipment for road construction. A. R. McVicar. Eng & Contr 51:343 Ap 2 '19

Economic utilization of labor saving road machinery. C. M. Upham. II Good Roads n s 18:75-6 Ag 6 '19

Labor saving machinery utilized by Minnesota contractor. II Good Roads n s 18:177 O 8 '19

Lakewood road finisher produces denser concrete. II Eng N 81:383 Ag 22 '18; Eng & Contr 50:245 S 4 '18; Munic Eng 55:101 S '18; Concrete 13:138 O '18

Machines take the place of men on 20-mile concrete road. II diags Eng N 83:664-6 O 2 '19

Marshall road scarifier. diags Eng & Contr 51:471 Ap 30 '19

Producing denser concrete with a new road finisher. II Sci Am 119:462 D 7 '18

Road building entirely by machinery. II Munic Eng 54:76-7 F '18

Road machinery. A. H. Blanchard. Eng & Contr 51:605-6 Je 4 '19; Same. Good Roads n s 17:243-5 Je 7 '19; Same. Munic Eng 56:211-13 Je '19

Selection and use of county road machinery. J. R. Johnson. Munic Eng 57:64-6 Ag '19

Self-operating road leveler. II Munic Eng 53:211 N '17; Eng & Contr 49:101 Ja 30 '18

Stone spreader and distributor. II Munic Eng 53:209 N '17

Use of modern machinery in county road construction. C. B. Scott. Good Roads n s 16:80-1 Ag 31 '18; Same. Munic Eng 55:125-6 O 18

Utilizing more mechanical devices on road construction. F. F. Rogers. Munic Eng 56:18-20 Ja '19

See also Road rollers

**Road maps**

Making a road map by automobile survey. diag Munic J 45:407-8 N 23 '18

Map of main motor routes in United States. Motor Age 35:10-11 My 1 '19

**Road materials**

Apparent specific gravity of fine non-bituminous highway materials. diags Good Roads n s 16:48-1 Ag 10 '18

Availability of road materials. Munic J 44:322-4 Ap 20 '18

Discussion of road materials. J. P. Nash. Texas U Bul 1735:40-8 Je 20 '17

Experience with sand clay road surfacing in Nebraska. G. E. Johnson. II Munic Eng 56:9-11 Ja '19

Good roads from gold dredge waste. A. L. Dahl. II Good Roads n s 15:231-2 My 4 '18

Labor saving material handling plant for concrete road construction. A. R. Losh. II plan Eng & Contr 52:172-3 Ag 6 '19

Material survey an essential for economic highway construction. H. S. Mattimore. Eng & Contr 49:433 My 1 '18

Non-bituminous road materials. L. Reinecke. II Econ Geol 18:567-97 D '18

**Open-top cars for road building material.**

Good Roads n s 15:276 Je 1 '18

Paving outlook for 1919. Munic J 46:143-8, 326-8 F 22, My 3 '19

Present level of prices, with special reference to the prices of road-making materials. S. M. Williams. Munic Eng 56:130-2 Ap '19

Road material in New Hampshire. J. W. Goldthwait. Good Roads n s 17:233-4 My 31 '19

Salt-marsh sand clay as a road-building material; abstracts. R. H. Phillips. Eng N 82:575-6 Mr 20 '19; Eng & Contr 51:695-6 Je 4 '19

See also Asphalt; Bituminous materials; Concrete; Gravel; Road oils; Roads—Estimates; Roads, Concrete; Roads, Granite; Tar

**Specifications**

Typical specifications for bituminous road materials. P. Hubbard and C. S. Reeve. diags U S Agric Bul 691:1-60 '18

Typical specifications for non-bituminous road materials. P. Hubbard and F. H. Jackson, Jr. diags U S Agric Bul 704:1-38 '18

**Testing**

Abrasion test for mineral aggregates; suggested modification of the Deval test. H. H. Scofield. Good Roads n s 16:108-1 S 21 '18

Compact portable outfit for testing aggregates in the field. F. H. Jackson. II Eng & Contr 52:380-2 O 1 '19

Extracting stories from stones; road building reduced to a science. II Sci Am 118:186-7-1 Mr 2 '18

Instructions for field inspection of road materials. W. G. Thompson. Eng & Contr 52:16-18 Jl 2 '19; Same. Munic Eng 57:66-9 Ag '19

Proposed tests and specifications for road building materials. diags Good Roads n s 18:3-4, 13, 18-19 Jl 2-9 '19

Results of physical tests of road-building rock in 1916 and 1917. P. Hubbard and F. H. Jackson, Jr. U S Agric Bul 670:1-29 '18

Standard tests for bituminous materials; committee report. Good Roads n s 16:142-1 O 12 '18

**Road mirage**

Road mirage. diag Sci Am 120:485 My 10 '19

Road mirage. C. P. Du Shane. II Sci Am 119:335 O 26 '18

**Road ollers**

Combination tank truck for road maintenance. II Sci Am 117:460 D 15 '17

Enterprising farmers and township road commissioners co-operate in economical road oiling. Munic Eng 57:159 O '19

**Road oiling**

Number of gallons of road oil per mile for known width and rate. Eng N 82:887 My 1 '19

**Cost**

Road-oil heating plant of Los Angeles county. E. E. Glass. II diag plan Eng N 82:728-30 Ap 10 '19

**Road oils**

Asphaltic and non-asphaltic road-oil specifications. J. W. Howard. Munic Eng 54:223 Je '18

Road-oil heating plant of Los Angeles county. E. E. Glass. II diag plan Eng N 82:728-30 Ap 10 '19

Specifications for road oil; committee report. Good Roads n s 16:140 O 12 '18

Temporary oil-heating plant saves 40-mile truck trip. E. E. Glass. II Eng N 79:1063 D 6 '17

**Road rollers**

Instructions for using the Macon concrete paving roller. Eng & Contr 49:437 My 1 '18

Single- or multiple-cylinder engines for road rollers? N. DeWind. Eng N 80:377-8 F 21 '18

**Road signs**

For the motor tourist; what an adequate system of road and city signboards can do for his guidance. A. G. Vestal. II Sci Am 120:626-7 Je 14 '19



**Road signs—Continued**

- Numbering system for Ohio roads. *Il Motor Age* 36:25 Ag 7 '19  
 Our marked highways. A. G. Vestal. *Il diag*  
*Sci Am* 120:486-7 My 10 '19  
 Principles controlling the layout, marking  
 and maintenance of trunk highway sys-  
 tems. A. R. Hirst. *Il Eng N* 81:1128-34 D 19  
 '18; Excerpt. *Good Roads n s* 17:13-15 Ja 11  
 '19  
 Road signs for Amexforce trucks save gaso-  
 line. R. K. Tomlin, jr. *Il Eng N* 82:94-5 Ja 9  
 '19  
 Uniform highway signs. *Il diag* *Munic J* 46:  
 228-9 Mr 29 '19  
 Uniform markers for our highways. R. E.  
 Berg. *Il Motor Age* 35:30-2 My 15 '19

**Road surveys. See Roads—Location****Road tax. See Roads—Finance****Road traffic**

- Censuses show three fold increase in traffic  
 on Massachusetts highways in 9 years. W.  
 D. Sohler. *Eng & Contr* 51:7-8 Ja 1 '19  
 Industry's use of highways and motor trucks  
 to relieve freight congestion. *Eng N* 79:1032-  
 3, 1048-9 N 29-D 6 '17  
 Iowa surveys road traffic. *Il Motor Age* 33:  
 28-9 Je 20 '18  
 Iowa's traffic census and what it teaches. *Il*  
*Sci Am* 118:19+ Ja 5 '18  
 The road: its paramount importance as  
 viewed by a Briton. J. H. A. MacDonald.  
*Munic Eng* 55:218-21 D '18  
 Significance of data collected in Iowa road  
 census. *Munic Eng* 53:186 N '17  
 Traffic laws and highway maintenance and  
 construction. C. C. Brown. *Munic J* 44:325-6,  
 344-5 Ap 20-27 '18

**Roadmasters' and maintenance of way asso-  
ciation**

- 36th annual convention, Chicago. *Ry Age* 65:  
 557-61, 581-3 S 20-27 '18; *Ry R* 63:419-21 S  
 21 '18  
 37th annual convention, Chicago, Sept. 16-18.  
*Ry Age* 67:572-8 S 19 '19; *Ry R* 65:426-8 S  
 20 '19

**Roads**

- Advantages of good roads. R. Wiley. *Good*  
*Roads n s* 18:132-4 S 10 '19  
 Alignment of Roman roads. R. Wellbye. *Eng*  
*& Contr* 51:456 Ap 30 '19  
 Basic principles of design, construction, main-  
 tenance and financing of roads and pave-  
 ments. J. W. Howard. *Munic Eng* 54:8-9 Ja  
 '18  
 Beautifying highways. J. A. Hazelwood.  
*Good Roads n s* 17:264+ Je 21 '19  
 Cantonment road building at Camp Lewis.  
 U. S. Marshall. *Il maps Good Roads n s* 18:  
 116-19+, 127-30 S 3-10 '19  
 Classification of highways. H. G. Shirley. *Il*  
*Good Roads n s* 18:149-51 S 24 '19  
 Construction and maintenance of highways  
 under war conditions. A. H. Blanchard. *Eng*  
*& Contr* 49:21-3 Ja 2 '18  
 Cooperation in road building. J. G. D. Mack.  
*Good Roads n s* 15:142+ Mr 9 '18  
 Dealer's business with good roads. D. S.  
 Hatch. *Il Motor Age* 35:7-9 My 1 '19  
 Design of public roads. C. H. Moorefield.  
*diag U S Agric Yearbook* 1917:265-81 '18  
 Earth moving methods and equipment for  
 road construction. A. R. McVicar. *Eng*  
*& Contr* 51:343 Ap 2 '19  
 Earth roads and air roads. C. H. Davies. *Sci*  
*Am* 119:354 N 2 '18  
 Economic highway transportation. R. C. Bar-  
 nett. *diag Good Roads n s* 15:241-5 My 11  
 '18  
 Effect of good roads on farm values. R. S.  
 Tiernan. *Eng & Contr* 51:140 F 5 '19  
 Efficiency of highways in the present trans-  
 portation difficulties. W. D. Sohler. *Eng &*  
*Contr* 49:572-3 Je 5 '18  
 Elimination of dangerous road junction and  
 its cost. E. Gedney. *Il Eng N* 82:679-81 Ap  
 3 '19  
 Factors influencing the selection of road  
 plant. A. H. Blanchard. *Eng N* 82:1103-4  
 Je 5 '19

General conclusions of Am. Soc. C. E. com-  
 mittee on road grades, widths and thickness  
 and crown of surfacing. *Eng & Contr* 49:155-  
 7 F 6 '18

Good roads. R. Wiley. *Eng & Contr* 52:170-1  
 Ag 6 '19

Highway transport engineering. A. H. Blan-  
 chard. *Good Roads n s* 17:268-9 Je 21 '19;  
 Same. *Munic Eng* 57:sup27-8 Jl '19; Same  
 abr. *Eng N* 82:1153 Je 12 '19; Same cond.  
*Eng & Contr* 51:590 Je 4 '19

Hints and data on the use of industrial rail-  
 ways for road construction. *Eng & Contr* 49:  
 233 Mr 6 '18

Imaginative and speculative highways for to-  
 morrow. H. G. Shirley. *Eng N* 81:1175-7 D 26  
 '18; Same. *Eng & Contr* 51:335-6 Ap 2 '19

Industrial railways in road building. R. P.  
 Mason. *Concrete* 14:199 My '19

Influence of motor traffic on road design.  
 A. H. Blanchard. *Good Roads n s* 18:50-2  
 Jl 23 '19

Intense study of highways forced by circum-  
 stances. H. E. Breed. *Eng N* 79:1151-2 D 20  
 '17

Labor saving plant on a road job in Macomb  
 county, Michigan. *Il plan Good Roads n s*  
 16:87-8 S 7 '18

Land reclamation and highway development  
 must go together. F. K. Lane. *Munic Eng*  
 55:183-5 N '18

Lessons of the war as applied to roads and  
 bridges. W. Maughan. *Eng & Contr* 50:433-4  
 O 30 '18

Methods of constructing roads at northeastern  
 cantonments of national army. P. P. Shar-  
 pies. *Il Eng & Contr* 49:240-2 Mr 6 '18; Same.  
*Good Roads n s* 15:133-4+ Mr 9 '18

Multiple loading stations effect economies  
 in handling road materials. *diag Eng &*  
*Contr* 51:603 Je 4 '19

New features in brick and wood block pave-  
 ments. C. Older. *Good Roads n s* 15:154-6+  
 Mr 16 '18; Excerpt. *Munic J* 44:416 My 18 '18

Organization of efficient concrete road con-  
 struction gangs. H. P. Gillette. *Eng &*  
*Contr* 52:4-5 Jl 2 '19

Practical hints for the road foreman. A.  
 Fraser. *Eng & Contr* 52:25-6 Jl 2 '19

Principles of road construction; abstract of  
 report of committee of A. S. C. E. *Munic*  
*J* 44:326-9 Ap 20 '18

Progressive method of road improvement for  
 rural districts. G. Henry. *Eng & Contr* 52:  
 267-70 S 3 '19

Proper radius for turns at intersection of  
 highways. G. S. Eaton. *diag Eng N* 81:526-8  
 S 19 '18

Proportion and reasonable economy in rural  
 road design. W. G. Harger. *Il Eng N* 83:  
 324-7 Ag 14 '19

Rapid road construction under war conditions.  
 C. Cowen. *Eng & Contr* 51:4 Ja 1 '19

Recommended procedure in the use of ex-  
 plosives on road construction. *Il Munic Eng*  
 55:187-90 N '18

Reconstruction of narrow roadways of trunk  
 highways. *Good Roads n s* 17:128 Mr 22 '19

Road along rock and shale bluff in Kansas  
 City requires walls and viaduct. *Il diag Eng*  
*N* 80:1139-41 Je 13 '18

Road building at army camps. D. B. Good-  
 sell. *Il diag Good Roads n s* 17:157-9 Ap  
 12 '19

Road building materials supply solved by sys-  
 tem. W. J. Driscoll. *Eng N* 82:289-91 F 6 '19

Road building 24 hours per day. W. Ord.  
*diag Eng & Contr* 52:168-9 Ag 6 '19

Road design and regulation of traffic. H. J.  
 Fixmer. *diag Eng & Contr* 51:328-31 Ap  
 2 '19

Roads—good and bad. *Il Sci Am* 118:12-13 Ja  
 5 '18

Roads vital to military operations. R. L.  
 Howze. *Good Roads n s* 15:23-4 Ja 12 '18

Sources of supply of unskilled labor for high-  
 way work. P. D. Sargent. *Good Roads n s*  
 17:111, 114-15 Mr 8 '19; Same. *Munic J* 46:  
 209, 224-5 Mr 15-22 '19; Excerpts. *Eng N* 82:  
 466-7 Mr 6 '19

Status of public-works engineers should be  
 changed. F. A. Churchill. *Eng N* 83:37-8  
 Jl 3 '19

**Roads—Continued**

Uses of the motor truck in highway work. *Il* Good Roads n s 18:44-5+ JI 23 '19  
Where good roads are built, thence will come export trade. A. Sinsheimer. *Automotive Ind* 41:226-7 JI 31 '19

See also Causeways; Curbs; Dust; Dust prevention; Grade crossings; Highway administration; Highway engineering; Highway law; Motor trucks and roads; Pavements; Railroads; Road making machinery; Road maps; Road materials; Road traffic; Sidewalks; Street cleaning; Street railroads; Streets; also names of highways, e.g. Lincoln highway

**Accounting**

See Highway accounting

**Concrete "dips"**

Method of staking out concrete fords or dips. G: A. Duren. *Eng & Contr* 52:14 JI 2 '19

**Contracts**

Comparison of long and short highway contracts. H. E. Breed. *diag Eng N* 82:831-4 Ap 24 '19

Competency of contractor deciding factor in awarding highway contracts. S. E. Fitch. *Eng & Contr* 51:238-9 Mr 5 '19

Contract work; tabulation. *Munic J* 46:291-2 Ap 19 '19

Contracts under war conditions. *Munic J* 45:185-6 S 7 '18

Creation of a more equitable contract between highway commissions and contractors. J. C. Travilla. *Good Roads n s* 15:99-101 F 16 '18; Same. *Eng & Contr* 49:345-7 Ap 3 '18; Same cond. *Munic J* 44:242-4 Mr 23 '18

Day labor, force account work and bonuses. C. M. Upham. *Good Roads n s* 16:238-41 D 21 '18; Same. *Munic Eng* 56:31-3 Ja '19; Same. *Eng & Contr* 51:341-2 Ap 2 '19

Guaranties from contractors. J. Simpson. *Munic J* 47:14-16 JI 12 '19

How the road contractor earns his profit. C. B. Russell. *Concrete* 15:93-4 S '19

Large construction companies shun road work. C. S. Hill. *Eng N* 82:1150-1 Je 12 '19; Discussion. 83:38-9, 284-5 JI 3, Ag 7 '19

Letting road contracts in long stretches. *Eng N* 82:508, 634-5 Mr 13, 27 '19

Massachusetts cost plus profit road contract. *Eng & Contr* 50:14 JI 3 '18

Methods of contracting for highway work during the reconstruction period. J: H. Gordon. *Eng & Contr* 51:236 Mr 5 '19; Same. *Munic Eng* 56:110-11 Mr '19; Same. *Good Roads n s* 17:151-2 Ap 5 '19

New form of contract reduces risks. *Eng & Contr* 50:187-8 Ag 21 '18

New York law provides for suspension of contracts. *Munic J* 44:417-18 My 18 '18

Outagamie county, Wisconsin, highway contract assures contractor of definite profit. *Eng & Contr* 50:150 Ag 7 '18

Should contracts for grading upon extensive highway improvements be awarded separately? *Eng & Contr* 52:389-90 O 1 '19

Some things the road contractor often overlooks. W. F. Hildeman. *Eng & Contr* 51:153 F 5 '19

State-insured highway construction contracts suggested. H. V. Swart; I. J. Morris. *Eng N* 82:484-5 Mr 6 '19

Suggested form of road contract based on efficiency and speed factor. S. E. Fitch. *Eng & Contr* 50:227 S 4 '18

Virginia road contract plan. C. B. Scott. *Good Roads n s* 16:43 Ag 3 '18; Same. *Eng & Contr* 50:231 S 4 '18

What is correct interpretation of overhaul specification? *Eng N* 82:835-6, 983 Ap 24, My 15 '19

Would rate state highway contractors on past performance. S. E. Fitch. *Eng N* 81:125-7 JI 18 '18

**Convict labor**

Convict labor as utilized on Arizona highways. B. M. Atwood. *Eng N* 83:88-9 JI 10 '19

Convict labor in road construction in West Virginia. A. D. Williams. *Eng & Contr* 51:14 Ja 1 '19

Convict labor on highway work; organization, administration, camps and cost data. *Il* Good Roads n s 17:189-90 My 3 '19; Same cond. *Eng & Contr* 51:345-6 Ap 2 '19

Convict labor on highways good business. *Il* Good Roads n s 18:65-7+ JI 30 '19

Convict labor on state highway work in California. *Il* *Eng & Contr* 51:332-4 Ap 2 '19

Convicts on road work. *Munic J* 47:64-7 Ag 2 '19

Escapes under honor system in working prisoners on public roads. A. C. McKibbin. *Eng & Contr* 49:147 F 6 '18

Prison labor in New Jersey builds military road. L. C. O'Connor. *Good Roads n s* 15:8 Ja 5 '18

Report on experimental convict road camp, Fulton county, Ga. H. S. Fairbank, R. H. Eastman and W. F. Draper. *Il* *diag plans U S Agric Bul* 583:1-64 '18; Excerpts. *Good Roads n s* 15:231-3 Ap 27 '18

**Cost**

Character and cost of highways for motor truck use. S. Whinery. *Eng N* 83:77-8 JI 10 '19

Cost and life of New York state highway pavements. H. E. Breed. *Eng & Contr* 52:178 Ag 6 '19

Cost and service of New York state highways. G: C. Diehl. *Good Roads n s* 18:53-4+ JI 23 '19

Cost of a bad road. R. C. Barnett. *Il* *Good Roads n s* 16:77-8 Ag 31 '18

Cost of a mile of road. G: A. Duren. *Eng & Contr* 51:485-6 My 7 '19

Cost of California road work before and during the war. *Eng & Contr* 51:339-40 Ap 2 '19

Cost of constructing gravel foundations for roads. *Eng & Contr* 51:152 F 5 '19

Cost of constructing macadam pavement at Hamilton, Ont. E. R. Gray. *Eng & Contr* 50:243 S 4 '18

Cost of road resurfacing with tarmac. *Eng & Contr* 51:471-2 Ap 30 '19

Cost of road work in New England in 1918. W: D. Sohler. *Eng & Contr* 51:13-14 Ja 1 '19

Cost of shaping up and rolling old macadam. *Eng & Contr* 50:248 S 4 '18

Cost of surveys for federal aid roads project in Kansas. E. L. Hageman. *Eng & Contr* 52:265-6 S 3 '19

Fuel and road construction. *Munic J* 44:488 Je 15 '18

High cost of maintenance of light macadam highways. F: S. Greene. *Eng N* 83:353-5 Ag 21 '19

Highway expenditures in the year of 1918. A. P. Anderson. *Good Roads n s* 18:171-4+ O 8 '19

Increased cost of labor and materials in New York state road work. *Eng & Contr* 50:158 Ag 7 '18

Iowa road and bridge work. *Eng & Contr* 51:241 Mr 5 '19

Low cost of engineering on a million dollar road project. *Eng & Contr* 49:327-8 Ap 3 '18

Methods and cost of constructing and maintaining secondary roads in southern California. E. E. Glass. *Il* *Eng & Contr* 49:332-4 Ap 3 '18

Moving dirt with power machinery at cost of 4.1 ct. per cubic yard. *Il* *Eng & Contr* 49:474-5 My 15 '18

New Jersey roads built under Edge law to cost double original estimate. *Good Roads n s* 16:84 Ag 31 '18

Plant and equipment rental prices. *Eng & Contr* 50:485 N 20 '18

Proportion and reasonable economy in rural road design. W. G. Harger. *Il* *Eng N* 83:324-7 Ag 14 '19

Road building with industrial railway. R. P. Mason. *Eng & Contr* 51:246 Mr 5 '19

Road contracts being completed in Kansas refute false statements about highway costs. *Munic Eng* 57:160 O '19

**Roads—Cost—Continued**

\$280,000,000 spent in 1917 on rural roads and bridges. A. P. Anderson. Eng & Contr 50: 158-9 Ag 7 '18  
 Unit bidding prices and labor and material prices for state road work. Eng & Contr 51:488-9 My 7 '19  
 What has New York state received for its \$100,000,000 highway expenditures? H. E. Breed. Eng N 83:450-4 S 4 '19  
 What the road really costs. G. De Holden-Stone. Sci Am S 86:70-1 Ag 3 '18  
*See also* Excavation—Cost; Haulage—Cost; Roads—Maintenance and repair; Roads, Concrete—Cost; Roads, Gravel—Cost; Roads, Macadam—Cost

**Cost of maintenance**

*See* Roads—Maintenance and repair

**Curves**

Method of determining sight distance in highway curves. B. L. Parker. diag Eng & Contr 49:439 My 1 '18  
 Method of striking off widened and super-elevated highway curves. W. F. Long. diag Eng & Contr 52:175 Ag 6 '19; Eng N 83: 289 Ag 7 '19  
 Pavement layouts inadequate for motor traffic. W. M. Kinney. il diag Eng & Contr 50:518-19 D 4 '18  
 Purely theoretic superelevations modified for roads. W. S. Downs. Eng N 80:805 Ap 25 '18  
 Safety provision on California mountain highways makes blind turns safer. diags Eng N 80:665-6 Ap 4 '18  
 Standard reversed curve for jogs in main highways. C. M. Hathaway. diag Eng N 80: 816-17 Ap 25 '18  
 Superelevation of highway curves. J. W. Lowell. Eng & Contr 49:434 My 1 '18  
 Superelevation of highway curves. R. A. Meeker. il diag plan Good Roads n s 16:213-15 D 7 '18  
 Superelevations and easements. G. A. Curtis. il diags Good Roads n s 17:199-201 My 10 '19; Same. Eng N 83:274-5 Ag 7 '19  
 Superelevations and easements for highway curves. C. P. Mowry. il plan Good Roads n s 16:9-11 Jl 13 '18  
 Superelevations and offsets for curves for paved highways. diags Eng & Contr 50:236 S 4 '18  
 Wider pavements needed by motor vehicles at curves. G. S. Eaton. diags Eng N 82:461-2 Mr 6 '19

**Drainage**

Cost of digging road ditches. H. H. Sherer. Eng & Contr 52:281 S 3 '19  
 Drainage increasingly vital with growth of heavy traffic. E. W. James. Eng & Contr 50:330-2 O 2 '18  
 Drainage methods and foundations for county roads. E. W. James, V. M. Peirce and C. H. Moorefield. il diags plans U S Agric Bul 724:1-86 '18  
 Drainage system for improved country highways. W. P. Blair. diag Eng N 82:914-15 My 8 '19  
 Effect of soil and grade conditions on erosion of road ditches. Eng & Contr 51:156-7 F 5 '19  
 Efficiency in road drainage. N. B. Garver. il Good Roads n s 15:209-10 Ap 20 '18  
 Importance of adequate drainage and foundations for road and street surfaces. C. Richardson. Munic Eng 56:146-9 Ap '19  
 Improper drainage the cause of most highway failures. A. A. Young. il diags Eng N 80: 543-6 Mr 21 '18; Discussion. 1145-7 Je 13 '18  
 Inadequate drainage cause of spring break up on improved highways in New York. H. E. Breed. Eng & Contr 49:437 My 1 '18  
 Is poor drainage the actual cause of most highway failures? J. L. Harrison. Eng N 81:464 S 5 '18  
 Maintenance of drainage. R. A. Meeker. il Good Roads n s 16:107-8 S 21 '18  
 Method of preventing erosion of road ditches. L. U. Martin. diag Eng & Contr 51:248 Mr 5 '19

Notes on road foundations, drainage and culverts. U. W. Christie. Munic Eng 57:17-18 Jl '19  
 Recommended procedure in the use of explosives on road construction. il Munic Eng 55:187-90 N '18  
 Road drainage and foundations. G. Hogarth. Eng & Contr 52:394-5 O 1 '19  
 Some specific suggestions on the drainage of roads. Munic Eng 56:173-4 My '19  
 Subdrainage for country highways. M. H. Downey. Eng N 82:1080, 1127 My 29-Je 5 '19  
 Subsurface water and its relation to pavement troubles. J. L. Harrison. Eng & Contr 49: 238-40 Mr 6 '18; Same abr. Munic Eng 55: 50-2 Ag '18  
 Tile drainage for Iowa county highways. J. A. King. il Eng N 83:760-1 O 23 '19  
 Water and the subgrade. J. L. Harrison. Eng & Contr 52:22-4 Jl 2 '19

**Federal aid**

*See* Roads—Finance

**Finance**

Bill appropriates \$209,000,000 for federal aid; text. Good Roads n s 17:120 Mr 15 '19  
 Bond issue campaign in California. C. W. Geiger. il Good Roads n s 17:251-2 Je 14 '19  
 Colorado highway commissioner urges additional federal aid. T. J. Erhart. Good Roads n s 16:207 N 30 '18  
 Colorado to build roads. il Good Roads n s 17:57-8 F 15 '19  
 Development of the motor truck parcel post after the war. J. I. Blakslee. Good Roads n s 16:189-91 N 16 '18; Excerpts. Munic J 45: 406-7 N 23 '18; Abstract. Eng & Contr 50: 527 D 4 '18  
 Effect of the war on road improvement. H. K. Bishop. Good Roads n s 15:60-1 F 2 '18  
 Efficient methods of promoting highway bond issues. S. E. Bradt. Good Roads n s 17: 139-40 Mr 29 '19; Same cond. Eng N 82: 573-4 Mr 20 '19  
 Enlarged plan for road work in Virginia. A. P. Coleman. Good Roads n s 17:43-4 F 1 '19  
 Federal aid for road maintenance; text of two bills introduced in Congress. Good Roads n s 15:284 Je 8 '18  
 Federal aid road act regulations. Munic J 46:385-6 My 31 '19  
 Federal aid road law; experience to date and suggestions for better co-operation. L. W. Page. il Munic Eng 56:20-3 Ja '19  
 Federal aid roads. Munic J 44:230 Mr 16 '18  
 Financing highway improvements. J. E. Pennybacker. Munic J 46:296-7 Ap 19 '19  
 Financing pavement construction by taxing vehicles. C. A. Mullen. Eng & Contr 49: 562-3 Je 5 '18  
 Good progress made in operation of Federal-aid road act. Eng N 79:1148-50 D 20 '17  
 Good roads without great debt in bond issues; Iowa law provides pay-as-you-go plan. diags Eng N 83:704-5 O 9 '19  
 Half billion for highways is assured. Motor Age 35:16 Mr 6 '19  
 Highway bond as a gilt-edge security. B. F. Harris. Eng & Contr 52:178 Ag 6 '19  
 Highway financing status throughout the United States. Eng N 83:244 Jl 31 '19  
 How successful campaign for the \$60,000,000 good roads bond issue was conducted in Illinois. S. E. Bradt. chart Munic Eng 56:3-5 Ja '19; Same abr. Eng & Contr 51:150-1 F 5 '19  
 Huge sum to be spent for highways. Good Roads n s 17:112-4 Mr 8 '19  
 License fees for motor vehicles and drivers. H. E. Breed. Eng N 81:1117-20 D 19 '18; Same. Good Roads n s 17:15-16+ Ja 11 '19; Same. Eng & Contr 51:144-5 F 5 '19  
 Methods of financing highway improvements. L. E. Pennybacker. Eng & Contr 51:608-9 Je 4 '19  
 Methods of financing highway improvements for states, counties and towns. Good Roads n s 17:177-9 Ap 26 '19  
 Millions of federal government money for roads. Concrete 14:137-8 Ap '19

**Roads—Finance—Continued**

- Minnesota plans \$7,500,000 road work for 1918. Eng N 79:1163-4 D 20 '17
- North Carolina federal aid. J. C. Carpenter. 11 Good Roads n s 16:175-6+ N 9 '18
- Office of public roads sends questionnaire to all state highway departments. L. W. Page. Eng N 80:163 Ja 24 '18
- One year's experience in the federal aid road law. L. W. Page. Good Roads n s 14:321-2, 326 D 22 '17
- Operation of proposed bond issue plan for state roads of Illinois. W. W. Marr. Eng N 79:1129 D 13 '17
- Operations of the Bureau of public roads under the federal aid road act. P. St. J. Willson. Good Roads n s 17:97-8 Mr 1 '19; Excerpts. Eng & Contr 51:241 Mr 5 '19
- Present federal aid will be strengthened by a national highway system. Munic Eng 57:122 S '19
- Progress in federal aid; nearly 400 projects involving aid amounting to about \$11,000,000 submitted in 18 months. Good Roads n s 15:248 My 11 '18
- Proposed federal aid measures. Good Roads n s 17:7-8 Ja 4 '19
- Proposed Illinois state highway system a notable advance in the financing of highway construction. Eng & Contr 49:16-17 Ja 2 '18
- Raising funds to pay for roads. J. I. Blaklee. Munic Eng 57:120-1 S '19
- Road building in Michigan under war conditions; federal aid act. F. F. Rogers. Good Roads n s 16:89-90+ S 7 '18
- Road work of the Department of agriculture. D. F. Houston. Good Roads n s 16:230-1 D 14 '18
- Roads of New York. E. A. Bonney. 11 chart map Good Roads n s 17:73-6+ F 22 '19
- Speed up national road plans. Munic Eng 54:89 Mr '18
- State road expenditures in 1918. Good Roads n s 15:294-6 Je 15 '18
- Status of federal aid in Iowa. Good Roads n s 16:51 Ag 10 '18
- Status of federal aid road projects. Eng & Contr 50:20 J1 3 '18
- Tax equalization urged for highways in Pennsylvania. J. D. O'Neill. Munic J 43:586 D 15 '17
- Ton-mile charge to maintain highways suggested. J. S. Miller, Jr. Eng N 81:413 Ag 29 '18
- Townsend federal aid bill. Good Roads n s 17:254+ Je 14 '19
- Where lies the burden of highway transportation? R. C. Barnett. Good Roads n s 16:215-17 D 7 '18
- Who shall pay for paving? E. R. Dutton. Eng & Contr 50:451 N 6 '18
- Why federal government should vastly increase its appropriation for state aid in road building. Eng & Contr 50:515-16 D 4 '18
- Will there be a revival of toll roads? Eng & Contr 49:136 F 6 '18

See also Roads—Cost; Roads, State aid

**Foundations**

- Bridge theory as applied to roads. 11 Sci Am S 84:404 D 29 '17
- Character and cost of highways for motor truck use. S. Whinery. Eng N 83:77-8 J1 10 '19
- Drainage methods and foundations for county roads. E. W. James, V. M. Peirce and C. H. Moorefield. 11 diag plans U S Agric Bul 724:1-86 '18
- Resurfacing old macadam and gravel roadways with special reference to adaptability of old roadbeds as foundation for hot mix bituminous surfaces. H. W. Skidmore. 11 diag Munic Eng 57:99-105 S '19
- Road drainage and foundations. G. Hogarth. Eng & Contr 52:394-5 O 1 '19

See also Pavements—Foundations; Roads—Subgrades

**Grades**

- Economic balancing of highway excavation by a semi-graphic method. D. P. Babcock. diag Eng N 82:361-4 F 20 '19

- Effect of grades on cost of haulage. H. E. Breed. Eng & Contr 49:577 Je 5 '18
- Maximum road grades and topography. C. H. Moorefield. Eng & Contr 50:248 S 4 '18
- Notes on highway design. J. L. Harrison. Eng & Contr 50:237-8 S 4 '18

See also Grading (earthwork)

**Inspection**

See Highway inspection

**Law**

See Highway law

**Location**

- Contour method of relocating roads. G. F. Daggett. Eng & Contr 51:493-4 My 7 '19
- Cost of surveying roads in Illinois. Munic Eng 53:181 N '17
- Location of earth roads. R. E. Loucks. Eng & Contr 50:243-4 S 4 '18
- Necessity for the proper location of roads. A. D. Williams. Good Roads n s 16:233 D 14 '18
- Notes on highway design. J. L. Harrison. Eng & Contr 50:237-8, 327-8 S 4, O 2 '18
- Surveying for highway improvement. F. G. Phillips. 11 Good Roads n s 18:11-12 J1 9 '19

**Maintenance and repair**

- American road-building work in French war zone organized. R. K. Tomlin, Jr. Eng N 80:198-200 Ja 31 '18
- Comparative cost of maintaining roads with tractor outfit and eight-mule outfit. N. C. Hughes, Jr. 11 Munic Eng 57:115-16 S '19
- Condition of war zone roads in France. W. F. Bradley. Automotive Ind 38:275-8 Ja 31 '18
- Construction and maintenance of the State trunk highway system of Wisconsin. A. R. Hirst. 11 Good Roads n s 17:49-52 F 8 '19; Same cond. Eng N 81:1130-4 D 19 '18
- Cost curve of highway maintenance has well-defined minimum. H. G. Shirley. Eng N 80:756-7 Ap 18 '18; Discussion. 81:284 Ag 8 '18
- Cost of earth road maintenance with tractor outfit and with mule outfit. N. C. Hughes, Jr. Eng & Contr 52:157 Ag 6 '19
- Cost of highway maintenance work in Maryland. H. G. Shirley. Munic Eng 53:184-5 N '17
- Cost of maintenance and repair of Connecticut roads. Eng N 80:272 F 7 '18
- Efficiency of bituminous surfaces and pavements under motor truck traffic. P. Hubbard. Eng & Contr 51:243-4 Mr 5 '19; Same. Good Roads n s 17:117-19 Mr 15 '19; Same. Munic Eng 56:98-100 Mr '19; Excerpts. Eng N 82:464-5 Mr 6 '19
- Hard-road maintenance costs in Illinois; note. Eng N 81:984 N 28 '18
- High cost of maintenance of light macadam highways. F. S. Greene. Eng N 83:353-5 Ag 21 '19
- Highway maintenance in Wisconsin. J. T. Donaghey. Good Roads n s 18:37-9, 97-8, 105-6+, 120+, 131+, 139-41, 151-2 Ag 13-S 24 '19; Excerpt. Eng & Contr 52:158-9 Ag 6 '19
- Increased use of machinery on Iowa road maintenance expected. Eng N 81:761 O 24 '18
- Iowa county puts road maintenance on sound basis. J. L. Parsons. Eng N 81:273-4 Ag 8 '18
- Lauson tractor for road maintenance. 11 Good Roads n s 18:200 O 29 '19
- Macadam and gravel road maintenance. R. C. Heath. Good Roads n s 18:164+ J1 9 '19; Same. Eng & Contr 52:280-1 S 3 '19
- Macadam and hard-surface paving upkeep compared. G. F. Cotterill. Eng N 81:851-2 N 7 '18
- Macadam maintenance. R. C. Heath. Good Roads n s 18:200-1 N 23 '18
- Maintain earth roads by patrol contracts in Kansas. Eng N 82:674-5 Ap 3 '19
- Maintenance by dragging in Missouri. Good Roads n s 15:265-6 My 25 '18
- Maintenance costs of primary highways in Washington for two-year period. G. F. Cotterill. Munic Eng 57:51-6 Ag '19

**Roads—Maintenance and repair—Continued**

Maintenance data on twenty-eight sections of test road. Eng N 82:670-1 Ap 8 '19

Maintenance in Virginia. S. L. Von Gemmingen. Good Roads n s 15:273-4+ Je 1 '18

Maintenance methods for sand-clay and topsoil roads. R. T. Brown. Eng & Contr 49: 569-70 Je 5 '18

Maintenance of earth, gravel and macadam roads. J. A. Duchastel. Eng & Contr 52: 164-5 Ag 6 '19

Maintenance of earth roads. J. H. Mullen. Good Roads n s 14:332-3 D 29 '17; Abstract. Eng & Contr 49:20-1 Ja 2 '18

Maintenance of gravel roads. P. D. Sargent. Good Roads n s 14:333-4+ D 29 '17; Same Eng & Contr 49:14-15 Ja 2 '18; Same cond. Eng N 79:1193-4 D 27 '17

Method of maintaining Michigan state reward roads. L. H. Neilsen. Eng & Contr 51: 497 My 7 '19

Method of making repairs to pavements torn up for water works construction. J. M. Diven. Munic Eng 53:237 D '17

Methods of constructing roads through sand-hill regions. P. E. Brown. Eng & Contr 51: 609-10 Je 4 '19

Methods of maintaining highway systems prior to construction by state or county. F. E. Everett. Good Roads n s 17:137-8 Mr 29 '19

Michigan's plan for the supervision of road maintenance. L. H. Neilsen. Good Roads n s 15:168 Mr 23 '18

Motor equipment for highway maintenance work. W. R. Farrington. Il diag Eng N 80: 669-70 Ap 4 '18

Motor trucks deliver mixed concrete. diag plans Concrete 14:241-2 Je '19

New features in the maintenance, reconstruction and repair of earth, sand-clay, gravel, water-bound macadam, and bituminous roads, penetration method. A. W. Graham. Good Roads n s 15:109-11 F 23 '18

North Carolina state system of road maintenance. Il Eng & Contr 49:140-2 F 6 '18

Operating cost of highways. A. N. Johnson. Sci Am S 85:285 My 4 '18

Operating costs of tractor, trucks and sand screen and loader in road maintenance. J. E. Maloney. Eng & Contr 51:19-20 Ja 1 '19

Organization for road maintenance in Michigan. L. H. Neilsen. Good Roads n s 16:157-8 O 26 '18

Patrol method of road maintenance as employed in Maine. P. D. Sargent. Eng & Contr 51:9 Ja 1 '19; Same abr. Munic Eng 56:117-18 Mr '19

Procedure in the use of explosives on road maintenance work with specific examples. W. H. Dawson. Munic Eng 55:12-13 Ji '18

Reconstruction of worn out macadam upon a state road in Rhode Island. I. W. Patterson. Il Munic Eng 56:81-3 Mr '19

Report forms for Wisconsin road patrolmen. Eng & Contr 50:19 Ji 3 '18

Results and lessons from first year of state highway maintenance in Wisconsin. J. T. Donaghey. Eng & Contr 51:245 Mr 5 '19

Road maintenance costs in Washington. G. F. Cotterill. Eng & Contr 50:529 D 4 '18

Road maintenance in rural areas. J. A. Webb. Eng & Contr 51:441-2 Ap 30 '19

Road maintenance methods and devices effect saving of material, labor and fuel. Il diag Eng N 81:981-4 N 28 '18

Road preservation as a war measure. J. K. Tener. Good Roads n s 15:289 Je 8 '18

Roads in base section of American forces require widening and resurfacing. R. K. Tomlin, jr. Il Eng N 81:348-52 Ag 22 '18

Smooth, dustless roads maintained by gang system. Il Eng N 82:526-8 Mr 13 '19

Special motor equipment used on road maintenance. D. H. Winslow. Il diag plan Eng N 82:771-2 Ap 17 '19

State road maintenance in 1918. Il Good Roads n s 16:67-70 Ag 24 '18

Suggestions for road patrolmen. J. T. Donaghey. Eng & Contr 50:236 S 4 '18

System without red tape makes success of day-labor road maintenance. Eng N 82:384-6 F 20 '19

**Township road maintenance in Illinois. B. H. Piepmeyer. Eng & Contr 50:14 Ji 3 '18**

Two years' record of maintenance costs of primary roads in Washington. E. G. Cotterill. Eng & Contr 52:387 O 1 '19

See also Roads—Surface treatment; Roads, Brick—Maintenance and repair; Roads, Concrete—Maintenance and repair; Snow removal

**Models**

Cement model gives grades at complex street intersection. Il Eng N 79:1114 D 13 '17

**Societies**

Highway industries association organized. Good Roads n s 15:41+ Ja 26 '18; Eng N 80: 239-40 Ja 31 '18

Virginia good roads association seventh annual convention, Richmond, Jan. 15-17. Good Roads n s 15:49, 62+ Ja 26-F 2 '18

**Specifications**

Asphalt roads of Cook county, Illinois. W. H. Flood. Munic Eng 55:124-5 O '18

Charted summary of state concrete-road specifications. A. N. Johnson. Eng N 83:160-2 Ji 24 '19; Same cond. Concrete 15:87 Ag '19

Recommendations in respect to broken stone and gravel roads, wood block paving, and tests for bituminous materials. Good Roads n s 16:140-2+ O 12 '18

**Standards**

Standard details of New Jersey state highway department for minor features of state roads. diag Eng & Contr 52:163 Ag 6 '19

Standard details of Pennsylvania state highway department for minor features of state roads; diagrams. Eng & Contr 52:264 S 3 '19

Standard sections of state highway department of Pennsylvania for road pavements; diagrams. Eng & Contr 52:156 Ag 6 '19

Standardization of pavement design and construction. P. Hubbard. Munic Eng 55:181-3 N '18

**State aid**

See Roads, State aid

**Statistics**

County highway work performed during 1917. Munic J 44:317-24 Ap 20 '18

**Subgrades**

Comparison of road subgrade and air temperatures. C. C. Wiley. Il Eng N 83:128-9 Ji 17 '19

Cost of subgrade preparation in road construction. Eng & Contr 51:153 F 5 '19

Impervious bituminous wall suggested to prevent seepage under paving. Eng N 81:226-8 Ag 1 '18

Notes on highway design: subgrades. J. L. Harrison. Eng & Contr 50:4-5 Ji 3 '18

Subsurface water and its relation to pavement troubles. J. L. Harrison. Eng & Contr 49:238-40 Mr 6 '18; Same abr. Munic Eng 55:50-2 Ag '18

Water and the subgrade. J. L. Harrison. Eng & Contr 52:22-4 Ji 2 '19

**Surface treatment**

American methods and machinery applicable to construction and maintenance of French highways. A. H. Blanchard. Il Munic J 46: 25 Ja 11 '19

Asphalts and tars in surface treatment. R. G. Tyler. Texas U Bul 1735:22-34 Je 20 '17

Calcium chloride in Connecticut. W. L. Ulrich. Munic J 46:386-7 My 31 '19

Conclusions of Wisconsin highway commission on surface treatment of macadam. Eng & Contr 51:237 Mr 5 '19

Efficiency of bituminous surfaces and pavements under motor truck traffic. P. Hubbard. Eng & Contr 51:243-4 Mr 5 '19; Same. Good Roads n s 17:117-19 Mr 15 '19; Same. Munic Eng 56:98-100 Mr '19; Excerpts. Eng N 82:464-5 Mr 6 '19

**Roads—Surface treatment—Continued**

Efficiency of the application of bituminous materials for surface treatments on gravel and broken stone roads. J. Adler. Eng. & Contr 49:248-50 Mr 6 '18; Same cond. Eng N 80:76-8 Ja 10 '18; Discussion. J. Logan. Eng N 80:527-8 Mr 14 '18

English and American practice in the construction of tar surfaces and pavements. A. H. Blanchard. Il Munic J 44:413-16, 466-7 Je 1-8 '18; Same. Good Roads n s 15:281-3+ Je 8 '18; Excerpts. Eng & Contr 50:142-4 Ag 7 '18

Progress reports of experiments in dust prevention and road preservation, 1916. U S Agric Bul 586:1-78 '18

Recommendations in respect to broken stone and gravel roads, wood block paving, and tests for bituminous materials. Good Roads n s 16:140-2+ O 12 '18

Recommended method of resurfacing an old macadam road that is filled with ruts and holes. W. N. Bosler. Munic Eng 57:69-70 Ag '19; Same. Eng & Contr 52:275 S 3 '19

Resurfacing roadways with tar-macadam cold-mix. J. S. Crandell. Il Munic Eng 53:187 N '17

The road: its paramount importance as viewed by a Briton. J. H. A. MacDonald. Munic Eng 55:218-21 D '18

Road maintenance in rural areas. J. A. Webb. Eng & Contr 51:441-2 Ap 30 '19

Salt-marsh sand clay as a road-building material; abstracts. R. H. Phillips. Eng N 82:575-6 Mr 20 '19; Eng & Contr 51:595-6 Je 4 '19

Smooth, dustless roads maintained by gang system. Il Eng N 82:526-8 Mr 13 '19

Some things learned in the construction of sand-clay roads. W. S. Keller. Munic Eng 57:118-19 S '19

Use of calcium chloride as dust preventive on gravel roads. W. L. Ulrich. Eng & Contr 51:589 Je 4 '19

Use of glutrin in Orange county, N.Y. Il Munic J 45:94 Ag 3 '18

See also Roads, Oiled; Roads, Tarred

**Surfaces**

Hard-surfaced roads. E. J. Wulff. Il Good Roads n s 18:187-8+, 195-6+ O 22-29 '19

Macadam and hard-surface paving upkeep compared. G. F. Cotterill. Eng N 81:851-2 N 7 '18

Macadam stone treated with deliquescent salts. H. H. Edwards. Eng N 82:976-7 My 15 '19

Recent developments in the design and construction of road surfaces. H. E. Breed. Eng & Contr 49:18-20 Ja 2 '18

Resurfacing old macadam and gravel roadways with special reference to adaptability of old roadbeds as foundation for hot mix bituminous surfaces. H. W. Skidmore. Il diags Munic Eng 57:99-105 S '19

Road surfacing with lake shore gravel or sand. L. U. Martin. Eng & Contr 51:347 Ap 2 '19

Utilizing old pavements as foundations for new surfaces. Il Munic Eng 53:182-3 N '17

**Tractive resistance**

Effect of tractive resistance in terms of gasoline consumption. charts Eng & Contr 51:482 My 7 '19

Gasoline consumption tests demonstrate value of hard, smooth-surfaced roads. A. N. Johnson. Il Eng N 81:843-50 N 7 '18; Abstract. Concrete 13:195-6 D '18

Measure of a good road. R. C. Barnett. diag plan Eng & Contr 50:438-40 N 6 '18

Test tractive efficiency of concrete roads. E. N. Hines. Concrete 14:56-7 F '19

**Alabama**

South's labor problem and its effect on road work. W. S. Keller. Eng N 79:1047 D 6 '17

**Alaska**

Methods of constructing wagon roads in Alaska. Eng & Contr 49:251-3 Mr 6 '18

**Arizona**

Instructions of Arizona state highway department for guidance of its engineers. Eng & Contr 52:271-3 S 3 '19

What road improvement has done for the Yuma valley in Arizona. Il Good Roads n s 15:27-8 Ja 19 '18

**Australia**

Australia adopts American state aid plan for roads. Eng & Contr 51:469 Ap 30 '19

**California**

Boulevards of San Francisco. C. W. Geiger. Il Good Roads n s 17:1-3 Ja 4 '19

Good roads pay for themselves twice every year. J. C. Veenhuysen. Eng N 83:214-15 Jl 31 '19

Methods and cost of constructing and maintaining secondary roads in southern California. E. E. Glass. Il Eng & Contr 49:332-4 Ap 3 '18

Proposed road improvement in the Palo Verde valley. R. W. Waterman. Good Roads n s 15:140 Mr 9 '18

Quantities and cost of cement used in the California state highways. A. B. Fletcher. Il Munic Eng 55:13-14 Jl '18

**China**

China's greatest need today is transportation. Il map Ry Age 64:797-802 Mr 29 '18

Macadam road built by Red cross refugees in China. R. A. White. Il Eng N 82:478-80 Mr 6 '19

Motor traffic and highways. A. E. Carleton and A. A. Williamson. Good Roads n s 16:105-6 S 14 '18

Road conditions and the proposed improvement between Peking and Tungchow. Good Roads n s 15:169-70 Mr 23 '18

**Colorado**

Phantom Canon highway; new scenic road between Cripple Creek and Canon City, Colorado. Il Good Roads n s 16:127-8 O 5 '18

**Connecticut**

City pavements for state highways in Connecticut. C. J. Bennett. Munic Eng 56:62-3 F '19

Connecticut practice in snow removal. C. J. Bennett. Eng & Contr 50:520-1 D 4 '18

Highway work in Connecticut. Il Good Roads n s 16:1-2+ Jl 6 '18

**Europe**

Military roads. W. D. Sohler. Eng & Contr 49:8-14 Ja 2 '18; Same cond. Eng N 79:1093-8 D 13 '17

**Florida**

Lessons taught by road building experience in Florida. G. R. Ramsey. Munic Eng 56:73-4 F '19

**France**

American engineer in France. Munic J 45:227-9 S 21 '18

American methods and machinery applicable to construction and maintenance of French highways. A. H. Blanchard. Il Munic J 46:23-32 Ja 11 '19

American road-building work in French war zone organized. R. K. Tomlin, Jr. Eng N 80:198-200 Ja 31 '18

American views for French highways. Munic J 47:186-8 S 20 '19

Condition of war zone roads in France. W. F. Bradley. Automotive Ind 38:275-8 Ja 31 '18

French roads and the war. E. A. Kingsley. Munic J 46:87-8 Ja 25 '19

French waterworks and roads interest American engineers. P. Hansen. Eng N 80:478-9+ Mr 7 '18

National roads. E. A. Kingsley. Munic J 46:293-4 Ap 19 '19

Principles on which the French highways are built. F. W. Harris. diags Eng N 81:935 N 21 '18

Road builders at work close to front of American sector in France. R. K. Tomlin, Jr. Il diag Eng N 80:953-6 My 16 '18; Same. Eng & Min J 105:949-52 My 25 '18

**Roads—France—Continued**

Roads in base section of American forces require widening and resurfacing. R. K. Tomlin, Jr. *Il Eng* N 81:348-52 Ag 22 '18  
Some lessons from French roads. E. A. Kingsley. *Munic J* 46:176-7; 47:82-5 Mr 1, Ag 9 '19  
Surface treatment for French roads. C. E. Murphy. *Il Good Roads* n s 18:89-90 Ag 13 '19

**Great Britain**

British program for road and bridge work. *Good Roads* n s 17:54-5 F 8 '19  
Characteristics of war-time highway work in Great Britain and the United States. *Eng* N 82:101-4 Ja 9 '19  
English highway construction. H. T. Chapman. *Eng & Contr* 52:498-9 O 29 '19  
The road: its paramount importance as viewed by a Briton. J. H. A. MacDonald. *Munic Eng* 55:218-21 D '18

**Illinois**

Effects of the war on construction of Vermilion county (Ill.) bond roads. P. C. McArdle. *Eng & Contr* 50:329 O 2 '18; Abstract. *Eng* N 81:588-9 S 26 '18  
Hard-surface road specifications of the state of Illinois. E. L. Heidenreich; P. E. Green; C. Older. *Eng* N 82:1224-6 Je 19 '19  
How successful campaign for the \$60,000,000 good roads bond issue was conducted. S. E. Bradt. *chart Munic Eng* 56:3-5 Ja '19; Same abr. *Eng & Contr* 51:150-1 F 5 '19  
Illinois adopts a uniform basis of design for all types of rigid pavement. C. Older. *Eng* N 82:905-7 My 8 '19; Discussion. 83:383-6 Ag 21 '19  
Illinois road design. *diags Concrete* 13:9 JI '18  
Proposed Illinois state highway system a notable advance in the financing of highway construction. *Eng & Contr* 49:16-17 Ja 2 '18  
To pull Illinois out of mud. *map Motor Age* 34:18-19 N 14 '18  
Township road maintenance in Illinois. B. H. Piepmeyer. *Eng & Contr* 50:14 JI 3 '18

**Iowa**

Good roads and community life. J. E. Brindley and J. S. Dodds. *Il folding maps Iowa state college Bul* 39:1-31 '17  
Iowa surveys road traffic. *Il Motor Age* 33:25-9 Je 20 '18  
Year's highway expenditures in Iowa. *Munic J* 44:338 Ap 20 '18

**Japan**

Carrying good roads to Japan; dinner given in Tokyo by Samuel Hill. L. W. Pedrose. *Good Roads* n s 17:21-2 Ja 18 '19

**Kansas**

Cost of surveys for federal aid roads project in Kansas. E. L. Hageman. *Eng & Contr* 52:265-6 S 3 '19  
Features of highway work. M. W. Watson. *Il Munic Eng* 56:86-8 Mr '19  
Kansas road material survey. *Munic J* 45:250 S 28 '18

**Kentucky**

Features of road work. R. Wiley. *Munic Eng* 53:233 D '17  
Kentucky's war-time road policy. R. Wiley. *Good Roads* n s 16:35 JI 27 '18  
New road laws. *Good Roads* n s 15:179-80+ Mr 30 '18

**Louisiana**

Louisiana road for war-time traffic. *Il Munic J* 44:313-14 Ap 20 '18  
State highway work in Louisiana. D. Bule. *Il chart Good Roads* n s 15:319-21+ Je 29 '18

**Maine**

Patrol method of road maintenance as employed in Maine. P. D. Sargent. *Eng & Contr* 51:9 Ja 1 '19; Same abr. *Munic Eng* 56:117-18 Mr '19

**Michigan**

Changes in concrete-road practice in Wayne county. E. N. Hines. *Eng* N 81:591-2 S 26 '18  
Concrete road practice of Wayne county. E. N. Hines. *Eng & Contr* 50:461-2 N 6 '18  
Construction plant and methods employed in building concrete roads in Wayne county. *Il Munic Eng* 54:134-7 Ap '18  
Design and construction of the Dixie highway from Rockwood to Monroe. L. C. Smith. *Il Munic Eng* 56:163-4 My '19  
Design and constructional features of the Baraga road in Baraga county. G. C. Dillman. *Il Munic Eng* 56:115-17 Mr '19  
Expenditures on Michigan roads. *Good Roads* n s 15:116 F 23 '18  
Good roads victory sweeps Michigan. *map plan Motor Age* 35:31-2 Ap 17 '19  
Michigan's plan for the supervision of road maintenance. L. H. Neilsen. *Good Roads* n s 15:168 Mr 23 '18  
Michigan's present road problem. F. F. Rogers. *Good Roads* n s 15:200+ Ap 13 '18  
Organization for road maintenance. L. H. Neilsen. *Good Roads* n s 16:157-8 O 26 '18  
Road building in Michigan during 1917 and proposed work for 1918. L. C. Smith. *Munic Eng* 54:123-4 Mr '18  
Road building in Michigan under war conditions; federal aid act. F. F. Rogers. *Good Roads* n s 16:89-90+ S 7 '18  
Road construction methods in Wayne county. *Il Good Roads* n s 16:229-30 D 14 '18  
Road work in Wayne county. *Il Good Roads* n s 16:203-4 N 30 '18  
Utilizing more mechanical devices on road construction. F. F. Rogers. *Munic Eng* 56:18-20 Ja '19  
Wayne county's concrete roads. *Munic J* 45:468-9 D 14 '18

**Minnesota**

Minnesota plans \$7,500,000 road work for 1918. *Eng* N 79:1163-4 D 20 '17  
Minnesota trunk highways. *Good Roads* n s 16:168-9 N 2 '18  
Need of more intensive maintenance and greater use of machinery on construction indicated. J. H. Mullen. *Munic Eng* 54:125-6 Mr '18  
Proposed highway system for Minnesota. C. M. Babcock. *map Good Roads* n s 16:249-50 D 28 '18  
Report on road work. *Good Roads* n s 15:204 Ap 13 '18

**Mississippi**

Building of the last link of the Spanish trail. C. E. Chidsey. *Il Good Roads* n s 15:261-2 My 25 '18

**Missouri**

New features in the maintenance, reconstruction and repair of earth, sand-clay, gravel, water-bound macadam, and bituminous roads, penetration method. A. W. Graham. *Good Roads* n s 15:109-11 F 23 '18

**Nebraska**

Earth road work in a Nebraska county. *Good Roads* n s 18:181-2 O 15 '19  
Experience with sand clay road surfacing in Nebraska. G. E. Johnson. *Il Munic Eng* 56:9-11 Ja '19

**New Hampshire**

Two types of hard surface roads successfully employed. F. E. Everett. *Munic Eng* 56:80-1 Mr '19

**New Jersey**

Highway construction in New Jersey to meet future traffic conditions. W. G. Thompson. *Eng & Contr* 51:598 Je 4 '19; Same. *Good Roads* n s 17:252-3 Je 14 '19; Same. *Munic Eng* 56:208-10 Je '19  
Main-route highway construction in New Jersey. *Il Eng* N 83:407-8 Ag 28 '19  
New Jersey's 1918 road program. *Good Roads* n s 15:42+ Ja 26 '18  
Performance of New Jersey highways under heavy motor truck traffic. W. G. Thompson. *Munic Eng* 56:28-9 Ja '19

**Roads—New Jersey—Continued**

Recommends that new roads be constructed immediately. G: W. Goethals. Eng & Contr 49:23-4 Ja 2 '18

Standard details of New Jersey state highway department for minor features of state roads. diags Eng & Contr 52:163 Ag 6 '19

Standard sections of highways of New Jersey State highway department. Eng & Contr 52:3 Jl 2 '19

**New Mexico**

Features of good road work. J. A. French. Munic Eng 54:126-7 Mr '18

Unusual types of roads and road structures designed for conditions in New Mexico. J. A. French. Il Munic Eng 55:7-8 Jl '18

**New York (state)**

Construction work in New York last year. Good Roads n s 18:14-15+ Jl 9 '19

Cost and life of New York state highway pavements. H. E. Breed. Eng & Contr 52:178 Ag 6 '19

New York state highway appropriations. Good Roads n s 15:112 F 23 '18

Resurfacing in Oneida county, New York. I. A. Farguhar. Il Good Roads n s 15:187-9+ Ap 6 '18

Roads in the Hudson River district with unusual construction features. W. A. Welch. Good Roads n s 15:135-6+ Mr 9 '18

Roads of New York. E. A. Bonney. Il chart map Good Roads n s 17:73-6+ F 22 '19

Snow removal from New York state highways. E. Duffey. Munic Eng 56:23-4 Ja '19

State highway construction in New York in 1917. H. E. Breed. Eng & Contr 50:531 D 4 '18

Storm King road. H. E. Breed. Il diags Good Roads n s 14:291-6 D 8 '17

What has New York state received for its \$100,000,000 highway expenditures? H. E. Breed. Eng N 83:450-4 S 4 '19

**North Carolina**

North Carolina federal aid. J. C. Carpenter. Il Good Roads n s 16:175-6+ N 9 '18

North Carolina state system of road maintenance. Il Eng & Contr 49:140-2 F 6 '18

Road maintenance in North Carolina. D. H. Winslow. Good Roads n s 16:72 Ag 24 '18

**Ohio**

Brick highways of Ashtabula county. R. N. Case. Il diags Munic Eng 56:53-7 F '19

System without red tape makes success of day-labor road maintenance. Eng N 82:384-6 F 20 '19

**Ontario**

Considerations affecting design of heavy traffic highways in Ontario. W. A. McLean. Munic Eng 56:157-8 Ap '19

Highway work in Ontario. Il Good Roads n s 16:185-6+ N 16 '18

Method of constructing asphaltic concrete on Dundas st., York county. R. C. Muir. Il Eng & Contr 49:342-4 Ap 3 '18

Stone and gravel road construction in Ontario. J. G. Wilson. Munic Eng 57:166-6 O '19

Toronto and Hamilton highway. G: H. Gooderham. Il Good Roads n s 14:305-7, 310 D 15 '17

**Oregon**

Employment of women on state highway construction. H. A. Nunn. Eng & Contr 50:323-4 O 2 '18

**Pennsylvania**

Co-operation in Pennsylvania highway construction. Munic J 45:233 S 21 '18

Mechanical plant largely used in Pennsylvania road maintenance. G: H. Biles. Eng N 79:1101-2 D 13 '17

Organization, methods and equipment employed in removing snow from main roads in Pennsylvania. G: H. Biles. Il Munic Eng 55:216-18 D '18; Same cond. Eng & Contr 50:520 D 4 '18

Pennsylvania's war road example. R. H. Johnston. Il Automotive Ind 38:601+ Mr 21 '18

**Removing snow from Pennsylvania highways.**

G: H. Biles. Il Good Roads n s 15:107-8+ F 23 '18; Same. Munic J 44:125-6 F 16 '18; Same. Eng & Contr 49:251 Mr 6 '18; Same. Eng N 80:408-9 F 23 '18

Road legislation at the 1917 session of the Pennsylvania legislature. Good Roads n s 14:320, 324 D 22 '17

Roads to carry 10 to 20 ton loads. J. D. O'Neill. Good Roads n s 16:58 Ag 17 '18

Use of old D., L. & W. right of way in Lackawanna county urged. Il Good Roads n s 15:163 Mr 23 '18

**Philippine Islands**

Highway work in the Philippines. Il Good Roads n s 16:155-6 O 26 '18

Roads in Mountain province. Il Good Roads n s 15:271-2 Je 1 '18

Traffic density does not justify building roads for heavy trucks. J. L. Harrison. Il Eng N 80:961-4 My 16 '18

**Rhode Island**

Practice in construction of bituminous macadam. I. W. Patterson. Eng & Contr 49:153-5 F 6 '18

Road reconstruction and maintenance. I. W. Patterson. Munic Eng 53:188 N '17

**Tennessee**

Wauhatchie pike; opening of new route into Chattanooga, Tennessee. H. F. Wiltse. Il Good Roads n s 16:47-8 Ag 10 '18

**Texas**

Disposition of Texas state highway funds. O. J. S. Ellingson. Good Roads n s 16:40+ Ag 3 '18

Proposed military roads of Texas. G: A. Duren. map Munic Eng 54:81-3 F '18

**United States**

American association of state highway officials annual meeting, Richmond, Va., Dec. 4-6. Eng N 79:1131-3 D 13 '17; Good Roads n s 14:313-14 D 15 '17

American military roads. Munic Eng 55:10-11 Jl '18

American soldiers advocate good roads. Good Roads n s 18:90+ Ag 13 '19

Characteristics of war-time highway work in Great Britain and the United States. Eng N 82:101-4 Ja 9 '19

Construction and maintenance of highways under war conditions. A. H. Blanchard. Munic J 44:33-4 Ja 12 '18; Same abr. Good Roads n s 15:124+ Mr 2 '18

Good progress made in operation of federal-aid road act. Eng N 79:1148-50 D 20 '17

Good roads a national necessity after the war. G. A. Kissel. Good Roads n s 16:182 N 9 '18; Same abr. Munic Eng 55:221-2 D '18

Highway expenditures in the year of 1918. A. P. Anderson. Good Roads n s 18:171-4+ O 8 '19

Highway problems considered. H. E. Breed. Eng N 80:610-14 Mr 28 '18

Highway transportation jeopardized. S. M. Williams. Good Roads n s 15:212-13 Ap 20 '18

Highways to lower the high cost of living. J: S. Beall. Eng & Contr 52:397 O 1 '19

How to lay out and justify a program for war roads. G: C. Diehl. Good Roads n s 15:79-80+ F 9 '18; Same cond. Munic J 44:127-8 F 16 '18; Same cond. Eng N 80:304-5 F 14 '18

Improving country roads. Munic J 44:415-16 My 18 '18

Lessons learned from road work in war years. H. E. Breed. Eng N 80:211-13 Ja 31 '18

Lincoln highway breaking down under heavy traffic; bill to provide for government maintenance of military roads. Am Arch 113:443 Ap 10 '18

Military highways. L. W. Page. J Fr Inst 185:649-62 My '18

Military roads. W: D. Sohler. Eng & Contr 49:11-14 Ja 2 '18; Same cond. Eng N 79:1095-8 D 13 '17

Military roads essential—ten billions of farm products and only five per cent. of good roads. F. A. Churchill. Munic Eng 54:50-1 F '18



**Roads—United States—Continued**

National highway policy and plan suggested.

E. J. Mehren. Eng N 81:1112-17 D 19 '18

National highway system built and maintained by federal government most urgent need of nation. M. O. Eldridge. Good Roads n s 18:163 O 1 '19

National military highways. G: C. Warren. Munic Eng 55:6-7 J1 '18

1918 highway construction projects of several states. Eng & Contr 49:336-40 Ap 3 '18

1918 highway construction prospects of four states. Eng & Contr 49:435 My 1 '18

1918 highway program should be considered from a national standpoint. L. W. Page. Eng N 80:206-7 Ja 31 '18; Same. Eng & Contr 49:146-7 F 6 '18

Notes on road building in Washington's time. A. N. Johnson. W Soc E J 22:579-82 O '17; Same. Sci Am S 85:256 Ap 20 '18

Observation on road construction in the West. G: W. Warren. Good Roads n s 15:3+ Ja 5 '18

Policy and procedure of U.S. Highways council during the war. Munic Eng 55:91-2 S '18; Same abr. Munic J 45:168 Ag 31 '18; Same abr. Eng & Contr 50:232 S 4 '18

Preparing for after we have won the war. S. E. Bradt. Good Roads n s 16:250+ D 28 '18

Present conditions affecting road construction, and measures taken to meet them, in the Central West. S. E. Bradt. Good Roads n s 14:319-20 D 22 '17

Regional highway transport directors meet. Eng N 81:599-600 S 26 '18

Representative highway congress in Chicago unit for national system. Eng N 81:1145-6+ D 19 '18

Road improvement in 1918; views of leading highway officials. Good Roads n s 15:297-300+; 16:14 Je 15, J1 13 '18

Road work during 1918. Il Munic J 44:315-17+ Ap 20 '18

Roads reported to Washington by the states as vitally necessary to the transportation system and as aids to increased agricultural production. Munic Eng 54:163-7 Ap '18

Should the government build railways or highways? C. E. Jones. Good Roads n s 15:171 Mr 23 '18

State highway officials take vigorous action at Richmond convention. Eng N 79:1131-3 D 13 '17

\$20,000,000 expenditure proposed for construction and maintenance of highways for motor truck parcel post service. Eng & Contr 50:23-4 J1 3 '18

Wanted: a federal highway commission. F. M. Loomis. Motor Age 34:20-2 D 19 '18

War time policy in road building. Eng & Contr 50:16 J1 3 '18

See also Lincoln highway; United States—Highways council

**Virginia**

Highway legislation in Virginia. G: P. Coleman. Good Roads n s 15:84-5 F 9 '18

Maintenance in Virginia. S. L. Von Gemmingen. Good Roads n s 15:273-4+ Je 1 '18

Protest against road damage by war traffic. Munic J 45:133 Ag 17 '18

State highway system established. Good Roads n s 15:166+ Mr 23 '18

State road work in Virginia in 1917. Il Good Roads n s 15:13-15 Ja 12 '18

**Washington (state)**

Road maintenance costs. G. F. Cotterill. Eng & Contr 50:529 D 4 '18

Uniform maintenance cost-records for roads adopted in Washington. G: F. Cotterill. Eng N 80:660-2 Ap 4 '18

**Wisconsin**

Good maintenance in Wisconsin. Munic J 44:126 F 16 '18

Highway maintenance in Wisconsin. J. T. Donaghey. Good Roads n s 18:87-9, 97-8, 105-6+, 120+, 131+, 139-41, 151-2 Ag 13-8 24 '19; Excerpt. Eng & Contr 52:158-9 Ag 6 '19

Maintenance of state trunk highway system.

A. R. Hirst. Munic Eng 53:236-7 D '17

Principles controlling the layout, marking and maintenance of trunk highway systems.

A. R. Hirst. map Eng N 81:1065-8, 1128-34 D 12-19 '18; Same. Good Roads n s 17:13-15, 41-2, 49-52 Ja 11, F 1-8 '19; Excerpts.

Eng & Contr 51:138-9, 148-9 F 5 '19

Results and lessons from first year of state highway maintenance. J. T. Donaghey. Eng & Contr 51:245 Mr 5 '19

Results of Wisconsin experiment in covering sand roads with hay-tar mat. Eng & Contr 51:248 Mr 5 '19

**Wyoming**

One year of work by the state highway department. Z. E. Severson. Good Roads n s 15:203 Ap 13 '18

**Roads, Asphalt**

Asphalt roads of Cook county, Illinois. W. H. Flood. Munic Eng 55:124-5 O '18

Asphaltic macadam road building in the Michigan copper range. C. C. Lakin. Il Munic Eng 54:7-8 Ja '18

Methods and cost of constructing Kentucky rock asphalt road. W: S. Canning. Il Eng & Contr 49:6-8 Ja 2 '18

Procedure in the construction and maintenance of Kentucky rock asphalt roads. S. O. Le Sueur. Il Munic Eng 55:49-50 Ag '18

**Roads, Bamboo**

Bamboo roads in Burma. H. E. Hooper. Eng & Min J 107:11-12 Ja 4 '19; Same. Eng & Contr 51:141 F 5 '19

**Roads, Bituminous**

How to obtain best results in constructing 1-course bituminous macadam. F. C. Pillsbury. Eng & Contr 52:5-7 J1 2 '19

Louisiana road for war-time traffic. Il Munic J 44:313-14 Ap 20 '18

New features in the design and construction of bituminous roads and treatments and cement concrete roads and pavements. C: M. Upham. Il Good Roads n s 15:91-5 F 16 '18

Practice in construction of bituminous macadam. I. W. Patterson. Eng & Contr 49:153-5 F 6 '18

Resurfacing old macadam and gravel roadways with special reference to adaptability of old roadbeds as foundation for hot mix bituminous surfaces. H. W. Skidmore. Il diags Munic Eng 57:99-105 S '19

See also Pavements, Asphalt; Pavements, Bituminous; Roads, Asphalt

**Roads, Bituminous concrete**

Bituminous concrete and brick roads for Indiana. Eng N 83:819-20 O 30 '19

Two types of hard surface roads successfully employed in New Hampshire. F: E. Everett. Munic Eng 56:80-1 Mr '19

**Roads, Brick**

Bituminous concrete and brick roads for Indiana. Eng N 83:819-20 O 30 '19

Blast furnace slag used for base and cushion of brick pavement on national highway. diag Eng & Contr 50:526 D 4 '18

Brick highways of Ashtabula county, Ohio. R. N. Case. Il diags Munic Eng 56:53-7 F '19

Construction plant and methods employed in building South Meridian monolithic brick road, Indianapolis, Ind. M. B. Greenough. Il Munic Eng 54:10-12 Ja '18

Design and construction of the monolithic brick road south of Seneca, Ill. A. H. Hunter. Il diags Munic Eng 56:161-3 My '19

Illinois adopts a uniform basis of design for all types of rigid pavement. C. Older. Eng N 82:905-7 My 8 '19; Discussion. 83:383-6 Ag 21 '19

Illinois specifications for monolithic brick roads. Eng N 83:238-9 J1 31 '19

Iowa county builds brick road from Camp Dodge to Des Moines. Il diag Eng N 80:768-70 Ap 13 '18

Is beam strength the important item in brick roads? W. P. Blair. Eng N 83:699-700 O 9 '19

**Roads, Brick—Continued**

New mechanical methods employed with marked success in building monolithic brick road from Ashtabula to Conneaut, Ohio. F. A. Churchill. *Il Munic Eng* 57:57-8 Ag '19

See also Pavements, Brick

**Maintenance and repair**

Concrete used to patch worn brick paving. *Il Eng N* 82:1018 My 22 '19

**Testing**

Tests of thin-base monolithic-brick road. H. H. Edwards. *Il Eng N* 83:134-5 Jl 17 '19

**Roads, Concrete**

Appraisal of modern plant performance in concrete road construction. H. D. Hammond. *Il Eng N* 83:784-8 O 30 '19

Better roads for less money. R. J. Borhek. *Concrete* 14:178 My '19

Blast furnace slag section of the Youngstown-Akron (Ohio) concrete highway. *Il Munic Eng* 55:172-3 N '18

Capacity of macadam roads for war business increased; three-foot concrete shoulders added at each side. *Il diag Eng N* 81:990-2 N 28 '18

Changes in concrete-road practice in Wayne county, Michigan. E. N. Hines. *Eng N* 81:591-2 S 26 '18

Charted summary of state concrete-road specifications. A. N. Johnson. *Eng N* 83:160-2 Jl 24 '19; Same cond. *Concrete* 15:87 Ag '19

Cold-weather construction of concrete roads. J. A. Abrams. *Munic J* 44:96 F 2 '18

Combining road materials to withstand forces incident to motor haulage. *Il Munic Eng* 53:230-1 D '17

Concrete highway construction standards raised; Mississippi valley state road officials recommend tamped concrete and heavier sections. *Eng N* 82:955-6 My 15 '19

Concrete in road construction, culverts and bridges. H. E. Breed. *Il Good Roads n s* 17:261-3 Je 21 '19; Same. *Munic Eng* 56:222-5 Je '19; Excerpts. *Eng N* 82:1102-3 Je 5 '19

Concrete pavements for mountain roads. *diags Eng & Contr* 51:337 Ap 2 '19

Concrete road construction. W. W. Cox. *Il Good Roads n s* 16:165-6+ N 2 '18

Concrete road construction during freezing temperatures. C. L. Brown. *Eng & Contr* 50:147-8 Ag 7 '18

Concrete road practice of Wayne county, Mich. E. N. Hines. *Eng & Contr* 50:451-2 N 6 '18

Concrete roads: construction and maintenance. A. W. Bowles. *Texas U Bul* 1735:5-21 Je 20 '17

Concrete roads in 1918; tabulation of contracts. *Concrete* 14:103 Mr '19

Concrete roadway system in a shop yard. C. E. Parks. *Il Ry Age* 64:111-14 Ja 11 '18

Concrete roadways for shops of the A. T. & S. F. Ry., at Topeka, Kan. C. M. Buck. *Il diags plan Ry R* 62:568-73 Ap 20 '18; Same cond. *Eng N* 80:1038-40 My 30 '18

Constructing concrete pavements; standard practice as recommended by the Mississippi valley association of State highway departments. *Munic J* 47:22-3 Jl 12 '19

Constructing concrete road near Norfolk. W. A. Hardenbergh. *Munic J* 47:2-4 Jl 5 '19

Construction plant and methods employed in building concrete roads in Wayne county, Mich. *Il Munic Eng* 54:134-7 Ap '18

Construction plant and methods employed in building reinforced concrete roads at Camp Custer, Battle Creek, Mich. G. A. Burley. *Il Munic Eng* 54:180-2 My '18

Cost of highway concrete delivered wet by trucks. *Il plan Eng N* 82:870-2 My 1 '19

Cracking of concrete roads and its prevention by reinforcing with steel. W. B. Sawyer, Jr. *Eng & Contr* 50:151-2 Ag 7 '18

Curing concrete roads by covering with road oil and  $\frac{1}{4}$  in. stone. W. A. Hansell, Jr. *Eng & Contr* 50:452 N 6 '18

Design and construction of concrete roads in Wood county, W. Va. B. Woodyard. *Il Munic Eng* 54:12-13 Ja '16

Design permits use of concrete roads during construction. W. E. Conklin. *diag Eng N* 80:1134 Je 13 '18

Designing of concrete pavements. C. C. Brown. *Il Munic J* 44:8-10, 29-31 Ja 5-12 '18

Does rich concrete in roads crack more than lean?; symposium. *Eng N* 83:518-20, 771 S 11, O 23 '19

Double roller and long board float give superior road finish. S. P. Baird. *diag Eng N* 82:110-11 Ja 9 '19

Efficient concrete road building organization, Kane county, Ill. E. S. Hanson. *Il Concrete* 15:176-9 N '19

Essentials of good practice in the construction of concrete roads. E. K. Borchard. *Il Munic Eng* 54:104-6 Mr '18

Expansion and contraction of concrete and concrete roads. A. T. Goldbeck and F. H. Jackson, Jr. *U S Agric Bul* 532:1-31 '17; Excerpt. *Eng & Contr* 48:375-6 N 7 '17; Excerpt (Conclusions). *Munic J* 43:580 D 15 '17

Highway engineers perfect details of concrete road construction. A. N. Johnson. *Eng N* 82:133 Ja 16 '19

Highway reconstructed and kept open for war traffic. *Il diag Eng N* 81:808-11 O 31 '18

How a 24-man road job was organized; Denver-Littleton road construction. E. Montgomery. *Il diag Concrete* 14:99-100 Mr '19

How the road contractor earns his profit. C. B. Russell. *Concrete* 15:93-4 S '19

How to build better roads for less money; symposium. *Il Concrete* 14:41-3, 79-81, 101-3 F-Mr '19

Hydrated lime in concrete roads; abstracts. G. W. Hutchinson. *Munic J* 45:230 S 21 '18; *Am Arch* 114:414-15 O 2 '18; *Concrete* 13:133 O '18; *Eng & Contr* 50:329-30 O 2 '18

Illinois specifications for roller and belt method of finishing concrete roads. *Concrete* 12:161-2 My '18; Same. *Eng & Contr* 50:330 O 2 '18

Interurban line hauls material for concrete road. *Il diag Eng N* 79:1157-8 D 20 '17

Labor saving material handling plant for concrete road construction. A. R. Losh. *Il plan Eng & Contr* 52:172-3 Ag 6 '19

Lakewood road finisher produces denser concrete. *Il Eng N* 81:383 Ag 22 '18; *Eng & Contr* 50:245 S 4 '18; *Munic Eng* 55:101 S '18; *Concrete* 13:138 O '18

Large proportioning plant and mixer speed up road work. *Il Concrete* 15:124-5 S '19

Machine finishing concrete roads. E. G. Carr. *Il diags Munic Eng* 56:132-4 Ap '19; Same. *Eng & Contr* 51:491-2 My 7 '19; Same. *Concrete* 14:251-2 Je '19

Machines take the place of men on 20-mile concrete road. *Il diags Eng N* 83:664-6 O 2 '19

Mechanical material handling system reduces labor and hauling costs and eliminates waste in construction of Michigan road. *Il plan Eng & Contr* 50:233-4 S 4 '18; *Concrete* 13:104-5 S '18; *Eng N* 81:465-6 S 5 '18; *Munic Eng* 55:99-100 S '18; *Munic J* 45:181-2 S 7 '18

Methods and cost of constructing a concrete road in southern California. E. E. Glass. *Il diag Eng & Contr* 49:427-8 My 1 '18

Motor truck haulage on freight highways. *Il Munic Eng* 53:224-5 D '17

Multiple-strip concrete road to conserve material. *Il diag Eng N* 82:1170 Je 12 '19

New features in Indiana's concrete road specifications. *Eng N* 83:614-15 S 25 '19

New features in the design and construction of bituminous roads and treatments and cement concrete roads and pavements. C. M. Upham. *Il Good Roads n s* 15:91-5 F 16 '18

New requirements in Illinois specifications for concrete roads. *Eng & Contr* 51:477 My 7 '19

Oiled macadam roads resurfaced with concrete. E. A. Burt. *Il Eng N* 81:943-4 N 21 '18

Pavement crowns and surfaces. C. E. Bayley. *Eng & Contr* 49:330-1 Ap 3 '18

Pavement planer method of finishing concrete roads. E. E. Glass. *Il Eng & Contr* 50:318-19 O 2 '18

**Roads, Concrete—Continued**

- Permanent pavements at new aeronautical station at Langley field town site, Hampton, Va.; abstracts. S. H. Lea. *Il diag Eng N 81:447-9 S 5 '18; Munic J 45:241-3 S 28 '18*
- Points to observe in the construction of concrete roads. W. W. Cox. *Munic Eng 56:105-6 Mr '19*
- Providing clean aggregates for road job. *Il diag Concrete 13:192-3 D '18*
- Quantities and cost of cement used in the California state highways. A. B. Fletcher. *M Munic Eng 55:13-14 Jl '18*
- Recent developments in concrete highway construction. A. N. Johnson. *Munic Eng 57:204-6 N '19*
- Recommended practice of Mississippi valley state highway departments for concrete road construction. *Eng & Contr 52:166-7 Ag 6 '19*
- Reinforcing system and concreting machine for reinforced concrete roads. *diags Eng & Contr 51:449-50 Ap 30 '19*
- Road builders describe 1918 methods. H. Whipple. *Concrete 12:160-1 My '18*
- Road-construction problem in West Virginia mountains. M. A. Rogers. *Il Eng N 83:90-2 Jl 10 '19*
- Road contractor successfully employs portable charging bins to eliminate dumping and wheeling on subgrade in concrete road construction. G. A. Burley. *Il Munic Eng 56:11-12 Ja '19*
- Road job with minimum manual labor. *Il plan Concrete 15:203-4 N '19*
- Roller and belt finish better and more economical. *Concrete 12:161-2 My '18*
- Save 10 men's time on road job using skip loader for mixer. *Il diag Concrete 14:53-5 F '19*
- Saving men and money on road work. H. A. Hoxie. *Il Concrete 13:156 N '18*
- 70.4 lin. ft. of concrete road per hour. *Il Eng & Contr 52:388 O 1 '19*
- Should a concrete road be thicker at the center than at the sides? *Eng & Contr 48:456 D 5 '17; Discussion. 49:5, 135, 235 Ja 2, F 6, Mr 6 '18*
- Shovel on road job dumps concrete mixed at quarry plant. E. L. Sparks. *Il Eng N 81:288 Ag 8 '18*
- Some design and construction features of concrete roads. A. N. Johnson. *Munic Eng 55:96-9 S '18*
- Specifications for asphalt-on-concrete-base road construction. D. T. Pierce. *Il Munic Eng 54:53-4 F '18*
- Stresses in concrete roads. A. T. Goldbeck. *Munic J 46:466-7 Je 28 '19; Same. Eng & Contr 52:165-6 Ag 6 '19*
- Suggestions for contractors on concrete road construction. C. E. Learned. *Eng & Contr 52:161-2 Ag 6 '19*
- Suggestions for inspectors on county road and bridge construction. C. R. Weymouth. *Eng & Contr 51:247-8 Mr 5 '19*
- Tamped concrete specified for Illinois roads. *Eng N 82:735 Ap 10 '19*
- Temple with saw teeth cuts off and finishes concrete surface. *Il Eng N 83:833-4 O 30 '19*
- Thickness of concrete slabs for highway surfaces. A. T. Goldbeck and F. H. Jackson. *diag Eng N 83:234-6 Jl 31 '19*
- See also Pavements, Concrete*

**Cost**

- Construction and maintenance of concrete pavements in Milwaukee county, Wisconsin. *Il Good Roads n s 16:19-20 Jl 20 '18*
- Cost of constructing 1-course concrete road in Indiana. *Eng & Contr 49:139 F 6 '18*
- Itemized cost of laying three-foot concrete shoulders for macadam roads. *Eng N 82:871 My 1 '19*
- Material and labor cost on Los Angeles county road; tabulation. *Eng N 81:944 N 21 '18*
- Motor trucks deliver mixed concrete. *diag plans Concrete 14:241-2 Je '19*
- Oklahoma road for \$1.30 per yard. A. H. Kindrick. *Il Concrete 12:127-8 Ap '18*

**Maintenance and repair**

- Methods of repairing concrete roads. F. F. Rogers. *Eng & Contr 49:145 F 6 '18*
- Replacing defective road slabs. A. N. Johnson and J. E. Conzelman. *Concrete 12:175-6 My '18*

**Roads, County**

- County highway work performed during 1917. *Munic J 44:317-24 Ap 20 '18*
- County work contemplated for 1919; tabulation. *Munic J 46:284-6, 366-7 Ap 19, My 24 '19*
- Rational method of determining types of roads for a county bond issue. W. W. Marr. *diags map W Soc E J 23:28-38; Discussion. 38-54 Ja '18*
- Road building materials supply solved by system. W. J. Driscoll. *Eng N 82:289-91 F 6 '19*

**Roads, Earth**

- Determination of the shrinkage of gravel and sand-clay mixtures packed by traffic. R. M. Green. *Il Good Roads n s 16:39-40 Ag 3 '18*
- Earth roads built in 1917. *Munic J 44:317-18 Ap 20 '18*
- Engineering for dirt roads. *Munic J 44:96 F 2 '18*
- Location of earth roads. R. E. Loucks. *Eng & Contr 50:243-4 S 4 '18*
- Maintaining sand-clay roads in North Carolina. *Munic Eng 55:49 Ag '18*
- Maintenance methods for sand-clay and topsoil roads. R. T. Brown. *Eng & Contr 49:569-70 Je 5 '18*
- Maintenance of earth roads. J. H. Mullen. *Good Roads n s 14:332-3 D 29 '17; Abstract. Eng & Contr 49:20-1 Ja 2 '18*
- Method of building earth roads in Kane county, Illinois. G. N. Lamb. *Il diags Eng & Contr 50:140-1 Ag 7 '18*
- Methods of constructing roads through sand-hill regions. F. E. Brown. *Eng & Contr 51:609-10 Je 4 '19*
- Necessity of engineering supervision in construction and maintenance of earth roads. H. R. Mackenzie. *Eng & Contr 50:155-7 Ag 7 '18*
- Sand-clay roads built in 1917. *Munic J 44:221-2 Ap 20 '18*
- Wind aids in constructing sand roads in New Mexico. D. W. Jones. *Il diag Eng & Contr 51:155 F 5 '19*

**Roads, Experimental**

- Maintenance data on twenty-eight sections of test road. *Eng N 82:670-1 Ap 3 '19*
- Progress reports of experiments in dust prevention and road preservation, 1916. U S Agric Bul 586:1-78 '18
- Results of Wisconsin experiment in covering sand roads with hay-tar mat. *Eng & Contr 51:248 Mr 5 '19*

**Roads, Gravel**

- Constructing gravel road across Salt Lake desert. *Il diag Eng N 81:1191-2 D 26 '18*
- Determination of the shrinkage of gravel and sand-clay mixtures packed by traffic. R. M. Green. *Il Good Roads n s 16:39-40 Ag 3 '18*
- Experience of various counties in utilizing local deposits of gravel on county construction projects. *Il Munic Eng 55:222-4 D '18*
- Gravel pavements, 1917; tabulation. *Munic J 44:145 F 16 '18*
- Gravel roads built in 1917 in counties; tabulation. *Munic J 44:320-1 Ap 20 '18*
- Highway maintenance in Wisconsin. *Good Roads n s 18:120+ S 3 '19*
- Iowa methods of constructing gravel roads. *Eng & Contr 50:247-8 S 4 '18; Abstract. Good Roads n s 15:314-15 Je 22 '18*
- Maintenance of gravel roads. P. D. Sargent. *Good Roads n s 14:333-4+ D 29 '17; Same. Eng & Contr 49:14-15 Ja 2 '18; Same cond. Eng N 79:1193-4 D 27 '17*
- Methods and cost of building gravel roads in Kane county, Ill.; abstracts of report. G. N. Lamb. *Il Munic Eng 54:227-8 Je '18; Munic J 45:74-5 Jl 27 '18*
- Notes on gravel road construction. H. E. Phelps. *Eng & Contr 50:152-3 Ag 7 '18*

**Roads, Gravel—Continued**

Soft stone satisfactory road surfacing. T. W. Dix. *Il Good Roads* n s 16:137-9 O 12 '18  
Surface treatment of gravel roads with refined tar. P. P. Sharples. *Il Good Roads* n s 17:241-2 Je 7 '19

**Cost**

Cantonment road building at Camp Lewis. U.S. Marshall. *Good Roads* n s 18:119, 124 S 3 '19  
Cost of constructing gravel foundations for roads. Eng & Contr 51:152 F 5 '19  
Motor truck haulage saves about \$1,000 per mile in gravel road construction. *Il Eng & Contr* 51:492 My 7 '19

**Roads, Macadamized**

Asphaltic macadam road building in the Michigan copper range. C. C. Lakin. *Il Munic Eng* 54:7-8 Ja '18  
Bituminous surfaces on macadam roads in York county, Ontario. Eng & Contr 50:149 Ag 7 '18

Building new concrete shoulders to preserve the old macadam roads of Maryland. J. N. Mackall. *Il diag Munic Eng* 56:79-80 Mr '19  
Capacity of macadam roads for war business increased; three-foot concrete shoulders added at each side. *Il diag Eng N* 81:990-2 N 28 '18

Conclusions of Wisconsin highway commission on surface treatment of macadam. Eng & Contr 51:237 Mr 5 '19

Efficiency of the application of bituminous materials for surface treatments on gravel and broken stone roads. J. Adler. Eng & Contr 49:248-50 Mr 6 '18; Same cond. Eng N 80:76-8 Ja 10 '18; Discussion. J. Logan. Eng N 80:527-8 Mr 14 '18

High cost of maintenance of light macadam highways. F. S. Greene. Eng N 83:353-5 Ag 21 '19

Highway maintenance in Wisconsin. *Good Roads* n s 18:131+ S 10 '19

Macadam maintenance. R. C. Heath. *Good Roads* n s 16:200-1 N 23 '18

Macadam road built by Red cross refugees in China. R. A. White. *Il Eng N* 82:478-80 Mr 6 '19

Macadam stone treated with deliquescent salts. H. H. Edwards. Eng N 82:976-7 My 15 '19

Method and costs of constructing pitchmac pavement. A. H. Blanchard. Eng & Contr 49:575-6 Je 5 '18

Oiling macadam streets. E. R. Gray. Eng & Contr 50:17-18 Jl 3 '18; Same cond. *Good Roads* n s 15:265 My 25 '18

Recommended method of resurfacing an old macadam road that is filled with ruts and holes. W. N. Bosler. *Munic Eng* 57:69-70 Ag '19; Same. Eng & Contr 52:275 S 3 '19

Recommended procedure in the construction of new macadam roads. M. D. Ross. *Munic Eng* 57:116-18 S '19

Reconstruction of worn out macadam upon a state road in Rhode Island. I. W. Patterson. *Il Munic Eng* 56:81-3 Mr '19

Some lessons from French roads. E. A. Kingsley. *Munic J* 46:176-7; 47:82-5 Mr 1, Ag 9 '19

Stone macadam roads, how shall we build them now? W. C. Buetow. *Il Good Roads* n s 18:1-2+ Jl 2 '19; Same cond. *Munic Eng* 57:173-4 O '19

Utilizing old pavements as foundations for new surfaces. *Il Munic Eng* 53:182-3 N '17

Water-bound and bituminous macadam laid in counties in 1917; tabulation. *Munic J* 44:320-1 Ap 20 '18

Waterbound macadam and surfacing oiling in cities, 1917; tabulation. *Munic J* 44:140-1 F 16 '18

**Cost**

Cost of constructing macadam pavement at Hamilton, Ont. E. R. Gray. Eng & Contr 50:243 S 4 '18

Cost of shaping up and rolling old macadam. Eng & Contr 50:248 S 4 '18

Cost of single track macadam roads in Kendall county, Illinois. Eng & Contr 49:250 Mr 6 '18

**Roads, Military**

American-built military roads in France. *Il Sci Am* 118:458 My 18 '18

American military roads. *Munic Eng* 55:10-11 Jl '18

American road-building work in French war zone organized. R. K. Tomlin, jr. Eng N 80:198-200 Ja 31 '18

British army timber roads in France with split poles and sleepers. *diag Eng N* 83:160 Jl 24 '19

Building roads at the front; abstracts. W. G. MacKendrick. Eng N 80:1078-9 Je 6 '18; Eng & Contr 50:15-16 Jl 3 '18

Macadam roads in war zone. J. M. Jasper. Eng N 80:378 F 21 '18

Military highways. L. W. Page. *J Fr Inst* 185:649-62 My '18

Military road building. B. C. White. *Il Power* 47:266-7 F 19 '18

Military road building difficult even in America. F. W. Harris. Eng N 80:948-9 My 16 '18

Military roads. W. D. Sohler. Eng & Contr 49:8-14 Ja 2 '18; Same cond. Eng N 79:1093-8 D 13 '17

Military roads as constructed and projected by the Construction division, War department, U.S.A., in 1918. D. B. Goodsell. *diags Munic Eng* 56:140-2 Ap '19

Road battalion builds army camp roads. *Il Good Roads* n s 15:291-3 Je 15 '18

Road builders at work close to front of American sector in France. R. K. Tomlin, jr. *Il diag Eng N* 80:953-6 My 16 '18; Same. Eng & Min J 105:949-52 My 25 '18

Roads in base section of American forces require widening and resurfacing. R. K. Tomlin, jr. *Il Eng N* 81:348-52 Ag 22 '18

Viable roads necessary quickly for war efficiency. J. W. Howard. *Munic Eng* 54:106-7 Mr '18

War department favors road construction. *Munic J* 44:206 Mr 9 '18

**Roads, Mountain. See Mountain roads****Roads, National**

Arguments against national highways answered. Eng N 82:1282 Je 26 '19

Arguments favoring national system of improved highways, constructed, maintained and financed with federal funds. M. O. Eldridge. *Munic Eng* 57:158-9 O '19

National highway policy and plan suggested. E. J. Mehren. Eng N 81:1112-17 D 19 '18

National highways. *Good Roads* n s 17:171-2 Ap 19 '19

National roads. E. A. Kingsley. *Munic J* 46:293-4 Ap 19 '19

**Roads, Oiled**

Oiling macadam streets. E. R. Gray. Eng & Contr 50:17-18 Jl 3 '18; Same cond. *Good Roads* n s 15:265 My 25 '18

Oiling roads in 1917. *Munic J* 44:318 Ap 20 '18

Waterbound macadam and surfacing oiling, 1917; tabulation. *Munic J* 44:140-1 F 16 '18

See also Road ollers; Road oils; Street oiling

**Roads, Plank**

Forest plank roads. P. G. J. Keenan. *diags plan Eng & Contr* 51:465 Ap 30 '19

Motor trucks and plank roads help to get out airplane spruce. *Il Eng N* 81:1164-6 D 26 '18

**Roads, State**

Cost and service of New York state highways. G. C. Diehl. *Good Roads* n s 18:53-4+ Jl 23 '19

Enlarged plan for road work in Virginia. A. P. Coleman. *Good Roads* n s 17:43-4 F 1 '19

Laying out, marking and maintaining a state trunk highway system. P. D. Sargent. Eng N 81:1189-90 D 26 '18

Patrol method of road maintenance as employed in Maine. P. D. Sargent. Eng & Contr 51:9 Ja 1 '19

Principles controlling the layout, marking and maintenance of trunk highway systems. A. R. Hirst. *map Eng N* 81:1065-8, 1128-34 D 12-19 '18; Same. *Good Roads* n s 17:18-15, 41-2, 49-52 Ja 11, F 1-8 '19; Excerpts. Eng & Contr 51:138-9, 148-9 F 5 '19

**Roads, State aid**

State highway work in Louisiana. D. Bule. II chart Good Roads n s 15:319-21+ Je 29 '18

State highway work in 1919. Good Roads n s 17:4-6 Ja 4 '19

State highways; discussion of the building of primary roads with special reference to the work in Oregon. E. J. Adams. Good Roads n s 15:4-5+ Ja 5 '18

State road work in Virginia in 1917. II Good Roads n s 15:13-15 Ja 12 '18

Weekly report for resident engineers on state aid road work. C. M. Hathaway. Eng & Contr 50:235 S 4 '18

**Roads, Tarred**

Surface treatment of gravel roads with refined tar. P. P. Sharples. II Good Roads n s 17:241-2 Je 7 '19

Roads and automobiles. See Automobiles and roads

Roasters. See Furnaces, Metallurgical

Robbins, Walter, 1875-

Chief, electrical section, War Industries board. Iron Tr R 63:111 JI 11 '18

Roberts, David, 1796-1864

Suggestions and models for architectural rendering; the lithographic work of David Roberts. L. V. Solon. II Arch Rec 46:211-19 S '19

**Rochester, New York**

Answering the war labor question; how the Rochester plan was shaped to meet the emergency of procuring maximum war production with a minimum of available munition workers. J. T. Hutchings. Iron Tr R 63:150-1 JI 18 '18; Same cond. Elec W 71:1255 Je 15 '18

Industrial city meets war demands in modern manner; practically pools its labor. Eng N 80:705-6 Ap 11 '18

**Sanitary affairs**

Refuse collection in Rochester. Munic J 46:464-6; 47:4-7, 16-19 Je 28-JI 12 '19

**Streets**

Snow removal in Rochester. II Munic J 44:49-51 Ja 19 '18

Street cleaning methods. II Munic J 46:101-4, 125-7, 187-91 F 8-15, Mr 8 '19

Street cleaning report. map Munic J 46:41-4 Ja 18 '19

Rock carvings. See Petroglyphs

**Rock drills**

Better dies make better drill bits. H. T. Walsh. II Eng & Min J 106:539 S 21 '18

Blast hole drills in quarry practice. W. A. Withington. Concrete 15:sup13 JI '19

Blow of the drill bit, sharp or dull. F. Richards. diags Eng & Min J 107:735-6 Ap 26 '19; Same. Eng & Contr 51:542-3 My 21 '19; Abstract. Eng N 82:1152-3 Je 12 '19

Central plant for sharpening drill steels saves money in quarrying. II diag plans Eng N 81:929-30 N 21 '18

Conservation of drill steel. diag Eng & Min J 106:354-5 Ag 24 '18

Development of the rock drill in America. C. A. Hirschberg. II diags Eng & Min J 108:677-81 O 25 '19

Diamond drilling in Cornwall. Eng & Min J 106:869 N 16 '18

Drill bits and drill steel for metal mining. G. H. Gilman. II diags Eng & Min J 103:823-32; 104:156-8 My 12, JI 28 '17; Same. Eng & Contr 49:58-63, 288-90; 50:189-92 Ja 16, Mr 20, Ag 21 '18

Drill mounting for drilling coal. B. B. Brewster. diag Coal Age 13:792 Ap 27 '18

Drill steel shanked with home-made rig. H. A. Sitterly. II Eng N 80:832 Ap 25 '18

Drill that goes anywhere. F. C. Perkins. II Sci Am 121:251 S 13 '19

Dust abatement in mines. W. O. Borchardt. Eng & Min J 106:1084-5 D 21 '18

Extracting stuck or broken drills. diags Eng & Min J 105:516 Mr 16 '18

Gasoline-driven diamond-drill outfit. J. M. Longyear, jr. Eng & Min J 106:343-5 Ag 24 '18

Ideal shop for sharpening drill steel. G. H. Gilman. diags plan Eng & Contr 51:644-8 Je 18 '19

Lubrication of rock drills. C. C. Phelps. diags Eng & Min J 103:376-7 Mr 3 '17

Making sharp drills effective. H. E. Scott. Eng & Min J 107:996-7 Je 7 '19

Methods and cost of sharpening and distributing drill steel. H. Crouch. Eng & Contr 49:297 Mr 20 '18

Mounting of hammer drills on tripods. Eng & Contr 48:409, 502 N 21, D 19 '17

Proper forming and treating of bits increase drilling efficiency. H. T. Walsh. Eng & Contr 50:362 O 16 '18

Relative merits of Carr and cross bits as disclosed by drilling tests. Eng & Min J 105:185-7 Ja 26 '18

Scott self-contained gasoline rock drilling plant. II Eng & Contr 49:110 Ja 30 '18; Munic Eng 53:254 D '17

Self-rotating hammer drill. diag Eng & Contr 49:134 Ja 30 '18

See also Drilling and boring (earth and rocks)

**Manufacture**

Pneumatic-electric rock drill and some of the tools used in its construction. F. A. Stanley. II diags plan Am Mach 51:107-10, 263-6 JI 17, Ag 7 '19

Progress in the manufacture of stoping drills. II Eng & Min J 107:964-6 My 31 '19

**Testing**

Efficiency tests of rock-drill accessory equipment. C. F. Willis. II diags Eng & Min J 106:287-92 Ag 17 '18; Excerpt. Eng & Contr 50:367-8 O 16 '18

**Rock dust**

Dust inhalation in mines; abstracts. J. S. Halldane. Sci Am S 86:119 Ag 24 '18; Eng & Min J 106:475-7 S 14 '18

Quick determination of incombustible matter in coal and rock-dust mixtures in mines. A. C. Fieldner, W. A. Selvig and F. D. Osgood. II diags U S Bur Mines Tech Pa 144:1-33 '18

Siliceous dust in relation to pulmonary disease among miners in the Joplin district, Missouri. E. Higgins and others. II diags plan maps U S Bur Mines Bul 132:1-108 '17

**Rock island, Illinois****United States arsenal**

Two-car train operation at Davenport. II map Elec Ry J 52:463-5 S 14 '18

Rockets, illuminating. See Illuminating rockets

**Rocks**

Air blasts in the Kolar gold field, India. E. S. Moore. Am Inst Min E Bul 135:687-94 Mr '18; Same cond. Eng & Min J 105:957-9 My 25 '18; Discussion. Am Inst Min E Bul 144:1765-6 D '18

Artificial pebbles for tube-milling. A. W. Allen. diags Eng & Min J 105:1033-41 Je 8 '18

Lithology of the Berea sand in southeastern Ohio, and its effect on production. L. S. Panyitty. diag map Am Inst Min E Bul 140:1317-20 Ag '18

New classification proposed for rock to be excavated. W. D. Smith. Eng N 82:907 My 8 '19; Same. Eng & Contr 51:652 Je 18 '19

Petrographic notes on the ore deposits of Jerome, Ariz. M. Rice. II Am Inst Min E Bul 141:1497-1502 S '18

Petrology of reservoir rocks and its influence on the accumulation of petroleum. A. W. Lauer. map 8 pls Econ Geol 12:435-72 Ag '17; Discussion. 13:65-9, 147-9, 316-24 Ja, Mr, Je '18

Results of physical tests of road-building rock in 1916 and 1917. P. Hubbard and F. H. Jackson, jr. U S Agric Bul 670:1-29 '18

Rock classification for engineering. W. D. Smith. Econ Geol 14:180-3 Mr '19; Discussion. L. V. Pirsson. Econ Geol 14:264-6 My '19

Significance of glass-making processes to the petrologist. N. L. Bowen. II Sci Am S 86:221 O 5 '18

**Rocks—Continued**

Smashing rocks with a falling weight. Sci Am 121:423 O 25 '19

See also Crystallography; Geochemistry; Geology; Granite; Limestone; Mineralogy; Sandstone; Shale; Stone

**Analysis**

Determination of combustible matter in silicate and carbonate rocks. A. C. Fieldner, W. A. Selvig and G. E. Taylor. diag U S Bur Mines Tech Pa 212:1-18 '19

**Rocks, Igneous**

See Gabbro; Porphyry

**Rocky Mountain coal mining institute**

Joint convention with the American institute of mining engineers, Colorado Springs, Colo., Sept. 3-6. Coal Age 14:633-41 O 3 '18  
Rocky Mountain institute meets in Salt Lake City. R. D. Hall. Coal Age 16:196-8 JI 31 '19

**Roebling, Charles Gustavus, 1849-1918**

Sketch. por Iron Tr R 63:857 O 10 '18

**Roentgen rays. See X rays****Roger Morris house. See Jumel mansion****Rogers, Arthur Durand**

Appreciation of the man and his work. E. J. Russell. por Arch Forum 30:90-1 Mr '19

**Rogers, P. J., 1856-1917**

Sketch. por Coal Age 12:1015 D 15 '17

**Roll feeds**

Acme roll feeds for press work. II Am Mach 50:862 My 1 '19

Calculations for roll feeds. S. B. Royal. diag Am Mach 50:217-18 Ja 30 '19

**Roller bearings**

Ball and roller bearings. J. B. Swan. diag Mech Eng 41:771-2 S '19

Hart roller bearings. II Am Mach 50:1157-8 Je 12 '19; Automotive Ind 40:1405 Je 19 '19

Making electric steel for roller bearings. E. K. Hammond. II diag Mach 25:318-26 D '18

Making the Timken roller bearing. E. K. Hammond. II Mach 25:829-35, 953-60 My-Je '19

Manufacturing Wright roller bearings. II diag Mach 24:1019-21 JI '18

Methods of the Nash motors co. M. E. Hoag. II Am Mach 48:326-8 F 21 '18

Power tests on cone winder. II Textile World 55:937-4 F 1 '19

Roller bearings for machine shop equipment. E. K. Hammond. II diag Mach 25:115-22, 236-45 O-N '18

Roller bearings for mine cars. R. W. Harris. Coal Age 16:545 S 25 '19

Roller bearings for steel mills. E. E. Eby. II Iron Tr R 63:94-6 JI 11 '18

Roller bearings in farm machinery. II Sci Am 120:490 My 10 '19

Roller bearings in machine-tool design. R. Porter. Am Mach 48:74-5 Ja 10 '18

See also Bearings

**Roller shifters**

Jigs for machining a roller shifter. C. F. Meyer. diag Mach 25:344 D '18

**Roller skates**

Zamboni pressed-metal wheel. II diag Mach 24:640-1 Mr '18

**Rollers**

Using pipes as rollers. L. P. Breedlove. diag chart Mach 24:1160 Ag '18

**Rollers, Lawn. See Lawn rollers****Rollers, Road. See Road rollers****Rolling**

Resistance to rolling of tractor wheels in soft ground. A. F. Moyer. diag Automotive Ind 38:949-53 My 16 '18; Discussion. E. F. Norelins. 39:25 JI 4 '18

**Rolling mills**

Acme hoop mill in the Chicago district. Iron Age 102:393 Ag 15 '18

American zinc products co.'s rolling mill. J. H. Dietz. II Eng & Min J 106:778-9 N 2 '18

Applications of flywheels in motor operation. C. E. Clewell. II diag Elec W 71:400-2 F 23 '18

Australian iron and steel plant erected on American principles; plant of the Broken Hill proprietary co., Newcastle, N. S. W. II diag plan Iron Tr R 63:1118-24 N 14 '18

Blooming mill now rolling plates. II plan Iron Tr R 63:1285-8 D 5 '18

Brass mill in the Middle West; Cleveland brass and copper mills, inc. L. J. Krom. II Metal Ind 16:1-5 Ja '18

Brier Hill steel co.'s new plate mill. II Iron Age 102:1521-4 D 19 '18

Control of manipulators. J. D. Wright. II diag Iron Tr R 62:849-51 Ap 4 '18

Departure in rolling mill casting shop practice. W. J. Pettis. Metal Ind 17:169 Ap '19

Design of blooming mills. H. H. Hummel. Iron Age 101:793-7 Mr 28 '18

Designing passes for wire rod mill roll train. W. S. Standiford. diag Am Mach 49:601-4 O 3 '18

Development of a rolling mill; Stamford rolling mills company. L. J. Krom. II Metal Ind 15:244-51 Je '17

Electric rolling mill plant. II diag Engineer 126:308, 312-14 O 11 '18

Erecting long-span roof over steel mill by rolling trusses to place. II diag plans Eng N 82:898-902 My 8 '19

Exceptional record of mark plate mill. C: Lundberg. II Iron Age 103:37-40 Ja 2 '19

Flywheel design for rolling mills; abstracts. G. E. Stoltz. Iron Age 101:328-30 Ja 31 '18; Iron Tr R 62:272-4 Ja 24 '18

Government rolling mill, Southampton. II plan Engineer 127:191-3, 202, 217-19 F 28-Mr 7 '19

How 8 brothers run Mansfield sheet and tin plate mill. II plan Iron Tr R 62:62-6 Ja 3 '18

Large plate mill for Japan. II diag Iron Age 103:820 Mr 27 '19; Iron Tr R 64:387-8 F 6 '19

Largest plate mill in the world; Lukens steel company, Coatesville, Pa. II Ry Mech Eng 93:49-50 Ja '19; Ry Age 66:466 F 21 '19; Iron Age 103:56-9 Ja 2 '19; Int Marine Eng 24:101-2 F '19

Liberty mill of the Carnegie steel co., Munhall, Pa. II plan Iron Age 101:18-22 Ja 3 '18; Int Marine Eng 23:31-3+ Ja '18; Eng N 80:20-3 Ja 3 '18

McDonald bar mill; new Carnegie plant in Youngstown (O.) district. Iron Age 101:179-80 Ja 10 '18

Making bar iron mechanically. J. F. Froggett. II plans Iron Tr R 65:929-33 O 2 '19

Making pressed steel car wheels. G. E. Thackray. II Iron Tr R 63:1005-9, 1066-9 O 31-N 7 '18

Manufacture of steel sheets. C. F. Poppleton. plan (supp) Iron Age 101:676-9 Mr 14 '18

Modernize English steel plants. II Iron Tr R 65:559-62 Ag 28 '19

Morgan continuous wire-rod rolling mill. II (supp) diag plan Engineer 127:597-9 Je 20 '19

New departure in rolling mills. II diag Iron Age 103:41-4 Ja 2 '19

New Liberty mill now makes plates. R. B. Woodworth. II Iron Tr R 62:38-9+ Ja 3 '18

New plant of Canton sheet steel co. J. D. Knox. II Iron Tr R 62:595-9 Mr 7 '18

9-in. merchant mill with motor drive. II Iron Age 102:631 S 12 '18

Operating features of two Morgan motor-driven mills. Iron Age 101:1679 Je 27 '18

Pass limitation in rolling mill practice. A. Musso. diag Mach 24:729 Ap '18

Plate and structural mills at Fairfield, Ala. diag plan Iron Age 103:47-9+ Ja 2 '19

Roller bearings for steel mills. E. E. Eby. II Iron Tr R 63:94-6 JI 11 '18

Rolling equipment of the Inland steel co. II plan Iron Age 104:155-61 JI 17 '19

Rolling mill of great flexibility. II Sci Am 121:207 Ag 30 '19

Rolls strip steel in long lengths. G. H. Manlove. II plan Iron Tr R 65:1317-20 N 13 '19

Safe practices in sheet mills. F. E. Morris. Iron Age 101:590 F 28 '18

**Rolling mills—Continued**

- Sheet mills struggle to fill needs. chart Iron Tr R 64:108-7 Ja 2 '19
- Slick wheel mill; commercial products formed directly from large rolled bars by rolling-forging process at Cambria steel works. il diags plan Iron Age 102:491-8 Ag 29 '18
- Standardizes steel ship materials. F. T. Llewellyn. Iron Tr R 64:1549-51 Je 12 '19
- Steel and wire plant of Keystone co. near Peoria. il plan Iron Age 101:42-4 Ja 3 '18
- Steel research laboratory planned for the Carnegie institute of technology. T. S. Barker. plan Mech Eng 41:465-8 My '19; Excerpt. Iron Age 103:954-5 Ap 10 '19; Same. Iron Tr R 64:891+ Ap 3 '19
- Steel research laboratory; with layout. Chem & Met Eng 20:614-15 Je 15 '19
- Steel wheels by a new process; a combination of rolling and forging. E. F. Cone. il Sci Am 120:650 Je 21 '19
- Strip mills of Trumbull steel co. il diag Iron Age 103:476-9 F 20 '19
- Templeborough rolling mill. Engineer 128:444 O 31 '19
- Trumbull steel co.'s strip mills. il Iron Tr R 62:971-5 Ap 18 '18
- Universal mill rolls strip steel. il Iron Tr R 64:691-5 Mr 13 '19
- Valley company now rolls plates. il plan Iron Tr R 63:1403-6 D 19 '18
- Valley plant produces own steel; Trumbull steel company. il plan Iron Tr R 64:641-5 Mr 6 '19
- Women in British rolling mills. Iron Age 102:636 S 12 '18
- Youngstown sheet & tube tandem plate mill. il plan Iron Age 101:1660-3 Je 27 '18; Iron Tr R 62:1603-6 Je 27 '18
- See also Iron industry and trade; Rolls (iron mills); Steel industry and trade; Steel works

**Power**

- American electrical reversing rolling mills. Engineer 125:325 Ap 12 '18
- Application of motors to steel-mill operations. C. E. Clewell. bibliog il Elec W 71:250-3 F 2 '18
- Application of the electric drive to rolling mills. A. P. Pyne. Inst E E J 57:35-40; Discussion. 40-7 D '18
- Comparison of drives for rolling-mill tables. W. S. Hall. Elec W 74:745-6 O 4 '19
- Considerations in determining the capacity of rolling-mill motors. R. F. Hamilton. diags Am Inst E E Pro 37:261-82 Mr '18
- Control for tandem brass-rolling mill drive. W. R. Clark. diags Elec W 74:133-4 Jl 19 '19
- Direct-current mill-type motors for steel mill auxiliary drives. J. D. Wright. il diags Gen Elec R 22:323-31 My '19
- Electric drive for steel mill main rolls. K. A. Pauly. il Gen Elec R 22:308-22 My '19
- Electric versus hydraulic drive for steel-mill auxiliaries. R. B. Gerhardt. Elec R 75:736-8 N 1 '19; Abstract. Iron Age 103:1568 Je 12 '19
- Electrical equipment of the Mark steel plant. J. P. Collopy. il diags plan Elec R 72:791-5 My 11 '18
- Electrically-driven plate mills. G. W. Haney. il diag plan Elec J 16:188-92 My '19
- Electrically-driven plate mills. G. E. Stoltz. charts diags Elec J 16:69-73 F '19; Abstract. Elec W 72:1141-2 D 14 '18
- Electrically-driven rolling mills. L. Rothera. il diags plan Engineer 125:146-8 F 15 '18; Abstracts. Elec W 71:575; 72:72 Mr 16, Jl 13 '18; Elec R 72:377 Mr 2 '18
- Electrically-driven 38-in. reversing cogging mill. il diags Engineer 126:510, 513-15 D 13 '18
- Equipment, power consumption, tonnage and capacities of mills of the Bethlehem steel co.; abstracts. J. T. Sturtevant. Iron Age 102:1016 O 24 '18; Iron Tr R 63:1292-3 D 5 '18
- Motor drops in speed as metal is wound on block. W. R. Clark. diag Elec W 74:80 Jl 12 '19

- Motor successfully replaces steam engine at plant of Cleveland hardware company. il Elec R 72:118-19 Ja 19 '18; Same. Elec W 71:99-100 Ja 12 '18
- Power required by cold rolling mills. C. E. Davies. diags Engineer 125:221-2 Mr 15 '18
- Shunt-wound reversing-mill motor. il Iron Tr R 62:317-18 Ja 31 '18
- Standardizing rolling mill motor ratings; abstracts. K. A. Pauly. Iron Tr R 63:724 S 26 '18; Iron Age 102:753 S 26 '18
- Status of electric drive. W. Sykes. il Iron Tr R 65:1184-5 O 30 '19
- Steam engines for rolling mills. il diags Engineer 128:136, 140-1 Ag 8 '19
- Steel-mill electric drive—present status and recent developments. B. Wiley. il diag Elec R 74:737-40 My 10 '19
- 10,000 h.p. electric reversing rolling mill equipment. il diags Engineer 127:334-6 Ap 4 '19

**Rolls**

- Rolls for the preparation of coking coals. il diags Coal Age 15:612-15 Ap 3 '19
- Unusual jobs with unusual materials. R. P. Deane. diags Am Mach 51:475 S 4 '19

**Rolls (for textiles)**

- Draft calculations in drawing. C. J. Brickett. diags Textile World 53:6111+ Je 15 '18
- Life of a top roll cot. J. Valentine. il Textile World 53:2518c+ D 15 '17
- Weighting of a top roll cot. J. Valentine. Textile World 53:5473+ My 11 '18

**Rolls (iron mills)**

- Design of rolls for making ship and boiler plates. S. W. Standiford. il diags Mach 25:396-400 Ja '19
- Diagonals for designing rolls for billet mills. A. R. Mitchell. Iron Age 102:sup 1198 N 14 '18
- Rapid forming of steel tank noses. diags Iron Tr R 65:286-7 Jl 31 '19; Iron Age 104:508 Ag 21 '19
- Selecting proper size mill rolls. F. Johnson. diags Iron Tr R 63:1466-8 D 26 '18
- Steel-mill roll shop on the Pacific coast; Judson manufacturing co., Oakland, Calif. F. A. Stanley. il Am Mach 50:15-16 Ja 2 '19

**Roman architecture. See Architecture, Roman Rome, Italy****Antiquities**

- Syrian remains discovered in Rome; the sanctuary of Gionas on the Janiculum. N. Pascazio. il Sci Am S 85:212-13 Ap 6 '18

**Architecture**

- Palazzo Massimo alle Colonne. H. W. Germann. il diags Arch Forum 31:61-4 Ag '19
- Villa Borghese. J. W. Dow. il Am Arch 115:837-43 Je 18 '19

**Roof flanges**

- Roof flange for soil and vent pipes. diag Metal Work 91:274 F 28 '19

**Roof gardens**

- Watering the garden by long-distance telephone. il Sci Am 119:105+ Ag 10 '18

**Roof leaders**

- Flexible roof connections for inside leaders. R. J. Gordon. diags Dom Eng 86:340-2 F 22 '19

- Slip joint connections to leaders at roof gutters on factories and tall buildings. R. J. Gordon. diags Dom Eng 86:385-7 Mr 1 '19

**Roofing**

- American roofing plates. il Metal Work 89:4-6 Ja 4 '18
- Bituminous roofing materials and construction. G. L. Wilson. Chem & Met Eng 20:425-8, 484-6 Ap 15-My 1 '19
- Clay tile makes a picturesque roof. E. I. Freese. diags Bldg Age 41:187-8 Je '19
- Color in modern roofing. Am Arch 116:450 O 1 '19
- Corrugated concrete roofing. Chem & Met Eng 19:330 S 15 '18
- English slate and tile roofing methods. il diags Metal Work 90:703-5 D 27 '18
- Experience in concrete roof tile manufacture, with costs. D. Helmuth. il Concrete 15:160-1 O '19

**Roofing—Continued**

- Gas as a fuel has alluring advantages to the maker of asphalt roofing material and shingles. C. H. Kallstedt. *Il diags Am Gas Eng J* 108:509-12 *Je* 1 '18
- Heat transmission through roofing. W. M. Thornton. *Iron Age* 100:1526 *D* 27 '17
- Manufacture of large concrete roofing tile. *Il diags Concrete* 15:157-9 *O* '19
- Manufacture of tin plate for roofing. E. C. Folkening. *Metal Work* 89:577-80 *My* 3 '18
- Metal roofing merit widely recognized. N. S. Goudy. *Metal Work* 92:217-18 *Ag* 22 '19
- Metal tiles and shingles. *Il Metal Work* 89:39-41 *Ja* 4 '18
- Modern roofing materials. C. H. Stringer. *Am Arch* 114:361-4, 537-42 *S* 25, *N* 6 '18
- New impetus for tin roofing industry. *Metal Work* 92:62-3 *Jl* 18 '19
- Photographs of tin roofs wanted. W. F. Dusk. *Il Metal Work* 91:27 *Ja* 3 '19
- Prepare now for tin roofing after the war. *Il Metal Work* 90:608-9, 632-3 *N* 29-D 6 '18; *Discussion*. P. L. Biersach. 90:684 *D* 20 '18
- Pyrobar, gypsum long-span roof tile and roof nailing tile. *Il diags Eng & Contr* 49:111 *Ja* 30 '18
- Romance of roofing slate. H. B. Burton. *Il Am Arch* 114:307-11, 333-7 *S* 11-18 '18
- Roofing trade opportunities in rural districts; slate and metal shingles. *diags Metal Work* 90:327-9 *S* 20 '18
- Shall tin roofing interests be left unprotected? F. K. Chew. *Metal Work* 91:754-5 *Je* 13 '19
- Sheet zinc for roofing. W. H. Seamon. *diags Eng & Min J* 106:620-9 *O* 5 '18
- Structural service department; roofing. S. W. Jones. *Am Inst Arch J* 7:288-90, 375-8, 461-4, 546-8 *Je*, *Ag*, *O*, *D* '19
- Tin popular as roofing for southern mills. *Metal Work* 92:310 *S* 12 '19
- United effort to advance tin roofing. *Metal Work* 91:343 *Mr* 14 '19
- Use of roofing materials in Argentina. *Metal Work* 90:216 *Ag* 23 '18
- Use of substitutes for copper and tin as roofing metals. E. Stern. *Metal Work* 91:551-2 *My* 2 '19
- Who does the slate roofing in your town? *Il diags Metal Work* 89:522-3 *Ap* 19 '18
- Working to protect tin roofing interests. S. H. Taylor. *Il Metal Work* 91:521-4 *Ap* 25 '19
- Zinc for roofing. *Il Eng & Min J* 108:399 *S* 6 '19

*See also* Roofs; Roofs, Concrete

**Roofs**

- Bituminous roofing materials and construction. G. L. Willson. *Chem & Met Eng* 20:425-8 *Ap* 15 '19
- Compression wood and failure of factory roof-beam. G. E. Heck. *Il Eng N* 83:508-9 *S* 11 '19
- Condensation from roof. *Textile World* 53:4147 *Mr* 9 '18
- Covering dome shaped roofs. W. Neubecker. *diags Metal Work* 91:575-7, 642-3, 722-4, 782-3; 92:11-12 *My* 9, 23, *Je* 6, 20, *Jl* 4 '19
- Daylight vs. sunlight in sawtooth-roof construction. W. S. Brown. *diags Am Arch* 115:33-40 *Ja* 1 '19; *Same cond.* *Am Soc M E J* 40:1025-9 *D* '18; *Same cond.* *Eng & Contr* 51:82-5 *Ja* 22 '19
- Decay in mill-roof timber. R. J. Blair. *Il Textile World* 54:2857-4, 2981 *D* 7-14 '18
- Designing a wooden roof truss for 36 ft. span. *diags Bldg Age* 41:160-1 *My* '19
- Difficult problem in roof framing. *diags Bldg Age* 39:159, 214-15, 267-8; 40:33 *Mr-My* '17, *Ja* '18
- Encasing steel roof trusses in a church building. N. Serracino. *Il diags plan Am Arch* 116:357-60 *S* 10 '19
- Erecting long-span roof over steel mill by rolling trusses to place. *Il diags plans Eng N* 82:898-902 *My* 8 '19
- Formula and table of weights for steel roof trusses. M. L. Murray. *Eng & Contr* 51:672 *Je* 25 '19; *Abstract.* *Eng N* 82:884 *My* 1 '19
- Gypsum a structural material. *Il Am Arch* 113:483-9 *Ap* 17 '18

- How define the pitch of a roof? R. Fleming. *diags Eng N* 82:286 *F* 6 '19
- How steep should the roof be? E. I. Freese. *Bldg Age* 40:403 *Ag* '18; *Same.* *Metal Work* 90:277-8 *S* 6 '18
- How to build and fireproof with hollow tile. J. J. Cosgrove. *diags Bldg Age* 40:576-7; 41:28-30 *D* '18 *Ja* '19
- Making English roofs watertight with soakers and flashings. *Il diags plans Metal Work* 89:701-3 *My* 31 '18
- Practical methods and details of roof framing. L. S. Keir. *diags Bldg Age* 40:422-4, 484-6, 530-1; 41:6-7, 58-9, 96-7 *S-N* '18, *Ja-Mr* '19
- Proper methods of applying roofing on a gypsum roof deck. C. F. Columbia. *Il Eng & Contr* 52:457-9 *O* 22 '19
- Relative effectiveness of various types of roof construction in preventing condensation on the under surface; experiments made in the testing laboratory of F. P. Sheldon & son. *Am Arch* 113:807-10 *Je* 12 '18
- Roof construction for factories with excessive moisture. F. J. Hoxie. *Il diags Am Arch* 115:181-7 *Ja* 29 '19
- Roof truss for eighty-five foot span. R. Shepherd. *Il diags Bldg Age* 40:516-17 *N* '18
- Roof trusses for a suburban church. *Il Bldg Age* 41:82 *Mr* '19
- Sheet zinc for roofing; with cost tables. W. H. Seamon. *diags Eng & Min J* 106:620-9 *O* 5 '18
- Standing seam copper on curved surface. *diags Metal Work* 89:383-4 *Mr* 22 '18
- Steel cantilever roof to shelter Panama boat landing. R. C. Hardman. *diags plan Eng N* 80:996 *My* 23 '18
- Thatched roof effect used on a house built at Cleveland, O. *Il diags plans Bldg Age* 40:227-30 *My* '18
- Timber-arch truss roof with steel gusset-plates. H. W. Sholey. *Il diags plans Eng N* 80:595-7 *Mr* 28 '18
- Using the steel square in roof framing. G. L. McMurphy. *diags plans Bldg Age* 40:237-9 *My* '18
- Weights of steel roof trusses by empiric formulas. R. Fleming. *Eng N* 82:576-7 *Mr* 20 '19
- What the Chinese use for roofs. *Bldg Age* 40:77 *F* '18
- Zinc as a roof covering. W. Hutton. *diags Metal Work* 91:370-1 *Mr* 21 '19
- See also* Arches; Architecture; Building; Car roofs; Cellings; Cornices; Domes; Girders; Gutters (roof); Roofing; Shingles; Shingling; Skylights; Strains and stresses; Trusses

**Roofs, Concrete**

- Concrete roof lifted in one unit. *Il Concrete* 14:231 *Je* '19
- Detailed instructions help make better roofs. *diags Concrete* 15:11 *Jl* '19
- Light and ventilation insured in factory by unique roof; special form of concrete sawtooth. N. J. Bell. *Il diags Eng N* 80:667-8 *Ap* 4 '18
- Repairing cracks in concrete roofs. *Bldg Age* 40:22 *Ja* '18
- Roosevelt, Theodore, 1858-1919
- American memorial to Theodore Roosevelt. G. W. Maher. *Am Arch* 115:268-4 *F* 19 '19
- Portrait. *Inland Ptr* 62:512a *F* '19

**Root beer**

- Experiments on so-called root-beers. C. H. LaWall and H. Leftmann. *J Fr Inst* 188:545-6 *O* '19

**Roots**

- New discoveries concerning the manner in which roots absorb water. *Il Sci Am* 121:140 *Ag* 9 '19
- Some biological features of roots. W. A. Cannon. *Il Sci Am* 119:373 *N* 9 '18

**Rope**

- Care of rope. *Textile World* 53:3581 *F* 2 '18
- Safe load chart for rope slings. F. W. Salmon. *chart diags Am Mach* 49:342 *Ag* 8 '18
- Selecting and protecting rope. J. Upton. *Eng & Contr* 50:366 *O* 16 '18
- See also* Cables; Cordage; Knots and splices; Manila rope; Wire rope



Rope, Wire. See Wire rope

# Rope driving

Kinks in the handling of rope drives. A. J. Dixon. *diag Power* 48:57-8 J1 9 '18

# Ropeways. See Cableways

Rosin. See Gums and resins

# Rossi, Auguste J.

Presentation of Perkin medal to Auguste J. Rossi. *por Met & Chem Eng* 18:114-20 F 1 '18; Same. *J Ind & Eng Chem* 10:138-45 F '18

# Rotary converters

Adapting automatic control to motor-started converters. R. J. Wensley. *il diags Elec Ry J* 53:948-51 My 17 '19

Breco converter. *il Elec R* 72:815-16 My 11 '18

Condensation on roof causes flash-over. L. M. Bergman. *Elec R* 72:347 F 23 '18

Erecting rotary converters without a crane. N. L. Rea. *diags Power* 46:368-9 D 25 '17

New type of rotary converter. *Elec W* 73:1103-4 My 24 '19

Problems in three-wire distribution from rotary converters. L. Dorfman. *diags Elec J* 16:500-2 N '19

Protection of converter control. *il Elec R* 73:336 Ag 31 '18

Remedying flashover at the rotary rings. G. A. Her. *Elec W* 73:323 F 15 '19

Rotary converter hunting. *Power* 47:413 Mr 19 '18

Slip-ring insulation repair. D. S. Regan. *diag Power* 47:593 Ap 23 '18

Transformer connection affects synchronous converter stability. M. L. Purves. *Elec R* 74:432 Mr 15 '19

# Rotation

Magnetization by rotation. *Sci Am S* 84:373 D 15 '17

# Rotch travelling scholarship

Student life in Italy. R. J. Batchelder. *Am Arch* 116:138-40+ J1 30 '19

# Rothamsted experimental station

Credibility of long-continued experiments. E. J. Russell. *Sci Am S* 88:106 Ag 16 '19

# Rotors

Critical speeds of rotors resting on two bearings. W. Rautenstrauch. *diags Am Mach* 46:97-102 Ja 18 '17; Discussion. 46:1133-4; 47:1053-4 Je 28, D 13 '17

Design of rotor cores for electrical machines. W. Knight. *Elec W* 71:91-2 Ja 12 '18

Interchangeability of squirrel-cage rotors. B. B. Ramey. *Elec J* 16:481-2 N '19

Mechanical design and specification of the turbo-alternator rotor. S. F. Barclay. *diags Inst E E J* 56:472-90; Discussion. 490-516 J1 '18

# Round Mountain mining company

Report, 1918. *Eng & Min J* 107:1172 Je 28 '19

# Roundhouses

American looking roundhouse on a Chinese railway. *il Concrete* 15:90a Ag '19

Complete modern engine terminal installation. *il diags plan Ry Age* 66:994-7 Ap 18 '19

Handling roundhouse coal. *il Power* 48:372-5 S 10 '18

Heating and ventilation of engine houses. T. W. Reynolds. *diags plans Ry Age* 66:1245-8 My 23 '19

Modern tendencies in enginehouse design. E. M. Haas. *diags Ry R* 64:787-91 My 31 '19; Same cond. *Ry Age* 66:1199-1201 My 16 '19; Same cond. *Ry Mech Eng* 93:521-2 S '19; Abstract. *Eng & Contr* 51:659 Je 18 '19

Modern tendencies in the design of roundhouses. G. E. Lemmerich. *il diags Ry Age* 66:587-90 Mr 14 '19

Most pressing need: locomotive repair facilities. *Ry R* 62:243-4 F 16 '18

Pennsylvania lines improved locomotive facilities; shop at Logansport, Ind., and roundhouse at Stark, O. *il diags plans Ry Age* 67:863-9 O 31 '19

Rectangular engine house avoids use of turntable. *il diags plan Eng N* 81:593-4 S 26 '18

Typical plan and section of stall of enlarged roundhouse, Pennsylvania lines west, Columbus, Ohio. *Ry R* 64:916 Je 21 '19

Unusual form of roundhouse smoke jack. *il diags plan Ry Age* 67:155-7 J1 25 '19

See also Locomotive shops; Locomotive terminals; Railroads-Shops

# Equipment

Blower pipe stand for roundhouses. E. A. Miller. *diags Ry Mech Eng* 93:416 J1 '19

Enginehouse cranes. *diags Ry Mech Eng* 93:205-6 Ap '19

# Roundhouses, Concrete

Concrete moulding plant, Pennsylvania R. R. *il diags plans Ry R* 64:425-33 Mr 22 '19

Modern engine terminal of the Toledo & Ohio Central Ry., Columbus, O. *diags plan Eng & Contr* 51:649-50 Je 18 '19

Rectangular engine house, Long Island railroad. L. V. Morris. *il diags Ry R* 64:796-7 My 31 '19

Rectangular reinforced concrete enginehouse. *il diag plan Ry Age* 66:891-2 Ap 4 '19

Toledo & Ohio Central engine terminal. *il diags plans Ry R* 64:343-5 Mr 8 '19

Unusual concrete roundhouse at Proctor, Minn. W. E. Hawley. *il diags plan Ry Age* 66:428-30 F 21 '19

# Routing systems

Board that helps plan. *il Factory* 20:636 Ap '18

Card index production system. L. Johnson. *Mach* 24:522-3 F '18

Combined schedule-record-route sheet. E. T. Spidy. *Ind Management* 55:456 Je '18

Controlling production at long range. L. V. Fraley. *il diags Ind Management* 58:195-7 S '19

Controlling production in a jobbing shop. E. L. Shaner. *il Iron Tr R* 65:623-9 S 4 '19

Cutting costs in the factory office; routing forms graphically. *chart Factory* 23:200+ J1 '19

Efficient planning and routing aids production in new Cleveland plant. E. W. Kreutzberg. *il diags Iron Tr R* 65:833-8 S 25 '19

Following work through the plant. A. Mann. *Foundry* 47:742-3 O 15 '19

Graphic representation reduces travel in meter repair shop hundreds of miles with consequent saving in costs. H. M. Riley. *diags Am Gas Eng J* 111:461-7 N 15 '19

Handling specials as routine. H. F. Porter. *Factory* 20:1079-80 Je '18

How to locate machine tools. G. H. Radebaugh. *il Ind Management* 55:122-5 F '18

Method of regulating shop output. E. T. Spidy. *Ry Mech Eng* 92:527-9 S '18

Planning and controlling production. I. R. DeArmond. *il Mach* 26:60-6 S '19

Preventing the side-tracked order. C. L. Pool. *il Factory* 21:43 J1 '18

Routing a job through the shop. *Elec Ry J* 53:328 F 15 '19

Service profits depend on: routing of job. H. C. Skinner. *diags plans Motor Age* 36:22-3 S 4 '19

Shipbuilding equipment and methods at Fore river; shop routing and group labor systems. *Eng N* 83:362-5 Ag 21 '19

Shop routing system reduces handling costs. F. L. Prentiss. *il Iron Age* 103:867-70 Ap 3 '19

See also Control boards; Machine shop management; Planning boards

# Rubber

Catalysts in vulcanization. D. Spence. *J Ind & Eng Chem* 10:115-17 F '18

Chemical and mechanical-technical examination of rubber. *Sci Am S* 86:196 S 28 '18

Chemistry of rubber. S. C. Bradford. *Sci Am S* 88:82-3 Ag 9 '19

Crude rubber industry and the war. *Am Ind* 19:11-12 My '19

Defects in industrial rubber goods. F. Danerth. *Met & Chem Eng* 18:531-4 My 15 '18

Depolymerization and oxidation of raw rubber. A. Van Roessem. *Sci Am S* 85:176 Mr 16 '18

Deresination of rubber. A. H. King. *Chem & Met Eng* 19:141-5, 203-7 Ag 1-15 '18

Effect of certain accelerators upon the properties of vulcanized rubber. G. D. Kratz and A. H. Flower. *Chem & Met Eng* 20:417-20 Ap 15 '19

**Rubber—Continued**

- Effect of exposure to weather on rubber gas mask fabrics. G. St J. Perrott and A. E. Plumb. *J Ind & Eng Chem* 11:438-43 My '19
- Electrical control for rubber calendars. Elec W 71:491 Mr 2 '18; Elec R 72:438-9 Mr 9 '18
- Growing rubber for tires. *Il Motor Age* 34:26-7 N 14 '18
- Huge rubber demand expected after war. F. Copeman. *Automotive Ind* 37:841 N 8 '17
- Japan's progress in rubber manufacture. *Am Ind* 19:31 Ag '18
- Latest developments in rubber manufacture. G. Reeves. *Automotive Ind* 37:761 N 1 '17
- Materials for the household. *U S Bur Stand Circ* 70:140-5 '17
- Meeting of the rubber division, American chemical society. A. H. King. *Chem & Met Eng* 21:429-31 O 1 '19
- Plight of the rubber men. *Am Ind* 19:8 S '18
- Production and preparation of raw rubber. *Il Quags Engineer* 12:399-401, 421-2, 444-6, 467-9 N 9-30 '17
- Resistance of materials. G. S. Chiles and R. G. Kelley. *Il diag* *Ry Mech Eng* 93:181-4, 241-3 Ap-May '19
- Rubber and jelutong; a review of the evidence in the recent customs house dispute as to classification of gums. F. Dannenrth. *Met & Chem Eng* 18:296-8 Mr 15 '18
- Rubber as a colloid. D. F. Twiss. *Sci Am* S 87:306-7 My 17 '19
- Rubber embargo and its effect on the industry. A. H. King. *Il Chem & Met Eng* 19:23-6 J 1 '18
- Rubber industry. *Chem & Met Eng* 21:401-2 S 15 '19
- Rubber industry and what science has done for it. J. B. Farmer. *Sci Am* S 86:178-9 S 21 '18
- Salvage and reclamation department of the B. F. Goodrich rubber company. G. W. Sherman. *Il chart Ind Management* 58:176-8 S '19
- Trade acceptance in the rubber tire industry. E. B. Knowles; J. T. Crowley. *Am Ind* 19:26-7 Ja '19
- 12 per cent of rubber manufactures value in tires. M. T. Riley. *Automobile* 37:456 S 13 '17
- Uses of gas in manufacture of rubber in its various forms. G. C. Shadwell. *Il Am Gas Eng J* 109:146-7 Ag 17 '18
- Vulcanization of rubber. A. H. King. *Met & Chem Eng* 18:243-8 Mr 1 '18
- Vulcanization of rubber at constant temperature and by a series of increasing temperatures. G. D. Kratz and A. H. Flower. *J Ind & Eng Chem* 11:30-3 Ja '19
- Vulcanization of rubber by selenium. C. R. Boggs. *J Ind & Eng Chem* 10:117-18 F '18
- Vulcanization without sulphur by Ostromyslenski's method. *Sci Am* S 87:29 Ja 11 '19
- War industries board to cut tire and tube production 50 per cent during August and September. *Automotive Ind* 39:206+ Ag 1 '18
- War problems of the rubber industry. A. H. King. *Chem & Met Eng* 19:577-8 O 1 '18
- World's rubber. *Sci Am* 118:358 Ap 20 '18
- See also Tires*
- Analysis**
- Determination of free carbon in rubber goods. A. H. Smith and S. W. Epstein. *U S Bur Stand Tech Pa* 136:1-8 '19; Same. *J Ind & Eng Chem* 11:33-6 Ja '19; Abstract. *J Fr Inst* 188:560-1 O '19
- Volumetric determination of free sulfur in soft rubber compounds. H. S. Upton. *J Ind & Eng Chem* 10:518-20 J 1 '18
- Rubber, Artificial**
- Synthetic rubber. *Sci Am* S 87:358 Je 7 '19
- Synthetic rubber. F. Dannenrth. *Met & Chem Eng* 18:39 Ja 1 '18
- Whole natural gas industry today responsive to problem of chemical possibilities of natural gas. J. B. Garner. *Am Gas Eng J* 108:506-7 My 25 '18; Same. *Gas Age* 41:559 Je 15 '18
- Rubber, Substitutes for**
- Regenerated rubber, agatit. *Automotive Ind* 39:187 Ag 1 '18
- Rubber embargo and its effect on the industry. A. H. King. *Il Chem & Met Eng* 19:23-6 J 1 '18
- Rubber substitutes. A. H. King. *Il Met & Chem Eng* 18:630-6 Je 15 '18
- Some American substitutes for rubber. F. Dannenrth. *Sci Am* 121:8+ J 5 '19
- Rubber factories**
- Lighting of rubber-goods factories. F. H. Bernhard. *Il Elec R* 73:653-7 O 26 '18
- Rubber rings**
- Better canning rubbers. *Sci Am* 118:244-5 Mr 16 '18
- Rubber tires. See Tires, Automobile**
- Rubidium**
- Proximate quantitative method for the determination of rubidium and caesium in plant ash. W. O. Robinson. *J Ind & Eng Chem* 10:50-1 Ja '18
- Rudders**
- Engine reverse gear eliminated. *Il diag* *Marine R* 49:186-7 Ap '19
- Making castings used in ship construction. B. Shaw and J. Edgar. *diag* *plans Foundry* 47:251-5+, 297-300+, 336-9, 388-92 My 1-Je 15 '19
- New departure in rudders. *Il diag* *Sci Am* 119:249 S 28 '18
- Reversing a ship with the rudder. *diag* *Sci Am* 120:492+ My 10 '19
- Reversing and control rudder. *Il Int Marine Eng* 23:549-50 S '18
- Steering of ships. *Int Marine Eng* 24:127 Mr '19
- Rugs**
- Production of Persian rugs. *Textile World* 53:3165+ Ja 12 '18
- Rumania**
- Malaria in Rumania. *Sci Am* S 85:277 My 4 '18
- Rumex crispus**
- Proximate analysis of *Rumex crispus*, and a comparison of its hydroxy-methyl-anthraquinones with those from certain other drugs. G. D. Beal and R. E. Okey. *Am Chem Soc J* 41:693-706 Ap '19
- Run-off**
- Graphical method for estimating storm-water run-off. R. W. Horner. *diag* *Eng N* 83:282 Ag 7 '19
- Progress report of Boston society of civil engineers' committee on run-off. *Boston Soc C E J* 5:387-422 D '18
- Runways**
- Cantilever runways carried on central girder quickly moved. *Il diag* *Eng N* 81:865-6 N 7 '18
- Rural architecture. See Country houses; Farm buildings**
- Rural electric service. See Electric service, Rural**
- Rural motor express. See Motor trucks in freight service**
- Rural water supply. See Water supply, Rural**
- Rush-hour traffic. See Street railroads—Traffic**
- Ruskin, John, 1819-1900**
- Sketch. H. L. Bullen. *por Inland Ptr* 63:165-6 My '19
- Russia**
- New Russia. W. B. Thompson. *Eng & Min J* 105:235-7 F 2 '18
- Russia—an opportunity for American engineers. G. C. Whipple. *Boston Soc C E J* 4:393-421 D '17
- Russia today; its lessons and opportunities. L. Urquhart. *Eng & Min J* 107:402-8 Mr 1 '19
- See also Crimea; Ukraine*
- Commerce**
- Can Germany regain her Russian trade? *map Mach* 26:117-19 O '19
- Commercial relations of allies with Russia. S. H. Bunnell. *Iron Age* 101:1266-7 My 16 '18
- How we can help Russia—today; suggestion for American exporters and manufacturers interested in building for the future. T. H. Uzzell. *Il Iron Tr R* 62:73-8 Ja 3 '18

**Russia—Commerce—Continued**

- Interest of American machinery manufacturers. S. H. Bunnell. *Am Mach* 49:155-7 J1 25 '18
- Lumber conditions. R. E. Simmons. *Am Lumberman* 2292:44-6 Ap 19 '19
- Prospect of trade relations with Russia. D. L. Hough. *Iron Age* 101:144-5 Ja 10 '18
- Russian market. S. Nuorteva. *Textile World* 55:3501+ Je 7 '19
- Will Russia be ready to buy in another year? J. P. T. Lundin. *Mach* 25:926-7 Je '19

**Economic conditions**

- Developing export trade. R. Martens. *Mach* 25:709-10 Ap '19
- Economic conquest of Russia. *Sci Am* 119:66 J1 27 '18
- How workmen fare under Bolshevism. H. Vorst. *Eng & Min J* 106:1080-1 D 21 '18
- Irtysk corporation developments in Siberia and the Russian internal situation. *Eng & Min J* 105:275-9 F 9 '18
- Northern Russia; economic features. *Am Ind* 19:33-4 Mr '19
- Russia needs extensive municipal improvements. S. H. Bunnell. *Eng N* 80:1095-7 Je 6 '18
- Russian industrial nightmare. H. Klein. *Eng & Min J* 106:875-6 N 16 '18

**Industries and resources**

- Extracts from the diary of a Bolshevik smelterman. J. P. Hutchins. *Eng & Min J* 105:468-70 Mr 9 '18
- How Germany exploits Russian forests. *Am Lumberman* 2254:58 J1 27 '18
- Industrial disintegration of Russia. S. H. Bunnell. *Iron Age* 101:314-16 Ja 31 '18
- Irrigation opportunities in Russia are great. V. V. Tchikoff. *map Eng N* 82:190-2 Ja 23 '19
- Map of the Russian empire, showing situation of the principal mining and mineral districts. *Eng & Min J* 106:342 Ag 24 '18
- Pre-war Russian iron and steel plants. A. Gouvy. *Iron Age* 102:1501-6 D 19 '18
- Russia's industrial decline. *Am Mach* 48:241-2 F 7 '18
- Russia's production of platinum. A. R. Merz. *bibliog map J Ind & Eng Chem* 10:920-5 N '18
- Trade conditions in Russia. H. Kostellanetz. *Am Ind* 18:29 Ap '18
- See also Iron industry and trade—Russia; Mines and mineral resources—Russia; Water power—Russia

**Navy**

- Stolen battleships. *Sci Am* 119:62 J1 27 '18

**Population**

- Races of Russia. A. Hrdlička. *map Sci Am* S 87:364-5, 378-9 Je 7-14 '19

**Ports**

- Russia's seaports and national development. N. Kostellanetz. *Am Ind* 18:32-3 Mr '18

**Railroads**

- See Railroads—Russia
- Russian railway service corps. See United States—Army—Russian railway service corps
- Rust. See Corrosion and anti-corrosives
- Rust-proofing. See Corrosion and anti-corrosives; Metal protection
- Rusts (botany)
- Banish the barberry; common barberry a menace in spring-wheat states. *Il diag Sci Am* S 86:76 Ag 3 '18; *Am Lumberman* 2242:34 My 4 '18
- See also Pine blister rust
- Rutile
- Titanium and rutile. *Sci Am* S 87:119 F 22 '19
- Rutland railroad
- Shop improvements for the Rutland railroad. *Il plans Ry R* 65:789-91 N 29 '19

**S****Saar valley**

- France may deny material to Germany. F. Miltoun. *Iron Tr R* 65:158-9 J1 17 '19
- See also Mines and mineral resources—Saar valley

**Sabine, Wallace Clement, 1868-1919**

- Appreciation. C. O. Cornelius. *Arch Rec* 46:286-7 S '19
- Life work of the late Wallace C. Sabine; an appreciation. P. E. Sabine. *Am Arch* 116:1-3 J1 2 '19

**Saccharin**

- Saccharin as a sugar substitute. *Sci Am* S 85:229 Ap 13 '18

**Sacramento, California**

- Sacramento state buildings competition. W. C. Hays. *Il plans Am Arch* 115:124-6, pl 25-34 Ja 22 '19

**Safes**

- Floating safes for use aboard steamers. *Il Sci Am* 118:551 Je 15 '18

**Safety at sea**

- Merchant ship design and torpedo attack. *Sci Am* S 85:283 My 4 '18
- Scientific signalling and safety at sea. *diags Sci Am* S 87:334-5 My 24 '19
- Synchronous signalling and safety at sea. J. Joly. *Engineer* 125:331-2 Ap 19 '18; *Abstract. Sci Am* S 85:400 Je 22 '18
- See also Fires at sea; Fog signals; Life preservers; Lifeboats; Lighthouses; Ships, Unsinkable

**Safety cars. See Street cars—Safety cars**

- Safety code, National electrical. See National electrical safety code

**Safety congress. See National safety council**

- Safety council, National. See National safety council

**Safety devices and measures**

- Accident prevention methods that work. W. Lamkie. *Ind Management* 56:112 Ag '18
- Additional safeguards required for women employees. P. F. O'Shea. *Il Ind Management* 57:301-2 Ap '19
- Benefits of accident prevention in contracting. F. S. Robinson. *Eng & Contr* 50:311-12 S 25 '18
- Character and frequency of accidents to workmen in erection of structural steel work. F. W. Gardiner and S. Johannesson. *Eng & Contr* 49:87-8 Ja 23 '18
- City planning is closely related to public safety. T. Adams and H. Bartholomew. *Eng N* 81:572-4 S 26 '18
- Converting foremen to safety first. *Factory* 21:288+ Ag '18
- Coöperation in eliminating accidents. H. P. Heyne. *Am Mach* 48:753-4 My 2 '18
- Course of study in accident prevention. *Ry Age* 65:1120 D 20 '18
- Crying needs of the safety movement. R. N. Hemming. *Elec Ry J* 52:744 O 26 '18
- Dangers in the manufacture and industrial uses of wood alcohol. *Il N Y Dept Labor Sp Bul* 86:1-17 '17
- Educational methods in safety work. F. K. Elam. *Iron Tr R* 64:264-5 Ja 23 '19
- Effective safety display of Willys-Overland, Inc., warns against use of poor tools. *Il Automotive Ind* 29:323 Ag 22 '18
- Engine room construction suggestions. *Am Gas Eng J* 108:266 Mr 23 '18
- Engine room rules of the National safety council. *Am Gas Eng J* 108:151-2 F 16 '18
- Following up plant injuries. F. E. Morris. *Iron Age* 102:833 O 3 '18
- Foreman as safety engineer. H. P. Heyne. *Iron Age* 101:1280-1 My 16 '18
- General lighting safety orders. *J Elec* 43:173-4 Ag 15 '19
- General safety precautions. *diags Am Ind* 19:supl-4 Ja; supl-4 F; supl-4 Mr; sup 1-4 Ap; supl-4 My '19

**Safety devices and measures—Continued**

- Hold-off card system eliminates accidents. A. Bauhan. Elec W 74:705 S 27 '19
- How a municipality teaches safety. H. P. Coffin. Elec Ry J 51:1192 Je 22 '18
- How accident prevention work may be carried on in small companies. W. Machlachlan. Am Gas Eng J 109:319-22 O 5 '18
- Industrial safety codes. S. W. Stratton. Gas Age 44:398 N 1 '19
- Mine safety appliances in warfare. F. H. Trego. Coal Age 14:504-5 S 12 '18
- Only 4.2 per cent of the accidents in gas plant peculiar to gas industry. H. A. Johnson. Am Gas Eng J 108:591-4 Je 22 '18
- Opportunities for safety engineering in construction work. D. Van Schaack. Eng & Contr 50:198-200 Ag 21 '18
- Precautions for reducing accidents on construction work. W. J. Lynch. Eng & Contr 50:371 O 16 '18
- Present need of the safety engineer. Automotive Ind 38:1186-7 Je 20 '18
- Preventing accidents with ladies. M. H. Potter. Foundry 47:569-70 Ag 15 '19
- Progress in accident prevention. Coal Age 14:483-4 S 12 '18; Same. Eng & Min J 106:473-4 S 14 '18
- Reducing accident risks. See monthly numbers of Factory
- Safeguards in railroad shops. F. A. Stanley. Ry Mech Eng 93:93-6 F '19
- Safety and welfare work in the engineer's education; with discussion. G. H. Follows. Am Soc M E J 40:pt 1, 545-8 Jl '18
- Safety as an investment and ways of securing it. H. P. Heyne. Mach 24:1004 Jl '18
- Safety as the employment executive should see it. S. J. Williams. Ind Management 57:501-3 Je '19
- Safety before and after the war. E. F. Schneider. Elec Ry J 54:791 O 25 '19
- Safety conditions in and about passenger stations. Ry R 62:731-4 My 18 '18
- Safety considerations make elimination of pole steps desirable. H. E. Wagner. Elec R 71:1027 D 15 '17
- Safety council considers lumbering problems. Am Lumberman 2262:52-3+ S 21 '18
- Safety educational methods. F. H. Elam. Iron Age 102:974 O 17 '18
- Safety engineer; abstracts. L. A. De Blois. Am Soc M E J 40:pt 1, 543-5 Jl '18; Mach 24:1044 Je '18
- Safety engineering a benefit to one contracting firm. Eng N 80:523-5 Mr 14 '18
- Safety engineering and accident prevention in construction work. L. D. Woodtke. Eng & Contr 50:299-303 S 25 '18
- Safety engineering in automotive plants. II Automotive Ind 37:952-5, 1011-13, 1056-7 N 29-D 13 '17
- Safety engineering in general contracting. L. D. Von Woodtke. Eng & Contr 49:416-17 Ap 24 '18
- Safety factors for highways. H. E. Breed. Eng & Contr 49:435 My 1 '18
- Safety first. B. F. Harris. Ry Mech Eng 93:601-2 O '19
- Safety first in shop and enginehouse service. W. T. Gale. Ry Age 67:521-2 S 12 '19; Same. Ry Mech Eng 93:602-3 O '19
- Safety for the household. II diags U S Bur Stand Circ 75:1-124 '18
- Safety in brick making. diags Am Ind 19:sup 1-4 Ag '18
- Safety in laundries. diags Am Ind 18:sup 1-4 F '18
- Safety in the use of explosives. A. La Motte. Coal Age 14:490-2 S 12 '18; Same. Eng & Min J 106:488-93 S 14 '18; Excerpts. Eng & Contr 50:365-6 O 16 '18
- Safety in tile making. diags Am Ind 18:sup 1-4 Ap '18
- Safety measures profitable in construction; engineers and contractors form organization at Safety congress to further work. Eng N 81:600 S 26 '18
- Safety movement in the iron and steel industry, 1907 to 1917. L. W. Chaney and H. S. Hanna. II U S Bur Labor Statistics Bul 234:1-299 '18; Abstract. Eng & Min J 106:474 S 14 '18
- Safety on stairs, ladders and platforms. II diags Am Ind 19:sup 1-4 S '18
- Safety rules reduce plant hazards. C. H. Baltzell. Iron Tr R 63:716+ S 26 '18
- Safety spirit in the plant. diags Am Ind 18:sup 1-4 Je '18
- Safety work as a means of helping to win the war. E. R. Mitchell. Ry R 63:316 Ag 31 '18
- Simple routine for correcting unsafe conditions. P. H. Waller. Factory 20:237 F '18
- Starting new men right. Factory 22:242-3 F '19
- Successful accident prevention campaign. F. J. Bennett. Foundry 47:102-3 Mr '19
- Teach school children traffic safety in Akron, Ohio. Motor Age 33:31 Je 13 '18
- Time when students in colleges will have clear understanding of safety principles and practice. D. Van Schaack. Am Gas Eng J 109:328 O 5 '18
- When the force of co-operation is behind the punch for safety, the fight for accident prevention is soon won. J. F. Conner. Am Gas Eng J 111:315-16 O 11 '19
- With big proportion of inexperienced workers, safety work is more than ever imperative. H. W. Forster. Am Gas Eng J 109:291-2 S 28 '18
- See also** Air brakes; Blast furnaces—Safety devices and measures; Boilers—Safety devices and measures; Brakes; Car couplings; Coal mines and mining—Safety measures; Cranes, derricks, etc.—Safety devices; Dye factories—Safety devices and measures; Electric engineering—Safety devices; Electric protective apparatus; Electric railroads—Safety devices and measures; Factories—Lighting; First aid in illness and injury; Foundries—Safety devices and measures; Garages—Safety devices and measures; Goggles; Grinding machines—Safety devices; Guard rails; Lightning arresters; Lightning conductors; Lumber yards; Machine shops—Safety devices and measures; Machinery—Safety devices; Metallurgical plants—Safety devices; Mine rescue work; Mining engineering—Safety measures; Paper making and trade—Safety devices; Railroads—Safety devices; Railroads—Signals; Respiratory apparatus; Safety at sea; Safety islands; Safety lamps; Safety valves; Smelting works—Safety devices; Steam engines—Safety devices; Steam turbines—Safety devices; Steel works—Safety devices; Street railroads—Safety devices and measures; Textile machinery—Safety devices; Welding—Safety devices; Woodworking machinery—Safety devices; also Electrical safety conference, National electrical safety code
- Standards**
- Nationalization and standardization of accident prevention. H. Reid. Elec Ry J 54:791-2 O 25 '19
- No federal control of safety standards. C. M. Hansen. Am Ind 19:16-17 F '19
- Safety islands**
- Dangerous safety islands; abstracts. G. S. Eaton. II plan Munic J 44:221-2 Mr 16 '18; Munic Eng 55:43-4 Jl '18; Concrete 15:37-9 Jl '19
- Making safety islands safe. II diag Sci Am 120:627 Je 14 '19
- Method of marking and lighting safety islands. II diags Elec R 73:531 O 5 '18
- New safety island approved by Bureau of mines. diags Motor Age 34:33 S 26 '18
- Safety lamps**
- Accident that never occurred. Coal Age 13:1073 Je 8 '18
- Acetylene and electric cap lamps from a safety standpoint. H. M. Chance. Coal Age 14:1118-21 D 19 '18
- Acetylene mine lamp. Sci Am S 87:14 Ja 4 '19
- Carbide vs. electric mine lamps. F. H. Coffin. Coal Age 14:30 Jl 6 '18
- Height of the gas cap in a safety lamp. C. M. Young. diags Am Inst Min Bul 152:1207-11 Ag '19; Same. Coal Age 16:486-7 S 13 '19; Discussion. Am Inst Min Bul 154:2946-8; 155:3070-2; 156:3147-8 O-D '19

**Safety lamps—Continued**

- Heights of flame caps. diags Coal Age 16:546 S 25 '19  
 Improving a miner's carbide lamp. *Il Eng & Min J 107:278 F 8 '19*  
 Permissible explosives, lamps and motors tested prior to January 31, 1918. A. H. Fay. U S Bur Mines 35p '18

*See also* Acetylene lamps

**Safety lamps, Electric**

- Acetylene and electric cap lamps from a safety standpoint. H. M. Chance. Coal Age 14:1118-21 D 19 '18  
 Cutler-Hammer charging apparatus for miners' electric lamps. *Il Elec R 71:1076-7 D 22 '17; Elec W 71:231 Ja 26 '18*  
 Electric lamps in nongaseous mines. G. H. Deike. Coal Age 13:239-41 F 2 '18  
 Wheat electric safety lamp. *Il diags Coal Age 15:20-1 Ja 2 '19*

**Safety valves**

- Derivation of a safety-valve formula. Power 48:575 O 15 '18  
 Full-capacity safety valve. diag Power 49:314 My 27 '19  
 Graphic method of determining size of safety valve. H. F. Gauss. chart Power 48:414 S 17 '18; Abstract. Am Soc M E J 40:366-7 N '18  
 Lower allowable pressure requires larger safety valve. Power 49:329 Mr 4 '19  
 Safety and relief valves. M. W. Link. *Il Int Marine Eng 23:172-4, 301-4 Ap-May '18*  
 Safety valve for compressed-air tank. Power 48:247 Ag 13 '18

*See also* Valves

**Sag**

- Sag calculation for iron-wire lines. M. D. Leslie. Elec W 72:196-7 Ag 3 '18

*See also* Electric lines

**Sahara desert**

- Agricultural possibilities of the Sahara. Sci Am S 87:297 My 10 '19  
 French developments of Sahara desert. Eng & Contr 50:113 J1 31 '18

**Sahlén, Axel Edward**

- Sahlén's typography, volume two. J. L. Frazier. *Il Inland Ptr 62:537 F '19*

- Sailing day plan. *See* Freight car service—Shipping day plan

**Sailing vessels**

- Auxiliary schooner building in Texas. *Il Int Marine Eng 23:209 Ap '18*

- Sailors, Training of. *See* Seamen, Training of St Augustine, Florida

**Sewerage**

- Features of proposed sewerage works. Munic Eng 55:17-18 J1 '18; Discussion. L. R. Howson. 55:77-8 Ag '18

**Saint Gregory's church**

- Saint Gregory's church, Brooklyn, N.Y. *Il plans Am Arch 112:409-10, 414, pl 262-70 D 5 '17*

**St John Del Rey mining company, Ltd.**

- 88th annual report of the Morro Velho mine for the year ended Feb. 28, 1919. diags plan Eng & Min J 108:229-30 Ag 9 '19

**St Joseph, Missouri****Bridges**

- Cantilever erection of draw in open position while old draw serves as fixed span. *Il diags plan Eng N 82:567-9 Mr 20 '19*

- Move bridge spans 186 feet endwise on car trucks. *Il diags Eng N 82:580-2 Mr 18 '19*

**St Joseph lead company**

- War board refuses to recognize union. Iron Age 102:421-2 Ag 15 '18

**St Just, England**

- New British port; proposed dock in Falmouth harbor that could accommodate 1,000-foot liners. E. A. Dime. map Sci Am 120:368 Ap 12 '19

**St Lawrence river**

- Canada's heritage in the St Lawrence river. A. V. White. map Elec W 72:1216-17 D 28 '18

**St Louis, Missouri**

- Description of St Louis; with some mention of its electro-plating industries. H. H. Williams. *Il Metal Ind 15:237-43 Je '17*  
 Model housing plan for reclaiming a St Louis district. *Il Am Arch 116:8-13 J1 2 '19*  
 Proposed borough plan for St Louis county. Munic J 45:146-7 Ag 24 '18  
 St Louis' new zone ordinance. diags maps Munic J 45:65-8, 87-8 J1 27-Ag 3 '18

**Lighting**

- Street lighting problem of the city of St Louis. R. T. Toensfeldt. Munic Eng 57:166-8 O '19

**Rapid transit**

- St Louis fare case started. Elec Ry J 51:544 Mr 16 '18  
 St Louis franchise settlement rejected. Elec Ry J 52:711 O 19 '18

**Streets**

- Paving work in St Louis. *Il Munic J 44:87-90 F 2 '18*  
 St Louis and its streets. W. Holden. *Il Good Roads n s 15:51-6 F 2 '18*

**Water supply**

- Aspects of chemical treatment at St Louis water works. A. V. Graf. Am Water Works Assn J 5:279-87 S '18; Abstract. Eng N 80:990 My 23 '18  
 Double 48-inch manifold at Bissell's Point. C. M. Dally. Am Water Works Assn J 5:288-92 S '18; Excerpt. Eng & Contr 49:597-8 Je 12 '18

- Grappling with water-works problems. E: E. Wall. Eng N 80:898-9 My 9 '18

- Improved efficiency of the St Louis pumping stations. L. A. Day. Am Water Works Assn J 4:417-27; Discussion. 428-31 D '17

- Measures adopted to curtail water consumption. E: E. Wall. Munic Eng 54:110-11 Mr '18

- Need and cost of covering the clear water basins of the St Louis water works. C. M. Dally. diags Munic Eng 57:42-4 J1 '19

- New 110-million gallon pump at the Chain of Rocks. L. A. Day. Am Water Works Assn J 5:293-8 S '18; Excerpts. Eng N 80:990-1 My 23 '18

- Office records of the St Louis water division, distribution section. T: E. Flaherty. Am Water Works Assn J 5:412-18 D '18; Same. Eng & Contr 51:45-7 Ja 8 '19

- Operating results of purification plant. A. V. Graf. Eng & Contr 51:41-2 Ja 8 '19

- Phases of work in the distribution section of the water division, St Louis. W. A. Foley. Am Water Works Assn J 5:299-302 S '18; Same cond. Eng N 80:989 My 23 '18

- St Louis' new concrete water conduit. W. E. Hardenburg. *Il diags Munic J 44:179-81 Mr 2 '18*

- St Louis water purification plant. Munic J 45:503-5 D 28 '18

- St Louis waterworks operation. E: E. Wall. *Il Munic J 45:481-3 D 21 '18*

**St Louis electrical board of trade**

- Organization. Elec R 74:904-5 My 31 '19; Excerpt (Constitution and by-laws). Elec W 73:1158 My 31 '19

- St Louis league adopts new program. Elec R 74:186-8 F 1 '19

**St Louis Southwestern railway**

- 27th annual report, 1917. map Ry Age 65:328-9, 360-2 Ag 23 '18

**St Paul, Minnesota**

- St Paul curtails public work. G: H. Herrold; O. Claussen. Eng N 79:1118-19 D 13 '17

**Bridges**

- Methods of protecting steel work of Marshall avenue bridge from high water. *Il diags Eng & Contr 48:538-9 D 26 '17; Eng N 79:1195-6 D 27 '17*

**Railroads**

- Construction program is developed for Union station at St Paul. diag plans Eng N 80:1184-6 Je 20 '18

- Engineering of the St Paul passenger terminal. plan Ry R 63:595-7 O 26 '18

- St Paul, Minnesota—Continued**
- Sanitary affairs**  
 St Paul's street cleaning and waste disposal. Munic J 47:87 Ag 9 '19  
 Street cleaning and waste disposal. Munic J 45:248 S 28 '18
- Sewerage**  
 Sewer cleaning. M. N. Goss. Munic J 45:186 S 7 '18
- Streets**  
 Street cleaning and waste disposal. Munic J 45:248 S 28 '18
- Water supply**  
 High service reservoir of the St Paul water works. W. N. Jones. diags Munic Eng 56:165-8 My '19
- Sta Sophia, Mosque of. See Constantinople—Mosque of Sta Sophia**
- Sakhallin. See Karafuto**
- Sal ammoniac. See Ammonium chloride**
- Salamander. See Newts**
- Salaries**  
 Engineers' and bartenders' salaries. W. Newbrough. Eng N 81:506 S 12 '18  
 Massachusetts may standardize salaries. Eng N 80:417 F 28 '18  
 Salaries of railroad officers in 1917. Ry Age 67:751-2 O 10 '19  
*See also Engineers—Salaries; Railroad engineers—Salaries; Wages*
- Salem, Oregon**
- Bridges**  
 Unusual features in Willamette river bridge at Salem, Oregon. L. W. Metzger. II diags plan Eng N 82:143-5 Ja 16 '19
- Sales**  
 Acceptance of an offer completes the contract. R. H. Butz. Metal Ind 16:553 D '18  
 Be sure your sales of goods are not voidable. E. J. Buckley. Metal Work 89:43 Ja 4 '18  
 Contracts of sale. C. C. Sherlock. Mach 25:1070 JI '19  
 Do exchange sales pay? H. G. Smith and L. D. Upson. J Account 25:413-25 Je '18  
 E. and M. J. quotations recognized by court. Eng & Min J 108:686-7 O 25 '19  
 Form of contract for selling appliances on easy-payment plan. Elec R 72:472 Mr 16 '18  
 Plea for standardizing conditions in textile industry in settling disputes. C. S. Andrews. Textile World 55:3489+ Je 7 '19  
 When the purchaser of goods gets title. E. J. Buckley. Metal Work 90:536 N 8 '18
- Sales, Conditional**  
 Entitled to remove plumbing fixtures and heating apparatus—construction of statute. Dom Eng 85:227+ N 9 '18
- Sales letters**  
 Advertising and selling a construction service. C. F. Dingman. Concrete 15:173-4 O '19  
 Capitalizing the lure of light to rent and sell stores. J. E. Bullard. II Am Gas Eng J 110:329-31 Mr 15 '19  
 Direct advertising. I. Spear. Dom Eng 84:11-12 JI 6 '18  
 Direct-mail methods for printers. M. Gross. Inland Ptr 61:46-8 Ap '18  
 How dealer can advocate more use for fans. Elec R 74:194 F 1 '19  
 How to sell silos. Concrete 12:48 F '18  
 Is sales promotion by mail necessary; prize essays. Horseless Age 44:26-7+ My 15 '18  
 Letter that landed a \$173,000 building contract. C. F. Dingman. Concrete 15:206-7 N '19  
 Making prospects by letter. Motor Age 35:20-2 F 27 '19  
 Selling your sales letter. H. A. Lemmon. J Elec 42:253-5 Mr 15 '19  
 Sending Uncle Sam after trade needed now. Metal Work 90:297-300 S 13 '18  
 Thoughtless letters lose business. T. M. Rodlum. Automotive Ind 37:1141-2 D 27 '17
- Salesmen and salesmanship**  
 American sales engineering in the export field. S. T. Henry. Mach 25:351-2 D '18
- Building a sales department. II J Elec 43:353-4 O 15 '19  
 Can the salesman cure the ills? S. New. Elec R 73:422-3 S 14 '18  
 Defining salesmanship. R. M. Alvord. J Elec 42:536-7 Je 1 '19  
 Different attitude towards sales forces would mean millions of dollars saved to the utilities. J. E. Bullard. Am Gas Eng J 111:11-13 JI 5 '19  
 Do salesmen need business training? Metal Work 91:19-20 Ja 3 '19  
 Educating the salesman. J Elec 43:359 O 15 '19  
 Engineering salesmanship. C. W. Hunt. Mach 25:7-8 S '18  
 Essentials to good salesmanship. F. M. Loomis. Motor Age 35:26-7 Mr 18 '19  
 Ethics of sales engineering. W. G. Stephan. Power 47:913-14 Je 26 '18  
 Experiences of a plumbing supply salesman in Europe. J. J. Laferme. Dom Eng 82:300-1 F 23 '18  
 Force behind the sales force. A. Drury. II J Elec 43:355-6 O 15 '19  
 Good salesmanship, what it is. R. H. Butz. Dom Eng 88:501-2 S 13 '19  
 Handling the customer. J Elec 42:251-2 Mr 15 '19  
 Helping the dealer select his stock; prize essays. Horseless Age 44:31-2 My 15 '18  
 How a manufacturer can establish his own organization abroad. W. Ingersoll. Am Mach 49:1018-20 D 5 '18  
 How being systematic helps the salesman. F. Farrington. Horseless Age 43:24 Ja 15 '18  
 How the Pierce-Arrow motor car co. trains automobile salesmen. H. H. Hodge. II Munic Eng 53:217-18 N '17  
 Ideas for medium-sized agencies. Motor Age 35:24-5 Je 26 '19  
 Kind of salesmanship that builds business. E. A. Bowman. Horseless Age 42:23 D 15 '17  
 Loose language. M. Gross. Inland Ptr 61:305-8 Je '18  
 My forty years' selling experience in Europe. H. R. Griffin. Ry Age 64:361-3 F 15 '18  
 Never sell what you don't believe in. A. S. Gregg. Inland Ptr 63:156-8 My '19  
 Practical sales extension plan. Metal Work 90:612 N 29 '18  
 Printing knowledge versus advertising knowledge. M. Gross. Inland Ptr 61:441-3 JI '18  
 Proper training of the sales personnel. L. H. Newbert. J Elec 42:366-70 Ap 15 '19; Same cond. Elec R 74:758-9 My 10 '19  
 Relation between production, development and sales. G. J. Kirchgasser. Ind Management 56:133 Ag '18  
 Reverse twist. M. Gross. Inland Ptr 63:35-7 Ap '19  
 Salesmanship. J. B. Davis. Am Lumberman 2283:47 F 15 '19  
 Salesmanship. H. N. Taylor. Metal Work 90:164 Ag 9 '18  
 Salesmen of engineering equipment for export must be engineers. S. T. Henry. Eng N 81:997-9 N 28 '18; Same. Am Mach 50:17-19 Ja 2 '19; Same abr. Eng & Contr 50:505-6 N 27 '18  
 Selling gas appliances demands skilled men. W. Jaeger. Gas Age 42:540-1 D 16 '18  
 Selling in foreign markets. G. E. Snider. U S Bur For & Dom Com misc ser 81:1-638 '19  
 Selling the printed product. E. D. Taylor. Inland Ptr 61:705-7; 62:35-6 S-O '18  
 Selling the unsellable man. M. Gross. Inland Ptr 60:613-17 F '18  
 Should you mention the price? R. Falconer. J Elec 43:65-6 JI 15 '19  
 Speaking the buyer's language. M. Gross. Inland Ptr 60:469-72 Ja '18  
 Supplymen tell of experiences in railway offices. Ry Mech Eng 92:56-7 Ja '18  
 Teaching salesmen how to sell more gas appliances. J. E. Bullard. Gas Age 44:364-5 O 15 '19  
 Tips from chief clerks to supplymen. Ry Mech Eng 92:30-2 Ja '18  
 Trade extension work cultivates salesmanship. II Dom Eng 86:510-12 Mr 22 '19

**Salesmen and salesmanship—Continued**

- Training school for vacuum-cleaner salesmen and its results. C: J. James. *il Elec R* 72: 475-6 Mr 16 '18
- Utility company salesmen. *Am Gas Eng J* 109: 564-5 D 21 '18
- What I learned from a trip with our salesmen. *il Factory* 23:1293-6 D '19
- What I would do if I were a salesman. F. E. White. *Dom Eng* 89:331-2 N 15 '19
- When the salesman hopes his prospect will be out. R. Gilles. *Am Gas Eng J* 109:528-9+ D 7 '18
- Women and lumber retailing. *Am Lumberman* 2293:54 Ap 26 '19
- See also* Advertising; Business; Mail order business; Sales letters

**Salicylates**

- Zirconyl basic benzoates and salicylates. F. P. Venable and F. R. Blaylock. *Am Chem Soc J* 40:1746-8 N '18

**Salicylic acid**

- Manufacture of synthetic salicylic acid. *Chem & Met Eng* 21:257 S 1 '19

**Salinometers**

- Emergency salinometer. *Power* 48:510 O 1 '18
- Salinometer for power-plant use. H. S. Knowlton. *diags Power* 50:190 JI 29 '19

**Saliva**

- Presence of food accessories in urine, bile and saliva. A. M. Muckenfuss. *Am Chem Soc J* 40:1608-11 O '18
- Salivary amylase; a preliminary experimental study of its stability in saliva. R. C. Myers and L. C. Scott. *Am Chem Soc J* 40:1713-16 N '18

**Salmon**

- Aerobic spore-forming bacillus in canned salmon. A. C. Hunter and C. Thom. *J Ind & Eng Chem* 11:655-7 JI '19
- Determination of the hexabromide and iodine numbers of salmon oil as a means of identifying the species of canned salmon. H. S. Bailey and J. M. Johnson. *J Ind & Eng Chem* 10:999-1001 D '18
- Encouraging the salmon in Alaska. *Sci Am* S 85:41 Ja 19 '18
- Helping the salmon over a hurdle. *il Sci Am* 118:429 My 11 '18

**Salmon engine. See** Airplane engines**Saloniki, Greece**

- Plan for the rebuilding of Saloniki. G: Horton. *Am Arch* 114:264 Ag 28 '18
- Rebuilding of Salonika. T: H. Mawson. *Am Arch* 114:21 JI 3 '18

**Saloons**

- July first; saloons must be remodeled. *Bldg Age* 41:122-3 Ap '19
- See also* Liquor problem

**Salophen**

- Acetylaminophenyl salicylate; the preparation of salophen. R. Q. Brewster. *Am Chem Soc J* 40:1136-8 JI '18

**Salt**

- Comparative costs in salt mining. *Coal Age* 15:549 Mr 20 '19
- Determination of potassium and sodium as chlorides through use of the refractometer. B. A. Shipley and G. H. Burrows. *Am Chem Soc J* 40:185-7 Ja '18
- Economics of salt. *Eng & Min J* 106:461 S 7 '18
- Effect of sodium chloride on blue-powder formation. R. S. Dean. *Chem & Met Eng* 20:628 Je 15 '19
- Electrical conductivity recorder for salinity measurements. E. E. Weibel and A. L. Thuras. *diags J Ind & Eng Chem* 10:626-7 Ag '18
- Electrolytic salt extraction; note. *Elec R* 73: 623 O 19 '18
- Intrusive origin of the Gulf Coast salt domes. G. S. Rogers. *il diags Econ Geol* 13:447-85 S '18; Discussion. 13:616-22; 14:178-80 D '18, Mr '19
- Removal of soot from heating surfaces and flues. J. Harrington. *Elec R* 73:900-1 D 7 '18; Same abr. *Heat & Ven* 16:54 Ja '19; Excerpt. *Ry Mech Eng* 93:69 F '19

- Review of the exploration at Belle Isle, Louisiana. A. F. Lucas. *diags map Am Inst Min E Bul* 129:1435-47 S '17; Discussion. 133:88-92 Ja '18

- Salt in the metallurgy of lead. O. C. Ralston and others. *Am Inst Min E Bul* 128:1205-16 Ag '17; Summary. *Met & Chem Eng* 17:437 O 1 '17; Discussion. *Am Inst Min E Bul* 133: 30-41 Ja '18
- Salt mining and dressing. J. B. Calkins. *il diags plan Eng & Min J* 106:431-5 S 7 '18
- Theory of volcanic origin of salt domes. E. Degolyer. *Am Inst Min E Bul* 137:987-1000 My '18; Discussion. 139:1147; 142:1629-36 JI, O '18

*See also* Salinometers**Salt Lake City, Utah****Railroads**

- Novel features in new D. & R. G. freight terminal. *il diags plan Ry Age* 66:1083-5 My 2 '19

**Water supply**

- High multiple-arch concrete dam for Salt Lake City water-supply. *il diags plan Eng N* 80:455-7 Mr 7 '18; *Eng & Contr* 50:165 Ag 14 '18

**Salt-sand clay. See** Sand clay**Saltpeter**

- Potassium nitrate from alunite; patent. *Chem & Met Eng* 19:779 D 1 '18
- Production and uses of saltpeter. H. S. Gale. *il Eng & Min J* 107:385-8 Mr 1 '19
- Saltpeter in Guatemala. H. S. Gale. *il Eng & Min J* 107:1025-31 Je 14 '19

**Saltpeter, Chile**

- Advent of modern mill mechanism to nitrate leaching. D. F. Irvin. *flow sheet diags Eng & Min J* 105:987-91 Je 1 '18
- Chilean nitrate industry. A. H. Rogers and H. R. Van Wagenen. *il Am Inst Min E Bul* 134:505-22 F '18; Discussion. 136:845-8 Ap '18
- Chilean nitrate industry during 1918. D. F. Irvin. *Eng & Min J* 107:265-7 F 8 '19
- Chilean nitrate technology. *Eng & Min J* 106: 679-80 O 12 '18
- Determination of nitrates in caliche and its products. J. E. Clennell. *Eng & Min J* 106:660-3 O 12 '18
- Method of sale of nitrate of soda to farmers by the United States government. *U S Agric Circ* 78:1-11 '18
- New source of potash; present development and future possibilities of extraction from Chile nitrate. C. M. Barton. *Met & Chem Eng* 18:248 Mr 1 '18
- Nitrate deposits in Amargosa sink (Calif.) reported on by geological survey. *Eng & Min J* 106:264 Ag 10 '18; Same cond. *Chem & Met Eng* 19:199 Ag 15 '18
- Recent developments in the Chilean nitrate industry. D. F. Irvin. *Eng & Min J* 106:536 S 21 '18

**Cost**

- Production costs of Chilean nitrate. J. Marco. *J Ind & Eng Chem* 11:780-1 Ag '19

**Salts**

- Action of neutral salts on humus and other experiments on soil acidity. L: J. Gillespie and L: E. Wise. *Am Chem Soc J* 40:796-813 My '18
- Equilibria in solutions containing mixtures of salts; the system water and the sulfates and chlorides of sodium and potassium. W. C. Blasdale. *diags J Ind & Eng Chem* 10:344-7 My '18
- Freezing points of concentrated solutions and the free energy of solution of salts. W. H. Rodebush. *Am Chem Soc J* 40:1204-13 Ag '18

*See also* Chemistry**Salvage**

- Admiralty salvage section. *Engineer* 126:34-5 JI 12 '18
- Air and slings raise sunken ship. *il Marine R* 49:599 D '19
- Flotation of a large ship after severe damage; abstract. C: V. A. Eley. *Am Soc M E J* 40:185-6 F '18

**Salvage—Continued**

- How the lever principle was applied in righting a sunken steamer. *Il Sci Am* 118:337 Ap 13 '18
- Nursery of broken ships. *Sci Am S* 86:315 N 16 '18
- Plan new ship salving machines. V. G. Iden. *Il Marine R* 49:455-7 O '19
- Pontoon for raising ships. *diags plans* *Marine R* 49:335-7 Jl '19
- Raises tug sunk nine years ago. *Il Marine R* 49:330-1 Jl '19
- Salvage of deeply sunken ships. R. G. Skerrett. *Il Sci Am* 119:43+ Jl 20 '18
- Salvage of merchant ships. *Il Engineer* 125:532-4 Je 21 '18
- Salvage of ships in Great Britain. *Sci Am S* 86:373 D 14 '18
- Salvage of the German tanker Gut Heil. R. G. Skerrett. *Il Int Marine Eng* 23:345-7 Je '18
- Salvage of the St Paul. *Il diags Engineer* 126:480-3 D 6 '18
- Salvage of U-boat victims. A. R. Bond. *Il Sci Am S* 85:296-7, 310-11 My 11-18 '18
- Salvage work in New York harbor. *Il Sci Am S* 87:232 Ap 12 '19
- Salvaging ships with canvas bags. *Il Sci Am* 121:137 Ag 9 '19
- Salvaging the steamship St Paul. *Il diags plan. Sci Am* 119:314-15+ O 19 '18
- Salvaging the steamship St Paul. C. M. Horton. *Il diags Int Marine Eng* 23:644-8 N '18
- Salvaging torpedoed ships. M. Meredith. *Int Marine Eng* 23:652 N '18
- Salving the boilers out of a stranded ship. *Il Sci Am* 117:478 D 22 '17
- Submersible salvage pumps and engines. *Il diags Engineer* 127:274-5, 278 Mr 21 '19; Abstract. *Mech Eng* 41:550-1 Je '19
- Successful handling of a difficult salvage task; how the tanker Gut Heil was rolled over and refloated. *Il Sci Am* 118:128-9 F 9 '18
- Thirteen-thousand-ton vessel righted by rolling and lifting. *Il diags Eng N* 81:764-7 O 24 '18
- Vessel salvage. *Int Marine Eng* 24:444-5 Jl '19

*See also* Salvage ships

**Salvage (fires)**

- Restoration of materials after fires. J. Hankin. *Sci Am S* 85:111-12 F 16 '18

**Salvage ships**

- Great Lakes to have new wrecker; the Favorite. *Il diags Marine R* 49:238-40 My '19
- Salvage by floating towers of concrete. F. Rowlinson. *Il Sci Am* 121:257+ S 13 '19
- Salvaging submarine. H. Daniel. *Il Sci Am* 121:154-5+ Ag 16 '19
- Submarine for raising ships. *Il Sci Am* 118:571+ Je 22 '18
- Wrecking steamer Favorite nearing completion on the Great Lakes. *Int Marine Eng* 24:265 Ap '19

**Salvarsan**

- Preparation of arsphenamine (salvarsan). P. A. Kober. *diags Am Chem Soc J* 41:442-51 Mr '19
- Review of the American patent literature on arsphenamine (salvarsan) and other arsenicals. H. F. Lewis. *J Ind & Eng Chem* 11:141-5 F '19

**Samarium**

- Revision of the atomic weight of samarium; the analysis of samarium chloride. O. J. Stewart and C. James. *diags Am Chem Soc J* 39:2605-14 D '17

**Sampling**

- Proper sampling of raw material. B. F. Erdahl. *diags Concrete* 14:sup59-60 Je '19
- Standard samples—general information. U S Bur Stand Circ 25:1-16; Supplement. 1-6 '17
- See also* Air sampling; Coal sampling; Gas sampling; Ore sampling; Sewage sampling

**San Antonio, Texas**

- River of San Antonio. I. T. Frary. *Il Arch Rec* 45:380-1 Ap '19

**Sand**

- Best quality and size of sand for sand blasting. J. W. Gibbons. *Ry Mech Eng* 93:609-10 O '19

- Bulking effect of moisture in sand. L. N. Edwards. *Eng & Contr* 52:99-100 Jl 28 '19
- Chrome sands on the Pacific coast. J. F. Grugan. *Chem & Met Eng* 20:79-81 Ja 15 '19
- Coarse sand proves superior for vitrified brick grout. J. R. Rogers. *Eng N* 80:953 My 16 '18
- Cost accounting as applied to sand and stone production. T. P. McGrath. *Eng & Contr* 51:553 My 21 '19
- How can organic matter be removed from concrete sand? S. A. White. *Eng N* 81:283-4 Ag 8 '18
- Lake beach sand has high load-sustaining value. W. S. Thomas. *Eng N* 81:370-1 Ag 22 '18
- Measurement of the thickness of film formed on glass and sand. E. Pettijohn. *diags Am Chem Soc J* 41:477-86 Ap '19
- Notes on the black sand deposits of southern Oregon and northern California. R. R. Hornor. bibliog *Il 8 pls maps U S Bur Mines Tech Pa* 196:1-39 '18; Abstract (Gold and platinum in beach sands). *Eng & Min J* 107:267 F 8 '19
- Preparation of rock products. R. W. Dull. *Il W Soc E J* 22:479-85; Discussion. 485-90 S '17
- Progress report of American water works association committee on mechanical analysis of sands. *Am Water Works Assn J* 5:345-54 S '18

*See also* Concrete—Aggregate; Sand blast

**Bibliography**

- Sand, its occurrence, properties, and uses. L. L. Hopkins. 72p '18 15c Carnegie library, Pittsburgh

**Testing**

- Detecting organic impurities in sands. D. A. Abrams and O. E. Hardner. *Sci Am S* 85:365-6 Je 8 '18; Same abr. *Eng & Contr* 49:440 My 1 '18
- Field method for finding voids in sand. *Il Concrete* 11:177 D '17
- Importance of testing sand. C. Richardson. *Concrete* 12:213 Je '18
- Laboratory practice—sand and cement. *Concrete* 13:128 O '18
- Rough field tests for concrete sands. *Eng N* 83:424 Ag 28 '19
- Universal sand tester. *Il Munic Eng* 55:39-40 Jl '18
- Sand, Foundry**
- Bucket loader for foundry sand mixer. *Il Iron Age* 102:899 O 10 '18
- Compares molding sand practice. P. G. H. Boswell. *Foundry* 47:592-5 S 1 '19
- Concrete mixer as a foundry auxiliary. *Il Iron Age* 102:899 O 10 '18
- Equipment for reclaiming core sand. *Iron Age* 101:1648 Je 27 '18
- Ferruginous and other bonds in molding sands. P. G. H. Boswell. *Foundry* 47:148-50 Ap 1 '19
- Graded silica core sand. G. L. Lacher. *Il Iron Age* 104:166 Jl 17 '19
- Improved sand cutting machine. *Il Foundry* 46:185 Ap '18
- Improving foundry sand mixtures. H. B. Hanley. *Il Iron Age* 102:1146-8 N 7 '18; Same. *Iron Tr R* 63:891-4 O 17 '18; Same. *Foundry* 46:559-62 D '18
- Iron oxide—its effects on molding sand. W. R. Bean. *Foundry* 46:5+ Ja '18
- Keeping molding sand from freezing. *Il Iron Age* 101:1273 My 16 '18
- Negative experiments on waste core sand. H. W. Gillett and E. L. Mack. *Metal Ind* 15:488-9, 531-2 N-D '17
- Practical analysis of molding sand. F. A. Hayes. *Iron Age* 103:739-41 Mr 20 '19; Abstract. *Mech Eng* 41:471-2 My '19
- Production of Albany molding sand. R. W. Jones. *Iron Age* 103:1499-1501 Je 5 '19
- Selecting sands for cores. *Foundry* 47:708 O 1 '19
- Simpson foundry mixers. *Il Metal Ind* 16:280-1 Je '18
- Special foundry sand-mixing machine. *Il Iron Age* 101:1061 Ap 25 '18
- Suggestions on mixing foundry core sand. R. Grimshaw. *Iron Age* 102:807 O 3 '18



**Sand, Foundry—Continued**

- Tests uncover domestic French sand substitute. C. P. Karr. Foundry 46:402-3 S '18
- Sand blast**  
 Application of sandblast to general foundry work (pt. 1). H. D. Gates. *Il Am Mach* 51: 723-6 O 16 '19; Abstract of complete paper. *Iron Age* 103:1135-8 My 1 '19  
 Best quality and size of sand for sand blasting. J. W. Gibbons. *Ry Mech Eng* 93:609-10 O '19  
 Chipping and sand blasting of glass at Omaha. *Il diag Elec Ry J* 53:62-3 Ja 4 '19  
 Continuous operating shell sand-blast cabinet. *Il Iron Age* 102:1267 N 21 '18  
 Development of the pneumatic sand-blast. G. B. Harris. *Il diag Am Mach* 48:497-501 Mr 21 '18  
 How to select suitable sand-blast equipment. H. D. Gates. *Il plan Foundry* 46:539-45 N 18  
 Pangborn automatic sandblast for cleaning 155-mm. shells. *Il Am Mach* 49:639-40 O 3 '18  
 Pangborn sandblast machine. *Il Am Mach* 51: 587 S 18 '19; *Ind Management* 58:344 O '19  
 Pangborn type EW suction shell-cleaning cabinet. *Il Am Mach* 49:960 N 21 '18  
 Pointers for the plater when buying equipment. E. P. Later. Foundry 47:167-9 Ap 1 '19  
 Reducing hazards in sand blasting. *Il Automotive Ind* 37:964 N 29 '17  
 Rotary table sand-blast for small shops. *Il Foundry* 47:670-1 S 15 '19  
 Sand blast cabinet for shell cleaning. *Il Iron Tr R* 63:1294-5 D 5 '18  
 Sand blast principles. *Metal Ind* 16:524 N '18  
 Sand-blast room with operator stationed outside. *diag Foundry* 47:137-8 Mr '19  
 Sly positive pressure sand blast machine. *Iron Age* 102:182b JI 18 '18; Foundry 46:499 O '18  
 Tumbling in a sandblast. *Il diags Factory* 21: 174+ JI '18  
 What the sand blast means to the foundryman. H. L. Wadsworth. Foundry 46:359-60 Ag '18; Abstract. *Iron Age* 101:778 Mr 21 '18
- Sand cars**  
 Pneumatic car provides efficient method of handling sand. W. L. Whitlock. *Il diags Elec Ry J* 52:967-8 N 30 '18  
 Sand car requiring little new material. *diags Elec Ry J* 53:376 F 22 '19  
 20-ton sand car built in New Bedford (Mass.) railway shops. G. C. Taber. *Il diag Elec Ry J* 51:189 Ja 26 '18  
 Unloading dry sand by pneumatic pressure. B. F. Thomas, jr. *Il diag Elec Ry J* 52:245-6 Ag 10 '18
- Sand clay**  
 Salt-marsh sand clay as a road-building material; abstracts. R. H. Phillips. *Eng N* 82:575-6 Mr 20 '19; *Eng & Contr* 51:595-6 Je 4 '19  
 Some things learned in the construction of sand-clay roads. W. S. Keller. *Munic Eng* 57:118-19 S '19
- Sand drying**  
 Asphalt plant used also for car sand drying to gain all-year use. A. E. Harvey. *Il Elec Ry J* 51:46 Ja 5 '18  
 Electrically heated sand dryer used in Vancouver, B.C. *Il diag Elec Ry J* 50:1041-2 D 8 '17
- Sand handling**  
 Economic air lift for handling sand or screenings. H. A. Campbell. *diag Eng & Contr* 50: 194 Ag 21 '18  
 Hydraulic device handles sand cheaply at South American mine. B. G. Torpen. *Il diags plan Eng N* 80:1244 Je 27 '18  
 New Philadelphia & Reading coaling station. *Il plans Ry R* 64:174-6 F 1 '19  
 Pneumatic car provides efficient method of handling sand. W. L. Whitlock. *Il diags Elec Ry J* 52:967-8 N 30 '18  
 Unloading dry sand by pneumatic pressure. B. F. Thomas, jr. *Il diag Elec Ry J* 52:245-6 Ag 10 '18
- Sand mixers.** See Foundry machinery

**Sand spreaders**

- Sand spreading device of San Francisco street cleaning department. C. W. Geiger. *Il Eng & Contr* 50:523 D 4 '18
- Sand washing**  
 Sand and gravel washing plant built for six-mile concrete road. W. L. Hill, jr. *Il diags Eng N* 81:508-10 S 12 '18
- Sanders**  
 Pneumatic sander readily applicable to existing sand boxes. *diag Elec Ry J* 52:163 JI 27 '18  
 Sander designed to prevent causes of stoppage. *Il diag Elec Ry J* 51:49 Ja 5 '18
- San Diego, California**  
 San Diego's purchasing bureau. *Munic J* 45: 147 Ag 24 '18
- Rapid transit**  
 Application no. 3808; history of San Diego electric railway. *Elec Ry J* 53:273-9 F 8 '19  
 Supplement to report 3808. *Elec Ry J* 53: 1086 Je 7 '19
- Water supply**  
 Chlorination at San Diego. W. H. Judy. *diags Munic J* 44:237-8 Mr 23 '18
- San Diego & Arizona railway**  
 Construction of the San Diego & Arizona Ry. *Il maps Ry R* 64:12-14 Ja 4 '19  
 Heavy railway construction along Mexican border. *Il map Ry Age* 66:931-4 Ap 11 '19  
 New railway route to Pacific coast. *map Eng N* 81:365-6 Ag 22 '18
- Sanding machines**  
 Building a sanding machine. R. Mawson. *Il diags Mach* 25:738-42 Ap '19
- Sandpaper blocks**  
 Special shapes for sandpaper blocks. J. L. Gard. *diags Foundry* 47:405 Je 15 '19
- Sandstone**  
 Absence of water in certain sandstones of the Appalachian oil fields. F. Reeves. *diags map Econ Geol* 12:354-78 Je '17; Discussion. E. W. Shaw. 12:610-28 O '17  
 Limestone and sandstone for highway work. *Good Roads n s* 16:253 D 23 '18
- San Francisco, California**  
 Proposed Telegraph Hill memorial, San Francisco. *Am Arch* 114:730 D 18 '18
- City Hall**  
 Electrical installation in City Hall. *Il Elec R* 74:661-7 Ap 26 '19
- Fire department**  
 Engine houses for San Francisco fire department; views and plans. *Am Arch* 114:pl 187-93 D 18 '18
- Harbor**  
 Extensive use of electricity for harbor. *Il Elec R* 73:1001-5 D 23 '18  
 Harbor improvements at San Francisco. C. W. Geiger. *Il plan Int Marine Eng* 24:31-5 Ja '19  
 Port facilities and freight handling. *Il J Elec* 42:294-7 Ap 1 '19
- Hospitals**  
 Some electrical features of new hospital. *Il Elec R* 74:493-6 Mr 29 '19
- Lighting**  
 Lighting of San Francisco's triangle district. A. F. Dickerson. *Il diag J Elec* 42:414-15 My 1 '19
- Railroads**  
 Railway terminal improvements on the San Francisco water front. C. W. Geiger. *Il diags plans Ry R* 64:571-6 Ap 19 '19  
 San Francisco's venture in railroad construction. A. J. Cleary. *Il map Ry Age* 65:1047-50 D 13 '18
- Rapid transit**  
 Complete report of the municipal railway for the two years ended June 30, 1917. *Elec Ry J* 53:294 F 8 '19  
 Has the municipal railway of San Francisco shown adequate profit? H. P. Gillette. *Eng & Contr* 52:59-60 JI 16 '19

**San Francisco, Cal.—Rapid transit—Continued**  
 Maintenance practice of the San Francisco Municipal railway. N. A. Eckart. *Il diag Elec Ry J 53:559-61 Mr 22 '19*  
 Municipalization progress. *Elec Ry J 51:536 Mr 16 '18*  
 San Francisco's municipal railway is no gold mine. *Eng & Contr 51:184 F 19 '19*  
 San Francisco's municipal street railway. *Il Munic J 45:401-4 N 23 '18*  
 Twin Peaks tunnel completed. *Il Elec R 73:728-9 N 9 '18*

#### Sewerage

Equipment and methods employed in building sewers. H. W. Shimer. *Il Munic Eng 56:136-40 Ap '19*

#### Streets

Boulevards of San Francisco. C. W. Geiger. *Il Good Roads n s 17:1-3 Ja 4 '19*  
 Improvement of the Embarcadero. C. W. Geiger. *Il Good Roads n s 17:167-8 Ap 19 '19*  
 Improving hillside streets. *Il Munic J 46:150-1 F 22 '19*  
 Regrading hillside streets. C. W. Geiger. *Il Good Roads n s 17:29-30 Ja 25 '19*  
 Street cleaning. C. W. Geiger. *Il Munic J 45:315-17 O 26 '18*  
 Street paving. *Il Munic J 46:1-3, 47-9 Ja 4, 18 '19*

#### Water supply

Another step in ten-year water rate suit. *Eng N 81:291-2 Ag 8 '18*  
 Fundamentals in the design of a multiple-arch dam. R. P. McIntosh. *diags plan Eng N 83:464-8 S 4 '19*  
 Greater activity planned for the Hetch Hetchy project. M. M. O'Shaughnessy. *Eng N 82:574 Mr 20 '19*  
 Power project at Hetch Hetchy. R. W. Van Norden. *Il map J Elec 42:65-6 Ja 15 '19*  
 Progress on the Hetch Hetchy development. M. M. O'Shaughnessy. *Eng N 80:72 Ja 10 '18*  
 San Francisco water-rate case makes progress. *Eng N 80:480+ Mr 7 '18*  
 San Francisco's Hetch Hetchy project. C. W. Geiger. *Il diag Munic J 45:223-6 S 21 '18*  
 San Francisco's high pressure fire service. *Il Munic J 46:454-5 Je 21 '19*  
 Setting 25,000 meters cut water consumption. G. W. Pracy. *Il Eng N 80:902-4 My 9 '18*  
 Status of the Hetch Hetchy water supply project. *Eng & Contr 50:556-7 D 11 '18*

#### Sanitary chemistry

*See also* Air pollution; Food—Analysis; Refuse disposal; Sewage disposal; Smoke prevention; Sterilization; Water—Analysis; Water purification

#### Sanitary engineering

Malaria-control engineering in Texas increases labor efficiency. C. Saville and H. W. Van Hovenberg. *Il Eng N 80:176-8 Ja 24 '18*

Mosquito control for the municipality. W. A. Hardenbergh. *Il diag map Munic J 47:236-40 O 18 '19*

What more can we do to help win the war? A. Bateman. *Metal Work 90:500-1 N 1 '18*

Why and wherefore of sanitary engineering. A. Bateman. *Il diag Dom Eng 84:43-4, 315-17+, 353-5+; 85:5-7+, 163-4, 323-5+, 402-4 JI 13, Ag 31-S 7, O 5, N 2, 30, D 14 '18*

*See also* Ash collection; Camp sanitation; Drainage; Dust removal; Filters and filtration; Heating; Municipal engineering; Plumbing; Public comfort stations; Refuse collection; Refuse disposal; Sanitation; Sewage disposal; Sewerage; Smoke prevention; Snow removal; Street cleaning; Trade waste; Ventilation; Water pollution; Water purification; Water supply; Water supply engineering

Sanitary engineering, American society of. *See* American society of sanitary engineering

#### Sanitary engineers

Sanitary engineer as health officer. *Eng N 83:526-7 S 11 '19*

#### Sanitation

Advance of modern sanitation in Wisconsin during 1918. *Dom Eng 86:240-1+ F 1 '19*  
 Bacteriology and sanitation. I. M. Lewis.

Texas U Bul 1733:16-22 Je 10 '17

Close relation of sanitary plumbing to health.

Metal Work 89:323-4 Mr 8 '18

Extra-cantonment zone sanitation. W. A. Hardenbergh. *Il map Munic J 45:421-5, 450-2 N 30-D 7 '18*

Government recognition of health conserving advantage of sanitary plumbing. *Il Dom Eng 82:443-4+ Mr 23 '18*

Improved sanitation at railway stations, roundhouses, etc. *Il diag Ry Age 63:1042 D 7 '17*

Improving sanitary conditions at Leavenworth, Kan. J. G. Wilson and H. B. Hommon. *Munic J 44:69-72 Ja 26 '18*

Modern plumbing for everybody under the partial-payment plan. C. W. McCarty. *Dom Eng 81:418-19+ D 8 '17*

Sanitary precautions taken prior to opening Wilson avenue crib and tunnel of Chicago water works. J. D. Robertson and H. N. Bundeson. *Munic Eng 55:108-9 S '18*

Sanitary survey of a city. *Il Munic J 45:359-61, 382-6 N 9-16 '18*

Sanitation and municipal death rates. G. A. Soper. *Munic J 47:9-10 JI 5 '19; Same abr. Eng & Contr 52:198-9 Ag 13 '19*

Sanitation in emergency shipyards. W. L. Stevenson. *Il Boston Soc C E J 6:1-18 Ja '19; Abstract. Munic Eng 56:70-1 F '19*  
 Urban district sanitation. *Munic J 45:429 N 30 '18*

Water supply and sewage disposal plants of penal and charitable institutions of Wisconsin. W. G. Kirchoffer. *Munic Eng 55:178-9 N '18*

Waterless toilet facilities. *Il Ry R 62:407-8 Mr 16 '18*

*See also* Air purification; Air washing; Ash collection; Baths, Public; Camp sanitation; Disinfection and disinfectants; Dust removal; Factory sanitation; Foundry sanitation; Hygiene; Hygiene, Industrial; Military hygiene; Mine sanitation; Plumbing; Public health; Refuse disposal; Sanitary engineering; Sewage disposal; Sewerage; Smoke prevention; Sterilization; Street cleaning; Ventilation; Water purification; Water supply

#### San Pedro, California

##### Rapid transit

Real rapid transit for ship workers; five-car train operation over the lines of the Pacific electric railway. *Elec Ry J 52:331 Ag 24 '18*

#### Santa Barbara, California

##### Churches

First Presbyterian church; views and plans. *Am Arch 115: pl 147-55 My 7 '19*

#### Santa Clara, California

##### Architecture

Carmelite convent, Santa Clara. *Il plans Arch Forum 30:115-18, pl 59-64 Ap '19*

Santa Fe railroad. *See* Atchison, Topeka and Santa Fe railroad

#### Santa Gertrudis mine, Mexico

Annual report for the fiscal year ended June 30, 1917. *Eng & Min J 105:429 Mr 2 '18*

#### Santa Rosa, California

##### Water supply

Free water in Santa Rosa. *Munic J 44:16-17 Ja 5 '18*

#### San Ygnacio, Texas

Picturesque towns of the border land. I. T. Frary. *Il Arch Rec 45:382-4 Ap '19*

#### Sap

Preservation of plant juices for analysis of sugar content. D. O. Spriestersbach. *Am Chem Soc J 40:431-6 F '18*

#### Sardines

Formation of ammonia and amines in canned sardines during storage. F. C. Weber and J. B. Wilson. *J Ind & Eng Chem 11:121-6 F '19*

**Sargent, Frederick, 1859-1919**  
Sketch. por Elec R 75:201-2 Ag 2 '19; Elec W 74:258-9 Ag 2 '19; Power 50:241-2 Ag 5 '19; Mech Eng 41:790-1 S '19

**Satellite**  
Non-inflammable celluloid from beans. Sci Am 118:191 Mr 2 '18

**Savannah, Georgia**

#### Public works

Savannah's department of stables and shops. Munic J 46:3-4 Ja 4 '19

#### Water supply

History of the artesian water supply at Savannah. E. R. Conant. Am Water Works Assn J 5:252-62 S '18; Abstract. Eng N 80: 989-90 My 23 '18

#### Saving

Human factor. F. H. Rindge, jr. Factory 20: 88-4 Ja '18  
Making it fun to save. L. Anson. Factory 23:42-3 Jl '19  
Perpetuating the thrift habit. W. H. Noone. Coal Age 15:765 Ap 24 '19  
Rallying business to pay the war bill. C. W. Mears. Concrete 12:38-40 F '18  
Saving, buying and better business. W. F. Morgan. Am Ind 20:32-3 S '19  
Savings facilities for employees make for stability of organization. H. Tipper. Automotive Ind 40:1180-1 My 29 '19  
Teaching thrift through thrift stamps. L. D. Burlingame. Il Am Mach 50:293-8 F 13 '19

**Saw mills. See Sawmills**

**Saward, Frederick E., 1846-1917**  
Sketch. por Coal Age 12:1057 D 22 '17

#### Sawdust

Making sanitary containers for milk from waste sawdust. Am Gas Eng J 108:150 F 16 '18  
Reaction products of alkali-sawdust fusion acetic, formic, and oxalic acids and methyl alcohol. S. A. Mahood and D. E. Cable. J Ind & Eng Chem 11:651-5 Jl '19  
Sawdust briquettes for fuel. Am Lumberman 2257:27 Ag 17 '18  
Tests of sawdust plastic composition. A. D. Brokaw. Am Lumberman 2253:29 Jl 20 '18  
*See also Wood waste*

#### Sawmills

Co-operation of central station and lumber mills. W. A. Scott. Il Elec R 75:942-3 D 6 '19  
Government spruce mill, Vancouver barracks, Wash. Il Am Lumberman 2231:36 F 16 '18  
Oversea lumberman's machine shop. J. B. Woods. Il Am Mach 51:213-15 Jl 31 '19  
Portable band sawmill proves practicable. Il Am Lumberman 2237:41 Mr 30 '18  
Sawmilling under brush arbor and canvas. J. B. Woods. Il Am Lumberman 2284:42 F 22 '19  
Small sawmills; their equipment, construction, and operation. D. F. Seerey. U S Agric Bul 718:1-68 '18  
Splendid new mill is formally opened at Clear Lake, Wash. Am Lumberman 2297:42-3 My 24 '19  
Transplanted sawmilling efficiency. J. B. Woods. Il Am Lumberman 2259:39 Ag 31 '18

#### By-products

*See Wood waste*

#### Electric equipment

Electricity in logging and saw mills. E. H. Horstkotte. Il Gen Elec R 21:151-61 F '18  
Motor drive for government spruce production mill, Toledo, Ore. Elec R 73:544 O 5 '18  
Motor drive in an outdoor sawmill. Il Elec R 72:201-2 F 2 '18  
Oregon lumber mill electrifies. Elec R 73:388 S 7 '18

#### Employees

Government regulates woods labor conditions. Am Lumberman 2236:46 Mr 23 '18

#### Equipment

Electrical equipment of Clear Lake lumber mills. W. A. Scott. Il Elec R 74:1065-8 Je 28 '19

New way of locating carriage track defects. R. C. Leibe. diag Am Lumberman 2284:63 F 22 '19

Remedy for sway backed log carriage. R. C. Leibe. diag Am Lumberman 2304:78 Jl 12 '19

Timely information on carriage track construction. R. C. Leibe. diag Am Lumberman 2287:78 Mr 15 '19

Wheels that help prevent snaky lumber. J. P. Barrett. diag Am Lumberman 2293:55 Ap 26 '19

#### Sawmills, Municipal

San Francisco owns and operates two sawmills in connection with its Hetch Hetchy power and water project. Il Am Lumberman 2276:43 D 28 '18

#### Saws

Atkins metal band-saw. Il Am Mach 49:825 O 31 '18  
Continuous-stroke hack saw. Il Sci Am 119: 340 O 26 '18  
Extending the life of the hack-saw blade. Il Sci Am 121:317 S 27 '19  
Finding right amount of strain for a band saw. R. C. Leibe. diag Am Lumberman 2249:47 Je 22 '18  
Hints for the young saw filer. L. Pryor. Am Lumberman 2252:59 Jl 13 '18  
Horizontal log band-saw, made by John Pickles & son. Il Engineer 128:498 N 14 '19  
How properly to fit a bandsaw. R. C. Leibe. diag Am Lumberman 2259:73 Ag 31 '18  
How to take care of saws. Factory 21:548+ S '18  
Importance of the band-sawing machine. M. E. Duggan. Foundry 47:48-9 Ja '19  
Importance of trueing up the band wheels and how done to avoid serious mistakes. R. C. Leibe. diag Am Lumberman 2272:76 N 30 '18  
Improved horizontal band resaw. Il Am Lumberman 2271:58 N 23 '18  
Keeping band wheel faces refaced in balance. R. C. Leibe. diag Am Lumberman 2260:70 S 7 '18  
Large hack-sawing machine. Il diag Engineer 125:250 Mr 22 '18  
Machinery co.'s slitting saw and circular knife-grinding machines. Il Am Mach 48: 1027 Je 13 '18; Mach 24:855 My '18  
Machinery for cutting firewood. H. R. Tolley. Il U S Agric Farmers' Bul 1023:1-16 '19  
Misenor rotary hacksaw. Il Am Mach 49:319-20 Ag 15 '18  
Napier metal band saw machine. Il Metal Ind 17:41 Ja '19  
Napier metal cutting band saw machine designed by E. G. Herbert. Il Iron Age 101: 933 Ap 11 '18  
New uses for industrial gas. C. H. Kallstedt. Am Gas Eng J 108:262 Mr 16 '18; Same. Gas Age 41:318-19 Ap 1 '18  
Pond-Robinson metal-cutting saw. Il Mach 24: 1055-6 Jl '18  
Portable gasoline drag saw. F. C. Perkins. Il Sci Am 119:194 S 7 '18  
Portable pneumatic saw. F. C. Perkins. Il Munic J 45:206 S 14 '18  
Portable power saw improvised from pneumatic drill. C. J. Bennett. Il Eng N 80:578 Mr 21 '18  
Portable saw for mine use. Il Coal Age 14:93 Jl 20 '18  
Reclamation of hacksaws and metal-cutting band saws. Mach 25:421 Ja '19  
Relation of saw teeth to cutting speed. R. C. Leibe. diag Am Lumberman 2307:73+ Ag 2 '19  
Reno-Kaetker motor-driven swing saw. Il Iron Age 101:331 Ja 31 '18; Am Mach 49:226 Ag 1 '18  
Repairing large circular saw teeth. R. C. Leibe. diag Am Lumberman 2245:66 My 25 '18  
Robertson economy tire saw and shell-sawing fixture. Il Am Mach 49:222-3 Ag 1 '18  
Robertson hacksaw for tire rims. Il Mach 24: 1054-5 Jl '18  
Saw-catcher that saves money. R. C. Leibe. diag Am Lumberman 2252:59 Jl 13 '18  
Self-contained motor-driven swing saw. Il Eng & Contr 51:107 Ja 29 '19

**Saws—Continued**

- Swind metal-sawing machine. *Il Am Mach* 48: 850-1 My 16 '18  
 Thomas portable drag saw. *Il Am Lumberman* 2254:60 JI 27 '18  
 Vertical metal saw. *Il diags Engineer* 128: 162 Ag 15 '19  
 Wallace electric bench saw for woodwork-ing shops. *Il Elec R* 74:361 Mr 1 '19; *Metal Ind* 17:138 Mr '19; *Textile World* 55:2077 Ap 5 '19  
 Why a band saw should be lined square. R. C. Leibe. *diags Am Lumberman* 2251:65 JI 6 '18

*See also* Woodworking machinery

**Safety devices**

- Guarding circular saws on variety work. *Il Automotive Ind* 37:1013 D 6 '17

**Scaffolding**

- Making the hanging scaffold; its advantages. E. V. Laughlin. *diag Bldg Age* 40:251 My '18  
 Safe construction of scaffolds and falsework. T. F. Foltz. *Am Arch* 114:530-2, 564-6 O 30-N 6 '18; *Same cond. Eng & Contr* 50:285-8 S 18 '18  
 Steel scaffold towers reduce handling at Fore river shipyard. *diags Eng N* 82:985-6 My 16 '19

**Scale holder**

- Adjustable scale holder. J. Wylie. *diags Am Mach* 49:1185 D 26 '18

**Scales**

- Automatic scales. P. H. De Wyngoert. *Il Concrete* 11:sup56 D '17  
 Baltimore & Ohio weighing bureau. L. D. Davis. *Ry Age* 64:541-2 Mr 15 '18  
 Bennington scales. *Il Textile World* 53:5248, 6223 My 4, Je 22 '18  
 Central-station service in Toledo scale fac-tory. *Elec R* 72:381 Mr 2 '18  
 Design scale for weighing a ship. *diags Marine R* 49:354-5 JI '19  
 Latest patent decisions. *Sci Am* 120:701+ Je 28 '19  
 Reliance automatic coal scale. *Il Power* 49: 521 Ap 8 '19  
 Scale for weighing manufactured product. R. H. Smith. *Il Ind Management* 58:103-4 Ag '19  
 Small weights on big scales. M. D. Church. *Il Power* 47:405-6 Mr 19 '18; *Same. Sci Am S* 86:163 S 14 '18  
 Stabilized-platform weighing scale of novel design. F. J. Schlink. *Il diags U S Bur Stand Tech Pa* 106:1-23 '18; *Abstract. Sci Am* 119:156 Ag 24 '18  
 Suspended platform construction for scales. *Il Ind Management* 56:68 JI '18

*See also* Balances

**Scales, Track. See Track scales****Scammony**

- Scammony and its substitutes. A. L. Scoville. *J Ind & Eng Chem* 11:335-6 Ap '19

**Scarboro-on-Hudson, New York**

- Private school for Frank A. Vanderlip, esq., Scarborough, N.Y. *Il Arch Forum* 31:91-2, pl 38-42 S '19

- Scarboro-on-Hudson school. G. Elling. *Il Am Arch* 115:476-80, pl 104-12 Ap 2 '19

**Schedules**

- Being sure of your delivery dates. D. G. Rob-inson. *Factory* 21:434-5 S '18  
 Graphic analysis of an overtime problem. R. von Huhn. *diag Ind Management* 57:86-8 F '19  
 Keeping production on schedule. S. P. Keator. *Factory* 23:510-11 S '19  
 Schedules that aid in getting out work on time. *Eng & Contr* 51:553-4 My 21 '19  
 70 per cent more output from 5 per cent more equipment; with planboard and layout drawing. *Factory* 21:841 N '18  
 Shop scheduling on the B. R. & P. Ry Mech Eng 92:219-21 Ap '18  
 Systematic superintendence: routine cover-ing field clerical work on construction oper-ations. C. F. Dingman. *Concrete* 14:85-7 Mr '19

- Timken solving difficult production problem. J. E. Schipper. *Il Automotive Ind* 40:685-8 Mr 27 '19

- Working schedule for a time limit job. D. A. Hampson. *Ind Management* 56:407-8 N '18

*See also* Control boards; Progress records

**Schiff's bases**

- Action of basic reagents on Schiff's bases; the chloralnitraniline group. A. S. Wheeler and S. C. Smith. *Am Chem Soc J* 41:1862-5 N '19

**Schoellkopf research library**

- Functions of a research library in the dye-stuff industry. J. F. Smith. *J Ind & Eng Chem* 11:584-5 Je '19

**Scholarships and fellowships**

- National research fellowships in physics and chemistry. *Am Chem Soc J* 41:sup83-4 Ap '19

- Rotch traveling scholarship. *Il Am Arch* 113: 105-12 Ja 30 '18

- Westinghouse company establishes memorial scholarships. E. M. Herr. *Elec R* 74:811 My 17 '19

*See also* Pittsburgh university. Mellon in-stitute; Purdue university

**School accounting**

- School district accounting. W. K. Mitchell. *J Account* 25:101-13 F '18

**School architecture. See Schoolhouses****School buildings. See Schoolhouses****School desks**

- Good-sense school desk. *Il Sci Am* 120:294 Mr 22 '19

**School lighting. See Schoolhouses—Lighting****School of engineering of Milwaukee**

- Electrical courses. *Il Elec R* 72:513-15 Mr 23 '18

**School ventilating. See Schoolhouses—Heating and ventilation****Schoolhouses**

- Concrete rural school at low cost. *Il plans Concrete* 12:196-7 Je '18

- Cost and construction of four schools, Oak-land, California. *Il plans Concrete* 13:2-5 JI '18

- Framing plans simplify fieldwork on Cincin-nati high school. J. T. Sullivan. *diags plans Eng N* 81:355-7 Ag 22 '18

- High school, Cordova, Tenn.; views. *Am Arch* 114:pl 53-4 Ag 14 '18

- Polytechnic preparatory country day school, Dyker Heights, Brooklyn, N.Y.; views. *Arch & Bldg* 50:pl 55-7 Mr '18

- Report of A. S. H. V. E. committee on school house standards. *Am Soc Heat & V E* 23:411-14 '17

- Report on standardization of school building measurements. H. L. Patterson, E. C. Baldwin and W. B. Ittner. *Am Arch* 116: 379-80 S 17 '19

- Small country school house. C. Barker. *plan Arch Rec* 43:176-9 F '18

- Standardization of details for school build-ings. *diags Eng & Contr* 51:427 Ap 23 '19

*See also* Indianapolis, Indiana—Arsenal technical schools

**Bibliography**

- Structural service department; schoolhouses, grounds and equipment. *Am Inst Arch J* 5: 654-5 D '17

**Designs and plans**

- Concrete school buildings in California. W. E. Weeks. *Il plans Concrete* 14:167-70 My '19

- Garfield school, Toledo, Ohio. *Am Arch* 113:pl 151-3 Ap 24 '18

- Grade school building at Santurce, San Juan, Porto Rico. *Il plan Arch Forum* 30:11-12 Ja '19

- Grammar school, La Canada district, Los Angeles, Cal.; views and plan. *Am Arch* 114:pl 55-6 Ag 14 '18

- High school building, Girard college, Phila-delphia, Pa. *Am Arch* 113:pl 142-6 Ap 24 '18

**Schoolhouses—Designs and plans—Continued**

- High school building, Park boulevard, Camden, N.J. Am Arch 114:12, pl 1-5 JI 3 '18  
 High school, Lucy, Tenn.; view and plan. Am Arch 115:pl 16-17 Ja 8 '19  
 High school, Maynard, Mass. Am Arch 113:pl 102-3 Mr 20 '18  
 Hoffman public school, Cincinnati, Ohio; view and plans. Arch Rec 45:81-3 Ja '19  
 John Kinsey school, Sixty-fifth avenue, Philadelphia, Pa.; view and plans. Am Arch 115:pl 1-3 Ja 1 '19  
 Mechanical equipment of Washington school, Bayonne, New Jersey. il diags plan Am Arch 116:251-6 Ag 20 '19  
 Merced Union high school, Merced, Cal. Am Arch 113:92, pl 47-8 Ja 23 '18  
 Monolithic concrete school buildings in Florida. il diag plans Concrete 12:157-9 My '18  
 Oliver Wendell Holmes school, Fifty-fifth and Chestnut streets, Philadelphia, Pa.; view and plans. Am Arch 115:pl 12-14 Ja 8 '19  
 Port Chester high school, Port Chester, N.Y.; views and plans. Arch Forum 31:pl 65-7 N '19  
 Public school buildings—methods, economies and standardization in the preparation of plans. C. E. Dobbin. il diags plan Am Arch 115:893-9 Je 25 '19; Same cond. Eng & Contr 61:313-14 Mr 26 '19  
 Recent distinctive California schoolhouses. W. C. Hays. il plans Arch Forum 30:5-10, pl 1-3 Ja '19  
 St Gregory's school, Dorchester, Mass. Am Arch 113:pl 104-5 Mr 20 '18  
 School of our Lady of Hope, Springfield, Mass. Am Arch 115:pl 169-70 My 21 '19  
 Standard elementary school medical clinic. plan Am Arch 115:564 Ap 16 '19  
 Standardization of schoolhouse planning and construction. F. I. Cooper. charts Am Arch 114:241-5 Ag 21 '18  
 Standardized school house design. diag plans Am Arch 114:559-64, 589-91, 621-9 N 6-20 '18  
 United States housing corporation development at Indian Head, Md.; school; view and plan. Am Arch 116:401 S 24 '19  
 Walbridge school, Toledo, Ohio. Am Arch 113:pl 147-50 Ap 24 '18

**Electric equipment**

- Electric motor drive in the Schenley high school in Pittsburgh. D. H. Colcord. il Elec R 74:331-4 Mr 1 '19

**Equipment**

- Standard school house equipment. diags plans Am Arch 115:625-30, 657-63 Ap 30-May 7 '19

**Heating and ventilation**

- Air washing and humidification for school buildings. P. West. Heat & Ven 16:42+ F '19  
 Are schoolrooms drier than deserts? G. T. Palmer. bibliog Am Soc Heat & V E 23:629-43 '17  
 Class-room ventilation. K. Meier. Heat & Ven 16:29-32 JI '19  
 Designing data as applied to a large hot water heating plant. G. E. Reed. il diags plan Heat & Ven 16:17-26 Mr; 26-34 Ap '19  
 Heating and ventilating a portable school house. J. R. McColl. il diags Am Soc Heat & V E 23:297-303 '17  
 Heating and ventilating the country school house. E. V. Hill. diags Dom Eng 88:444-6 S 6 '19  
 Heating and ventilating the standard school house. J. D. Cassell. Dom Eng 87:519-20+ Ja 21 '19; Same. Metal Work 92:4-6+ JI 4 '19  
 Heating equipment of a western high school. diags plan Metal Work 89:225-8 F 15 '18  
 Heating, ventilating, and electrical equipments of the Philadelphia public school buildings, high and elementary. J. D. Cassell. il Am Soc Heat & V E 23:281-91; Discussion. 291-5 '17  
 How fuel is being conserved in the public schools in Minneapolis. G. F. Womrath. Dom Eng 85:231+ N 9 '18; Same. Heat & Ven 16:55-7 N '18

- Improving country schoolhouse heating system. diags Metal Work 91:554-5 My 2 '19  
 Massachusetts ventilation commission. Metal Work 91:64+ Ja 10 '19  
 Mechanical equipment of Washington school, Bayonne, New Jersey. il diags plan Am Arch 116:251-6 Ag 20 '19  
 Movement to eliminate mechanical ventilation in New York city's public schools. Heat & Ven 15:47-9 O '18  
 Natural gas furnace heats rural school. diag plan Metal Work 89:132-3 Ja 25 '18  
 New heating and ventilating system for Chicago schools. J. Howatt. diag Power 50:109-10 JI 15 '19  
 New power plant for St Mary's training school. il diag Power 50:2-6 JI 1 '19  
 New York chapter compiles standards for mechanical and natural systems of ventilation. Heat & Ven 15:54-5 N '18  
 Open window ventilation of schools; discussion. Am Soc Heat & V E 24:317-22 '18  
 Relation of respiratory diseases to classroom ventilation. Heat & Ven 15:37 My '18  
 Remodeling a school heating system. diags Dom Eng 86:392-3 Mr 1 '19  
 Revised rules in Minnesota for schoolhouse equipment; mechanical ventilation. Heat & Ven 16:53-4 Ja '19  
 School building heating and ventilation. S. R. Lewis. il diags plan Heat & Ven 15:29-35 Ag; 33-43 S '18  
 School ventilating system that is different. il diag chart Heat & Ven 16:36-9 Ag '19  
 Tempering coil thermostat set wrong. J. Lewis. diag Power 49:218 F 11 '19  
 Test of Chicago and Cook county school for boys. M. J. Sturm. diags plans Heat & Ven 15:41-4 D '18; 16:28-36 Ja '19  
 Ventilation of school class rooms. E. V. Hill. chart Dom Eng 89:326-7, 573-8 N 15, D 20 '19  
 Ventilation test in an old building; the Dante grammar school, Chicago, Ill. S. R. Lewis. il diag plans Heat & Ven 15:19-27 F; 27-35 Mr '18  
 Ventilation test of the Lewis Champlin school in Chicago. il diags plan Heat & Ven 14:30-9 D '17; 15:20-32 Ja '18  
 Wardrobe ventilation for school buildings. W. F. Walker. Heat & Ven 15:42-3 Ap '18

**Lighting**

- Report on code of lighting school buildings. il diags plans Illum Eng Soc 13:185-200 no 3 '18; Same cond. Illum Engr 11:47-52 F '18; Same cond. Am Arch 114:236-41, 268-74 Ag 21-28 '18; Excerpt. Elec W 70:1155-6 D 15 '17; Discussion. W. B. Ittner. Am Arch 114:359 S 18 '18

**Toilet rooms**

- Modern plumbing in a school in Wisconsin. R. J. Gordon. diags plan Dom Eng 84:426-8 S 21 '18

**Schoolhouses, Portable**

- Construction and equipment of portable school buildings. J. Howatt and S. R. Lewis. diags plans Heat & Ven 16:24-9 F; 34-9 Ap '19; Discussion. 16:29-32 F '19  
 Heating and ventilating a portable school house. J. R. McColl. il diags Am Soc Heat & V E 23:297-303 '17

**Schools**

- Berwind Canyon (Colo.) is school center. il Coal Age 16:624 O 9 '19  
 Building a school on a business basis; Moraine Park school. R. I. Clegg. il Iron Age 102:1392-3 D 5 '18

*See also* Colleges and universities; Corporation schools; Correspondence schools and courses; Evening and continuation schools; High schools; Textile schools; Trade schools

**Schools, Private**

- Private school for Frank A. Vanderlip, esq., Scarborough, N.Y. il Arch Forum 31:91-2, pl 38-42 S '19  
 Scarboro-on-Hudson school. G. Elling. il Am Arch 115:476-80, pl 104-12 Ap 2 '19

**Schools, Trade. See Trade schools****Schoop process. See Metal coating**

- Schwab, Charles M., 1862-**  
Director general of the Emergency fleet corporation. Eng & Min J 105:874 My 11 '18;  
Iron Age 101:1019 Ap 18 '18  
Portrait. Int Marine Eng 23:267 My '18
- Schwarz, Theodore Edward, 1855-1917**  
Sketch. F. Hall. por Am Inst Min E Bul 143:sup 34-5 N '18
- Science**  
America and German science. Sci Am S 87: 302 My 10 '19  
Presidential address by Sir Charles A. Parsons. Engineer 128:247-8, 272-4 S 12-19 '19  
Science and industry in relation to non-ferrous metals. W. Rosenhain. Engineer 127:527-9 My 30 '19  
Science and the future. A. A. C. Swinton. Engineer 126:442-3 N 22 '18  
Science and utility. Sci Am 120:392 Ap 19 '19  
Scientific insurgent. Sci Am 120:280 Mr 22 '19  
Teaching of natural science in Great Britain; excerpts from the report of a committee. Engineer 125:334-5 Ap 19 '18  
*See also* Astronomy; Chemistry; Crystallography; Geology; Mathematics; Metallography; Microscope and microscopy; Military art and science; Mineralogy; Physics; Radioactivity; Scientific research; Technology; Zoology
- Scientific apparatus and instruments**  
For the preservation of a vital industry. Sci Am 121:304 S 27 '19  
*See also* Chemical apparatus
- Scientific literature**  
Getting rid of German shackles. Sci Am 120: 22 Ja 11 '19
- Scientific management.** *See* Industrial management
- Scientific research**  
Abstracts of recent papers on engineering research. Eng & Contr 49:217-21 F 27 '18  
American engineering research. W. R. Whitney. Am Inst E E Pro 38:115-27 F '19  
Aspects of scientific research in relation to the glass industry. E. W. Washburn. Chem & Met Eng 21:465-7 O 8 '19  
British organize for scientific research. F. Heath. Elec W 74:142-3 J 19 '19  
Condition of research in the United States; abstracts. A. M. Greene, jr. Il Mech Eng 41:587-92 J 19 '19; Gas Age 44:50-3 J 15 '19; Eng & Contr 52:108-10 J 23 '19; Iron Tr R 64:1621-3 Je 19 '19; Textile World 56: 477-+ J 26 '19  
Department of scientific and industrial research. F. Heath. Engineer 127:184 F 21 '19  
Development of research a vital necessity. Elec W 72:1187-9 D 21 '18  
Discovery and invention. D. Clerk. Engineer 124:514-15 D 14 '17  
Discussion at research session of spring meeting of A. S. M. E. Mech Eng 41:669-71+ Ag '19  
Industrial and scientific research in Italy. Engineer 125:178-9 Mr 1 '18  
Labor advocates scientific research. Eng N 82:1283 Je 26 '19  
Labor and efficiency of production. Ry Age 67:187-8 Ag 1 '19  
Labor and scientific research. Ind Management 58:120 Ag '19  
Need for research in the non-metallic mineral field. R. B. Ladoo. Il Chem & Met Eng 21:348-52 S 15 '19  
Notes on the importance of research in marine engineering; abstracts. A. E. Seaton. Engineer 125:459-60 My 24 '18; Int Marine Eng 23:420-3 J 1 '18  
Organizing research work on a national scale. Am Mach 49:81 J 11 '18  
Outlook for research in America. N. M. Hopkins. Eng & Contr 52:245-8 Ag 27 '19  
Report of the Advisory council. Engineer 128: 419-21 O 24 '19  
Report of the committee of the Privy council for scientific and industrial research (1917-1918). Illum Engr 11:169 J 1 '18  
Report of the committee of the Privy council for scientific and industrial research for the year 1918-19. Engineer 128:236-7 S 5 '19
- Research couplet, research in pure science and industrial research; abstract.** W. A. Hamor. Am Soc M E J 40:435 My '18  
Research in America after the war. R. A. Millikan. Am Inst E E Pro 38:129-40 F '19  
Research in progress or completed. Elec W Printed in the third issue of each month  
Science and industry in relation to non-ferrous metals. W. Rosenhain. Engineer 127:527-9 My 30 '19  
Science and the people. A. A. C. Swinton. Engineer 124:447 N 23 '17  
Scientific and industrial research; report of the Advisory council. Engineer 126:272-3 S 27 '18  
Why structural and other engineers should take greater interest in scientific research. Eng & Contr 49:207-8 F 27 '18  
Work of the committee of the Privy council for scientific and industrial research. Engineer 126:197 S 6 '18  
*See also* Chemical laboratories; Chemical research; Electric laboratories; Electric research; Industrial research; Laboratories; Metallurgical laboratories; Mining research; National research council; United States—Standards, Bureau of; also Carnegie Institute of Washington
- Scientists**  
Some metrological memories. T. C. Mendenhall. J Fr Inst 186:91-106 J 1 '18
- Sciotoville, Ohio**  
**Bridges**  
Erection experiences at the Sciotoville bridge. C. B. Pyle. Il diags plan Eng N 81:1182-6 D 26 '18
- Scleroscopes**  
Instruments for hardness tests. C. E. Clewell. Il diags Am Mach 50:93-6 Ja 16 '19
- Scotch**  
Scotland and the Scotch. Sci Am S 85:265 Ap 27 '18
- Scotland.** *See* Water power—Scotland
- Scovill manufacturing company**  
Relation of the chemist to the brass industry. W. B. Price. Il J Ind & Eng Chem 11:770-7 Ag '19
- Scrap material**  
Along the British front by light railway. R. K. Tomlin, jr. Il Eng N 80:1121-2 Je 13 '18  
Converting scrap into a sinking hoist. Eng & Min J 106:453-4 S 7 '18  
Entire blast furnace plant salvaged. Il Iron Age 102:197-9 J 25 '18  
National economy in England. Il Sci Am S 86:136 Ag 31 '18  
Salvage at the Winchester plant. C. M. Horton. Il Ind Management 56:201-4 S '18  
Salvage department at shipyard a money saver. Eng & Contr 50:389-90 O 23 '18  
Salvage of waste material in England. Munic J 45:10 J 6 '18; Same. Am Soc M E J 40: 713-14 Ag '18  
Scrapped war material. Iron Age 102:999 O 17 '18  
Warring on waste. W. C. Hirsch. Factory 20: 494+, 740+ Mr-Apr '18  
Warring on waste; salvaging the scrap heap. J. Heywood. Il Factory 23:273-6 Ag '19  
*See also* Electric lines—Scrap material; Electric railroads—Scrap material; Railroads—Scrap material
- Scrap metal**  
American iron and steel institute; new committee for scrap. Iron Age 101:360 Ja 31 '18  
Battlefield salvage of war metals. Eng & Min J 105:380 F 23 '18  
Briquetting of non-ferrous light metal scrap. A. L. Stillman. Il charts diags plan Metal Ind 15:526-30 D '17  
Britain developing scrap recovery. J. Horton. Iron Tr R 64:1018-19 Ap 17 '19  
Collection of old material. Iron Age 101: 1684-5 Je 27 '18  
Design and operation of a small Kjellin furnace; manufacture of electric steel for stamp-mill shoes and dies on the Witwatersrand, South Africa. G. H. Stanley and W. Buchanan. diags plan Met & Chem Eng 18: 349-53, 416-20 Ap 1-15 '18

**Scrap metal—Continued**

Electric pig iron from steel scrap. R. Turnbull. Iron Age 102:1026-7 O 24 '18  
 Foundry scrap prices are changed. Foundry 46:143-4 Ap '18  
 Handling scrap; systematized scheme for gathering, cleaning and transporting turnings. II Iron Age 103:761 Mr 20 '19  
 Harvest of the battlefields; how fortunes in old metal will be garnered from the war zone. F. J. Koch. II Metal Ind 16:8-10 Ja '18  
 How Germany utilized England's tin plate scrap. Sci Am 119:142 Ag 17 '18  
 Huge loss of steel brings problem. G. H. Manlove. II Iron Tr R 64:371-5 F 6 '19  
 Iron and steel scrap prices. Foundry 46:82-3 F '18  
 Junk men of the war; what becomes of the wreckage of the battlefield. II Sci Am S 85:264-5 Ap 27 '18  
 Junk pile transformed into gold. G. H. Manlove. II diag Iron Tr R 62:1173-6 My 9 '18  
 Make use of your junk pile. Motor Age 34:14-15 Ag 29 '18  
 Metal salvaged from the scrap pile in 1918. Foundry 46:79-80 F '18  
 New scrap schedule put in effect. Iron Tr R 62:553 F 28 '18; Same. Iron Age 101:570-1 F 28 '18  
 Official pig iron and steel scrap prices revised. Foundry 46:255 Je '18  
 Philadelphia scrap prices, 1897-1918. Iron Age 103:22 Ja 2 '19  
 Pig iron from scrap steel. Am Soc M E J 40:191-2 F '18  
 Proposed commission on scrap. Iron Age 101:1169 My 2 '18  
 Reclaiming high speed steel; Onondaga steel company. II Ry Mech Eng 92:225-7 Ap '18  
 Reclaiming high-speed steel scrap by the Onondaga steel co. E. F. Cone. II Iron Age 103:805-8 Mr 27 '19  
 Recovery of tin from tin-plate scrap. Sci Am 120:240 Mr 8 '19  
 Reducing the cost of handling scrap. II Iron Age 101:379 F 7 '18  
 Salvage at the Winchester plant. C. M. Horton. II Ind Management 56:201-4 S '18  
 Salvage of high-speed steel tools. J. H. Vincent. II Am Mach 50:169-70 Ja 23 '19  
 Salvage of worn gages by electroplating. R. Gibbs. Mach 24:934-5 Je '18  
 Salvaging of high-speed steel. II diags Iron Tr R 62:845-8 Ap 4 '18  
 Salvaging of metal on battle fields. Sci Am 121:404 O 18 '19  
 Salvaging tools in war time. E. K. Hammond. II Mach 24:771-9 My '18  
 Saving waste material in a structural steel plant. J. C. Worrell. Eng & Contr 49:321 Mr 27 '18  
 Scrap buyers make agreement. Iron Tr R 63:450 Ag 22 '18  
 Scrap claims new place in industry. chart Iron Tr R 62:36-7 Ja 3 '18  
 Scrap handling and reclamation. Chicago Rock Island & Pacific Ry. A. T. Kipping. II plan Ry R 65:219-22 Ag 16 '19  
 Scrap metal specifications. Foundry 46:462a O '18  
 Scrap prices regulated on Pacific coast. Foundry 46:395 S '18  
 Scrap reflected war and peace. chart Iron Tr R 64:112-13 Ja 2 '19  
 Small castings from alloys and scrap metals. W. J. May. Sci Am S 85:171 Mr 16 '18  
 Sorting of heavy melting steel and marketing it as unguaranteed low phosphorus material denounced by officials. W. V. Phillips; C. A. Barnes. Iron Tr R 63:509 Ag 29 '18  
 Storing scrap material. diags Eng & Min J 104:1090 D 22 '17  
 Tin scarcity and recovery from scrap. Sci Am 118:79 Ja 19 '18  
 Use of cartridge scrap. Am Ind 18:43 My '18  
 Utilization of wastes. F. Hall. Iron Age 102:888 O 10 '18  
 War department warns against fraud. chart Iron Age 103:359 F 6 '19

Youngstown sheet & tube co. scrap specifications. Iron Age 101:584 F 28 '18

See also Metal waste; Railroads—Scrap material; also American board of scrap iron dealers

**Scrapers (machine work)**

Anderson air-driven scraper. II diags Mach 25:769-70 Ap '19  
 Hand scrapers. C. C. Marsh. diags Mach 24:629-30 Mr '18  
 Modern motor-driven scraper. II Am Mach 48:472 Mr 14 '18  
 Pneumatic scraping machine. II Sci Am 121:424 O 25 '19

**Screening**

Mechanical screening of wet pulp. H. E. McGraw. Eng & Min J 106:526-7 S 21 '18  
 Notes on screening practice. J. Bland. diags Eng & Min J 107:1112-16 Je 28 '19

See also Ore treatment; Sewage disposal—Screening

**Screens**

Communication from the Bureau of standards on standard screen scales. Am Water Works Assn J 6:572-80 S '19  
 Comparative analysis of gravel screens. R. W. Dull. diags Eng & Contr 50:62-4 Jl 17 '18  
 Design of screen chamber. J. H. Lance. diags Am Water Works Assn J 5:181-4 Je '18  
 Estimating screen efficiency. W. O. Borchardt. diags Eng & Min J 107:651-3 Ap 12 '19; Discussion. R. T. Hancock. 108:551-2 S 27 '19  
 Harris-Muff ballast screen. II Ry R 64:417 Mr 15 '19  
 Home-made shaking screen. F. W. Foote and R. S. Ransom, jr. diags Eng & Min J 105:207 Ja 26 '18  
 Locomotive sand box screen. A. P. Jander. diag Ry Mech Eng 93:525 S '19  
 New screen-sizing scale proposed. E. H. Robie. Eng & Min J 108:467-8 S 13 '19  
 Notes on screening practice. J. Bland. diags Eng & Min J 107:1112-16 Je 28 '19  
 Power to drive shaking screens. J. J. Klenberger. Coal Age 12:905 N 24 '17; Discussion. R. G. Lawry. 13:29 Ja 5 '18  
 Removing algae from a California irrigation canal. E. C. Eaton. II Eng N 82:382-3 F 20 '19  
 Rotary screens remove dirt from water at St. Paul. II diags Eng N 82:566-7 Mr 20 '19  
 Sand-screening device. II Eng & Contr 49:105 Ja 30 '18  
 Screens and loads gravel to wheelbarrows in one operation. H. J. Spielman. diag Eng N 80:476 Mr 7 '18  
 Standardization of screen openings in production of broken stone for road purposes. Eng & Contr 50:332-3 O 2 '18  
 Sturtevant Newaygo super-screen. II Concrete 13:sup7 Jl '18  
 Water intake screens are easily and quickly cleaned. II Elec W 73:793 Ap 19 '19  
 Wet-pulp screening device. II Eng & Min J 107:760 Ap 26 '19

See also Riddles

**Screens, Window**

Screening steel sash. II Factory 20:1176 Je '18

**Screw machines**

Baird-Detroit no. 4 hand screw machine. II Am Mach 51:437-8 Ag 28 '19  
 Bar feed on automatics. D. A. Hampson. diags Am Mach 50:849-50 My 1 '19  
 Defiance no. 4 turret screw machine. II Am Mach 48:346-7 F 21 '18  
 Four-spindle automatic screw machine. II Ry Mech Eng 93:379-80 Je '19  
 Interchangeable ejector for hand screw machines. J. J. Borkenhagen. diag Mach 24:1038 Jl '18  
 Operating the Gridley multiple-spindle screw machine. D. T. Hamilton. II diags Mach 24:839-44 My '18  
 Screw machine tool equipment. D. T. Hamilton. II diags Mach 24:118-22, 331-4, 436-8 O, D '17-Ja '18  
 Slotting and shaping in the automatic screw machine. E. Whitney. diags Am Mach 48:209 Ja 31 '18

**Screw machines—Continued**

- Time studies in screw-machine practice. R. A. Hinkel. *Am Mach* 48:507-8 Mr 21 '18  
 Time studies on automatic screw-machine products. F. A. MacGowan. *diags Am Mach* 48:676 Ap 18 '18

*See also* Machine tools; Screw threads; Screws

**Screw products plants.** *See* National Acme company, Cleveland, Ohio

**Screw propellers.** *See* Propellers

**Screw spikes.** *See* Spikes (railroad)

**Screw threads**

- Apparatus for checking screw threads. *II* Automotive Ind 39:1008-10 D 12 '18  
 Blair thread gage machines. *II* *diags Mach* 25:165-7 O '18  
 Buttress threading with taps. D. A. Hampson. *diags Mach* 25:64-5 S '18  
 Cutting screw threads by a primitive method. G. H. Gardner. *Mach* 25:204 N '18  
 Designation of threads. C. A. Cook. *Mach* 25:62-3 S '18  
 Determining error in thread angle by three-wire method. *diag Mach* 25:552 F '19  
 Errors in measuring thread pitch diameters with wires. J. H. Billings. *diag Am Mach* 47:1077-8 D 20 '17  
 Finding angle of special screw thread. *diag Mach* 24:1043 JI '18  
 Finding angles of special screw thread. W. H. Webster. *diag Mach* 25:256 N '18  
 Finding angles of special screw threads. E. Latshaw. *Mach* 25:978 Je '19  
 Finding effective bearing area of Acme screw threads. H. S. Kartsher. *diag Mach* 24:440 Ja '18  
 Fortney measuring wires. *II* *diags Automotive Ind* 39:1014 D 12 '18  
 Gaging Acme threads without special wires. H. A. Pearson. *diag Am Mach* 51:830 N 6 '19  
 Gaging located screw threads. E. Latshaw. *diag Mach* 25:1177 Ag '19  
 Gaging screws. H. J. B. Powell. *Am Mach* 48:1045-6 Je 20 '18  
 Geometric thread-lead testing device. *II* *Am Mach* 49:916 N 14 '18  
 Graphical study of screw threads. H. M. Brayton. *charts Am Mach* 50:149-50 Ja 23 '19  
 Grinding and lapping threads. J. E. Lindgren. *diags Mach* 24:1023-4 JI '18  
 Inside diameter of threads. H. Carstensen. *Am Mach* 50:755 Ap 17 '19  
 Inspection of screw gages for munitions of war. H. J. B. Powell. *II* *Am Mach* 47:1065-73 D 20 '17; Same cond. *Mach* 24:452-6 Ja '18; Abstract. *Am Soc M E J* 40:108-9 Ja '18  
 Knapp thread inspection equipment. *II* *Mach* 25:357-60 D '18  
 Lea thread lead tester. *II* *Mach* 24:949-50 Je '18  
 Lowenherz thread. *diag Mach* 24:837 My '18  
 Manufacture of standard thread measuring wires. F. R. Daniels. *II* *Mach* 25:606-7 Mr '19  
 Measurement of internal threads. W. S. Rowell. *diags Mach* 24:429 Ja '18  
 Measurement of pitch diameter of 60-deg. thread by 3-wire system. C. P. Colburn. *diags Am Soc M E J* 41:162-3 F '19  
 Measurement of screw threads. A. Brooker. *Sci Am S* 85:71 F 2 '18  
 Measuring diameters of screw threads. F. W. Shrier. *diag Mach* 24:648 Mr '18  
 Optical projection for screw-thread inspection. J. Hariness. *chart diags Am Soc M E J* 41:127-35 F '19; Same. *Am Mach* 50:453-6, 485-90 Mr 6-13 '19; Same cond. *Iron Age* 103:357-8 F 6 '19; Same cond. *Iron Tr R* 64:383-6 F 6 '19  
 Precision screw measuring machine. *II* *diags Mach* 24:494-5 F '18  
 Present practice in thread-gage making. F. O. Wells. *II* *Am Soc M E J* 40:1010-13 D '18; Same. *Am Mach* 50:153-8 Ja 23 '19  
 Projection lantern for thread measurement. H. L. Van Keuren and E. C. Criess. *II* *diags Am Mach* 49:805-11 O 31 '18  
 Projection method of testing screw threads. F. D. Jones. *II* *diags Mach* 24:735-8 Ap '18

- Proposed shape of screw thread. G. Doorakkers. *diags Engineer* 127:80 Ja 24 '19  
 Relation of screw-thread angles to other functions. H. J. B. Powell. *diags Am Mach* 49:571-3 S 26 '18; Abstract. *Am Soc M E J* 40:959-60 N '18  
 Report of the A. S. M. E. committee on limits and tolerance in screw thread fits. *charts diags Am Mach* 48:913-26 My 30 '18; Same. *Am Soc M E J* 40:661-75 Ag '18; Excerpts. *Mach* 24:1061-2 JI '18  
 Scheme of gaging for screwed parts. J. Hariness. *diags Am Soc M E J* 40:157-8 F '18  
 Screw-thread tolerances for munitions. *diags Am Mach* 48:135-6 Ja 24 '18  
 Sheffield thread-lead testing machine for screw gages. *II* *Am Mach* 49:180 JI 25 '18  
 Testing screw threads. *diags Sci Am S* 85:380+ Je 15 '18  
 Thread gages; wing gages. E. Oberg. *II* *diags Mach* 25:502-6 F '19  
 Thread-lead gage. *Am Mach* 47:1092; 48:370 D 20 '17, F 28 '18  
 Thread-measuring formulas. H. M. Funnell. *diag Am Mach* 49:839 N 7 '18  
 Threads and thread gages. C. B. Lord. *Mech Eng* 41:531-2 Je '19  
 Tracey tool-room specialties. *II* *diags Mach* 25:163-5 O '18  
 Use of measuring wires. H. L. Van Keuren. *Automotive Ind* 39:1056+ D 19 '18  
 War department tolerances for screw threads. *diags Mach* 24:457-8 Ja '18

*See also* Pipe threads; Thread cutting; Thread cutting machines; Thread rolling

**Bibliography**

- Screw threads. H. E. Haferkorn. *Professional memoirs v* 10, no 54, supp 2:1-52 N '18 5c  
 H. W. Wilson co.

**Standards**

- Bill provides for screw thread commission. *Iron Age* 101:870-1 Ap 4 '18  
 Considerations in the standardization of screw threads. W. T. Magruder. *Am Soc M E J* 41:161 F '19  
 Government commission on screw thread standardization. *Mach* 25:258 N '18  
 International screw threads; London conference January, 1918, aims at Anglo-American standardization. *Automotive Ind* 37:1131 D 27 '17  
 National screw thread commission. *Am Mach* 49:635 O 3 '18; *Iron Age* 102:842 O 3 '18  
 National screw thread commission report on thread systems. *Iron Age* 103:1020-1 Ap 17 '19  
 New movement to standardize screw threads. *Heat & Ven* 15:59-60 D '18  
 New York meeting of the National screw thread commission. *Am Mach* 49:775 O 24 '18  
 Proposed modification of screw threads. *Am Mach* 50:818-19 Ap 24 '19  
 Proposed modified form of screw thread as an international standard. R. Lacy. *diags Mech Eng* 41:272-3 Mr '19; Same cond. *Iron Age* 103:607 Mr 6 '19  
 Screw thread commission appointed by Congress. *Am Mach* 49:547 S 19 '18  
 Screw thread international standards. *Automotive Ind* 39:1098 D 26 '18  
 Screw thread standardization. *Iron Age* 102:998 O 17 '18  
 Standardization of screw threads. *diag Mach* 25:896-7 My '19  
 Standardization of screw threads; House bill. *Am Mach* 48:1103 Je 27 '18  
 Uniform screw threads for all countries. *Am Mach* 49:117-19 JI 18 '18  
 Work of the British engineering standards association on screw threads and limit gages. R. Glazebrook. *Am Soc M E J* 40:1007-9 D '18
- Screwdrivers**  
 Screwdriver and hammer for use in out-of-the-way places. F. L. Hinman. *diag Elec Ry J* 50:1042 D 8 '17
- Screwdrivers, insulated**  
 Improved insulated screw driver. J. A. Weaver. *diags Elec R* 74:235 F 8 '19



**Screwdriving machines**

- Hergl screwdriving outfit. *Il Am Mach* 51: 775-6 O 28 '19  
 Reynolds traveling, radial, screw-driving machine. *Il Am Mach* 49:1064-5 D 5 '18; *Mach* 25:364-5 D '18; *Iron Age* 102:1389 D 5 '18

**Screws**

- Efficiency of the screw. B: F. Groat. *diags Eng Soc W Pa* 34:377-405 Je '18; Abstract. *Am Soc M E J* 40:1049-50 D '18  
 Hints on the use of screws. H: Simon. *Bldg Age* 40:517 N '18  
 Kingsbury's coefficients. A. Kingsbury. *Eng Soc W Pa* 34:406-29 Je '18  
 Navy standard cap screws. *diags Am Mach* 48:383 F 28 '18  
 Standard specifications for cold-drawn Bessemer steel automatic screw stock; English and Spanish. U S Bur For & Dom Com Ind Stand 43:1-11 '19  
 Standard specifications for cold-drawn open-hearth automatic screw stock; English and Spanish. U S Bur For & Dom Com Ind Stand 44:1-11 '19

*See also* Screw machines; Screw threads; Thread cutting

**Screws, Theory of**

- General summary of the de Bothezat blade-screw theory. G: de Bothezat. *diags Aviation* 6:520-4 Je 15 '19

**Sculpture**

- Henry Hering's sculpture for the Field museum of natural history in Chicago. C: O. Cornelius. *Il Arch Rec* 44:430-49 N '18

*See also* Bronzes; Memorials; Wood carving

**Sculpture, Greek**

- Principles of polychrome in sculpture based on Greek practice. L. V. Solon. *Il Arch Rec* 43:526-33 Je '18

**Sea. See Ocean****Sea animals. See Marine fauna****Sea lions. See Seals (animals)****Sea planes. See Seaplanes****Sea power**

- Proper use of sea power. *Engineer* 126:441-2 N 22 '18

*See also* Navies; Warships

**Sea sleds**

- Sea sled. *Il Sci Am* 121:342+ O 4 '19

**Sea walls**

- Drive inclined precast concrete slabs for sea wall. *Il diags Eng N* 81:897-8 N 14 '18  
 Extending the Galveston sea wall. J. B. Lippincott. *Il diags plans Eng N* 83:617-19 S 25 '19  
 Precast units for sea wall construction at Avon, N.J. *diags Concrete* 11:182 D '17

*See also* Breakwaters; Bulkheads; Docks; Harbors; Jetties; Shore protection; Wharves

**Sea water**

- Electrical instrument for recording seawater salinity; abstract. E. E. Weibel and A. L. Thuras. *Elec W* 71:783 Ap 13 '18  
 Extraction of potash and other constituents from sea water bittern. J. H. Hildebrand. *diags J Ind & Eng Chem* 10:96-105 F '18  
 Pacific ocean water in domestic use. *Sci Am* 121:335 O 4 '19  
 Vertical distribution of dissolved oxygen and the precipitation by salt water in certain tidal areas. J. W. Sale and W. W. Skinner. *map J Fr Inst* 184:337-48 D '17; Abstract. *Munic J* 45:68-9 J1 27 '18

*See also* Concrete, Effect of sea water on

**Seaboard air line railway**

- Annual report, 1917. *map Ry Age* 64:1550-1, 1588-9 Je 28 '18  
 Report for the fiscal year ended December 31, 1916. *map Ry Age* 63:1065-6, 1107-8 D 14 '17

**Seals (animals)**

- Sea lions and the fishery industries. C. H. Townsend. *Il Sci Am S* 87:328-9 My 24 '19  
 Two fur seal problems and their solution. G: A. Clark. *Sci Am S* 87:267 Ap 26 '19

**Sealskin**

- Dressing and dyeing of Alaskan sealskins. W: C. Redfield. *Color Tr J* 4:15 Ja '19

**Seamanship. See Navigation****Seamen, Training of**

- Alien crews on our merchantships. *Sci Am* 118:162 F 23 '18  
 New developments in training wartime sailors; U. S. naval training station under the Dunwoody industrial institute. W. Connely. *Il Sci Am* 117:492+ D 29 '17  
 To train seamen. H. H. Raymond. *Marine R* 49:466-7 O '19  
 Training copper-smiths for the navy. W. Connely. *Il Metal Work* 89:14-17 Ja 4 '18  
 Training power-plant men for the navy. W. Connely. *Il Power* 47:396-8 Mr 19 '18

**Seaplanes**

- Airplane and seaplane engineering. H. C. Richardson. *Il charts Aviation* 6:640-3; 7: 36-8 J1 15-Ag 1 '19  
 Airplanes and seaplanes of our navy in wartime. H. C. Richardson. *Sci Am* 120:188+ F 22 '19  
 Airplanes for the transatlantic flight. *Il Sci Am* 120:202+ Mr 1 '19  
 British airplanes and seaplanes; tabulation. *Automotive Ind* 40:142-3 Ja 16 '19  
 Cockpit of the transatlantic seaplanes. *Il Sci Am* 120:547+ My 24 '19  
 Future of traveling by seaplane. R. Barth. *Sci Am S* 88:277 N 8 '19  
 Martynside trans-Atlantic airplane. *Il Sci Am* 120:489 My 10 '19  
 Navy issues seaplane specifications. *Aviation* 6:73-4 F 15 '19  
 Officially recognized performance records of airplanes and seaplanes. *Automotive Ind* 40: 138-40 Ja 16 '19  
 Pacific as a field of aerial activity; White hydro-monoplane. *diag plan map Aviation* 7:87-8 Ag 15 '19  
 Present status of American airplane and seaplane construction. A. Klemm. *Il Aviation* 6:136-40 Mr 1 '19  
 Radio equipment on the naval seaplanes. F. D. Roosevelt. *Elec W* 73:1128 My 24 '19  
 Richborough transportation depot and train ferry terminus, seaplane towing lighters. *Il diags plan Engineer* 127:169-72 F 21 '19  
 Seagull files; special factors in connection with naval aviation. P. J. Haaren. *Il Sci Am* 120:488-9+ My 10 '19  
 Seaplanes for fishing and oceanography. *Sci Am* 120:332 Ap 5 '19  
 Small airplanes and the trans-Atlantic flight. *Il Sci Am* 120:427 Ap 26 '19  
 Transatlantic seaplane of the future. *Il Sci Am* 120:633 Je 14 '19  
 Work of the French seaplanes. R. W. Neeser. *Il Sci Am* 120:226 Mr 8 '19

*See also* Flying boats; Hydrodromes

**Manufacture**

- Naval aircraft factory, navy yard, Philadelphia. *Il Ind Management* 56:465-70 D '18  
 Problems of the Naval aircraft factory, Philadelphia during the war. F. G. Coburn. *Il Am Mach* 51:413-19 Ag 28 '19

**Transportation**

- H. M. seaplane carrier *Hermes*. *Il Engineer* 128:274 S 19 '19  
 Seaplane carrier *Argus*. *Il Sci Am* 120:630-1 Je 14 '19  
 Towing barge for the huge naval planes. *Il Sci Am* 120:309 Mr 29 '19

**Searchlights**

- Adaptation of the high intensity arc to the open-type 60-inch army searchlight. J: T. Beechlyn. *Il diags Gen Elec R* 22:655-9 S '19  
 Better searchlight unit. A. A. Pashby. *Il Sci Am* 120:657 Je 21 '19  
 Characteristics and testing of war searchlamps. S: G. Hibben. *Il Elec W* 70:419-21 S 1 '17; Excerpt. *Illum Engr* 10:291-2 N '17  
 Determination and study of the lighting characteristics of searchlamps; abstract. A. Blondel and C. Lavanchy. *Elec W* 72:605 S 28 '18  
 Development of electric searchlamps. L: J. Auerbacher. *Il Elec W* 71:1319-21 Je 22 '18; Discussion. H. H. Thompson. 72:217 Ag 3 '18

**Searchlights—Continued**

- Distant control of projectors for sea coast defense. J. L. Hall. *diags Gen Elec R 22:678-9 S '19*
- Distant electrical controls for military searchlights. T. Hall. *diags Gen Elec R 22:718-21 S '19*
- Glass searchlight mirrors. H. D. Minchin. *il Gen Elec R 22:660-3 S '19*
- How portable searchlight equipment was used in the war. W. F. Bradley. *il Automotive Ind 41:478-80 S 4 '19*
- Lebby searchlight. *Automotive Ind 39:427 S 5 '18*
- Light weight barrel searchlights. P. R. Bassett. *il Gen Elec R 22:714-17 S '19*
- Lynn 60-inch open type army searchlight development. C. A. B. Halvorson, jr. *il diags Gen Elec R 22:704-13 S '19*
- Metal mirrors for searchlights. R. B. Hussey. *il Gen Elec R 22:652-5 S '19*
- Military searchlights. H. C. Judson. *il Sci Am S 86:148 S 7 '18*
- Military searchlights and their scientific testing. C. Lichtenberg. *il plan Elec R 75:776-80 N 8 '19*
- Mobile searchlight power units for U.S. army. H. S. Baldwin. *il diags maps Gen Elec R 22:694-9 S '19*
- Non-glaring hand lamp which throws a beam 500 feet long. *il diag Sci Am 118:92+ Ja 26 '18*
- Parabolic searchlight mirrors. *il Sci Am 120:691 Je 28 '19*
- Portable electric searchlight for emergency work. *il Elec W 71:1347 Je 22 '18*
- Searchlight air defense operations. W. F. Tompkins. *il Gen Elec R 22:663-7 S '19*
- Searchlight development. E. Thomson. *Gen Elec R 22:722-4 S '19*
- Searchlight developments of the U.S. army. C. Lichtenberg. *il diag Gen Elec R 22:700-3 S '19*
- Searchlight electrodes. W. H. Hardman. *il Gen Elec R 22:685-8 S '19*
- Searchlight in the U.S. navy. R. Kelly. *il diags Am Inst E E Pro 38:1363-84 D '19*
- Searchlight problems of military importance. C. Lichtenberg. *Elec W 72:454 S 7 '18; Same. Illum Engr 11:238 O '18*
- Searchlight production. L. Gibson. *il Gen Elec R 22:683-4 S '19*
- Searchlight tower units. R. S. Hood, jr. *il Gen Elec R 22:689-93 S '19*
- Ship propulsion, electric heating devices and searchlights. J. R. Hewett. *il diags Gen Elec R 22:738-40 S '19*
- Thirty-inch open type searchlight with tripod mount. E. J. Murphy. *il Gen Elec R 22:680-2 S '19*

**Testing**

- Development and testing of arc and incandescent searchlights. W. D'A. Ryan. *Gen Elec R 22:724 S '19*
- Searchlight testing. F. A. Benford. *il plan Gen Elec R 22:668-75 S '19; Same. Elec R 75:780-3 N 8 '19*
- Searles lake**
- Potash from Searles lake. A. De Ropp, jr. *il diags map Chem & Met Eng 19:425-31 S 26 '18; Same abr. J Ind & Eng Chem 10:839-44 O '18*
- Sears, Roebuck and company**
- Sears, Roebuck & co.'s plant, Chicago. G. C. Nimmons. *il diag Arch Rec 45:506-25 Je '19*
- Seashore**
- Observations on a Florida sea-beach with reference to oil geology. J. F. Kemp. *il Econ Geol 14:302-23 Je '19*
- Voice of the sea. L. Jeffers. *il Sci Am 120:70-1+ Ja 25 '19*
- Seattle, Washington**
- Seattle keeps accurate records of auto trucks and automobile operations. C. A. Osler. *il Eng N 80:655-6 Ap 4 '18*
- Seattle solves its housing problems. *Am Lumberman 2266:41 O 19 '18*
- Seattle's new war industries. C. P. Norton. *il Int Marine Eng 23:212-14 Ap '18*

**Harbor**

- Port of Seattle. C. P. Norton. *il Int Marine Eng 23:568-70 O '18*
- Seattle plans large extension to port facilities. *Eng N 81:626-7 O 3 '18*

**Public library**

- Public library for the business man. *il J Elec 43:457-9 N 15 '19*

**Railroads**

- Concrete packing stops settlement over tunnel. E. E. Adams. *diags Ry Age 67:509-11 S 12 '19*
- Consolidation at Seattle. *Ry Age 67:203-4 Ag 1 '19*

**Rapid transit**

- Company rejects proposal of city to lease railway lines for fixed rental. *Elec Ry J 52:428 S 7 '18*
- Move toward an amicable agreement between the city of Seattle, Wash., and the Puget Sound traction, light & power co. *Elec Ry J 52:166 JI 27 '18*
- Municipal railway operation. T. F. Murphine. *Elec J 16:428-30 O '19*
- Safety cars in a city of 400,000. *il map Elec Ry J 52:556-7 S 28 '18*
- Seattle matter unsettled. *Elec Ry J 52:472 S 14 '18*
- Seattle sale plans. *Elec Ry J 52:520 S 21 '18*
- Seattle takes over its railway. *Elec Ry J 53:534 Mr 15 '19*
- Seattle transfer Oct. 1. *Elec Ry J 52:586 S 28 '18*
- Traction situation in Seattle. M. O. Hanson. *Elec Ry J 54:386 Ag 23 '19*
- Seawalls. See Sea walls**
- Seaweed. See Algae; Kelp**
- Sebastian (motor ship)**
- Precaution against fire on a Diesel-engined ship. Z. W. Wickes. *Int Marine Eng 23:137 Mr '18; Discussion. T. O. Lisle. 23:309 My '18*
- Secomor**
- Secomor; a kinematic device which imitates the performance of a series-wound polyphase commutator motor. V. Karapetoff. *diags Am Inst E E Pro 37:65-82 F '18*
- Secondary batteries. See Storage batteries**
- Securities**
- New offerings of securities. *Ry Age 65:893-6 N 15 sec 2 '18*
- Safeguarding investments. *J Account 27:61-5 Ja '19*
- See also Bonds; Investments; Mortgages; Railroads—Securities*
- Securities commissions**
- Function of securities commissions. A. C. Oberg. *Eng & Min J 108:155 JI 26 '19*
- Sedalia, Missouri**

**Sewerage**

- Sewage treatment in Sedalia. *il Munic J 45:23-5 JI 13 '18*
- Sedimentation and deposition**
- Study of the sediments as an aid to the earth historian. E. Blackwelder. *Sci Am S 87:183+ Mr 22 '19*
- Sedition**
- Seditious publications in the public library. *Sci Am S 85:112 F 16 '18*
- Seeds**
- Electrification of seeds. C. A. Mercier. *il Sci Am 120:142-3 F 15 '19*
- Seepage**
- Canal seepage losses are affected by temperature. L. Crandall. *Eng N 82:323-4 F 13 '19; Discussion. 82:684 Ap 3 '19*
- Impervious bituminous wall suggested to prevent seepage under paving. *Eng N 81:226-8 Ag 1 '18*
- Transforming canal losses in terms of depth to quantity. P. A. Cupper. *Eng N 81:220 Ag 1 '18*
- Water company wins Imperial valley seepage case. *Eng N 81:237-8 Ag 1 '18*
- See also Water waste*

**Segovia, Spain**

Early churches of Spain. G. G. King. *Il Am Inst Arch J* 6:395-402 Ag '18

**Selismography. See Earthquakes****Selective draft law****Registration**

Assisting employees with the army questionnaire. *Il Ind Management* 55:237 Mr '18

**Selenic acid**

Selenic acid and copper selenate. L. M. Dennis and J. P. Koller. *Am Chem Soc J* 41: 949-70 Je '19

**Selenium**

Electric dog; use of the selenium cell to make an orientation mechanism. B. F. Miessner. *Il diags plan Sci Am S* 87:376-7 Je 14 '19

Fatigue of selenium cells; abstract. P. Lenard. *Elec W* 73:1401 Je 28 '19

Recovery of selenium and tellurium in copper refining. M. H. Merriss and H. T. Binder. *Eng & Min J* 106:443-5 S 7 '18

Semi-rare metals; selenium and tellurium. *Eng & Min J* 105:194 Ja 26 '18

Use of the selenium cell as a safety-apparatus. *Illum Engr* 12:104 Ap '19

Vulcanization of rubber by selenium. C. R. Boggs. *J Ind & Eng Chem* 10:117-18 F '18

**Selling. See Sales; Sales letters; Salesmen and salesmanship****Semicarbazide**

Relations between the chemical structures of carbonyl derivatives and their reactivities toward salts of semicarbazide. A. Michael. *Am Chem Soc J* 41:393-424 Mr '19

**Semi-steel**

Chart for figuring semisteel mixtures. *Foundry* 47:132 Mr '19

Facts and figures on semisteel shell production. *Foundry* 46:508-9 N '18; Excerpts. *Iron Tr R* 63:910 O 17 '18

Government requires millions of cast shells. *Foundry* 46:441-2 O '18

How semisteel shells are being made in France. E. Ronceray. *Foundry* 46:93-6 Mr '18; Same. *Iron Age* 101:606-8 Mr 7 '18; Same. *Iron Tr R* 62:566-8 Mr 14 '18

How semisteel shells are machined. *diags Iron Tr R* 63:1236-7 N 28 '18

Making semi-steel projectiles. *Il diags Iron Age* 102:879-83 O 10 '18

Manufacture of semi-steel shells. *Il diags Iron Age* 102:1317-21 N 28 '18

Manufacture of semi-steel shells. E. A. Suverkrop. *diags Am Mach* 50:1041-3 My 29 '19

Semisteel and general foundry practice. D. McLain. *Foundry* 47:393-4 Je 15 '19

Semi-steel shell meeting. *Iron Age* 102:955-7 O 17 '18

Semi-steel shells. *Iron Age* 102:1004 O 17 '18

Shell need found foundries ready. *Il diag Iron Tr R* 63:1229-36 N 28 '18; Same. *Foundry* 46:581-7+ D '18

Specifications for shells of semi-steel. *Iron Age* 101:1680 Je 27 '18; Same. *Iron Tr R* 62:1619+ Je 27 '18; Same. *Foundry* 46:345-6 Ag '18

Tensile tests of cast iron and semi-steel. H. L. Campbell. *diag Mach* 25:605 Mr '19

**Sengite**

Sengite, a new explosive. J. P. Udal. *Eng & Min J* 106:820 N 9 '18

Sengite—a new mine explosive with a gun-cotton base. M. Meredith. *Coal Age* 15: 857 My 8 '19

**Sensation. See Senses and sensation****Senses and sensation**

Effects of hearing versus seeing. W. J. Dana. *Sci Am S* 85:91 F 9 '18

Eyes in the finger tips. *Sci Am* 119:167 Ag 31 '18

*See also* Color sense; Hearing; Sight; Taste

**Sensitol green. See Pinaverdol****Sensitol red. See Pinacyanol**

**Sensitometry of photographic intensification.** A. H. Nietz and K. Huse. *diags J Fr Inst* 185:389-407; Bibliography. 408 Mr '18

**Separators**

Continuous centrifugal separation machines; abstract. *diags Mech Eng* 41:480 My '19

Mauss centrifugal separators. E. M. Weston. *Il diags Eng & Min J* 107:862-3 My 17 '19

Method of separating materials of different specific gravities. T. M. Chance. *Il diags Am Inst Min E Bul* 134:265-72 F '18; Same. *Coal Age* 13:866-8 My 11 '18; Discussion. *Am Inst Min E Bul* 136:794-6 Ap '18; Same. *Coal Age* 13:868-9 My 11 '18

Separators for removing water of condensation from piping system of pneumatic tools. *diags Eng & Contr* 51:201 F 19 '19

*See also* Oil separators

**Separators, Electrostatic**

Refining flake graphite for crucible use. F. G. Moses. *diags Eng & Min J* 108:50-4 Jl 12 '19

**Sepla**

Use of organic dyestuffs for lake manufacture. B. DePuyater. *Color Tr J* 4:98-100 Ap '19

**Septic tanks**

Auto-educator solves sewage tank difficulty. *Munic J* 45:145-6 Ag 24 '18

Cleaning septic tank at Camp Lee, Va. H. W. Jones; E. B. Whitman. *Il Munic J* 45:507-8 D 28 '18

Combined single and double story septic tank. *Metal Work* 90:441 O 18 '18

Concrete septic tanks and subsoil disposal fields for country homes. J. H. Perry. *diags plans Dom Eng* 85:363-5+ D 7 '18

Design and operation of Fort Myer sewage-treatment plant. L. S. Doten. *Il diags plan Eng N* 82:244-6 Ja 30 '19

Estimating for and constructing septic tanks. *diags plans Metal Work* 90:122-3 Ag 2 '18

Farm septic tank. *diags Am Lumberman* 2266:47 O 19 '18

Improvements in settling tanks for small sewage disposal plants. W. S. Coulter. *diag Am Arch* 113:518-20 Ap 24 '18

New form of septic tank. D. H. Wyatt. *diags Dom Eng* 87:379-80 My 31 '19

Overhauling the plumbing in an old colonial mansion. R. J. Gordon. *diag plan Dom Eng* 89:265-8 N 8 '19

Plumbers' work helps modern sewage treatment plants. H. J. Belmont. *Il diags Dom Eng* 88:150-2 Jl 26 '19

Septic and Imhoff tanks. M. C. Welborn. *Texas U Bul* 1733:32-8 Je 10 '17

Septic sewage disposal systems for summer cottages. H. P. Boynton. *diags Dom Eng* 83:415-17 Je 15 '18

Septic sewage disposal systems of vitrified pipe. H. P. Boynton. *diag Dom Eng* 83:163-4 My 4 '18

Septic sewage tanks of tile pipe. J. H. Perry. *diags Dom Eng* 81:454-7 D 15 '17

Septic tank for cheese factory and house. *diags Dom Eng* 87:285-6 My 17 '19

Should septic tank inlet and outlet be on same level? *diags Dom Eng* 84:469-70 S 28 '18

Size of septic tank for eight persons. *diags plan Dom Eng* 84:122-3 Jl 27 '18

Size of septic tank needed. *Bldg Age* 40:106-7 F '18

Tile pipe septic tank for 300 persons. *diag Dom Eng* 81:499-500 D 22 '17

Working drawings for a monolithic concrete septic tank and sewage siphon chamber to serve ten people. *diags Dom Eng* 87:10-11 Ap 5 '19

**Serbia**

In Serbia with a workshop truck. W. F. Bradley. *Il Motor Age* 33:5-7 Je 20 '18

**Commerce**

Trade opportunities. *Engineer* 127:268-70 Mr 21 '19

**Economic conditions**

Devastation wrought by the great war in Belgium, Serbia and Italy. D. T. Pierce. *Eng N* 82:629-30 Mr 27 '19

**Serum therapy.** See Antitoxins

**Service.** See Automobile industry and trade—Service; Library service; Motor truck industry and trade—Service; Public service; Street railroads—Service

**Service at cost franchises.** See Street railroads—Franchises

**Settling tanks.** See Sewage tanks; Tanks; Thickeners

## Sewage

**Distinctive characteristics of institutional sewerage.** H. W. Taylor. Eng N 80:824-7 Ap 25 '18

See also Filters and filtration; Sewage disposal; Sewage flow; Sewage pumping; Sewage sampling; Sewage sludge; Sewage tanks; Sewer pipes; Sewerage; Water pollution

### Analysis

**Analyses of sewage and sewage sludges.** Eng & Contr 51:465 Ap 30 '19

### Testing

**Control of small sewage disposal works.** J. H. Edmondson. Eng & Contr 50:472-3 N 13 '18  
**Numerical interpretation of bacteriological tests.** M. F. Stein. Eng N 82:1106-9 Je 5 '19

See also Sewage sampling

**Sewage, Utilization of.** See Sewage sludge

**Sewage as fertilizer.** See Sewage irrigation

## Sewage disposal

**All sewage going into boundary waters should be treated.** F. A. Dallyn. Eng N 81:660-3 O 10 '18

**Bacterial treatment of sewage.** Sci Am S 85: 167 Mr 16 '18

**Better operators for water and sewage treatment plants; New Jersey law provides for examination and licensing under direction of State department of health.** Eng N 81: 322-3 Ag 15 '18

**Burn sewage gas to eliminate odor.** J. G. Barnwell. Eng N 79:1100 D 13 '17

**Considerations leading to recommendations for fine screens, sprinkling filters, humus tanks and sludge recovery as sewage disposal method for Indianapolis, Ind.** G. W. Fuller. Eng & Contr 49:368-72 Ap 10 '18

**Consolidation of sludge as a dewatering method.** A. J. Martin. Eng & Contr 50:467 N 13 '18

**Control of small sewage disposal works.** J. H. Edmondson. Eng & Contr 50:472-3 N 13 '18

**Design and construction of water and sewerage works at the Hog Island shipyard.** W. H. Blood, jr. Il Munic Eng 55:54-7 Ag '18

**Design and operation of Fort Myer sewage-treatment plant.** L. S. Doten. Il diags plan Eng N 82:244-6 Ja 30 '19

**Design and operation of sewage treatment plants with special reference to Minnesota conditions.** H. A. Whittaker. Eng & Contr 50:257-8 S 11 '18; Same cond. Munic J 45: 12-13 Jl 6 '18

**Design details of proposed works for the collection and disposal of sewage at Pottstown, Pa.** C. E. Collins. Munic Eng 55:61-4 Ag '18

**Design features of sewage disposal plant at industrial housing development of the Alan Wood iron and steel co., at Swedeland, Pa.** G. L. Robinson. diags Munic Eng 55:135-6 Ap '19

**Development of sewage treatment.** K. Allen. Il Munic Eng 54:244-9 Je '18

**Efficient control of small sewage treatment works.** Munic Eng 57:21-2 Jl '19

**English practice in sewage treatment and disposal.** G. B. Kershaw. Eng & Contr 49: 595-7 Je 12 '18

**First unit of improved means of sewage disposal for Philadelphia well started.** W. L. Stevenson. diags plan Eng N 81:629-33 O 3 '18

**Instructions for the operation of sewage plants.** Eng & Contr 50:548-9 D 11 '18

**Main sewage treatment plant of Rochester.** E. A. Fisher and N. A. Brown. Munic J 45: 326-7 O 26 '18

**New sewage treatment plant at Xenia, Ohio; abstracts.** W. J. Sherman. Il diags map plans Munic Eng 54:151-4 Ap '18; Munic J 44:503-4 Je 22 '18

**New sewage treatment plant of Sedalia, Mo.** R. E. McDonnell. Il Eng & Contr 50:34-5 Jl 10 '18; Same. Munic Eng 55:71-3 Ag '18

**Novel sewerage system and sewage treatment plant at Mt Horeb, Wis.** W. G. Kirchoffer. Il Munic Eng 55:61 Ag '18

**Odors from sewage treatment plants.** K. Allen. Munic J 43:623-6 D 29 '17

**Operating results of Pennypack Creek sewage treatment works of Philadelphia.** C. E. Albright. Eng & Contr 49:180 F 13 '18

**Operating rules for small sewage treatment plants.** J. H. Dunlap. Eng & Contr 50:175 Ag 14 '18

**Operating sewage plants; abstract of instructions issued by Texas state board of health.** Munic J 45:327-8 O 26 '18

**Operation of sewage works in Iowa.** J. H. Dunlap. Il Munic J 44:255-7, 275-8, 297-8+ Mr 30-Apr 13 '18

**Pasadena city sewage disposal farm.** W. R. Marshall. Il Dom Eng 83:495-7 Je 29 '18

**Plumbers' work helps modern sewage treatment plants.** H. J. Belmont. Il diags Dom Eng 88:150-2 Jl 26 '19

**Points in the design of sewage treatment works.** J. H. Gregory. Munic Eng 54:203-5 My '18

**Procedure in the maintenance of automatic sewage siphons and ejectors.** Munic Eng 54: 5-6 Ja '18

**Random notes of a master plumber.** E. Stern. diags plans Metal Work 90:244-6 Ag 30 '18

**Recent improvements to sewage treatment plant at Alliance, Ohio.** R. W. Pratt. Il diags Munic Eng 54:198-200 My '18

**Sewage and wastes disposal for the United States army.** L. S. Doten. diags plans Eng & Contr 52:193-5 Ag 13 '19

**Sewage collection and disposal proposed at Los Angeles harbor.** W. T. Knowlton. map Munic Eng 55:130-1 O '18

**Sewage disposal at Columbus.** J. O'Shaughnessy and C. B. Hoover. Munic J 46:337-8 My 10 '19

**Sewage disposal by dilution.** Sci Am S 87:27 Ja 11 '19

**Sewage disposal by dilution, including chlorination of sewage effluent and treatment of sludge.** W. C. Pasdale. diags plan Eng & Contr 51:456-9 Ap 30 '19

**Sewage-disposal difficulties at Madison, Wisconsin.** diags Eng N 83:510-11 S 11 '19

**Sewage disposal for a New York area—Brooklyn and Queens.** map Munic J 43:578-80, 600-1 D 15-22 '17

**Sewage disposal of London by sludge ships.** G. W. Humphreys. Eng & Contr 50:429 O 30 '18

**Sewage disposal on the Detroit river.** Munic J 45:301-2 O 19 '18

**Sewage disposal problem in Chicago.** C. D. Hill. Munic Eng 56:180-1 My '19

**Sewage sedimentation advised for Cleveland, Ohio.** H. P. Eddy. Eng N 81:806-8 O 31 '18

**Sewage treatment at Columbus, Ohio.** Munic J 44:407-8 My 18 '18

**Sewage treatment at English military camps.** G. B. Kenshaw. Eng & Contr 52:300 S 10 '19

**Sewage treatment plant at Montezuma, Iowa.** J. H. Dunlap. Il diags plan Munic Eng 57: 218-22 N '19

**Sewage treatment policies as influenced by war-time conditions.** G. W. Fuller. Munic Eng 55:106-8 S '18

**Sewage-treatment report forms and testing apparatus.** E. J. Tully and J. H. Mackin. Il Eng N 83:825-6 O 30 '19

**Sewage-treatment works at Langley field, Virginia.** T. Saville and C. L. Well. Il diags plans Eng N 83:374-7 Ag 21 '19

**Sewage treatment works of Birmingham and utilization of sludge.** J. D. Watson. plan Eng & Contr 52:126-8 Jl 30 '19; Same. Munic J 47:210-13 O 4 '19

**Sewage disposal—Continued**

Sewer construction details. *Il* Munic J 45:501-2 D 28 '18

Sewerage of Leominster, Mass. *Il* diag plans Munic J 46:232-4 Mr 29 '19

Sewerage, sanitation and reclamation at U.S. army camps. L. J. Doten. *Il* diag plans W Soc E J 24:263-75 My '19; Abstract. Eng & Contr 52:193-5 Ag 13 '19; Discussion. W Soc E J 24:275-81 My '19

Station for disposing of night soil. *Il* diag plan Munic J 47:85-7 Ag 9 '19

Suggested sewage disposal authority. Engineer 126:161-2 Ag 23 '18

Suggestions on the design and operation of sewage treatment plants. J. H. Dunlap. Eng & Contr 49:357-9 Ap 10 '18; Abstract. Eng N 80:773-5 Ap 18 '18

Tentative standards for sewage treatment announced by Labor department. Eng & Contr 50:266 S 11 '18

Typical rules for operation of small sewage-works. Eng N 80:875 My 2 '18

Water supply and sewage disposal at the military aviation fields, posts, depots, etc., in the United States. R. H. Craig. Am Water Works Assn J 6:664-78 N '19

*See also* Creamery waste; Imhoff tanks; Plumbing; Septic tanks; Sewage flow; Sewage irrigation; Sewage pumping; Sewage tanks; Sewer cleaning; Sewer pipes; Sewerage; Sewers, Concrete; Water pollution

**Activated sludge method**

Activated sewage sludge. Engineer 125:297-8 Ap 5 '18

Activated sludge experiments at Pasadena, Cal. *Il* diag Eng & Contr 49:36-7 Ja 9 '18

Activated-sludge sewage-treating plant to require much power. L. Pearse. Elec R 75:529-30 S 27 '19

Activated sludge without compressed air. Munic J 46:356 My 17 '19

Conclusions on activated-sludge process at Milwaukee. T. C. Hatton. Eng N 79:840-4 N 1 '17; Same cond. Munic Eng 53:243-6 D '17; Discussion. Eng N 79:1072-3 D 6 '17

Filtros air diffusing plates used in the activated sludge process *vs* sewage treatment. *Il* Munic Eng 54:78-9 F '18

Sewage mixes progressively in its passage through tanks. H. W. Clark. Eng N 81:930-1 N 21 '18

Sprinkling filter system and auxiliaries *vs* the activated sludge process. T. C. Hatton. Munic Eng 55:67-70 Ag '18

Test of air diffusers for activated sludge process. F. L. Mickle. Eng & Contr 52:41-2 Jl 9 '19

Worcester, England, experiments with activated sludge process. Eng & Contr 50:122-3 Jl 31 '18

**Chemical treatment**

Acid treatment of sewage; deoxygenating effect. comparison with Imhoff and activated sludge, and other features. E. S. Dorr, R. S. Weston and H. W. Clark. Munic J 46:365 My 24 '19

Chloramine. W. F. Montfort and O. A. Barnes. Eng & Contr 51:366 Ap 9 '19

Chlorination of sewage. E. A. Winslow and F. W. Mohlman. Munic J 46:266 Ap 12 '19

Deoxygenating effect of the effluent from the Miles acid process of sewage treatment. F. W. Mohlman. *Il* plan J Ind & Eng Chem 11:325-7 Ap '19; Excerpts. Eng & Contr 50:166-7 Ag 14 '18; Same. Eng N 81:235-6 Ag 1 '18

Disinfection in Philadelphia. Munic J 44:222-3 Mr 16 '18

Disposal of sewage by treatment with acid. E. S. Dorr and R. S. Weston. Boston Soc C E J 6:145-66 Ap '19; Same abr. Eng & Contr 51:510-13 My 14 '19; Discussion. Boston Soc C E J 6:166-75 Ap '19

Extraction of grease from sewage sludge at Morley. F. Turner. *Il* plan Eng & Contr 52:133-5 Jl 30 '19

Miles acid process for sewage disposal. *Il* Met & Chem Eng 18:591-4 Je 1 '18

Miles acid treatment of sewage. C. E. A. Winslow and F. W. Mohlman. Munic J 45:280-2, 297-9, 321-2 O 12-26 '18; Same cond. Munic Eng 55:173-6 N '18; Same cond. Eng N 81:1034-6 D 5 '18

Potash, nitrogen and grease from sewage; Miles process; abstract. X. H. Goodenough and H. W. Clark. Met & Chem Eng 18:314 Mr 15 '18

Recovery of grease and fertilizers from sewage; Massachusetts joint investigating board reports against applying Miles acid process at Boston. Eng N 80:319-22 F 14 '18; Same cond. Munic J 44:238-40 Mr 23 '18

Siphon operates proportional chemical feeder. W. S. Lea. *Il* Eng N 81:133-4 Jl 18 '18

**Cost**

Montezuma, Iowa, sewage treatment plant. Munic J 47:240-1 O 18 '19

Sewage disposal works in reconstruction period. H. F. Eddy. Munic Eng 56:60-2 F 19

**Electrolytic treatment**

Data on the direct-oxidation process of sewage treatment at Elmhurst, N.Y. K. Allen. Eng N 83:1026 D 11 '19

Electrical treatment of sewage; the Landreth direct oxidation process. H. J. M. Creighton and B. Franklin. *Il* *Il* diag J Fr Inst 188:157-87 Ag '19

Electro-chemical sewage treating process as operated at Decatur, Ill., in 1916. W. S. Shields. *Il* plans Munic Eng 54:68-73 F '18

Electrolytic sewage treatment; investigation by committee of Franklin Institute at Easton, Pa. Munic J 47:131-2, 151-2 Ag 30-S 6 '19

Electrolytic sewage treatment not yet an established process. Eng N 83:541-2 S 18 '19

Results of the test run of the direct oxidation experimental sewage treatment plant at Easton, Pa. C. A. Emerson, Jr. plan Munic Eng 57:70-5 Ag '19; Same. Eng & Contr 52:186-9 Ag 13 '19

Sewage treatment in Easton, Pa., by direct oxidation. *Il* plan Munic J 45:388-8 N 16 '18

Tests of lime-electrolytic-agitation sewage-treatment process at Easton, Pa.; Pennsylvania and Franklin Institute tests. plan Eng N 83:569-73 S 18 '19

**Experiments**

Croydon and Wolverhampton sewage disposal experiments. E. Wilcox. Eng & Contr 50:413 O 30 '18

Data on the direct-oxidation process of sewage treatment at Elmhurst, N.Y. K. Allen. Eng N 83:1026 D 11 '19

Diffusion of sewage. K. Allen. Munic J 44:483-5 Je 15 '18; Same cond. Eng & Contr 49:43-4 Ja 9 '18

Electrical treatment of sewage; the Landreth direct oxidation process. H. J. M. Creighton and B. Franklin. *Il* *Il* diag J Fr Inst 188:157-87 Ag '19

Four methods of sewage treatment studied at New Haven testing station. C.-E. A. Winslow and F. W. Mohlman. Eng N 82:32-6 Ja 2 '19

Results of the test run of the direct oxidation experimental sewage treatment plant at Easton, Pa. C. A. Emerson, Jr. plan Munic Eng 57:70-5 Ag '19; Same. Eng & Contr 52:186-9 Ag 13 '19

Sewage mixes progressively in its passage through tanks. H. W. Clark. Eng N 81:930-1 N 21 '18

Sewage treatment experiment at Mt Vernon, N.Y., sewage plant. Munic J 47:199-200 S 27 '19

Syracuse tests two methods of sewage treatment. Eng N 79:1201-2 D 27 '17

Tests of lime-electrolytic-agitation sewage-treatment process at Easton, Pa.; Pennsylvania and Franklin Institute tests. plan Eng N 83:569-73 S 18 '19

*See also* Sewage sampling

**Sewage disposal —Continued****Filtration**

- Practical problems in filtration plant operation. L. I. Birdsall. Am. Water Works Assn J 4:465-72; Discussion. 473-7 D '17  
 Sprinkling filter flies. C. S. Beckwith. Munic J 46:196 Mr 8 '19; Same cond. Eng & Contr 51:267 Mr 12 '19  
 Sprinkling filter system and auxiliaries vs. the activated sludge process. T. C. Hatton. Munic Eng 55:67-70 Ag '18  
 Submerging bed with sewage kills sprinkling filter fly. T. J. Headlee and C. S. Beckwith. Eng N 81:533-4 S 19 '18

**Screening**

- Bridgeport's sewage screen and pumping station. J. A. McElroy. diag plan Munic J 47:224-6 O 11 '19  
 Cleveland sewage screen plans withdrawn from State department of health. Eng N 79:1123-9 D 13 '17  
 Grit chamber and fine screens for part of New York sewage. C. E. Gregory. II diag plan Eng N 82:672-4 Ap 3 '19  
 Operating results of Reinsch-Wurl screens at Rochester, N. Y. E. A. Fisher. Eng & Contr 50:473 N 13 '18  
 Operation of fine sewage screens at Long Beach, California. Eng N 82:1012-13 My 22 '19  
 Results of two 24-hour tests of two Reinsch-Wurl sewage screens at Dyckman street, Manhattan, New York. K. Allen. Munic Eng 57:64 Ag '19  
 Sewage screening plant in New York city. II diag Munic J 46:123-5 F 15 '19  
 Sewage treatment at Bridgeport. J. A. McElroy. Munic J 46:363-4 My 24 '19  
 Sewage treatment experiment at Mt. Vernon, N. Y., sewage plant. Munic J 47:199-200 S 27 '19

**Terminology**

- Definitions of terms used in sewerage and sewage disposal practice; report of committee of sanitary engineering section of the American public health association. Eng & Contr 49:38-40 Ja 9 '18; Same. Munic J 44:223-5 Mr 16 '18

**Sewage disposal, Rural**

- Concrete septic tanks and subsoil disposal fields for country homes. J. H. Perry. diag plans Dom Eng 85:363-5+ D 7 '18  
 Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diag plan Dom Eng 89:265-8, 321-3+ N 8-15 '19  
 Plumbing outfall disposal methods. W. B. Gray. diag Metal Work 92:331-4 S 19 '19  
 Septic sewage disposal systems for summer cottages. H. P. Boynton. diag Dom Eng 83:415-17 Je 15 '18  
 Water-supply, sewerage and heating for Florida home. W. G. Kirchoffer. diag plan Eng N 81:443-4 S 5 '18

**Sewage ejectors**

- Auto-educator solves sewage tank difficulty. Munic J 45:145-6 Ag 24 '18  
 Compressed air sewage lifting system of Cairo, Egypt. diag plans Eng & Contr 50:114-16 Jl 31 '18  
 Proper installation and maintenance of automatic sewage siphons and ejectors. S. F. Miller. Munic Eng 54:96 Mr '18  
 Small automatic pumping station solves drainage problem at Brookline, Mass. II Eng & Contr 50:181-2 Ag 14 '18

**Sewage farms. See Sewage irrigation****Sewage filters. See Sewage disposal—Filtration****Sewage flow**

- Forecasting sewage discharge at Toledo under dry-weather conditions. W. G. Harmon. Eng N 80:1233-5 Je 27 '18  
 Loss of head in sewage sludge pipe at Toronto, Ontario. T. H. Nevitt. Eng N 82:279 F 6 '19  
 Methods of estimating and measuring sewage flow. W. S. McGrane. Munic J 44:261-2 Mr 30 '18; Same. Eng & Contr 49:600-1 Je 12 '18

- Regulating and measuring chambers for intercepting sewers of Essex border municipalities. diag plans Eng & Contr 50:552-4 D 11 '18

**Sewage irrigation**

- Allentown's city farm and the high cost of living. Munic J 47:124 Ag 23 '19  
 Crops thrive under Imhoff-tank sludge tests at Dallas. C. Saville. Eng N 81:164-5 Jl 25 '18  
 Fertilizing value of activated sludge. G. G. Nasmith and G. P. McKay. II J Ind & Eng Chem 10:339-44 My '18; Excerpts. Eng & Contr 50:31-2 Jl 10 '18; Discussion. P. Rudnick. J Ind & Eng Chem 10:400 My '18  
 Imhoff tank sludge makes raspberries and lettuce grow at Toronto. I. H. Nevitt. II Eng N 81:373 Ag 22 '18  
 Irrigating with sewage at Tucson, Arizona. W. C. Lefebvre. Munic J 44:395 My 11 '18  
 Pasadena city sewage disposal farm. W. R. Marshall. Dom Eng 83:496-7 Je 29 '18  
 Principles of sewage irrigation. J. Craig. Eng & Contr 50:406-7 O 30 '18  
 Santa Rosa's sewerage and water supply. Munic J 46:248-9 Ap 5 '19  
 Use of sludge as a fertilizer. F. T. Hambleton. Eng & Contr 51:446 Ap 30 '19

**Sewage pumping**

- Design and operation of automatic sewage pumping station at West Haven, Conn. C. Potts. II Munic Eng 55:199-200 D '18  
 Sewage pumps at New Orleans. G. G. Earl; A. B. Wood. Munic J 45:227 S 21 '18  
 Unique features of unified operation of water, sewerage and drainage facilities at New Orleans, La. G. G. Earl. II Munic Eng 56:121-9 Ap '19  
 Waterloo (Iowa) sewage pumping stations; abstracts. G. H. Kilpatrick. Munic J 44:280-1 Ap 6 '18; Eng & Contr 50:264-5 S 11 '18

See also Sewage ejectors

**Sewage purification. See Sewage disposal****Sewage sampling**

- Methods of sampling of sewage and other liquids. G. B. Kershaw. Eng & Contr 50:111 Jl 31 '18  
 Obtaining sewage for experiment stations. Munic J 46:231-2 Mr 29 '19

**Sewage sludge**

- Analyses of sewage and sewage sludges. Eng & Contr 51:465 Ap 30 '19  
 Efficiency of lime for correcting acidity in sludge. C. E. Albright. Eng & Contr 50:462 N 13 '18  
 Extraction of grease from dried activated sludge. D. F. McFarland. diag Eng & Contr 52:196-7 Ag 13 '19  
 Extraction of grease from sewage sludge at Morley. F. Turner. plan Eng & Contr 52:133-5 Jl 30 '19  
 Methods and costs of pressing sewage sludge. K. Allen. Eng & Contr 49:165-8 F 13 '18  
 Pressing sewage sludge. Munic J 44:14-16 Ja 5 '18  
 Recovery of grease and fertilizers from sewage; Massachusetts Joint Investigating board reports against applying Miles acid process at Boston. Eng N 80:319-22 F 14 '18; Same cond. Munic J 44:238-40 Mr 23 '18  
 Sewage sludge to be utilized at Canton, Ohio. R. W. Pratt. Eng N 80:513-14 Mr 14 '18  
 Sewage treatment works of Birmingham and utilization of sludge. J. D. Watson. plan Eng & Contr 52:126-8 Jl 30 '19; Same. Munic J 47:210-13 O 4 '19  
 Simple and inexpensive method of lifting sewage sludge to sludge beds or outfall sewer. A. Potter. diag Munic Eng 54:91 Mr '18  
 Sludge utilization in England. Munic J 47:226-7 O 11 '19  
 See also Sewage disposal; Sewage disposal —Activated sludge method; Sewage irrigation

**Sewage tanks**

- Cantonment sewage tanks. diag plan Munic J 47:46-50 Jl 26 '19  
 Sewage clarification tank at Auguste Victoria colliery. W. Haverkamp. diag Eng & Contr 52:510 O 29 '19

**Sewage tanks—Continued**

Sewage disposal by dilution, including chlorination of sewage effluent and treatment of sludge. W. C. Easdale. diag plan Eng & Contr 51:456-9 Ap 30 '19  
Sludge depth measured by pump and hose. F. W. Jones. il Eng N 80:1136 Je 13 '18

See also Imhoff tanks; Septic tanks

**Sewer cleaning**

Auto catch-basin cleaning truck, Cambridge, Mass. L. M. Hastings. il Boston Soc C E J 6:19-22 Ja '19; Excerpt. Eng & Contr 51:164 F 12 '19  
Binghamton sand catcher. W. E. Weller. diag Munic J 46:191-2 Mr 8 '19  
Catch basin cleaning in Cambridge, Mass., with orange peel bucket. L. M. Hastings. il Eng & Contr 50:169 Ag 14 '18  
Catch basin cleaning in Chicago. Munic J 43:525-6; 45:199-200 D 29 '17, S 14 '18  
Cleaning outfit for pumping out contents of cesspools, catch-basins, vaults, etc. il Munic J 46:20-1 Ja 4 '19  
Design and cleaning of sewer catch basins. G. A. Carpenter. il Munic Eng 54:147-8 Ap '18  
New method of cleaning sewer basins. Dom Eng 85:404 D 14 '18  
Performance data on auto eductor for cleaning sewer catch basins. il Munic Eng 54:196-7 My '18; Same cond. Eng & Contr 49:182 F 13 '18  
Sewer cleaning in St Paul. M. N. Goss. Munic J 45:186 S 7 '18  
Truck with orange peel bucket for cleaning catch basins. il Sci Am 118:76 Ja 19 '18  
Zinc balls and a fire hose used to clean sewers. Eng & Contr 48:477 D 12 '17

See also Sewer flushing

**Sewer design**

Efficiency of storm-water sewers depends on inlets. I. P. Kane. diag Eng N 80:78-9 Ja 10 '18  
General utility sewer. il Sci Am 121:311-3 S 27 '19  
More engineering on sewer inlets. W. W. Horner. il diag Munic Eng 57:147-50 O '19  
Multiple outlet provides for variable sewage flow. S. T. Smetters. diag plan Eng N 83:728-30 O 16 '19  
Present tendencies in sewer construction and design. H. K. Barrows. il Munic Eng 54:144-6 Ap '18  
Regulating and measuring chambers for intercepting sewers of Essex border municipalities. M. Knowles and J. M. Rice. diag plans Eng & Contr 50:552-4 D 11 '18  
Selection of the value of the factor "n" in sewer design. P. E. Green. Munic Eng 56:52-3 F '19  
Some broader aspects of rain intensities in relation to storm sewer design. R. E. Horton. map Munic Eng 56:218-22; 57:3-9 Je-Jl '19; Correction. 57:157 O '19  
Special type of storm sewer inlet. diag Eng & Contr 50:21 Jl 3 '18  
Standard multiple and alley inlets used at St Louis. W. W. Horner. diag plan Eng N 8:274 F 7 '18  
Sump in combined sewer diverts flow to sanitary sewer. H. F. Johnson. diag Eng N 80:115 Ja 17 '18

**Sewer explosions**

Gas leakage into sewers causes explosions. il Metal Work 91:272 F 28 '19

**Sewer flushing**

Testing a new flush tank. W. T. Knowlton. il diag plan Munic J 46:247-8 Ap 5 '19

**Sewer pipes**

Cement joints for pipe sewers. Concrete 15:127-8 S '19  
Clay used to pack joints in sewer-pipe while pouring with asphalt. Eng N 81:554-5 S 19 '18  
Latest developments in poured joints for vitrified pipe sewers. H. P. Boynton. il Munic Eng 54:91-2 Mr '18  
Making tight joints in vitrified clay sewer lines. D. H. Wyatt. il Munic Eng 54:253-4 Je '18

Method and cost of making tight joints in pipe sewers. W. W. Dixon. il Munic Eng 54:193-4 My '18

Sewer pipe joints; discussion. J. L. Woodfall and others. il diag Boston Soc C E J 5:81-103 F '18; Same abr. Eng & Contr 50:45-8, 180-1 Jl 10, Ag 14 '18; Abstract. Munic J 44:410-11, 427-9 My 18-25 '18  
Sewer pipe laid on lake bottom. il Sci Am 118:353 Ap 20 '18  
Strength of sewer pipe; abstract. Am Soc M E J 40:344 Ap '18  
Supporting strength of sewer pipe in trenches. A. Marston, W. J. Schlick and H. F. Clemmer. Eng & Contr 49:176-7 F 13 '18  
See also Sewer cleaning; Sewers, Concrete; Sewers, Vitrified pipe

**Testing**

Service strength of sewer pipe. Munic J 44:165-8, 182-3 F 23-Mr 2 '18

**Sewerage**

Americans build sewer and water systems for three Uruguayan cities. A. A. Northrop. il map Eng N 81:401-4 Ag 29 '18  
Binghamton sand catcher. W. E. Weller. diag Munic J 46:191-2 Mr 8 '19  
Causes of offensive odors from sewers and remedial measures. E. B. Savage. Eng & Contr 52:511-12 O 29 '19  
Conditions calling for separate or combined sewers. Munic Eng 55:131-2 O '18  
Considerations affecting the choice between the separate and combined sewer systems. P. E. Green. Munic Eng 54:95 Mr '18  
Considerations affecting the selections of the combined or separate system of sewers; tentative instruction from the Labor department. Eng & Contr 50:259-60 S 11 '18  
Construction of water and sewerage systems for the cities of Salto, Paysandu and Mercedes, Republic of Uruguay, South America. G. E. Hines. il Munic Eng 55:85-91 S '18  
Construction plant and methods employed on recent important sewerage work in Illinois. il Munic Eng 54:92-5 Mr '18  
Davenport (Ia.) sewer inlet. R. E. Sawistowsky. il diag Munic J 44:72-3 Ja 26 '18  
Design and constructional features of the Rideau river intercepting sewer, Ottawa, Canada. L. M. Hunter. il diag Munic Eng 56:63-5 F '19  
Drains in sewer construction. il Munic J 46:267 Ap 12 '19  
Effect of city zoning on sewerage system design and cost. W. W. Horner. Eng N 80:368-9 F 21 '18  
Equipment and methods employed in building sewers in San Francisco. H. W. Shimer. il Munic Eng 56:136-40 Ap '19  
Facilitating the construction of water and sewerage works by means of the cement-gun. il Munic Eng 54:235-7 Je '18  
Frankford Creek, intercepting sewer. il diag plans Munic J 45:464-6 D 14 '18  
Heavy rainfall tests Mill Creek sewer at St Louis. W. W. Horner. Eng N 81:669-70 O 10 '18  
Hints on the design and construction of sanitary vitrified pipe sewers. C. E. Collins. diag Munic Eng 54:62-5 F '18  
Los Angeles sewerage. W. T. Knowlton. Munic J 46:246-7 Ap 5 '19  
More engineering on sewer inlets. W. W. Horner. il diag Munic Eng 57:147-50 O '19  
Multiple outlet provides for variable sewage flow. S. T. Smetters. diag plan Eng N 83:728-30 O 16 '19  
Okmulgee's water supply and sewerage. Munic J 46:338-40 My 10 '19  
Organization of forces and plant and methods employed in construction of sewers in Chicago. H. E. Hudson. il diag Munic Eng 54:228-34 Je '18  
Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diag plan Dom Eng 89:265-8 N 8 '19  
Present tendencies in sewer construction and design. H. K. Barrows. il Munic Eng 54:144-6 Ap '18  
Reconstructing a sewer in tunnel. diag Eng N 80:598 Mr 28 '18

**Sewerage—Continued**

Relation of main drainage to river and harbor front improvements in various American cities. M. Knowles and J. M. Rice. *Munic Eng* 55:204-5 D '18  
Sanitary survey of a city. *Il Munic J* 45:384-5 N 16 '18

Separation of storm water and sewage. E. B. Savage. *Eng & Contr* 52:499 O 29 '19  
Sewer construction details. *Il Munic J* 45:501-2 D 28 '18

Sewerage, sanitation and reclamation at U.S. army camps. L. J. Doten. *Il diags plans W Soc E J* 24:263-75 My '19; Abstract. *Eng & Contr* 52:193-5 Ag 13 '19; Discussion. *W Soc E J* 24:275-81 My '19

Sewerage works of Stratford, Conn. C. Potts. *diag plan Munic J* 47:160-1 S 13 '19

Small sewer siphon under low head has not clogged. J. H. Putnam. *Eng N* 80:569-70 Mr 21 '18

Soft ground requires tunnel instead of open cut for sewer. *Il Eng N* 80:50 Ja 3 '18

Some unusual sewerage problems and how they were solved at Ocean Beach, New York. A. J. Provost, jr. *Il diags Munic Eng* 56:203-5 Je '19

Specifications for testing sewer connections and house drains. *Munic Eng* 55:18-19 J1 '18

Waterworks and sewerage of Buenos Aires, Argentina. A. B. Lea. *Il Eng & Contr* 51:162-4 F 12 '19

*See also* Creamery waste; Drain tile; Drainage, House; Plumbing; Sewage disposal; Sewage flow; Sewer cleaning; Sewer design; Sewer pipes; Sewers, Brick; Sewers, Concrete; Trade waste

**Catch basins**

Catch basin cleaning in Cambridge, Mass., with orange peel bucket. L. M. Hastings. *Il Eng & Contr* 50:169 Ag 14 '18

Catch basin cleaning in Chicago. *Munic J* 43:625-6; 45:199-200 D 29 '17, S 14 '18

Design and cleaning of sewer catch basins. G. A. Carpenter. *Il Munic Eng* 54:147-8 Ap '18

Performance data on auto eductor for cleaning sewer catch basins. *Il Munic Eng* 54:195-7 My '18; Same cond. *Eng & Contr* 49:182 F 13 '18

**Contracts**

Milwaukee sewer tunnel contract defaulted. *Eng N* 81:910 N 14 '18

**Cost**

Cost of constructing sewers and water mains at Montreal South, Que. *Eng & Contr* 52:415 O 8 '19

Cost of sewer construction at Providence, R. I. in 1917. *Eng & Contr* 50:470 N 13 '18

Cost of tile and concrete sections of Rideau river intercepting sewer, Ottawa, Ont. L. M. Hunter. *Eng & Contr* 51:172 F 12 '19

Light and heavy equipment compared on identical sewer construction. R. H. Burke. *Il diags Eng N* 82:183-5 Ja 23 '19

*See also* Sewers, Brick—Cost; Sewers, Concrete—Cost

**Estimates**

Estimating contractors' overhead costs in sanitary sewer construction. S. D. Moore. *Eng & Contr* 49:364-5 Ap 10 '18; Same. *Munic J* 45:342-4 N 2 '18; Abstract. *Eng N* 80:715 Ap 11 '18

**Finance**

Funding sanitary improvements as a means of increasing water consumption. R. A. Butler and F. C. Jordan. *Am Water Works Assn J* 4:489-98 D '17; Excerpts. *Eng N* 77:478-9 Mr 22 '17; Discussion. *Am Water Works Assn J* 4:498-503 D '17; *Eng N* 78:372 My 17 '17

Sewers: when to build and how to pay. L. L. Tribus. *Munic Eng* 54:65-7 F '18

**Records**

Sewer-construction records used at Scarsdale, New York. P. Thompson. *Eng N* 83:111-12 J1 17 '19

**Terminology**

Definitions of terms used in sewerage and sewage disposal practice; report of committee of sanitary engineering section of the American public health association. *Eng & Contr* 49:38-40 Ja 9 '18; Same. *Munic J* 44:223-5 Mr 16 '18

**Sewers. See Sewerage**

**Sewers, Brick**

**Cost**

Labor cost of constructing 4 ft. brick sewer in tunnel. R. T. G. Jack. *diags Eng & Contr* 50:267-8 S 11 '18

Methods and cost of concrete and brick sewer construction in Toronto. *diags Eng & Contr* 49:586-9 Je 12 '18

**Sewers, Concrete**

Concrete sewer pipe. A. E. Dodson. *Concrete* 12:148 Ap '18

Concrete sewer pipe specification of American concrete institute committee. *Eng & Contr* 52:192 Ag 13 '19

Concrete sewer-pipe specifications adopted by Los Angeles. *Eng N* 82:518-19 Mr 13 '19

Construction of the precast reinforced concrete submerged sewer outfall at Lakewood, Ohio. *Il Munic Eng* 54:147 Ap '18

Equipment and methods employed in building sewers in San Francisco. H. W. Shimer. *Il Munic Eng* 56:136-40 Ap '19

Outfall sewer of poor concrete pipe disintegrates. H. L. Sherman. *Il Eng N* 80:525-6 Mr 14 '18; Discussion. L. E. Ferguson. 80:829 Ap 25 '18

Sewer invert forms hung from tunnel sets by T-square rig. R. W. Stewart. *diags Eng N* 81:332-3 Ag 15 '18

**Cost**

Methods and cost of concrete and brick sewer construction in Toronto. *diags Eng & Contr* 49:586-9 Je 12 '18

**Sewers, Segmental block**

Procedure in construction of lock joint sewer tile. *Munic Eng* 54:146-7 Ap '18

**Sewers, Vitrified pipe**

Hints on the design and construction of sanitary vitrified pipe sewers. C. E. Collins. *diags Munic Eng* 54:62-5 F '18

New record on Chicago sewer construction. J. E. Love. *Il Eng & Contr* 48:492 D 12 '17  
*See also* Sewer pipes

**Sewing machines**

Yarn guide and tension; patent. *diags Textile World* 53:4809 Ap 20 '18

**Sewing machines, Electric**

Speeding up sales of electric sewing machine motors. *Il Elec R* 75:497-8 S 20 '19

Triumph electric sewing machine. *Elec R* 72:741 Ap 27 '18

**Sex**

Evolution and sexuality. E. Rabaud. *Sci Am* S 88:102-3+ Ag 16 '19

Sex in eggs and chickens. M. K. Boyer. *Sci Am* S 88:265 N 8 '19

Sex, reproduction, and heredity in pigeons and fowls. *Sci Am* S 88:245 O 25 '19

**Seydlitz (German battleship)**

Sunken battle-cruiser Seydlitz. *Il Sci Am* 121:91 J1 26 '19

**Sgraffito. See Graffito decoration**

**Shaft signals. See Mine signals**

**Shaft sinking**

Application of process in shaft sinking. A. H. Krynauf. *Eng & Min J* 106:996 D 7 '18

Colliery shaft sinking. E. L. Hann. *Sci Am* S 88:190-1 S 20 '19

Drop shafts sunk through buried tree trunks by dredging; foundation for large Kansas City power station. *Il Eng N* 81:485-8 S 13 '18

Employment of divers in shaft sinking. *diags Eng & Contr* 50:67-8 J1 17 '18

Francois and Portier grouting processes. A. H. Krynauf. *Eng & Contr* 51:461 Ap 30 '19

Freezing process in shaft sinking. W. C. Gordon. *Eng & Contr* 49:394 Ap 17 '18



**Shaft sinking—Continued**

- Grouting in mine shafts. A. K. Friedrich. Eng & Min J 107:199 Ja 25 '19  
 Improved safety crosshead. J. B. Calkins. diag Eng & Min J 106:355 Ag 24 '18  
 Shaft sinking at the Seneca mine. J. M. Broan. diag Eng & Min J 106:1130 D 28 '18  
 Shaft sinking at the Seneca mine. W. V. Featherly. il diag Eng & Min J 106:563-4 S 28 '18; Same. Eng & Contr 50:482 N 20 '18  
 Sinking and concreting mine shaft 936 feet deep. R. L. Russell. diag plan Eng N 82:1259-62 Je 26 '19; Same. Eng & Min J 108:56-9 JI 12 '19  
 Sinking shaft through quicksand. diag Coal Age 13:712 Ap 13 '18; Discussion. F. D. Bufum. 13:891-2 My 11 '18  
 Sinking the H shaft at the Pabst mine. A. J. Wagner. il diag plans Eng & Min J 108:513-15 S 20 '19; Same abr. Eng & Contr 52:441-2 O 15 '19  
 Suspended bulkhead and shooting set for shaft sinking. diag Eng & Contr 49:202 F 20 '18

See also Drilling and boring (earth and rocks); Mine shafts

**Shafting**

- Aligning brackets for a vertical feedshaft. F. F. Carr. il Am Mach 51:22 JI 3 '19  
 British hollow shafting and how it is made. Sci Am 119:405 N 23 '18; Same. Iron Age 102:687 S 19 '18  
 Chart for spacing shaft hangers. W. F. Schaphorst. Eng & Min J 105:473 Mr 9 '18  
 Design of friction wheels. L. Eisenkramer. diag Mach 24:696 Ap '18  
 Designing a floor for shafting. diag Factory 20:364 Mr '18  
 Determining benefits of aligning shafting. Power 47:561 Ap 16 '18  
 Method of hanging shafting from concrete ceiling. R. B. Smith. diag Am Mach 51:9 JI 3 '19  
 Optical method of shaft alignment. W. Norris. il Engineer 127:451 My 9 '19  
 Shaft alignment and its importance. J. Y. Dahlstrand. il diag Power 49:882-6 Je 10 '19  
 Shafting and belting. R. S. Lewis. charts diag Eng & Min J 107:1132-40 Je 28 '19  
 Shafting located above roof girders at plant of Cincinnati grinder co. il Iron Age 101:1271-2 My 16 '18

See also Belting; Countershafts; Power transmission; Pulleys

**Shafts**

- Combined bending and twisting moments. V. M. Summa. diag Mach 26:41-2 S '19  
 Critical speed in tapered shaft design. A. Musso. diag Mach 25:59-60 S '18  
 Recent developments in shaft pressing at destination. N. L. Rea. il diag Gen Elec R 22:138-40 F '19  
 Relation of quantity production to cost. A. G. Popcke. Ind Management 55:54-61 Ja '18  
 Shaft calculations simplified. J. S. Carpenter. Am Mach 49:308 Ag 15 '18  
 Simplified stiffness calculations for shafts. J. S. Carpenter. Am Mach 49:558 S 26 '18  
 Splines gages. D. A. Baker. diag Mach 25:61 S '18

- Squaring the ends of shafts in a special fixture. C. K. Salisbury. diag Am Mach 50:69-70 Ja 9 '19

- Straightening shaft of 45,000-kw. turbine. E. E. Clock. diag Power 50:377-8 S 2 '19

See also Countershafts; Crankshafts; Power transmission; Shafting

**Shafts, Mine. See Mine shafts****Shale**

- History and properties of light-weight aggregates; burnt clay or shale. il Eng N 82:802-5 Ap 24 '19

See also Oil shales

**Testing**

- Tests of bearing power of shale. T. Taylor. Eng & Contr 52:111-12 JI 23 '19  
 Shale oil. See Oil shales

**Shanghai, China**

- Future of electricity in Shanghai. T. H. V. Aldridge. il J Elec 43:161 Ag 15 '19

**Harbor**

- World port for Shanghai planned by conservancy board. Eng N 81:935-6 N 21 '18

**Streets**

- Effect of wheelbarrow traffic on road surfaces at Shanghai. Eng & Contr 52:140 JI 30 '19

**Shantung province**

- America's danger: Shantung. J. K. Goodrich. map Am Ind 19:40-2 JI '19

**Shapers**

- Arc-forming tool. P. Vuille. diag Mach 24:543 F '18  
 Bruno slotting attachment for shaping and planing machines. il Am Mach 48:696 Ap 4 '18  
 Cochrane-Bly millers and shapers. il Mach 25:1187-8 Ag '19  
 Electric drive for punching, shaping and slotting machines. C. E. Clewell. il Am Mach 50:439-44 Mr 6 '19  
 Generating racks in a shaping machine. S. J. Morgan. diag Am Mach 51:12 JI 3 '19  
 Hendey 16-inch crank shaping machine. il Am Mach 51:338 Ag 14 '19  
 Hollingsworth shaping machines. il Am Mach 48:928-9 My 30 '18  
 Motor-driven portable shaping machine. il Engineer 128:118 Ag 1 '19  
 Oliver double shaper. il Mach 24:855 My '18  
 Shaper fixture for finishing outside of bosses. H. Daut. diag Mach 25:253 N '18  
 See also Machine tools

**Sharks**

- Utilizing the skins of sharks and other aquatic animals. Sci Am S 84:403 D 29 '17

**Sharp, William Gibson, 1857-1919**

- Sketch. Coal Age 16:232-3 Ag 7 '19

**Sharpening**

- Abrasive machine co. machine for sharpening old files. il diag Ry Mech Eng 93:382-3 Je '19  
 Automatic slitting saw sharpener. il Mach 24:855 My '18; Am Mach 48:1027 Je 13 '18  
 Central plant for sharpening drill steels saves money in quarrying. il diag plans Eng N 81:929-30 N 21 '18  
 Ideal shop for sharpening drill steel. G. H. Gilman. diag plan Eng & Contr 51:644-8 Je 18 '19  
 Latest practice in cutter grinding. il diag Am Mach 51:135-8, 185-8, 251-4, 323-5, 369-71 JI 17-24, Ag 7-21 '19  
 Leyner sharpener for small size drill steel. il Eng & Contr 49:112 Ja 30 '18  
 Little David pedestal grinder for the drill sharpening shop. il Eng & Min J 105:472 Mr 9 '18; Coal Age 13:418 Mr 2 '18  
 Reclamation of hacksaws and metal-cutting band saws. Mach 25:421 Ja '19  
 Waugh pneumatic drill sharpener. il Eng & Contr 49:110 Ja 30 '18

**Shawinigan Falls, Canada**

- Electrochemical industries at Shawinigan Falls. H. C. Randall. il Chem & Met Eng 19:561-5 O 1 '18

**Shears**

- Buffalo universal slitting shear. il Am Mach 48:1124 Je 27 '18; Iron Age 101:1549 Je 13 '18  
 Electric rotary shear. il Sci Am 119:360 N 2 '18  
 Kane & Roach drill-rod shears. il Am Mach 49:176 JI 25 '18; Mach 24:1152-3 Ag '18  
 Portable alligator shears. E. S. Norton. diag Ry Mech Eng 92:103 F '18  
 Slick wheel mill; commercial products formed directly from large rolled bars by rolling-forging process at Cambria steel works. il diag plan Iron Age 102:491-8 Ag 29 '18  
 Southwark 500-ton billet shear. il Mach 24:464-5 Ja '18

**Sheep**

- Crossbreds increase; marked decrease in fine wool breeds within ten years. Textile World 53:5130 My 4 '18

**Sheep—Continued**

- Development of cut-over lands. W. G. Bissell. *Am Lumberman* 2237:54 Mr 30 '18  
 National safety demands raising of more sheep and more wool. *Il Am Lumberman* 2246:47 Je 1 '18  
 National wool bureau annual meeting at Chicago. *Textile World* 53:6211+ Je 22 '18  
 Systematic crossbreeding of sheep. W. T. Ritch. *diag Textile World* 53:2966+ Ja 12 '18

*See also Wool*

**Sheet metal**

- Manufacture of steel sheets. C. F. Poppleton. *plan (supp) Iron Age* 101:676-9, 740-2 Mr 14-21 '18  
 Service of copper bearing sheets. *Metal Work* 92:63-4 Jl 18 '19  
 Steel base and galvanized sheets. G. A. White. *Il Iron Age* 101:934-5 Ap 11 '18  
 Structural material made of thin sheet steel. *Il diags Am Arch* 115:249-54 F 12 '19

*See also Monel metal; Roofing; Tin plate*

**Testing**

- Exposure tests of sheeting material. S. L. Hoyt. *Chem & Met Eng* 21:142-4 Ag 1 '19; *Abstract. Eng N* 83:521 S 11 '19  
 Sheet metal contractors, National association of. *See National association of sheet metal contractors*

**Sheet metal contractors' associations**

- Illinois sheet metal contractors' 6th annual convention, Peoria, April 9-10. *Metal Work* 91:530-1 Ap 25 '19  
 Michigan sheet metal contractors' 8th annual convention. *Metal Work* 91:349-51 Mr 14 '19  
 Wisconsin sheet metal contractors meet. *Metal Work* 91:439-41 Ap 4 '19

**Sheet metal shops**

- Practical operation of sheet metal shops. A. E. Munkel. *Metal Work* 92:133-5 Ag 1 '19  
 Shop arranged to be handy for workmen; Jordan-George co., Eau Claire, Wis. *Il plan Metal Work* 89:205-6 F 8 '18  
 Shop of furnace and sheet metal contractor. *plan Metal Work* 89:296-7 Mr 1 '18  
 Training artisans for an exacting future. W. H. Gruening. *Il diags plans Metal Work* 91:135-7 Ja 31 '19

**Sheet metal trade**

- Farms have work for sheet metal trade. *Metal Work* 89:600 My 10 '18  
 Get after the early summer roofing business. *Metal Work* 89:695-6 My 31 '18  
 How to keep your job trade growing. *Il Metal Work* 89:257-9, 323-9 F 22, Mr 8 '18  
 Jobber of sheet metal; is he a necessary spoke in the wheel of business? *Metal Work* 89:259 F 22 '18  
 Metal, tin-plate and sheet prices for twenty years, 1898-1917. *chart (supp) Iron Age* 101:76 Ja 3 '18  
 Price review of rolling mill products and other material in war time. *Metal Work* 89:57-60 Ja 4 '18  
 Sheet and tin plate trades in 1917. B. E. V. Luty. *Iron Age* 101:63-6 Ja 3 '18  
 Sheet metal jobbers discuss trade problems. *Iron Age* 103:1590-2 Je 12 '19  
 Sheet metal master as a business man. B. F. John. *Metal Work* 91:429-31 Ap 4 '19  
 Sheetmakers hampered by shortage of steel and labor. *chart Iron Tr R* 62:30-1 Ja 3 '18  
 Value of organization. W. H. Donlevy. *Metal Work* 90:37-8 Jl 12 '18

**Advertising**

- Advertising for business for small shops. L. Giclas. *Il Metal Work* 89:813-14 Je 21 '18  
 Ask for business so that it comes. *Metal Work* 92:70-1 Jl 18 '19  
 Way sheet metal trade was increased. *Metal Work* 91:779-81 Je 20 '19

**Sheet metal work**

- Allowance for bending sheet metal. R. F. Hall. *chart Automotive Ind* 37:1099 D 20 '17  
 Bending die with movable anvils. J. Chidsey. *diags Am Mach* 50:402 F 27 '19

- Bliss flat-edge trimmer for sheet metal. *Il diags plan Am Mach* 50:412-14 F 27 '19; *Iron Age* 103:553 F 27 '19; *Mach* 25:657-9 Mr '19

- Constructing range canopies or hoods. W. Neubecker. *Il plans Metal Work* 90:301-2, 362-3, 405-7, 495-6, 630-3+ S 13, 27, O 11, N 1, D 6 '18

- Drawing square and rectangular metal boxes. G. F. Kuhne. *diags Am Mach* 49:130-1 Jl 18 '18

- Experience of a sheet metal worker. *Metal Work* 91:611-12 My 16 '19

- Forming sheet metal work with air hammer. H. Feldmeier. *diag Am Mach* 49:87 Jl 11 '18

- Fuel tanks and other sheet metal parts. *diags Automotive Ind* 38:364-5+ F 14 '18

- Hazards in sheet metal handling. R. R. Ray. *Il Automotive Ind* 37:952-3 N 29 '17

- Henry & Wright dyeing machine for sheet-metal work. *Il Iron Age* 102:499 Ag 29 '18; *Am Mach* 49:498-9 S 12 '18

- Largest round ventilator in the world. *Il diag Metal Work* 91:28-9 Ja 3 '19

- Making sheet metal tank lining. *diags Metal Work* 91:269 F 28 '19

- Manufacture of the Sperry-type automobile radiator. *Il diags Am Mach* 49:522-4 S 19 '18

- Manufacturing a steel chair. G. F. Wetzel. *Il diags Am Mach* 48:92-3 Ja 17 '18

- Manufacturing ship's ventilator cowls. H. E. McCauley. *Il diags Am Mach* 50:47-51 Ja 9 '19

- Methods of an enterprising sheet metal shop. *Il diag Metal Work* 90:549-51 N 15 '18

- Methods of the Nash motors co. M. E. Hoag. *Il Am Mach* 48:101-3 Ja 17 '18

- Patented automatic electric blocker. *Il Metal Ind* 15:496 N '17

- Producing sheet-steel articles. H. H. Armstrong. *Mach* 25:1082-3 Jl '19

- Reminiscences of an old timer. *Metal Work* 89:451-2 Ap 5 '18

- Safety-first opening for metal workers. *Il Metal Work* 89:29-30 Ja 4 '18

- Service of sheet metal ventilators. *Metal Work* 91:721+ Je 6 '19

- Sheet metal aquarium for the home. W. H. Gruening. *Il diags plan Metal Work* 92:185-7+ Ag 15 '19

- Sheet metal training in New York. *Il Metal Work* 92:338-9 S 19 '19

- Sheet metal training in public school. *Il Metal Work* 92:309-10 S 12 '19

- Sheet-metal work. E. Andrews. *Am Mach* 49:247-8 Ag 8 '18

- Sheet-metal work. H. H. Armstrong. *Am Mach* 48:484 Mr 21 '18

- Short cuts for the estimator; figuring sheet iron duct work. D. H. Cuyler. *diags Metal Work* 91:673-4 My 30 '19

- Standardized panel system. *diags Iron Age* 103:192 Ja 16 '19; *Same. Metal Work* 91:206-7 F 14 '19

- Strut sockets and other sheet-metal, airplane fittings. F. H. Colvin. *Il Am Mach* 49:253-6 Ag 8 '18

- Zamboni pressed metal wheel. *Il diags Mach* 24:640-1 Mr '18

- See also Boilers; Brass work; Cartridge cases; Dies; Punching machinery; Rolling mills; Shells (metal work); Shells (projectiles); Tanks; Tinsmithing; Tubes*

**Examinations**

- Examination papers for sheet metal workers. W. Neubecker. *diags plan Metal Work* 89:807-9; 90:3-5, 35-6 Je 21, Jl 5-12 '18  
 Government examination questions for sheet metal workers; tanks. W. S. Grove. *diags Metal Work* 90:247-8 Ag 30 '18

**Pattern making**

- Bidding for and making a twist elbow. *Il diags plans Metal Work* 90:469-71+ O 25 '18  
 Constructing sheet metal aquariums. *diags Metal Work* 91:342-3 Mr 14 '19  
 Drafting pattern for wheelbarrow bed by triangulation method. *diag plans Metal Work* 89:71-2 Ja 11 '18  
 Making sheet metal for an automobile body. *diags plan Metal Work* 91:204-6 F 14 '19

**Sheet metal work—Pattern making—Continued**

- Pattern for an irregular tapering boss joining a square tee joint. diags plans Metal Work 90:127-9 Ag 2 '18
- Pattern for complex fitting by triangulation. diags Metal Work 90:186-7 Ag 16 '18
- Pattern for double offset transition piece. diags plans Metal Work 89:627-9 My 17 '18
- Pattern for double offset wall stack boot. diags plan Metal Work 92:288-9 S 5 '19
- Patterns for a circular gable cornice. diags plan Metal Work 91:111-14 Ja 24 '19
- Patterns for a circular gable cornice. W: Neubecker. diags plan Metal Work 91:171-3 F 7 '19
- Patterns for a curved elbow. diags Metal Work 91:267-8 F 28 '19
- Patterns for a two-pronged fitting. diags Metal Work 89:547-8 Ap 26 '18
- Patterns for hoppers with different outlet. diags Metal Work 91:828-9; 92:34-5 Je 27, JI 11 '19
- Patterns for raking molding with 90-deg. turn. diags plans Metal Work 90:527-8 N 8 '18
- Patterns for 7-piece transition return bend. diags Metal Work 89:741-4 Je 7 '18
- Patterns for three-branched fitting. diags plan Metal Work 89:479-81 Ap 12 '18
- Raking molding return pattern problems. diags plan Metal Work 90:660-1 D 13 '18
- Rectangular to round tee joint patterns. diags Metal Work 90:276-7 S 6 '18
- Sheet metal work for army cantonnements. II diags Metal Work 89:198-201 F 8 '18; Discussion. J: Troland. 89:365 Mr 15 '18
- Sheet metal work, Architectural**
- Architectural sheet metal work abroad. L: Gielas. II Metal Work 89:416-18 Mr 29 '18
- Better cornice design and workmanship. W: H. Gruening. II diags plans Metal Work 91:24-6 Ja 3 '19
- Bring metal cornices into demand again. II Metal Work 91:241-2 F 21 '19
- Conductor heads of the Tudor period. II Metal Work 89:450-1 Ap 5 '18
- Covering dome shaped roofs. W: Neubecker. diags Metal Work 91:576-7, 642-3, 722-4, 782-3; 92:11-12 My 9, 23, Je 6, 20, JI 4 '19
- Extending the field of the country shop—cooperation with manufacturer. II Metal Work 88:742-3 D 21 '17
- Home instruction for sheet metal workers. W: Neubecker. Metal Work 81:97, 166-7, 332-3, 389-90, 456+, 524-5, 681-2, 718-19; 82:457+, 615-16, 667-8; 83:498-9, 665-7, 810+, 84:171-3, 297-8, 423-4, 581-2, 702-4+; 85:181-3, 303-4, 463-4, 603-5, 733-5, 877-9; 86:77-8, 143-5, 276-7, 373-4, 499-500, 553-5, 648-9, 785-8; 87:139-40, 233-4, 364-6, 452-3, 612-14, 801-2; 88:35-8, 161-3, 283-5, 376-8, 474-6, 534-6, 628-9, 682-4, 767-9 Ja 9, 23, F 27, Mr 13, 27, Ap 10, My 22-29, O 2, N 6, 20 '14, Ap 2, My 7, Je 4, Ag 6, S 3, O 1, N 5, D 3 '15, F 4, Mr 3, Ap 7, My 5, Je 2, JI 21, Ag 4, S 1, 22, O 20, N 3, 24, D 29 '16, Ja 26, F 16, Mr 16, Ap 6, My 11, Je 15, JI 13, Ag 10, S 7, 28, O 19, N 2, 23, D 7, 28 '17
- Is the superiority of the metal cornice known? II Metal Work 89:598-9 My 10 '18
- Metal interior decoration an all the year round business. II Metal Work 89:22-3 Ja 4 '18
- Milwaukee ordinances on sheet metal work. Metal Work 89:330 Mr 8 '18
- Patterns for a circular gable cornice. diags plan Metal Work 91:111-14 Ja 24 '19
- Patterns for a circular gable cornice. W: Neubecker. diags plan Metal Work 91:171-3 F 7 '19
- Rehabilitation of the sheet metal cornice, coping and metal trim. F. Romberger. II Metal Work 91:461-2 Ap 11 '19
- See also Gutters (roof); Roofs

**Sheet mills. See Rolling mills****Sheet piling**

- Repair washout under dam by sheet pile cut-off embedded in concrete. diags plans Eng N 81:186-9 JI 25 '18
- Sheet piling channel in forebay eliminates slush ice. II diag Eng N 80:615-16 Mr 28 '18
- See also Piles and pile driving

**Sheeting (hydraulic engineering). See Timbering****Sheffield, University**

- Sheffield university's glass department. II Engineer 125:516-17 Je 14 '18

**Shell shock**

- Treatment of cases of shell shock. W: Brown. Sci Am S 86:362-3 D 7 '18

**Shellac**

- Notes on shellac for electrical purposes. R. A. Lyons. Elec R 74:723 My 3 '19
- Shellac as an adhesive. J: Parker. Am Mach 49:971 N 28 '18

**Shells. See Mollusks****Shells (metal work)**

- Drawing a brass shell. R. P. Deane. diags Mach 26:170 O '19
- Drawing a shell from 1-in. boiler iron. G. R. Smith. diags Am Mach 50:106-7 Ja 16 '19
- Drawing a steel shell. diags Mach 25:860 My '19
- Drawing a tapered steel shell. J. Bingham. diags Mach 25:977 Je '19
- Drawing and trimming shallow shells. W: C. Winkelman. II diags Am Mach 48:33-5 Ja 3 '18
- Drawing of metal shells. J: Nelson. Mach 25:314 D '18
- Forming and drawing dies for sheet-steel shells. J. Bingham. diags Mach 26:165-6 O '19
- Hydraulic shell drawing. G. R. Smith. diags Am Mach 51:195 JI 24 '19

**Shells (projectiles)**

- Apparatus for the discovery of metallic objects buried in the soil; abstract. diag Elec W 70:1156-7 D 15 '17
- Biggest gun ever built; French gun has 52 cm. shells. II Sci Am 119:169 Ag 31 '18
- Double right projectile. diag Metal Ind 16:174 Ap '18
- Drum-fire and the difference between the sound of a gun and of an exploding shell. G. F. Sleggs. Sci Am S 84:393 D 22 '17
- German 16-inch shell thrown into Nancy. II Sci Am 118:561 Je 15 '18
- Government requires millions of cast shells. Foundry 46:441-2 O '18
- Locating unexploded shells on the battlefields of France. F. Honoré. II Sci Am 120:395+ Ap 19 '19
- Modern artillery ammunition. H. M. Brayton. charts Am Mach 50:707-10 Ap 10 '19
- Semi-steel shells. Iron Age 102:1004 O 17 '18
- Seventy-five mile gun; a study of shell fragments recovered in the city of Paris. F. Honoré. II diags Sci Am 118:432 My 11 '18; Discussion. E. E. Gregory. 119:67 JI 27 '18
- Shell of the long-range gun which is bombarding Paris. Engineer 126:14 JI 5 '18
- Shelling of Paris region. diags Iron Age 102:485 Ag 22 '18
- Shells that will dive. II Sci Am 118:125 F 9 '18
- Some further particulars of the seventy-five-mile shell. II Sci Am 118:483 My 25 '18
- Specifications for shells of semi-steel. Iron Age 101:1680 Je 27 '18; Same. Iron Tr R 62:1619+ Je 27 '18; Same. Foundry 46:345-6 Ag '18
- Steel shells used by allies. Iron Age 103:697 Mr 13 '19
- Stokes gun and shell, and their development. W. Stokes. II Engineer 126:27-9 JI 12 '18
- See also Projectiles; Shrapnel shells

**Inspection**

- Cartridge case and shell inspection systems. F. H. Korff. Am Mach 48:67-8 Ja 10 '18
- Inspection of the U.S. 75-millimeter shell. E. Oberg. II diags Mach 24:794-9 My '18

**Manufacture**

- Amalgamated shell-turning lathe. II Am Mach 49:869 N 7 '18; Mach 25:261-6 N '18
- Automatic gas-fired furnace for heat treating artillery shell. W. J. Harris, jr. II diag Am Gas Eng J 109:169-73 Ag 24 '18; Same. Iron Age 102:565-8 S 5 '18; Same. Gas Age 42:366-7 O 15 '18

**Shells (projectiles)—Manufacture—Continued**

Automatic shell marking machine. *Il Mach* 25:257-8 N '18  
 Bally automatic electric furnace for heat treating shells. *Il Met & Chem Eng* 18:156 F 1 '18  
 Boring and reaming tools for 220- and 270-mm. French shells. *J. Forrest. diags Am Mach* 48:70-2 Ja 10 '18  
 British shell-shop handling devices. *G. F. Zimmer. il diags plan Ind Management* 55:269-76, 358-66, 473-9 Ap-Je '18  
 Bryant type 68 shell lathes. *Il Am Mach* 49:1057 D 5 '18  
 Compressed air in a shell plant. *R. E. C. Martin and S. B. King. Il Am Mach* 50:395-6 F 27 '19  
 Conforming a shop to shell making. *Il Iron Tr R* 62:373 F 7 '18  
 Cutting off fuse rings in hand screw machines. *H. James. diags Am Mach* 47:1138-9 D 27 '17  
 Extemporised munition factory. *Il diag Engineer* 125:336-8, 379-80, 384 Ap 19, My 3 '18  
 Facts and figures on semisteel shell production. *Foundry* 46:508-9 N '18; *Excerpta. Iron Tr R* 63:910 O 17 '18  
 Former-plate construction for shell turning. *A. R. Melloy. diag Am Mach* 50:883-4 My 8 '19  
 From a small-shop notebook—shell-handling devices; diagrams. *J. A. Lucas. Am Mach* 49:74-5 Jl 11 '18  
 Furnaces for munitions. *Sci Am S* 86:274 N 2 '18  
 Gray shell machinery. *Il Mach* 24:849-50 My '18  
 Great New Jersey shell-loading plant. *Il Am Mach* 49:125-8 Jl 18 '18  
 Handling devices for large shells. *M. H. Potter. diags Mach* 25:442 Ja '19  
 Heat-treating shells. *J. M. Hall. Chem & Met Eng* 20:193 F 15 '19  
 Heat-treatment of British high-explosive shells and shrapnel. *J. M. Hall. Mach* 25:49 S '18  
 Heat treatment of French high explosive shells. *G. E. Waterhouse. Iron Age* 104:595 Ag 28 '19  
 How dummy iron shells are molded and cast. *H. C. Estep. Il Foundry* 46:347-50 Ag '18; *Same. Iron Tr R* 63:659-62 S 19 '18  
 How semisteel shells are being made in France. *E. Ronceray. Foundry* 46:98-6 Mr '18; *Same. Iron Age* 101:606-8 Mr 7 '18; *Same. Iron Tr R* 63:666-8 Mr 14 '18; *Same. Sci Am S* 85:406-7 Je 29 '18  
 How semisteel shells are machined. *diags Iron Tr R* 63:1236-7 N 28 '18  
 Huge machine tools for gun plant. *Il Iron Tr R* 63:1012-13 O 31 '18  
 Hydraulically operated shell machines. *P. B. Cochrane. Il Am Mach* 50:1127-9 Je 12 '19  
 Hydraulically operated shell production machinery. *L. W. Chubb. Il Am Mach* 48:939-43 Je 6 '18  
 Indicator for gaging shells. *T. L. Stalker. diags Mach* 25:345 D '18  
 Inside finishing tool for shells. *R. S. Myers. diags Am Mach* 48:337 F 21 '18  
 Large shell-loading plant almost ready. *Il Iron Tr R* 63:143 Jl 18 '18  
 Loading and assembling time fuses. *G. C. White. Il diags Mach* 24:671-80 Ap '18  
 Loading the U.S. 75-millimeter shell. *E. Oberg. Il Mach* 24:1116-20 Ag '18  
 Machine for caulking gas checks. *Il Iron Age* 101:1135 My 2 '18  
 Machining a nosed-in shell. *M. H. Potter. Il Mach* 24:780 My '18  
 Machining and gaging 9.2-inch high-explosive howitzer shells. *M. H. Potter. Il diags Mach* 25:125-32 O '18  
 Machining base plug for 9.2-inch high-explosive howitzer shells. *M. H. Potter. diags Mach* 25:227-8 N '18  
 Making semi-steel projectiles. *Il diags Iron Age* 102:879-83 O 10 '18  
 Making the mark III detonating fuse. *E. K. Hammond. Il diags plan Mach* 25:27-32, 137-44 S-O '18  
 Making the U.S. 8-in. shell. *M. E. Hoag. Il Am Mach* 49:457-60, 525-8 S 12-19 '18

**Making three million trench mortar shells.**

*E. C. De Wolfe. Il Iron Age* 104:1-7 Jl 3 '19  
 Manufacture of semi-steel shells. *Il diags Iron Age* 102:1317-21 N 28 '18  
 Manufacture of semi-steel shells. *E. A. Suverkrop. diags Am Mach* 50:1041-3 My 29 '19  
 Manufacture of six inch high explosive shells for the United States army. *T. D. Lynch. Il chart Elec J* 16:17-25 Ja '19  
 Manufacture of the 75-mm. high-explosive shell. *S. A. Hand. Il diags Am Mach* 48:435-9, 535-9, 705-12 Mr 14, 28, Ap 25 '18  
 Manufacture of the U.S. 75-millimeter shell. *E. Oberg. Il diags plan Mach* 24:590-6, 730-4, 794-9, 890-7 Mr-Je '18  
 Manufacturing base plugs for the 80 mark VIII time fuse. *J. Campbell. Il diags Am Mach* 48:414-17 Mr 7 '18  
 Manufacturing the 9.2-in. howitzer shell. *S. A. Hand. Il diags Am Mach* 50:799-801, 839-42, 895-7, 947-50, 1089-93 Ap 24-May 15, Je 5 '19  
 Manufacturing time fuse rings; characteristics of some machines for routing powder groove. *D. A. Baker. diags Mach* 24:612-14 Mr '18  
 Massive shell lathes for Neville Island. *Il diags Iron Age* 102:1071-4 O 31 '18  
 Methods employed in machining adapters. *M. H. Potter. diags Mach* 25:296 D '18  
 New idea in quenching shells. *H. E. Brown. diags Am Mach* 49:904 N 14 '18  
 New method of molding trench-mortar shell. *H. C. Estep. Il Foundry* 46:523-5 N '18  
 Notching and assembling punch and die for shell fuse socket. *D. A. Baker. diags Mach* 24:1022 Jl '18  
 Operations in the manufacture of high-explosive shells. *diags Am Mach* 48:735-7 My 2 '18  
 Organizing to produce shell forgings. *F. E. Merriam. Il Ind Management* 55:193-7 Mr '18  
 Polishing inside profile of nose on high-explosive shells. *H. A. Wilson. diags Am Mach* 49:168 Jl 25 '18  
 Practical wartime shell making. *L. I. Yeomans. Am Soc M E J* 39:378-80 My '17; *Same. Am Mach* 46:865-6 My 17 '17; *Abstract. Mach* 24:276 N '17; *Abstract. Sci Am S* 84:398 D 22 '17; *Discussion. Am Soc M E J* 39:613-14 Jl '17  
 Protecting thread in spindle nose from varnish. *H. A. Wilson. diag Am Mach* 49:173 Jl 25 '18  
 Radius link designing. *A. R. Melloy. plan Am Mach* 50:393-4 My 22 '19  
 Radius link designing. *F. W. Shaw. diags Am Mach* 51:666-7 O 3 '19  
 Requirements and treatment of Canadian high-explosive shells. *Mach* 24:641 Mr '18  
 Reverse drawing a shell. *G. R. Smith. diags Am Mach* 50:953-4 My 15 '19  
 Routing and handling shells. *J. Forrest. diags Mach* 24:922-5 Je '18  
 Salvaging high-explosive fuse adapters. *J. A. Shand. diag Mach* 24:742 Ap '18  
 Self-centering driver for rough-turning shells. *H. A. Wilson. diags Am Mach* 48:427 Mr '18  
 Semi-steel shell meeting. *Iron Age* 102:955-7 O 17 '18  
 Shaving machine for fuse caps. *D. A. Baker. diags Am Mach* 48:73-4 Ja 10 '18  
 Shell base-cover assembling die and press. *P. H. White. diags Mach* 25:109 O '18  
 Shell facing bar. *C. Jouve. diag Mach* 24:740-1 Ap '18  
 Shell-handling devices; drawings. *J. A. Lucas. Am Mach* 48:786-7; 49:520-1 My 9, S 19 '18  
 Shell need found foundries ready. *Il diag Iron Tr R* 63:1229-36 N 28 '18; *Same. Foundry* 46:581-7+ D '18  
 Shells from cast steel. *diags Iron Age* 101:1215 My 9 '18  
 Simplified lathe adapted to shell work. *Il Iron Age* 102:945-8 O 17 '18  
 Sizing operations for increasing production. *A. F. Owen. diags Mach* 25:68 S '18  
 Special chuck for holding shells to be re-centered. *A. F. White. diag Am Mach* 49:820 O 31 '18

**Shells (projectiles)—Manufacture—Continued**

- Special machine-tool fixtures for making the British 18-lb. shell. C. B. Hamilton, jr. *il* *diags* Am Mach 49:395-6 Ag 29 '18
- Special machines for producing 9.2-inch shells. *il* *diag* Engineer 125:190-1 Mr 1 '18
- Special shell drilling machines. D. A. Baker. *diags* Mach 24:1131-2 Ag '18
- Special tools and appliances for shell manufacture. G. A. Neubauer and E. Oberg. *il* *diags* Mach 25:416-21, 534-7 Ja-F '19
- Steel shells from steel castings. *il* *Sci* Am 117:493+ D 29 '17
- Stokes gun and shell, and their development. W. Stokes. *Engineer* 126:6-7, 27-9 Jl 5-12 '18
- Same. *Sci* Am S 86:212-13, 228-30 O 5-12 '18
- Tools for boring a closed-bottom shell. M. H. Potter. *diags* Mach 25:427-8 Ja '19
- Undercutting tool and gage for shells. O. W. Pullan. *diags* Am Mach 48:30-1 Ja 3 '18
- Unique shell-profile turning attachment. D. A. Baker. *diags* Am Mach 50:161-2 Ja 23 '19
- Using an old engine lathe to boost shell production. H. A. Wilson. *diag* Am Mach 49:218 Ag 1 '18

**Testing**

- Hydrostatic press for testing shells. *il* *Iron* Age 101:141 Ja 10 '18
- Metalwood shell-testing press. *il* *Am* Mach 48:388 F 23 '18; *Iron* Age 101:561 F 28 '18; *Mach* 24:655-6 Mr '18
- Southwark shell testing press. *il* *Mach* 24:466 Ja '18; *Iron* Tr R 62:372 F 7 '18

**Shells, Illuminating. See Illuminating shells****Shells, Shrapnel. See Shrapnel shells****Sherardizing. See Galvanizing****Sherman anti-trust law**

- Shoe-machinery decision. *Sci* Am 118:563 Je 22 '18

**Shingles**

- Asphalt shingles for fire resistance. *Metal* Work 89:346 Mr 8 '18
- Crimps in shingles, the cause and cure. *Am* Lumberman 2304:76 Jl 12 '19
- Eliminating the modern shingled roof. *Am* Arch 113:720 My 29 '18
- Metal shingles will help metal roofers. *Metal* Work 89:772 Je 14 '18
- Metal tiles and shingles. *il* *Metal* Work 89:39-41 Ja 4 '18
- Modern roofing materials. C. H. Stringer. *Am* Arch 114:361-4, 537-42 S 25, N 6 '18
- New red cedar shingle rules announced. *Am* Lumberman 2241:35 Ap 27 '18
- Production of lumber, lath and shingles in 1916. F. H. Smith and A. H. Pierson. *U S Agric Bul* 673:1-43 '18
- Production of lumber, lath, and shingles in 1917. F. H. Smith and A. H. Pierson. *U S Agric Bul* 768:1-44 '19
- Red cedar shingle congress 1st annual, Seattle, Wash., Jan. 16-17. *Am* Lumberman 2228:43-6 Ja 26 '18
- Red cedar shingle congress 2d annual, Seattle, Wash., Jan. 8-9. *Am* Lumberman 2279:42d-45 Ja 18 '19
- Roofing trade opportunities in rural districts: slate and metal shingles. *diags* *Metal* Work 90:327-9 S 20 '18
- Standards for red cedar shingles and their uses. J. S. Williams. *Am* Lumberman 2292:52-3 Ap 19 '19
- Thatched effects produced by Rex shingles. *il* *Bldg* Age 40:65 Ja '18
- Use the dead and dying chestnut. J. S. Illick. *il* *Sci* Am S 88:252-3 O 25 '19
- Wooden shingle and its relation to the fire hazard. H. von Schrenk. *Am* Arch 113:431-2 Ap 10 '18

See also Roofs; Shingling

**Shingling**

- Shingling gutters and valleys. J. Upton. *diags* *Bldg* Age 40:473 O '18

- Way to shingle a Boston hip. J. Upton. *Bldg* Age 40:407 Ag '18

See also Roofs; Shingles

**Ship-building. See Shipbuilding****Ship design. See Naval architecture—Designs and plans****Ship forms. See Naval architecture—Designs and plans****Ship names. See Warships—Names****Ship plates. See Plates, Iron and steel****Ship propulsion**

- Charts for use in the design of propelling machinery for usual type of cargo ships. J. L. Haynes. *Int* *Marine* Eng 24:132-4 Mr '19

- Design and progress of the floating-frame reduction gear. J. H. Macalpine. *il* *diags* *Eng* Soc W Pa 34:1-38; *Discussion*. 39-71 F '18

- Development of machinery in the United States navy during the past ten years. C. W. Dyson. *Engineer* 124:170-1, 190-1, 211-12, 214 Ag 24-S 7 '17; *Same*. *Int* *Marine* Eng 22:498-502, 545-7; 23:28-30, 69-71 N '17-F '18

- Floating frame reduction gears for ship propulsion. *il* *Int* *Marine* Eng 23:660-1 N '18

- Formulas for determining the sag in wire used to align the bearings of propeller shafting on board ship. C. J. Mason. *Int* *Marine* Eng 23:424-5 Jl '18

- Geared drive. N. W. Akimoff. *Int* *Marine* Eng 24:16-17 Ja '19

- Locomotive of the seas. *Sci* Am 120:628+ Je 14 '19

- Machinery for American merchant vessels. H. C. Dinger. *Int* *Marine* Eng 24:135-8 Mr '19

- Modern steel freight steamship. D. D. Thomas. *il* *diags* *plans* (supp) *Int* *Marine* Eng 24:592-600 S '19

- Motorships and their propelling machinery. J. M. Watts. *il* *diags* *plans* *Int* *Marine* Eng 23:201-6 Ap '18

- On the great cost of high speed. S. G. Koon. *Int* *Marine* Eng 24:357-9 My '19

- Power and speed of steamers. A. R. Liddell. *Engineer* 123:430-1 O 31 '19

- Production of propelling and auxiliary machinery for emergency fleet must be speeded up. *il* *Int* *Marine* Eng 23:396-9 Jl '18

- Propulsion of ships. A. T. Wall. *Sci* Am S 85:98-9 F 16 '18

- Steam turbines and gears for marine service. *il* *diags* *plans* *Power* 50:424-6 S 9 '19

- Trawler has gas-electric drive. H. R. Simonds. *il* *diag* *plans* *Marine* R 49:503-5 N '19

- Turbine gear drive for torpedo boat destroyers. W. B. Flanders. *il* *diags* *Elec* J 16:474-6 N '19

- Win-the-war methods at the Essington foundry. E. C. Kreutzberg. *il* *Foundry* 46:293-301+ Jl '18; *Same*. *Iron* Tr R 63:201-8 Jl 25 '18

See also Boilers, Marine; Diesel engines, Marine; Gas and oil engines, Marine; Marine engineering; Marine engines; Motor ships; Propellers; Rudders; Ship resistance; Steam turbines, Marine; Steamboats

**Ship propulsion, Electric**

- Application of electric power to shipyards. J. F. Nielson. *Inst* E E J 57:57-61 D '18

- Controlling the propulsion of the New Mexico. H. F. Harvey, jr. *il* *diags* *Gen* *Elec* R 22:272-92 Ap '19

- Convoy suggestion. *Sci* Am 118:453 My 18 '18

- Efficiency and economy of the New Mexico. *Elec* W 73:90-3 Ja 11 '19

- Electric drive for warships. *Eng* N 82:123 Ja 16 '19

- Electric drive for warships. W. L. R. Emmet. *Engineer* 124:228 S 14 '17; *Discussion*. 125:435, 455 My 17-24 '18

- Electric drive from a military point of view. S. M. Robinson. *Gen* *Elec* R 22:220-2 Ap '19; *Same*. *Elec* R 74:580-1 Ap 12 '19

- Electric drive of the battleship New Mexico. *Am* *Math* 50:869 My 1 '19

- Electric drive of the U. S. S. New Mexico. *il* *diags* *Elec* W 73:780-3 Ap 19 '19

- Electric drive on merchant ships. W. L. R. Emmet. *Int* *Marine* Eng 24:335-7 My '19

- Electric drive on merchant ships. A. Peterson. *Int* *Marine* Eng 24:514 Ag '19

- Electric marine propulsion. *Gen* *Elec* R 22:219 Ap '19

**Ship propulsion, Electric—Continued**

- Electric propelling machinery for the battleship Tennessee. Int Marine Eng 23:594-5 O '18
- Electric propelling machinery of the battleship Tennessee. W. H. Easton. II diag Int Marine Eng 24:490-3 JI '19
- Electric propulsion as developed on battleship New Mexico. II Elec R 74:579-84 Ap 12 '19
- Electric propulsion of ships. E. Berg. Int Marine Eng 23:477-9 Ag '18
- Electric propulsion of ships. W. L. R. Emmet. II Gen Elec R 22:222-3 Ap '19
- Electric propulsion on the New Mexico. W. Bathon. II Elec W 73:7-10 Ja 4 '19
- Electric ship propulsion. W. B. Hird. Engineer 125:393-4 My 3 '18
- Electric ship propulsion; abstract. Elec W 71:471 Mr 2 '18
- Electric ship propulsion an engineering accomplishment. Elec W 72:1136 D 14 '18
- Electrical equipment of the U.S.S. New Mexico. diags Engineer 128:204-6, 234-6 Ag 29-S 5 '19
- Electrical equipment used on submarines. H. C. Coleman. II diag Elec J 16:295-9 JI '19
- Electrically driven battleship. C. M. Ripley. II diag J Elec 43:246-7 S 15 '19
- Electricity as applied in the U. S. navy. II Power 47:248-54 F 19 '18
- Future warships to be propelled by electric drive. Elec R 74:64 Ja 11 '19
- General characteristics of electric ship propulsion equipments. E. F. W. Alexander-son. diags Gen Elec R 22:224-32 Ap '19
- Main control equipment of the New Mexico. C. T. Hentschel. II diags Gen Elec R 22:261-71 Ap '19; Same. Sci Am S 87:408-10 Je 28 '19
- New Mexico's generators. C. S. Raymond. II diags Gen Elec R 22:244-54 Ap '19; Same. Sci Am S 87:356-8 Je 7 '19
- New Mexico's motors. A. D. Badgley. II Gen Elec R 22:255-60 Ap '19; Same. Sci Am S 87:396-7 Je 21 '19
- Propulsion of ships. E. Berg. II J Fr Inst 185:317-22 Mr '18; Excerpts. Power 47:672-3 My 7 '18
- Review of the propelling equipment and operation of the New Mexico. E. Berg. plan Gen Elec R 22:293-8 Ap '19; Abstract. Power 49:537-8 Ap 15 '19
- Ship propulsion, electric heating devices and searchlights. J. R. Hewett. II Gen Elec R 22:726-33 S '19
- Snell system of electric propulsion for ships; abstract. Am Soc M E J 40:pt 1, 589-90 JI '18
- Turbo-electric ship Wulsty Castle. II diags Engineer 125:423-6, 428 My 17 '18
- United States battleship New Mexico. S. M. Robinson. II diags Int Marine Eng 24:322-34 My '19
- U. S. S. New Mexico. H. B. Gregory. II diag Sci Am 120:340-1 Ap 5 '19
- Use of electricity in propulsion of ships; electrically propelled merchant ship construction in England. W. L. R. Emmet. Elec W 71:992 My 11 '18
- Ship railroads**
- Cable inclines carry boats over Illinois River levee. II diags plans Eng N 80:355-7 F 21 '18
- Features of an electrically operated marine railway. II Elec R 73:290-2 Ag 24 '18
- Marine railway instead of a lock. II Sci Am 119:389 N 16 '18
- Marine railway supplants drydock. II Marine R 49:121-2+ Mr '19
- Yarrow's slipway at Victoria, B.C. II diags plan Engineer 127:330, 341-3 Ap 4 '19
- Ship resistance**
- Experiments on simplified ship forms. H. C. Sadler and T. Yamamoto. plans Int Marine Eng 24:140-4 Mr '19
- Model experiments on express cruisers of deadrise type. T. A. Gamon. diags plans Int Marine Eng 23:473-6 Ag '18

Propulsion of ships. A. T. Wall. Sci Am S 85:38-9 F 16 '18

Resistance of ships. Sci Am S 87:75 F 1 '19

See also Ship propulsion

**Ship yards. See Shipyards****Shipbuilders**

- Builders of the Emergency fleet. Int Marine Eng 23:169-70 Ap '18
- List of shipbuilders now engaged on work for the United States government. Iron Age 101:621-3 Mr 7 '18
- These firms are building 1,000 ships for the government. Eng & Contr 49:419-20 Ap 24 '18
- Shipbuilding**
- Application of buoyancy boxes to the S. S. Lucia for the U. S. Shipping board; abstract. W. T. Donnelly. Am Soc M E J 41:56 Ja '19
- Application of electric power to shipyards. J. F. Nielson. Inst E E J 57:57-61 D '18
- Are wooden ships a failure? diags Am Lumberman 222:33 F 2 '18
- Astonishing rivet-driving records. Eng & Contr 49:493-4 My 22 '18; Engineer 125:413 My 10 '18
- Black locust needed for ships. Sci Am S 85:174 Mr 16 '18
- Building a government 3500-ton concrete ship. II diags plans Eng N 81:1058-65 D 12 '18
- Building a ship. Iron Age 102:576 S 5 '18; Same. Sci Am S 86:281 N 2 '18
- Building of the Tuckahoe. E. A. Suverkrop. II Am Mach 49:277-81 Ag 15 '18
- Building wooden ships for the Emergency fleet corporation. E. A. Suverkrop. II diags Am Mach 49:691-6, 789-94, 883-7 O 17, 31, N 14 '18
- Charles Knight, champion riveter. Eng & Min J 105:969 My 25 '18
- Copper for shipbuilding. Eng & Min J 105:394-5 F 23 '18
- Copper-pipe smithing in the Sun shipyard. E. A. Suverkrop. II diag Am Mach 50:205-7 Ja 30 '18
- Detail-drawing method used for 8800-ton steel ships. diags Eng N 82:188-90 Ja 23 '19
- Development of stern plating around the cant frames. diag Int Marine Eng 23:486-7 Ag '18
- Emergency shipbuilding on lakes handled by erection cranes of many types. II diags Eng N 82:86-93 Ja 9 '19
- Familiar scenes in a modern shipyard. II Sci Am S 86:104-5 Ag 17 '18
- Federal ships erected by derrick travelers built for long service. II diags Eng N 80:1129-32 Je 13 '18
- From cruiser to merchantship. II Sci Am 118:375 Ap 27 '18
- Future of shipbuilding. E. L. Orde. Engineer 126:498-9 D 6 '18
- Gas-fired shipyard furnace; installation for plates and angles at the Pusey & Jones co., Wilmington, Del. W. J. Harris, Jr. II Iron Age 101:377 F 7 '18; Same. Am Gas Eng J 108:53-4 Ja 19 '18
- Gas has become a recognized fuel for industrial purposes in shipbuilding. J. J. Mulgrew. II Am Gas Eng J 111:243-6 S 20 '19
- Handling shipbuilding material at Alameda shipyard. II diag Eng N 81:1020-2 D 5 '18
- Handy method for laying off tank margin plates. J. A. Ridley. plan Int Marine Eng 23:523-9 S '18
- Hunnell hull; combined steel and concrete ship. Int Marine Eng 23:53 F '18
- Insufficiently considered details of ship construction and equipment. C. W. Cairns. Int Marine Eng 23:570-5 O '18
- Is there a ship-plate shortage? J. L. Replogle affirms there is. Iron Age 101:1012-15+ Ap 18 '18
- Keeping track of our ships in building. Sci Am 118:468 My 18 '18
- Leparentier system of hull construction. diag Engineer 128:94 JI 25 '19
- Lignum-vitae, the vital wood. S. J. Record. II diags Sci Am S 88:4-5+ JI 5 '19
- Machines for making wooden ships. II Sci Am 119:33 JI 13 '18

**Shipbuilding—Continued**

Making castings used in ship construction. B. Shaw and J. Edgar. *diags plans Foundry* 47: 388-92, 417-20, 474-8, 523-7, 540-4, 597-600, 647-50, 705-8, 738-41, 785-8, 832-5, 870-3 *Je* 15-D 1 '19

Method of steel ship construction at Greenock yards. *Eng & Contr* 50:426-7 O 30 '18

Methods by which time required to wire ship was reduced 3500 hours. *chart Elec R* 73: 783 N 16 '18

Millar system of longitudinal and transverse ship framing. *diag Eng & Contr* 50:432 O 30 '18

Morse school for shipfitters. *Int Marine Eng* 23:190 Ap '18

New rivet-driving records in ship work. *Eng N* 80:1014 My 28 '18

Notes on shipbuilding. F. J. French. *il Am Soc M E J* 40:289-92 Ap '18; Same. *Eng & Contr* 49:509-11 My 22 '18

Oil- and water-tight joints in ships' hulls. E. Burtner. *diags Int Marine Eng* 23:404-6 *Jl* '18

Optical method of shaft alignment. W. Norris. *il Engineer* 127:451 My 9 '19

Plan for simplifying and standardizing template construction suggested by practical shipbuilder. F. N. Nelson. *Int Marine Eng* 23:467-8 Ag '18

Planing of angles in ship construction for watertight calking. E. R. Spencer. *il Int Marine Eng* 24:478-80 *Jl* '19

Planning—the solution of the management problem in shipbuilding. *Ind Management* 57:42-3 *Ja* '19

Pre-assembly system and efficient erection cranes speed up shipbuilding at Ecorse, yards of the Great Lakes engineering works. *il diags Eng N* 81:1076-81 D 12 '18

Problem of wooden shipbuilding. B. L. Grondal. *Sci Am S* 85:59 *Ja* 26 '18

Production control in shipbuilding. *Eng & Contr* 50:497-8 N 27 '18

Recent inventions in tools and machines for ship building. *Eng & Contr* 51:133-4 *Ja* 29 '19

Remarkable growth of Isherwood system of ship construction. *Int Marine Eng* 23:133 *Mr* '18

Rivetless ship a possibility. *Elec W* 71:1046 *My* 18 '18

Sequence of mold work in the loft. J. A. Ridley. *Int Marine Eng* 24:754-6 N '19

Shaping a wooden rudder stock by machinery. *il Sci Am* 119:359 N 2 '18

Ship builder versus submarine. *il Sci Am* 118: 278-9+ *Mr* 30 '18

Ship building for house carpenters. A. H. Brenzinger. *diags Bldg Age* 40:280-1, 332-3 *Je-Jl* '18

Ship losses and ship construction. *Chem & Met Eng* 19:273 S 15 '18

Shipbuilding equipment and methods at Fore river; Hull construction plant. *il diags plan Eng N* 83:19-22, 362-5 *Jl* 3, Ag 21 '19

Shipbuilding in foreign countries in 1919. H. Koppel. *Int Marine Eng* 24:605-7 S '19

Shipbuilding rivalry. *Int Marine Eng* 23:321-2 *Je* '18

Shortage of ships; what we have done and what we have yet to do. E. Harding. *il Sci Am* 119:90-1 Ag 3 '18

Skinner and Eddy scarfing machine. *il Int Marine Eng* 23:291-2 *My* '18

Solving marine engine shortage. V. G. Iden. *il Iron Tr R* 63:1061-4 N 7 '18

Speedy framing of Ferris type hull. *Eng & Contr* 50:392 O 23 '18

Steel cargo carrier Crawl Keys starts on her maiden voyage in less than a month after keel is laid. *il Iron Tr R* 63:668-72 S 19 '18

Steel foundry to cast ships. E. C. Kreutzberg. *il diags Marine R* 49:269-71 *Je* '19; Same cond. *Foundry* 47:379-80 *Je* 15 '19

Steel knees for wooden vessels. *il diag Marine R* 49:166-7 *Mr* '19

Steel uprights for shipbuilding berths. *il Engineer* 126:124-5 Ag 9 '18

Three-decker and the dreadnaught. P. A. Hisslam. *Sci Am* 118:179 F 23 '18

Tower derricks serve twin shipways at submarine boat corporation yard. *il diags plan Eng N* 80:1073-7 *Je* 6 '18

War's effect on merchant shipbuilding. H. L. Ferguson. *Am Soc M E J* 40:298-302 Ap '18

Wooden ships versus the submarine. *il Sci Am* 118:588-9 *Je* 29 '18

*See also* Barges, Concrete; Boat building; Colliers; Freight ships; House boats; Launching; Marine engines; Motor boats; Motor ships; Naval architecture; Propellers; Rudders; Sailing vessels; Ship propulsion; Ship resistance; Ships; Ship-piping systems; Ships—Repair; Ships, Concrete; Ships, Iron and steel; Ships, Unsinkable; Ship-yards; Steam turbines, Marine; Steamboats; Submarine boats; Submarine chasers; Tank ships; Tonnage; Torpedo boat destroyers; Towboats; Train ferries; Warships; also Todd shipyard corporation

**Accounting**

Accounting for cost of naval vessels under cost-plus-profit contracts. F. P. Farquhar. *J Account* 28:180-9 S '19

Cost of manufacturing ships. F. T. Warner. *charts Int Marine Eng* 24:489-90 *Jl* '19

Cost system for shipyards. C. Churchill. *Int Marine Eng* 24:486-8, 545-8, 641-3 *Jl-S* '19

Keeping track of construction plant at Hog Island. R. E. Roesler. *Eng N* 82:246-7 *Ja* 30 '19

Our newest navy; how its cost is being determined. D. Potter. *J Account* 27:336-57 *My* '19

Outline of a cost accounting system for a wooden ship yard. F. W. Davis. *chart J Account* 27:33-47 *Ja* '19

Shipbuilding costs and estimates. J. M. Robertson. *Int Marine Eng* 23:634-6, 671-2 N-D '18

Uniform cost accounting in shipbuilding. J. L. Jacobs. *Int Marine Eng* 24:539-43, 638-40 Ag-S '19

Using punched cards for controlling materials. A. E. Van Bibber. *Am Mach* 51:295-300 Ag 14 '19

**Bibliography**

Naval architecture and shipbuilding. R. A. Sawyer, Jr. *N Y Pub Lib Bul* 23:13-50, 73-94 *Ja-F* '19

**Cost**

Cost of government-built concrete ships. *il Concrete* 15:81-3 Ag '19

How to determine shipyard costs. C. Churchill. *Marine R* 49:586-9 D '19

**"Fabricated" ships**

American ships—a field of vast technical opportunities. E. N. Hurley. *Eng N* 82:5-6 *Ja* 2 '19

America's great shipbuilding development. C. E. Wright. *il Iron Age* 101:13-17, 125-6 *Ja* 3 '18

Assembling and regulating ship's structure. T. L. Cohee. *Int Marine Eng* 23:534-6 S '18

Cast steel ship development. M. F. Hill. *il Iron Age* 103:1351-2 *My* 22 '19; Same. *Sci Am S* 88:19+ *Jl* 12 '19

Building the Ford submarine-chaser Eagle. *il Int Marine Eng* 24:23-7 *Ja* '19

Control of hull construction of 5,000-ton dead-weight fabricated steel vessel. *Int Marine Eng* 23:536-8, 560-2, 643-4, 691-4; 24:28-30 S '18-Ja '19

Design steel ship for maximum efficiency of bridge-shop fabrication. *il diags Eng N* 81: 5-12 *Jl* 4 '18

Fabricated ship. *il Gen Elec R* 21:570-2 Ag '18

Fabricated ship. H. R. Carse. *Sci Am S* 86: 57 *Jl* 27 '18

Fabricated ship construction at Bristol yard. *il diags plans Eng N* 82:557-61 *Mr* 20 '19

Fabricated-ship construction in one year's experience. *Eng N* 82:16-17 *Ja* 2 '19

Fabricated ship in America. *il (supp) Engineer* 126:523-4 D 20 '18

Fabricated-ship plant planned for later general use. M. E. Allen. *il diags plan Eng N* 83:79-82 *Jl* 10 '19

Fabricated ship; skews taken out of the usual design and sterns not of cast steel. H. D. H. Connick. *Iron Age* 101:719 *Mr* 14 '18

**Shipbuilding—"Fabricated" ships—Continued**

- Fabricating shop and berth equipment at Sun shipyard, Chester, Penn. *Il* diags plans Eng N 82:57-61 Ja 2 '19
- Fabricating shop in South; Fairfield works. *Il* Iron Tr R 65:632-6 S 4 '19; Iron Age 104:627-31 S 4 '19
- Failure of steel ship plans predicted by Joseph W. Powell. Iron Age 101:478-80 F 14 '18
- First English fabricated ship. Eng & Contr 50:431 O 30 '18
- Five thousand-ton deadweight fabricated steel cargo steamer for Emergency fleet. diags plans 2 pls Int Marine Eng 23:194-8 Ap '18
- Ford methods in ship manufacture. F. E. Rogers. *Il* plan Ind Management 57:1-6, 119-24, 456-64; 58:8-11 Ja-F' Je-Jl '19
- Ford shipbuilding plant, River Rouge, Mich. *Il* Am Arch 115:528-9 Ap 9 '19
- Great submarine-chaser factory produces Eagles by indoor shipbuilding system. *Il* diags Eng N 81:698-702 O 17 '18; Same. Am Mach 48:841-4 N 7 '18; Same abr. Int Marine Eng 23:702-5 D '18
- Inland ship-steel fabricating plants of the Emergency fleet corporation. L. G. Fishach. *Il* diags Eng N 82:332-6 F 13 '19
- Large freighters of Isherwood framing adapted to bridge-shop fabrication. *Il* diags Eng N 81:853-7 N 7 '18
- Manufactured ships. J. D. MacBride. diag Sci Am S 87:130-1+ Mr 1 '19
- Methods used at Shooter's Island for constructing standard ships. C. M. Horton. *Il* diags Int Marine Eng 23:618-24 N '18
- Model fabricated ship recently launched. Engineer 126:171 Ag 23 '18
- Rapid progress now being made at Hog Island. *Il* chart Iron Age 101:1063-6 Ap 25 '18
- Richborough transportation depot and train ferry terminus. *Il* diags Engineer 127:147-50, 154 F 14 '19
- Routing of fabricated ship material at Bristol. *Il* diags plan Eng N 82:25-30 Ja 2 '19
- Ship-design and quantity-production methods of Newark bay yard. *Il* diags Eng N 81:1122-5 D 19 '18
- Shipbuilding at the Pensacola yards. J. M. Sweeney. *Il* plan Int Marine Eng 24:12-16 Ja '19
- Shipbuilding methods of the Eagle chaser factory. *Il* diags plan Eng N 81:788-95 O 81 '18
- Shipyard on New Orleans canal for building unsinkables. *Il* diags plan Eng N 82:434-8 F 27 '19; Same cond. Int Marine Eng 24:237-9 Ap '19
- Straight lined and fabricated ships. J. A. McAleer. *Il* diags Int Marine Eng 23:234-6 Ap '18
- Structural shop diverted largely to ship fabrication. *Il* diag Eng N 81:1169-70 D 26 '18
- Structural steel standardized cargo vessels. H. R. Sutphen. plan Int Marine Eng 23:695-8 D '18
- Study of the fabricated ship problem from the steel manufacturer's standpoint. E. C. Kreutzberg. *Il* Iron Tr R 62:8-12 Ja 3 '18
- Suggestion for simplifying construction of fabricated stern frame of Hog Island ships by application of electric welding. W. T. Bonner. diags Int Marine Eng 24:344-5 My '19
- Three government shipyards huge problem in plant layout. diags plans Eng N 80:12-19 Ja 3 '18
- Torpedo-boat destroyers in the making. J. Reed. *Il* Mech Eng 41:739-43+ S '19
- Victory destroyer plant at Squantum. *Il* plan Int Marine Eng 24:446-55 Jl '19
- Who will build the fabricated ships? R. E. Kline. Int Marine Eng 23:55-6 F '18

*See also* Shipbuilding—Welding operations

**Records**

- Using punched cards for controlling materials. A. E. Van Bibber. Am Mach 51:295-300 Ag 14 '19

**Repairing**

*See* Ships—Repair

**Standards**

- Marine engineers discuss standardization at motor-boat meeting of S. A. E. diags Automotive Ind 38:259-63 Ja 31 '18
- Marine practice in valves and fittings. R. J. S. Pigott. Mech Eng 41:273-4 Mr '19
- Ship steel standardization. Iron Age 101:1144 My 2 '18
- Shooters Island shipyard and its standard cargo ships. *Il* diag plans Int Marine Eng 23:191-3 Ap '18
- Standard cargo ships. G. Carter. diags plan Int Marine Eng 23:407-11+ Jl '18; Same cond. Engineer 125:257-9 Mr 22 '18
- Standard ships and engines in Great Britain. Int Marine Eng 23:270 My '18
- Standardization of ship steel. Int Marine Eng 24:47-9 Ja '19; Iron Age 102:1363-4 N 28 '18; Iron Tr R 63:1245-6 N 28 '18; Eng & Contr 50:596-7 D 25 '18
- Standardised ships. A. R. Liddell. Engineer 125:72 Ja 25 '18
- Standardizes steel ship materials; abstracts. F. T. Llewellyn. Iron Tr R 64:1549-51 Je 12 '19; Iron Age 103:1422-3 My 29 '19
- War's effect on merchant shipbuilding. H. L. Ferguson. Am Soc M E J 40:298-302 Ap '18

**Study and teaching**

- Apprenticeship course for shipfitters. W. H. Dooley. Int Marine Eng 24:154-6+ Mr '19

**Welding operations**

- Adequacy of welding in constructing hulls of ships. H. M. Hobart. Gen Elec R 21:840-3 D '18
- Application of electric welding to steel shipbuilding. H. A. Hornor. chart diags Eng Soc W Pa 34:641-70; Discussion. 671-6 Ja '19
- Arc welding in shipyards. W. L. Roberts. *Il* Gen Elec R 21:860-4 D '18
- Electric arc welding in shipbuilding. Engineer 126:162-3 Ag 23 '18; Same. Sci Am S 86:230 O 12 '18
- Electric welding and its application to shipbuilding. O. Kjellberg. *Il* diags Engineer 128:442-4, 472-3 O 31-N 7 '19
- Electric welding and our shipbuilding program. D. B. Rushmore. Gen Elec R 21:828-9 D '18
- Electric welding as applied to ship building. C. A. Adams. W Soc E J 24:119-27 Mr '19; Abstract. Elec W 73:96 Ja 11 '19; Discussion. W Soc E J 24:127-31 Mr '19
- Electric welding as applied to steel ship construction. Eng & Contr 50:308-9 S 25 '18
- Electric welding for shipbuilding. W. S. Abell. Sci Am S 87:79-80 F 1 '19
- Electric welding in ship construction. H. J. Cox. *Il* Int Marine Eng 24:42-6, 95-9 Ja-F '19; Same cond. Mech Eng 41:439-44 My '19; Excerpt. Gen Elec R 21:864-70 D '18
- Electric welding in shipbuilding. Engineer 125:329 Ap 12 '18
- Electric welding in shipbuilding. C. A. Adams. Gen Elec R 21:836-9 D '18
- Electric welding in the building of ships. Elec W 71:683 Mr 30 '18
- Electric welding tests being made by Emergency fleet corporation. A. J. Mason. Elec R 72:801-2 My 11 '18; Same. Elec W 71:993 My 11 '18; Same. Am Mach 48:1012 Je 13 '18; Same cond. Eng N 80:950 My 16 '18; Same cond. Am Soc M E J 40:495 Je '18; Same cond. Met & Chem Eng 18:656 Je 15 '18
- Electrically-welded barge. *Il* Engineer 126:122-3 Ag 9 '18; Same. Eng & Contr 50:416 O 30 '18; Abstract. Metal Work 90:184 Ag 16 '18; Abstract. Am Arch 114:261-2 Ag 28 '18
- Experiments of Lloyd's register on application of electric welding to shipbuilding. Eng & Contr 50:420-2 O 30 '18
- Large ship to be built by electric welding for the United States government. Iron Age 102:1025 O 24 '18
- Lloyd's technical committee thoroughly investigating application of electric welding to shipbuilding. Int Marine Eng 23:530 S '18
- Oxy-acetylene aids ship fabrication. Iron Tr R 62:1178-9 My 9 '18



**Shipbuilding—Welding operations—Continued**

- Oxy-acetylene welding in hull construction. C. C. Phelps. *Int Marine Eng* 24:727-9 N '19
- Parts of vessel to which application of electric welding has been considered and approved by American bureau of shipping and Lloyds. *Int Marine Eng* 23:528 S '18
- Spot welding and some of its applications to ship construction. H. A. Winne. *Eng Gen Elec R* 21:923-7 D '18
- Strength and elasticity of electrically welded joints. W. S. Abell. *Eng & Contr* 51:463 Ap 30 '19
- Study of electric welding aids in our shipbuilding. C. A. Adams. *Elec W* 72:455-6 S 7 '18
- Use of acetylene in navy yards. H. G. Knox. *Int plan Int Marine Eng* 24:720-7 N '19; Same cond. *Am Mach* 51:661-4 O 2 '19
- Welding a ship together electrically. *Elec R* 73:495 S 28 '18
- Welding as a process in ship construction. S. V. Goodall. *Am Inst E E Pro* 38:329-35 Mr '19; Same. *Gen Elec R* 22:213-16 Mr '19
- Welding mild steel. H. M. Hobart. *Int diag* *Am Inst E E Pro* 38:561-609 Ap '19; Same abr. *Am Inst Min E Bul* 146:517-61 F '19; Same cond. *Gen Elec R* 22:445-60 Je '19; Discussion. *Am Inst Min Bul* 148:752-60; 149:810-49; 150:981-5 Ap-Je '19
- Welding ship's parts together. J. G. Dudley. *Int Marine Eng* 23:359-60 Je '18
- See also Ships—Repair; Ships, Iron and steel
- Australia**
- Shipbuilding in Australia. *Int plan pl (supp)* *Int Marine Eng* 24:470-2 Jl '19
- Canada**
- Canada will build ships. *Iron Tr R* 62:165 Ja 10 '18
- Canadian shipbuilding developments. *Am Ind* 18:44 My '18
- Ship program for Canada. *Iron Age* 101:177 Ja 10 '18
- China**
- Progress of shipbuilding in China. *Int Marine Eng* 24:398-9 Je '19
- France**
- War-time construction in the French naval arsenals. R. W. Neesser. *Int Sci Am* 120:686+ Je 28 '19
- Germany**
- German shipping and shipbuilding. *Engineer* 126:203 S 6 '18
- Great Britain**
- British shipbuilding; comment on letter of Edward N. Hurley. *Engineer* 126:183 Ag 30 '18
- Lloyd's register shipbuilding returns. *Engineer* 127:79 Ja 24 '19
- Merchant shipbuilding. *Engineer* 126:173-4 Ag 30 '18
- Merchant shipbuilding position in Great Britain. *Engineer* 126:141 Ag 16 '18
- More light on shipbuilding in Great Britain. *Engineer* 126:223-4 S 13 '18
- Ships our need; situation in Great Britain. *Engineer* 125:209-10 Mr 8 '18
- Vital shipbuilding statistics of Great Britain. *Engineer* 125:177 Mr 1 '18
- Italy**
- Italy's contribution in the shipping crisis. A. Benington. *Int Sci Am* 119:108-9+ Ag 10 '18
- Japan**
- Shipbuilding in Japan. *Int Marine Eng* 23:471-3 Ag '18
- United States**
- America leads in shipbuilding. *Int Marine Eng* 24:511 Ag '19
- American shipbuilding. *Engineer* 128:432-3 O 31 '19
- American shipbuilding. H. L. Ferguson. *Am Mach* 51:138-9 Jl 17 '19
- America's great shipbuilding development; with list of contracts. C. E. Wright. *Int Iron Age* 101:13-17, 125-6 Ja 3 '18
- Are we building real ships? A. C. Laut. *Int Sci Am* 118:150-1+ F 16 '18
- Bethlehem shipbuilding corporation, ltd., makes a world's record in shipbuilding. *Int Marine Eng* 24:586-7 S '19
- Bridging the Atlantic with ships. E. N. Hurley. *Int Sci Am* 118:304-5 Ap 6 '18
- Building a bridge of boats to France; list of contractors working on ships. *Am Ind* 18:27-8 F '18
- Building wooden vessels on the Pacific. *Int Marine Eng* 24:8-11 Ja '19
- Delamater iron works—cradle of the modern navy; abstract. H. F. J. Porter. *Int Marine Eng* 23:706-7 D '18
- Eastern plant makes ship castings. E. C. Kreutzberg. *Int Foundry* 47:463-71 Jl 15 '19
- Future of the shipbuilding industry in America. *Eng & Contr* 50:206-7 Ag 28 '18
- Government concrete shipbuilding—a picture story. *Concrete* 15:77-84 Ag '19
- Great Lakes yards lead coast districts in building ocean-going ships. *Int diag* *Eng N* 81:978-80, 1037-41 N 28-D 5 '18
- How can we build more ships? J. W. Powell. *Int Marine Eng* 23:371-2 My '18
- July Fourth in our shipyards; the call for ships answered by launching 450,000 tons in a single day. *Int Sci Am* 119:3 Jl 6 '18
- Lake yards set record in rapid shipbuilding. *Iron Tr R* 62:997 Ap 18 '18
- List of vessels contracted for by the United States shipping board emergency fleet corporation. *Int Marine Eng* 24:170-2 Mr '19
- Manitowoc shipbuilding company. *Int plans* *Int Marine Eng* 24:271-80 Ap '19
- Message to the shipbuilders of America! E. N. Hurley. *Int Marine Eng* 23:149 Ap '18
- More shipbuilding plants rise in Northwest. *Iron Tr R* 63:1021-2 O 31 '18
- Northwest builds ships at record rate. *Iron Tr R* 62:999-1000 Ap 18 '18
- Noteworthy achievement of the Submarine boat corporation. *Int Marine Eng* 24:349 My '19
- \$170,500 to aid shipbuilders; government assists development of Lewiston, Augusta & Waterville street railway. *Elec Ry J* 52:584 S 28 '18
- Outlay for ships will be doubled in fiscal year beginning July 1. *Iron Age* 101:1264-5 My 16 '18
- Pacific Coast plants at top speed. *Iron Tr R* 62:998-9 Ap 18 '18
- Predict bright future for shipbuilding. *Iron Age* 103:557-8 F 27 '19
- Problems confronting American shipyards. H. A. Evans. *Int Marine Eng* 24:316-17 My '19
- Progress of ship construction at Emergency yards. *Eng & Contr* 49:83-4 Ja 23 '18
- Rapidly growing ship production speeded by the Emergency fleet corporation. map *Eng N* 81:40-4 Jl 4 '18
- Rates of ship construction. *Iron Age* 102:906-7 O 10 '18
- Schwab cancels cost plus a fee contracts for building 160 ships. *Eng & Contr* 49:496 My 22 '18
- Schwab's Fourth of July address to the shipyard workers in San Francisco. *Int Marine Eng* 23:440-2 Ag '18
- Seattle shipbuilders overcome pioneer difficulties and set new speed records. C. A. Osier. *Int diag* *Eng N* 81:160-4 Jl 25 '18
- Seattle speeds up shipbuilding. *Int Marine Eng* 23:210-12 Ap '18
- Ship builders make records in quick work. *Int Am Lumberman* 2246:39 Je 1 '18
- Shipbuilding in Revolutionary days. *Am Arch* 113:714 My 29 '18
- Shipbuilding in the United States. *Sci Am* 118:582 Je 29 '18
- Shipbuilding in the United States in 1918. *Int Marine Eng* 24:5-7 Ja '19
- Shipbuilding progress in United States. *Eng & Contr* 50:379-80 O 23 '18
- Shipbuilding record is above estimates. *Iron Tr R* 62:679 Mr 14 '18

**Shipbuilding—United States—Continued**

- Shipbuilding situation. J. W. Powell. *Int Marine Eng* 23:7-9 Ja '18
- Shipping board contracts for ships; complete list of vessels contracted for or requisitioned by the Shipping board up to January 31, 1918. *map Int Marine Eng* 24:190-1 Ap '19
- Ships under construction in the United States total nearly 14,000,000 tons. *Int Marine Eng* 23:443-5 Ag '18
- Speech at banquet of American iron and steel institute. C. Schwab. *Iron Tr R* 62:1444-5 Je 6 '18
- Troop and cargo ship construction begins at great eastern shipyards. *Il Iron Tr R* 62:490-1 F 21 '18
- United States leader in shipbuilding. *Iron Tr R* 63:793 O 3 '18
- U.S. ships delivered by American yards to December 31, 1918. *Il Marine R* 49:103-14 F '19
- U.S. shipyards complete vessels of 3,103,583 d.w.t. in 1918. *Eng & Contr* 51:91 Ja 22 '19
- U.S. yards can meet all competitors. J. H. Rosseter. *Marine R* 49:173+ Ap '19

**Shipment, Packing for. See Packing for shipment****Shipment of goods**

- Expert exporting; some suggestions for the middleman in foreign trade. *Il Sci Am* 120:258+ Mr 15 '19
- Freight forwarding for export. W. J. Riley. *Am Mach* 50:1000-2 My 22 '19
- Getting enough goods and getting them through. E. J. Buckley. *Metal Work* 89:859-60 Je 28 '18
- Handling orders faster. *Factory* 22:479 Mr '19
- How to consign shipments for government use. *Am Lumberman* 2255:29 Ag 3 '18
- How to ship lumber to the navy. H. P. Anewart. *Am Lumberman* 2246:43 Je 1 '18
- Liability of a shipper who caused his consignee \$1,750 loss. E. J. Buckley. *Metal Work* 90:418 O 11 '18
- Reducing claims by a publicity campaign. *Il Ry R* 64:509-12 Ap 5 '19
- Shipping applied to steel plants. C. E. Lynn. *Iron Tr R* 64:1081-2 Ap 24 '19
- Shipping green vehicle stock to prevent loss. *diags Am Lumberman* 2248:38 Je 15 '18
- Simpler methods of moving materials. *Il Factory* 23:130+, 542+ J1, S '19

*See also* Containers; Freight car service; Freight handling; Ore docks; Ore transportation; Packing for shipment; Priority; Stowage; also subdivision Transportation under special subjects, e.g. Automobiles—Transportation, Coal—Transportation, Explosives—Transportation, Farm produce—Transportation

**Shipping**

- Getting rid of trouble by buying delivered instead of f.o.b. E. J. Buckley. *Metal Work* 90:43 J1 12 '18
- Hurley and the shipping situation. *Sci Am* 120:310 Mr 29 '19
- Putting merchant ships on schedule. L. P. Alford. *Ind Management* 66:227-30 S '18
- Reconstructing ocean highways after the war. L. W. Schmidt. *Sci Am* 119:437+ N 30 '18
- White star line jubilee. *Engineer* 128:261-2 S 12 '19

*See also* Carriers; Coal handling; Free harbors; Freight handling; Merchant marine; Ports; Priority; Salvage; Shipbuilding; Shipment of goods; Ships; Steamboats; Terminals; Tonnage; Transportation; Waterways

**Great Britain**

- Large tramp steamers recommended for British inter-imperial ship lines. *Int Marine Eng* 23:237-8 Ap '18
- Lloyd's register annual report. *Engineer* 128:433-4 O 31 '19
- 1917 and the question of ships. *Engineer* 125:14-15 Ja 4 '18
- Shipping and shipbuilding after war. *Engineer* 126:155 Ag 23 '18

- Shipping in 1918. *Engineer* 127:16-18 Ja 3 '19
- State and shipping. *Engineer* 125:196 Mr 1 '18

**Japan**

- Japanese ocean tonnage. *Am Ind* 18:33 My '18
- Registered Japanese shipping. *Int Marine Eng* 24:399 Je '19
- Shipbuilding and shipping in Japan. *Engineer* 125:292 Ap 5 '18

**United States**

- American load line. C. A. McAllister. *Int Marine Eng* 24:765-6 N '19
- American sea-going merchant shipping on January 1, 1919. *Int Marine Eng* 24:360 My '19
- Elements of U.S. policy in return of requisitioned merchant vessels. J. S. Stover. *Il Marine R* 49:518-21+ N '19
- Foreign trade after the war; abstracts. E. M. Herr. *Iron Tr R* 62:1042-3 Ap 25 '18; *Elec R* 72:755-6 My 4 '18
- Further light on the shipping situation. *Sci Am* 120:568 My 31 '19
- Great Lakes shipping. *Int Marine Eng* 23:219 Ap '18
- How lake banks finance ships. J. W. Hill. *Marine R* 49:499-502 N '19
- Lake vessels meet all demands. W. Livingstone. *Marine R* 49:141-4 Mr '19
- Making ship securities popular. V. G. Iden. *Il Marine R* 49:536-9 N '19
- Merchant shipping for the war and after. *Int Marine Eng* 23:323-5 Je '18
- New blood in American shipping. R. A. Lewis, jr. *Marine R* 49:513-17 N '19
- Shipping board draws up operating and managing agreements for all ships. *Marine R* 49:84-8 F '19
- Shipping needs for Pan-American trade. W. N. Hurley. *Am Mach* 51:95 J1 10 '19
- Shipping possibilities of the Yangtze Kiang river. H. Delano. *Il diags Int Marine Eng* 24:394-8 Je '19
- Shipping problem greatest question of the hour; towing cargo ships across the ocean suggested. M. Sitney. *Sci Am* 118:299 Ap 6 '18
- Traffic conditions at eastern ports. *Ry R* 63:597-9 O 26 '18
- Traffic on Great Lakes in 1918. *Marine R* 49:93-5 F '19
- Water transportation inquiry; American coastwise and inland waterway tonnage decreases. *Int Marine Eng* 23:140-1 Mr '18
- See also* Merchant marine—United States
- Shipping board.** *See* United States—Shipping board
- Shipping day plan.** *See* Freight car service—Shipping day plan
- Shipping tags**
- Evolution of shipping tags. *Inland Ptr* 62:439-40 Ja '19
- Ships**
- Air flow over rear deck of battleship Pennsylvania. A. F. Zahm. *Il diags J Fr Inst* 188:389-97 S '19
- Comparative carrying capacities and costs of concrete and steel ships. M. Denny. *Eng & Contr* 49:651 Je 26 '18
- Cost of carriage of passengers in ships. *Sci Am S* 86:163 S 14 '18
- Famous Great Lakes steamer; Christopher Columbus. *Il Sci Am* 120:491 My 10 '19
- Four-masted schooners built from designs of New York naval architect. *Il Int Marine Eng* 23:358-9 Je '18
- Log of the Prusa. V. G. Iden. *Il Marine R* 49:575-7 D '19
- Seaplane carrier Argus. *Il Sci Am* 120:630-1 Je 14 '19
- Size of ships and Pacific harbors. C. E. Grunsky. *J Elec* 43:413-14 N 1 '19
- Way of a ship at sea. *diag Sci Am S* 87:184-5 Mr 22 '19
- See also* Coaling; Colliers; Convoy; Freight ships; Hospital ships; House boats; Launching; Light ships; Load line; Merchant marine; Motor ships; Naval architecture; Navies; Navigation; Patrol boats; Propellers; Refrigeration on shipboard; Repair

**Ships—Continued**

ships; Rudders; Safety at sea; Sailing vessels; Salvage; Salvage ships; Ship propulsion; Ship resistance; Shipbuilding; Shipping; Shipwrecks; Shipyards; Steamboats; Stowage; Submarine chasers; Tank ships; Torpedo boat destroyers; Towboats; Transports; Warships

**Bibliography**

List of books on ships, commerce, and the merchant marine. 7p '18 U.S. Shipping board, Free Pub. Lib., Newark, N.J.

**Classification**

American classification for American ships. W. L. Marvin. Int Marine Eng 23:206-9 Ap '18

**Decks**

Magnesite composition decking. G. W. Selby. Int Marine Eng 23:215-16 Ap '18

**Doors**

Watertight doors. I. Toro. diags Int Marine Eng 23:76-8 F '18; Abstract. Marine R 49: 236 My '19

**Electric equipment**

Application of electric power to shipyards. J. F. Nielson. Inst E E J 57:57-61 D '18  
Cutting time on installation work. chart J Elec 42:25-6 Ja 1 '19

Electric cargo winches. E. F. Whitney. II Gen Elec R 21:135-42 F '18

Electric winches gain favor on motorships. II Int Marine Eng 23:343-4 Je '18

Electrical equipment of the U.S.S. New Mexico. diags Engineer 128:204-6, 234-6 Ag 29-S 5 '19

Electrically-driven ships' auxiliaries. II diags Engineer 127:478-80, 482 My 16 '19

Electricity as applied in the U.S. navy. II Power 47:248-54 F 19 '18

Inspection of electrical installations aboard ships. F. A. Anderson. II J Elec 42:516-18 Je 1 '19

Interesting electrical features of the battleship New Mexico. II Elec R 75:398-9 S 6 '19

See also Ship propulsion, Electric

**Equipment**

Auxiliary equipment built by J. S. Mundy hoisting engine company. II Int Marine Eng 23:94 F '18

Centrifugal rain and spray guard. II diag plan Engineer 128:315 S 26 '19

Insufficiently considered details of ship construction and equipment. C. W. Cairns. Int Marine Eng 23:570-5 O '18

Refitting war fleet is big job. V. G. Iden. II Marine R 49:375-8 Ag '19

Ship's range. II Marine R 49:560-1 N '19

Submersible pumps. F. C. Perkins. Sci Am 121:394+ O 18 '19

See also Freight ships—Equipment; Lifeboats

**Heating**

Ship heating by guesswork routed by science. G. T. Mott. chart diags plan Metal Work 90:217-22 Ag 23 '18

**Loading**

See Load line

**Manning**

Manning the new merchant marine. H: Howard. Power 47:634-5 Ap 30 '18; Same cond.

Int Marine Eng 23:499-501 S '18

Personnel of the United States merchant marine. Int Marine Eng 24:151-2 Mr '19

**Manufacture**

See Shipbuilding—"Fabricated" ships

**Painting**

Camouflage. H. Van Buskirk. II Illum Eng Soc 14:225-33 no 5 '19

Dazzle painting of ships; abstract. N. Wilkinson. Mech Eng 41:775 S '19

How modern ships are painted. F. B. Jacobs. II Marine R 49:571-3 D '19 (to be cont)

Increasing visibility through a knowledge of camouflage. R. G. Skerrett. II Sci Am 120: 457+ My 3 '19

Low visibility phase of protective coloration. L. A. Jones. II diags J Fr Inst 188:363-87, 507-38 S-O '19

Principles of camouflage. M. Lucklesch. Illum Eng Soc 14:241-6 no 5 '19; Same. Sci Am 120:116 F 8 '19

Principles underlying ship camouflage. A. Bement. II diags Int Marine Eng 24:90-3 F '19

Science of marine camouflage design. E. L. Warner. II Illum Eng Soc 14:215-19 no 5 '19

See also Ships, Concrete—Painting; Warships—Painting

**Piping systems**

Marine practice in valves and fittings. R. J. S. Pigott. Mech Eng 41:273-4 Mr '19

Piping arrangements aboard ship. A. H. Baker. Int Marine Eng 23:395 JI '18

**Protection from submarines**

See Submarine warfare—Protective devices

**Repair**

Electric welding in navy yards. H. G. Knox. II Gen Elec R 21:849-59 D '18

Goeben's first mishap. Engineer 125:213 Mr 8 '18

How modern welding processes save time of ships in dry dock for repairs. II diags Int Marine Eng 23:228-9 Ap '18

Kultur mit sledgehammer. II Power 47:430 Mr 26 '18

Liners converted into oil burners. V. G. Iden. II diags Marine R 49:231-3 My '19

Part of electric welding in repairing the damaged German ships. E. P. Jessop. II Iron Age 101:50-4 Ja 3 '18

Patterns for emergency repairs. F. R. Calkins. diags Am Mach 48:745-6 My 2 '18

Rebuilding a former German ship at the Panama canal shops. Int Marine Eng 24:668-9 O '19

Refitting war-torn British fleet taxes capacity of shipyards. C. Maughan. II Marine R 49: 525-30+ N '19

Rehabilitating the interned German ships. Iron Age 101:50 Ja 3 '18

Repair victim of Halifax explosion. II diag Marine R 49:440-1 S '19

Repairing a buckled ship. II Sci Am 121:79 JI 26 '19

Repairing ex-German steamers seized in America; abstracts of papers by E. P. Jessop and H. G. Knox. Engineer 125:236 Mr 15 '18

Repairing German liner Callao. Marine R 49:438 S '19

Repairing German vandalism on interned vessels by electric welding. E. P. Jessop. II Int Marine Eng 23:122-7 Mr '18

Repairing the stern-frame of the Northern Pacific. II Sci Am 121:130 Ag 9 '19; Iron Tr R 65:291-2 JI 31 '19; Int Marine Eng 24: 456-8 JI '19; Marine R 49:435-6 S '19

Taking the sag out of a buckled ship. Engineer 128:202 Ag 29 '19

Those damaged German ships. Power 47:602 Ap 23 '18

Unique engineering feat. diags Int Marine Eng 24:537-8 Ag '19

Welding tool vs. the sledge; how interned German liners wrecked by Prussian vandalism were repaired. H. C. Estep. II Iron Tr R 62:57-72 Ja 3 '18

See also Repair ships; Ships, Concrete—Repair

**Speed**

On the great cost of high speed. S. G. Koon. Int Marine Eng 24:357-9 My '19

Reducing speeds magnetically. II diags Sci Am 117:499+ D 29 '17

**Stability**

Rolling of ships. Sci Am S 86:299 N 9 '18

**Strains and stresses**

Instrument for recording strains in ships. chart Eng & Contr 50:391 O 23 '18; Same. Am Soc M E J 40:969 N '18

**Ships—Strains and stresses—Continued**

Investigation of shearing force and bending moment on ship structures. A. M. Robb. diags Int Marine Eng 23:592-3, 637-42 O-N '18

New data on ship stresses. II diags Eng N 83:550-3 S 18 '19

Recording extensometer and the measured stresses in a concrete hull. F. R. McMillan. II diags Eng & Contr 52:360-2 S 24 '19; Abstract. Eng N 83:89 JI 10 '19

Stresses in ships. S. V. James. diags plans W Soc E J 23:356-76 My '18

Wave pressure on ships does not follow hydrostatic laws. Eng N 81:1019 D 5 '18

**Testing**

Model experiments on express cruisers of deadrise type. T. A. Gamon. diags plans Int Marine Eng 23:473-6 Ag '18

**Transportation**

Bringing ships from the Great Lakes to the Atlantic. II Sci Am S 85:40 Ja 19 '18

50-foot ship and the 44-foot canal. F. A. Eustis. Sci Am 120:369 Ap 12 '19

Passing a 50-foot ship through a 44-foot canal. II Sci Am 120:171 F 22 '19

Successful engineering feat opens broad field for Great Lakes yards. II diag Marine R 49:174-8, 252-5 Ap-May '19

**Trim**

Trim of ships. Sci Am S 87:127 F 22 '19  
Trim of ships—effect of speed. Sci Am S 88:59+ JI 26 '19

**Water supply**

Proposed method for obtaining fresh water on ships. C. Newman. Int Marine Eng 23:712-13 D '18

**Weighting**

Design scale for weighing a ship. diags Marine R 49:354-5 JI '19

**Ships, Cast steel.** See Ships, Iron and steel

**Ships, Concrete**

Aggregate for concrete ships. F. Whipperman. Concrete 13:21 JI '18

Air placed concrete for ships and barges—Torcrete shipbuilding co. diags Concrete 11:170+ D '17

American ocean-going concrete steamship Faith. II Engineer 125:518-19 Je 14 '18

Application of reinforced concrete to ship construction. A. Hoar. diags plan Eng & Contr 49:409-11 Ap 24 '18

Are concrete ships feasible? report of committee of American concrete institute. Eng & Contr 48:520-1 D 26 '17

Bending stresses in concrete ships—a warning. Sci Am 118:354 Ap 20 '18

Better concrete ships. V. C. Coxhead. Concrete 13:146 N '18

Big concrete ship not unreasonable. J. F. Springer. Int Marine Eng 23:383-6 JI '18

British systems of concrete ship construction. Concrete 13:147 N '18

Building a government 3500-ton concrete ship. II diags plans Eng N 81:1058-65 D 12 '18

Building the concrete ship Pollas. II Concrete 15:80-1 Ag '19

Concrete barges and ships. diags Int Marine Eng 23:285-9 My '18

Concrete boats a transportation asset. J. F. Springer. II Am Ind 18:15-18 JI '18

Concrete consistency measured by new device. H. A. Davis. II Eng N 82:603-5 Mr 27 '19

Concrete for naval construction. Concrete 11:192-3 D '17

Concrete ship Faith. Sci Am 118:585 Je 29 '18

Concrete ship of 3,500 tons deadweight designed by Emergency fleet corporation. diags plans Int Marine Eng 23:446-9 Ag '18

Concrete ship problem. II Sci Am S 86:20-1 JI 13 '18

Concrete ship progress shown in pictures. II Concrete 14:28-30 Ja '19

Concrete shipbuilding firmly established by Norwegian firm. II diags Eng N 79:1088-91 D 13 '17; Abstract. Engineer 124:524 D 14 '17

Concrete ships. J. W. Sadler. II J Elec 43:122-3 Ag 1 '19

Concrete ships are being built by the United States. Eng N 80:277-8 F 7 '18

Concrete ships built bottom up. C. K. Forner. Concrete 15:113 S '19

Concrete ships not efficient carriers. Sci Am S 87:101 F 15 '19

Concrete shipyard at Wilmington, N.C. A. G. Monks. Int Marine Eng 23:452-4 Ag '18

Construction of reinforced concrete ships by Hennebique and Marelle systems. G. Espitalier. diags plan Eng & Contr 49:519-21 My 29 '18

Construction problems many in building concrete ships. R. J. Wig and S. C. Hollister. Eng N 81:93-5 JI 11 '18; Excerpts. Eng & Contr 50:303-4 S 25 '18

Cost of government-built concrete ships. II Concrete 15:81-3 Ag '19

Data as to the 5,000-ton concrete ship, Faith, with comment on its costs. Eng & Contr 49:497 My 22 '18

Design and construction of self-propelled reinforced concrete seagoing cargo steamers now building in Great Britain. T. G. O. Thurston. diags plans Int Marine Eng 23:455-64 Ag '18; Abstract. Concrete 12:183 My '18

Design features of concrete ship developed by government department of concrete ship construction. Eng & Contr 50:88-9 JI 24 '18

Developments in concrete barges and ships. J. E. Freeman. Int Marine Eng 23:520-2 S '18

Different types of framing in two new government reinforced-concrete ships. diags Eng N 81:986-9 N 28 '18

Economic size of concrete ships. E. O. Williams. Eng & Contr 51:463-5 Ap 30 '19

Fallacy of concrete ships. H. A. Everett. Int Marine Eng 23:61-3 F '18

Ferro-concrete shipbuilding in Norway. R. G. Skerrett. II plans Int Marine Eng 23:14-17 Ja '18

Ferro-concrete ships. T. J. Gueritte. Sci Am S 85:286-7, 298-9 My 4-11 '18; Same. Int Marine Eng 23:329-34 Je '18; Same cond. Eng & Contr 49:646-6 Je 26 '18; Abstracts. Engineer 125:237-8 Mr 15 '18; Iron Age 101:1142 My 2 '18

\$50,000,000 for concrete ships from 5 shipyards. Eng & Contr 49:400 Ap 24 '18

First big concrete hull takes water; the 5000-ton Faith. Eng N 80:580 Mr 21 '18

First government designed 3500-ton concrete ship launched. II Eng N 83:291 Ag 7 '19

First large concrete ship is building at San Francisco. II Eng N 80:105-8 Ja 17 '18

First of many concrete ships for Spain. II Concrete 13:154 N '18

Five-thousand-ton concrete freighter Faith; photographs. Eng N 80:634 Mr 28 '18

5,000-ton reinforced concrete ship building in Redwood City, California. II Int Marine Eng 23:12-13 Ja '18

Future of concrete ships. W. L. Comyn. Concrete 13:198-9 D '18

Government attitude on the concrete ship. W. Fawcett. Int Marine Eng 23:381-2 JI '18

Government builds concrete ships. Concrete 12:204 Je '18

Government concrete shipbuilding—a picture story. Concrete 15:77-84 Ag '19

Government concrete ships engage large organization. chart Eng N 80:450-1 Mr 7 '18

Government designs and builds 3500-ton concrete ships. diags plans Eng N 81:17-21 JI 4 '18

Great Britain is building concrete ships. Eng N 81:578 S 26 '18

History and properties of light-weight aggregates; burnt clay or shale. II Eng N 82:802-5 Ap 24 '19

Hurrying up Hurley! H. Whipple. Concrete 13:146-6 N '18

Hydrated lime for ship concrete. Concrete 14:109-10, 155 Mr-Apr '19

Joint committee of American concrete institute and Portland cement association reports on concrete ships. Eng N 79:1126-7 D 13 '17

**Ships, Concrete—Continued**

- Lay-out and equipment of government concrete ship yards. A. L. Bush. plans Concrete 15:73-7 Ag '19
- Light aggregate alters ship design. Concrete 13:113 O '18
- Lloyds' report on good ship Faith. A. P. W. McNab. Concrete 13:50 Ag '18
- Marine use of concrete. *Il Sci Am* 118:81+ Ja 26 '18
- Method of concrete ship construction. T. Ahlborn. *diags Int Marine Eng* 23:517-20 S '18
- More concrete ships are being built in England. *Eng N* 80:872 My 2 '18
- New organization formed to boost building of concrete ships. *Int Marine Eng* 23:522-3 S '18
- Present status of the concrete ship; abstract. R. J. Wig. *Int Marine Eng* 23:711 D '18
- Problems of designing the reinforced-concrete ship. R. J. Wig and S. C. Hollister. *diags Eng N* 81:167-71 J1 25 '18
- Progress in reinforced concrete ship building. *Il Eng & Contr* 48:532-4 D 26 '17
- Progress in the application of concrete to barge and shipbuilding. J. E. Freeman. *W Soc E J* 23:205-20 Mr '18; Same cond. *Am Soc M E J* 40:292-7 Ap '18; Excerpts. *Eng & Contr* 49:505-8 My 22 '18
- Progress made with stone boats. V. G. Iden. *Il Marine R* 49:123-6 Mr '19
- Progress on the Emergency fleet's first concrete ship; views. Concrete 13:151-3 N '18
- Recording extensometer and the measured stresses in a concrete hull. F. R. McMillan. *Il diags Eng & Contr* 52:360-2 S 24 '19; Abstract. *Eng N* 83:89 J1 10 '19
- Reinforced concrete as a shipbuilding material; abstracts of papers. *Engineer* 125:290-1 Ap 5 '18
- Reinforced concrete cargo steamer; plans and specifications of 5,000-ton vessel. *Il diags plans Int Marine Eng* 23:64-5 F '18
- Reinforced concrete cargo steamship Faith. 10p *Il '18 Portland cement assn., 101 Park av, N.Y.*
- Reinforced concrete shipbuilding in Dorsetshire. *Il (supp) diags map plans Engineer* 126:408-10, 416 N 15 '18
- Reinforced concrete ships. A. H. Scott. *Eng & Contr* 50:418 O 30 '18
- Reinforced concrete ships in England. J. S. E. DeVesian. *Il diags Concrete* 15:19-22 J1 '19
- Reinforced concrete vessels. W. Pollock. *diags plans Engineer* 125:278-80 Mr 29 '18; Same. *Eng & Contr* 50:409-13 O 30 '18; Excerpts. *Int Marine Eng* 23:512-17 S '18
- Ritchie pre-cast unit system of concrete shipbuilding. W. N. Twelvetees. *diag Eng & Contr* 52:143 J1 30 '19
- Sea-going ships of concrete. *Il diags plan Concrete* 11:169-70 D '17
- Shear in concrete ships critical point in design. A. C. Janni. *diags Eng N* 81:1089-91 D 12 '18
- Ships of puffed brick. *Sci Am* 120:314 Mr 29 '19
- Ships of stone—1849 to 1918. *Il Sci Am* 119:165+ Ag 31 '18
- Slag as an aggregate for concrete ships. C. C. Myers. *Il Iron Age* 102:152-4 J1 18 '18; Same. *Engineer* 126:443 N 22 '18
- Speedy disintegration not to be feared in concrete ships. *Eng N* 81:67 J1 11 '18; Discussion. N. C. Johnson. 81:282-3 Ag 8 '18
- Stone ships cheaper than steel. *Marine R* 49:190-1 Ap '19
- Suggestion for concrete ship construction. R. B. Melvin. *diag Concrete* 11:192 D '17
- U.S. shipping board's work with concrete. J. Glaetli. Concrete 15:69-72 Ag '19; Excerpt. *Eng N* 83:273-4 Ag 7 '19
- Waller system of reinforced-concrete ship construction; abstract. W. N. Twelvetees. *diag Am Soc M E J* 41:171-2 F '19
- What has been learned from and about concrete ships. Concrete 15:42-3 J1 '19
- What the year has taught about the concrete ship. *Eng N* 82:14-15 Ja 2 '19

*See also Barges, Concrete; Boats, Concrete*

**Painting**

- Special paints for concrete ships. R. J. Wig. *Eng N* 81:951 N 21 '18

**Repair**

- How to patch holes in stone ships. C. D. C. Wilson. *Il diags Marine R* 49:284-5 Je '19

**Testing**

- Many tests made in study of the concrete ship. *Il Eng N* 81:903-4 N 14 '18
- Tests show high shears in deep reinforced-concrete beams. W. A. Slater. *Il diag Eng N* 82:430-3 F 27 '19
- Ships, Corrugated. *See Ships, Iron and steel*
- Ships, Freight. *See Freight ships*
- Ships, Interned
- How the Germans destroyed their own ships. V. A. Lyman. *Il Int Marine Eng* 24:563-4 Ag '19
- Kultur mit sledgehammer. *Il Power* 47:430 Mr 26 '18
- Part of electric welding in repairing the damaged German ships. E. P. Jessop. *Il Iron Age* 101:50-4 Ja 3 '18
- Rehabilitating the interned German ships. *Iron Age* 101:50 Ja 3 '18
- Repairing ex-German steamers seized in America; abstracts of papers by E. P. Jessop and H. G. Knox. *Engineer* 125:236 Mr 15 '18
- Repairing German vandalism on interned vessels by electric welding. E. P. Jessop. *Il Int Marine Eng* 23:122-7 Mr '18
- Those damaged German ships. *Power* 47:602 Ap 23 '18
- Welding tool vs. the sledge; how interned German liners wrecked by Prussian vandalism were repaired. H. C. Estep. *Il Iron Tr R* 62:57-72 Ja 3 '18

**Ships, Iron and steel**

- British experience with corrugated ships. *Sci Am* 118:141 F 16 '18
- Cast steel ship development. M. F. Hull. *Il Iron Age* 103:1351-2 My 22 '19; Same. *Sci Am S* 88:19+ J1 12 '19
- Control of the construction of a 5,000-ton deadweight fabricated steel ship. *Int Marine Eng* 23:691-4; 24:28-30 D '18-Ja '19
- Detail-drawing method used for 8800-ton steel ships. *diags Eng N* 82:188-90 Ja 23 '19
- Method of steel ship construction at Greenock yards. *Eng & Contr* 50:426-7 O 30 '18
- Rivetless steel ship. *Int Marine Eng* 23:672 D '18
- Saving steel in ships. *Sci Am S* 85:7 Ja 5 '18
- Standard specifications for rivet steel for ships; English and Spanish. *diags U S Bur For & Dom Com Ind Stand* 37:1-17 '19
- Standard specifications for structural steel for ships; English and Spanish. *diag U S Bur For & Dom Com Ind Stand* 36:1-19 '19
- Standard steel cargo ships for the war zone. *Il Sci Am* 118:8+ Ja 5 '18
- Steel cargo carrier Crawl Keys starts on her maiden voyage in less than a month after keel is laid. *Il Iron Tr R* 63:668-72 S 19 '18
- Steel foundry to cast ships. E. C. Kreutzberg. *Il diags Marine R* 49:269-71 Je '19; Same cond. *Foundry* 47:379-80 Je 15 '19
- Steel ship and oxy-acetylene welding. J. F. Springer. *Int Marine Eng* 23:699-701 D '18
- Steel ship built without rivets. *Il Sci Am S* 86:197 S 28 '18
- Structural steel standardized cargo vessels. H. R. Sutphen. *plan Int Marine Eng* 23:695-8 D '18
- Test of rivetless ships. *Int Marine Eng* 23:694 D '18

*See also Barges, Steel*

**Ships, Launching of. *See* Launching****Ships, Motor. *See* Motor ships****Ships, Steel. *See* Ships, Iron and steel****Ships, Unsinkable**

- Application of buoyancy boxes to the steamship Lucia for the United States shipping board; abstract. W. T. Donnelly. *Int Marine Eng* 23:707-8 D '18

**Ships, Unsinkable—Continued**

French design an unsinkable ship. *Il* *diags*  
*Sci Am* 119:32 *Jl* 13 '18; Same. *Int Marine*  
*Eng* 23:576-8 *O* '18  
 Launches non-sinkable ship. H. H. Dunn. *Il*  
*Marine R* 49:481 *O* '19  
 Naval board rejects buoyancy box device. *Int*  
*Marine Eng* 23:368 *Je* '18  
 Problem of the unsinkable ship. *Il* *diags* plans  
*Sci Am* 118:206, 215 *Mr* 9 '18  
 Unsinkable cargo ships. *Sci Am* 119:26 *Jl* 13  
 '18  
 Unsinkable mercantile ships. *Engineer* 125:99  
*F* 1 '18  
 Unsinkable ships. R. Moran. *Sci Am* 119:9  
*Jl* 6 '18  
 Unsinkable ships; previous systems discussed  
 and a new method suggested. C. V. A. Eley.  
*Sci Am* 85:238-9, 250-1 *Ap* 13-20 '18  
 Wooden box device to insure buoyancy. *Il* *Am*  
*Lumberman* 2235:42 *Mr* 16 '18

**Ships, Wooden**

Are wooden ships a failure? *diags* *Am Lum-*  
*berman* 2229:33 *F* 2 '18  
 Ballin composite ships of 4,400 tons d. w. *Il*  
*diags* plans (supp) *Int Marine Eng* 24:680-4  
*O* '19  
 Bending frames for wooden ships. *Int Marine*  
*Eng* 23:390 *My* '18  
 Build more wooden ships. H. J. Roundy. *Int*  
*Marine Eng* 23:277-9 *My* '18  
 Building wooden ships for the Emergency  
 fleet corporation. E. A. Suverkrop. *Il* *diags*  
*Am Mach* 49:691-6, 789-94, 883-7 *O* 17, 31, N  
 14 '18  
 Building wooden vessels on the Pacific. *Il* *Int*  
*Marine Eng* 24:8-11 *Ja* '19  
 Engine scarcity may stop wood ship building.  
*Am Lumberman* 2260:38 *S* 7 '18  
 Familiar scenes in a modern shipyard. *Il* *Sci*  
*Am* 86:104-5 *Ag* 17 '18  
 Gray & Barash electric dubbing machine for  
 wooden ships. *Il* *Elec R* 72:390-1 *My* 25 '18;  
*Elec W* 71:1167 *Je* 1 '18  
 Hough type wooden ships prove successful.  
*Il* *diags* plan *Int Marine Eng* 24:534-7 *Ag*  
 '19  
 Laminated ribs in wooden ship construction.  
*diags* *Am Lumberman* 2234:33 *Mr* 9 '18  
 Lumberman's view of the shipbuilding delay.  
 J. E. Crawford. *Am Lumberman* 2234:39  
*Mr* 9 '18  
 Lumbermen unjustly are held responsible for  
 ship delay. *Am Lumberman* 2234:32 *Mr* 9 '18  
 Machines for making wooden ships. *Il* *Sci*  
*Am* 119:33 *Jl* 13 '18  
 Materials for two types of ships compared.  
*Am Lumberman* 2235:43 *Mr* 16 '18  
 New type may solve wooden ship problems. *Il*  
*diag* *Am Lumberman* 2233:38-9 *Mr* 2 '18  
 New type of construction for wooden steamer  
 designed by Lee & Brinton, of Seattle. *Int*  
*Marine Eng* 23:275 *My* '18  
 New type of wooden steamship. *Il* *Eng &*  
*Contr* 49:324-5 *Mr* 27 '18  
 New types of wooden ships building in Texas.  
*Il* *Int Marine Eng* 23:292-3 *My* '18  
 Oregon contributes first wooden steamship to  
 Emergency fleet. *Il* *Int Marine Eng* 23:470-1  
*Ag* '18  
 Possible use for the shipping board's wooden  
 ships. *Int Marine Eng* 24:620 *S* '19  
 Problem of wooden shipbuilding. B. L. Gron-  
 dal. *Sci Am* 85:59 *Ja* 26 '18  
 Projected length of normal thickness of  
 wooden ship's planking. H. A. Everett.  
*diags* *Int Marine Eng* 23:252 *Ap* '18  
 Revival of wooden shipbuilding as a war in-  
 dustry; abstract. C. De Zafra. *Int Marine*  
*Eng* 23:707 *D* '18  
 Reviving the lost art of wooden ship building.  
 R. M. Van Gaasbeek. *Il* *Am Ind* 18:25-6 *F*  
 '18  
 Shipyard of Columbia engineering works. *Il*  
*diags* plans *Int Marine Eng* 23:294-300 *My*  
 '18  
 Southern lumberman to give ship building  
 facts. *Am Lumberman* 2234:48 *Mr* 9 '18  
 War Mystery, largest wooden vessel launched.  
*Il* *Int Marine Eng* 23:216-18 *Ap* '18  
 Wood ships make extraordinary records. *Am*  
*Lumberman* 2280:38 *Ja* 25 '19

Wooden ferris boat lost at sea. V. G. Iden.  
*Il* *Marine R* 49:193-4 *Ap* '19  
 Wooden ship is built in record time. *Il* *Am*  
*Lumberman* 2264:44 *O* 5 '18  
 Wooden ships repaired with reinforced con-  
 crete. H. Hermanos. *diags* plan *Eng &*  
*Contr* 50:584 *D* 25 '18  
 Wooden ships versus the submarine. *Il* *Sci*  
*Am* 118:588-9 *Je* 29 '18

**Shipways**

Declivities of launching ways. W. Jonsen.  
*Int Marine Eng* 24:428-9 *Je* '19  
 Drive 15,000 piles for pair of thousand-foot  
 shipways. *Il* *diags* *Eng N* 80:30-2 *Ja* 3 '18  
 New shipways at Newport News departure  
 from ordinary practice. A. F. Mattson. *Il*  
*Eng & Contr* 52:462-3 *O* 22 '19  
 Novel method of building launching ways.  
*Il* *Sci Am* 121:529, 535 *N* 29 '19  
 Underwater construction of outshore launch-  
 ing ways. E. D. Buel. *Il* *diags* plan *Eng*  
*N* 82:1121-3 *Je* 5 '19

**Shipworms**

Problem of wooden shipbuilding. B. L. Gron-  
 dal. *Sci Am* 85:59 *Ja* 26 '18  
 Protecting piles from the teredo. *Il* *Sci Am*  
 119:128 *Ag* 17 '18

**Shipwrecks**

Wooden ferris boat lost at sea. V. G. Iden.  
*Il* *Marine R* 49:193-4 *Ap* '19

See also Lifeboats; Safety at sea; Salvage

**Shipyards**

Aerial cableways successful in Northwest  
 shipyards. *Il* plan *Eng N* 82:37-40 *Ja* 2 '19  
 Berth construction and slide-launching prac-  
 tice in Great Lakes shipyards. *Il* *diags* plan  
*Eng N* 82:7-13 *Ja* 2 '19  
 Big transportation problem at Hog Island. *Il*  
*map Ry Age* 64:1020-3 *Ap* 19 '18  
 British shipbuilding yards; the Caledon yard,  
 Dundee. *Engineer* 126:346 *O* 25 '18  
 Build boats in dry docks at new yard in De-  
 troit. *Il* *diags* plans *Eng N* 82:21-4 *Ja* 2 '19  
 Building the Hog Island shipyard. G. J. Bald-  
 win. *Int Marine Eng* 23:104-6 *Mr* '18  
 Carolina ship building corporation. *Il* *diags*  
 plan *Int Marine Eng* 24:240-5 *Ap* '19  
 Concrete shipyard at Wilmington, N.C. A. G.  
 Monks. *Int Marine Eng* 23:452-4 *Ag* '18  
 Construction of Newark Bay shipyard. *Il* *Int*  
*Marine Eng* 23:161-4 *Ap* '18  
 Construction of the Newburgh shipyard. *Il*  
 plan *Int Marine Eng* 24:230-5 *Ap* '19  
 Construction teamwork builds Eagle plant in  
 two months. *Il* *diags* *Eng N* 81:755-9 *O* 24  
 '18  
 Cumberland shipbuilding company. *Il* *diags*  
 plans *Int Marine Eng* 24:459-64 *Jl* '19  
 Design and construction of navy concrete oil  
 barges. R. M. Burkhalter. *Il* *diags* plan  
*Eng N* 82:1056-8 *My* 29 '19  
 Efficient layout and management of the plate  
 and angle shop in shipyards. G. F. S. Mann.  
 plan *Int Marine Eng* 24:139-4 *Mr* '19  
 Emergency Fleet Corporation bureau is  
 studying transportation to shipyards. *Eng N*  
 80:923-4 *My* 9 '18  
 Fabricated ship construction at Bristol yard.  
*Il* *diags* plans *Eng N* 82:557-61 *Mr* 20 '19  
 Fabricating shop and berth equipment at Sun  
 shipyard, Chester, Penn. *Il* *diags* plans *Eng*  
*N* 82:57-61 *Ja* 2 '19  
 Fabricating shop in South; Fairfield works. *Il*  
*Iron Tr R* 65:632-6 *S* 4 '19; *Iron Age* 104:627-  
 31 *S* 4 '19  
 First keel laid at Newark Bay yard. *Int Ma-*  
*rine Eng* 23:9 *Ja* '18  
 Five and a half million yards dredged by  
 large fleet at Hog Island. *Eng N* 81:454-5 *S*  
 5 '18  
 Foundation company—shipbuilders. *Il* *Int*  
*Marine Eng* 23:387-94 *Jl* '18  
 Great Ford plant is taking form; shipyard  
 for submarine chasers will be completed  
 speedily. *Il* *Iron Tr R* 62:614-15 *Mr* 7 '18  
 Great Lakes engineering works. *Il* plans *Int*  
*Marine Eng* 24:281-8 *Ap* '19  
 Groton iron works shipbuilding plant. *Il* plan  
*Int Marine Eng* 24:246-50 *Ap* '19  
 Groton shipyard built on sloping limestone  
 ledge. *Il* *diags* plans *Eng N* 82:135-8 *Ja* 16 '19

**Shipyards—Continued**

- Handling shipbuilding material at Alameda shipyard. *Il plan Eng N 81:1020-2 D 5 '18*
- Heavy double trestle for shipbuilding cranes over Newport News battle-cruiser berths. R. W. Burpee. *Il diags plan Eng N 83:723-8 O 16 '19*
- Heavy fitting-out cranes; cantilever and jib travelers at Newark bay and Bristol. *Il diags Eng N 81:937-41 N 21 '18*
- Heavy fitting-out cranes; fixed cranes at Kearny and Hog Island yards. *diags plans Eng N 81:885-9 N 14 '18*
- Hog Island mirrors nation's striking power. Iron Tr R 63:329-32 Ag 8 '18
- Hog Island ship yard. *Il map Ry R 62:481-4 Mr 30 '18*
- Hog Island shipyard over 80 per cent complete on June 1. *Eng & Contr 49:650 Je 26 '18*
- Hog Island, the greatest shipyard in the world. W. H. Blood, jr. *Il (supp) Int Marine Eng 23:678-90 D '18*
- Hog Island, the target of investigation. *Eng N 80:391-2 F 28 '18*
- Hog Island yard launches its first ship. *Il Int Marine Eng 23:502-4 S '18*
- Hog Island yard starts building ships. *Il Int Marine Eng 23:156-60 Ap '18*
- Hog Island's ship-erection equipment; four hundred tower derricks for fifty ways. *Il diags Eng N 81:77-80 J1 11 '18*
- Hudson river shipyard layout to build concrete car floats. H. W. Eldridge. *Il diags Eng N 82:732-4 Ap 10 '19*
- Installation of 16 meters made at New Jersey ship yard. H. Ellis. *Am Gas Eng J 108:570 Je 15 '18*
- Keeping economy of operation paramount in a shipyard layout. *Il plan Eng N 82:283-6 F 6 '19*
- Large wooden shipyard on the Delaware. R. R. Shafter. *Il Int Marine Eng 24:256-9 Ap '19*
- Lay-out and equipment of government concrete ship yards. A. L. Bush. *plans Concrete 15:73-7 Ag '19*
- Layout of shipyard of Saginaw shipbuilding company. *Int Marine Eng 24:260-1 Ap '19*
- Manitowoc shipbuilding company. *Il plans Int Marine Eng 24:271-80 Ap '19*
- Manufacturing Eagles at Ford shipyard. C. Lundberg. *Il Iron Age 102:679-84 S 19 '18*
- Mobile's piers in the bridge to France. *plan Elec Ry J 51:1185-6 Je 22 '18*
- More facts about Hog Island shipyard. *Engineer 126:138 Ag 16 '18*
- New Baltimore shipyard. F. G. Reinhardt, jr. *Il Int Marine Eng 24:235-6 Ap '19*
- New concrete shipyard on Lake Erie. *Il diags plan Int Marine Eng 24:352-6 My '19*
- New lake shipyard has slide-launching ways under cover. *Il diags plan Eng N 81:839-41 N 7 '18*
- New shipbuilding enterprise in Milwaukee. A. F. Johnson. *Il Int Marine Eng 24:262-6 Ap '19*
- New shipyards and extensions planned. *Int Marine Eng 23:258 Ap '18*
- New shipyards built on Canadian Pacific coast. R. M. Fripp. *Il diags Eng N 80:361-3 F 21 '18*
- New wooden shipyard started in Quebec. *Il Int Marine Eng 23:130-2 Mr '18*
- Pacific coast yard builds 8,800-ton freighter in thirty-seven days. *Il pl (supp) Int Marine Eng 24:484-5 J1 '19*
- Poole Harbor, England, shipyard for building reinforced concrete vessels. *diags Eng & Contr 50:587-8 D 25 '18*
- Projet—a government shipbuilding yard; student work—Beaux-Arts institute of design. *Am Arch 113:pl 65-6 F 13 '18*
- Quick and efficient machinery installation by Jacksonville plant. E. T. Hollingsworth, jr. *Il Int Marine Eng 24:407-8 Je '19*
- Rapid construction of large new shipyard on Pacific coast near San Francisco. *Int Marine Eng 23:233 Ap '18*
- Rapid progress now being made at Hog Island. *Il chart Iron Age 101:1063-6 Ap 25 '18*
- Recent developments in shipyard plants. S. M. Henry. *Int Marine Eng 24:74-6, 168-9 F-Mr '19*
- Record of achievement of Hog Island. W. H. Blood, jr. *Il Elec R 73:155-7 Ag 3 '18*
- Reinforced concrete shipbuilding in Dorsetshire. *Il (supp) diags map plans Engineer 126:408-10, 416 N 15 '18*
- Seattle shipbuilders overcome pioneer difficulties and set new speed records. C. A. Osier. *Il diags Eng N 81:160-4 J1 25 '18*
- Second largest shipyard in U. S. to be built on Pacific coast. *Eng & Contr 50:209 Ag 28 '18*
- Ship builder versus submarine. *Il Sci Am 118:278-9+ Mr 30 '18*
- Shipbuilding at the Pensacola yards. J. M. Sweeney. *Il plan Int Marine Eng 24:12-16 Ja '19*
- Shipbuilding equipment and methods at Fore river; Hull construction plant. *Il diags plan Eng N 83:19-22, 362-5 J1 3, Ag 21 '19*
- Shipbuilding in the United States. *Il (supp) Engineer 125:554-5 Je 25 '18*
- Shipbuilding plant for Ford. *diags Automotive Ind 38:476 F 28 '18*
- Shipping board's Bristol (Pa.) plant. *Il Int Marine Eng 23:166-8 Ap '18*
- Shipyard of Columbia engineering works. *Il diags plans Int Marine Eng 23:294-300 My '18*
- Shipyard of the Atlantic corporation. C. E. Downton. *Il plan Int Marine Eng 24:400-6 Je '19*
- Shipyard of the Furness co. on the northeast coast. *Il Engineer 126:73, 76 J1 26 '18*
- Shipyard of the Sun shipbuilding company. *Il plans Int Marine Eng 23:175-90 Ap '18*
- Shipyard on New Orleans canal for building unsinkables. *Il diags plan Eng N 82:434-8 F 27 '19; Same cond. Int Marine Eng 24:237-9 Ap '19*
- Southern shipbuilding and repair plant; Alabama dry dock & shipbuilding company. G. F. S. Mann. *Il map Int Marine Eng 24:251-5 Ap '19*
- Standard steel cargo ships for the war zone; a yard for building 150 steel ships by quantity-production methods. *Il Sci Am 118:8+ Ja 5 '18*
- Staten Island shipyard greatly enlarged to meet demands for war work. *Il Int Marine Eng 24:608-17 S '19*
- Steel shipyard on Suisun Bay, California. *Il Int Marine Eng 24:361-2 My '19*
- Structural steel standardized cargo vessels. H. R. Sutphen. *plan Int Marine Eng 23:695-8 D '18*
- Three government shipyards huge problem in plant layout. *diags plans Eng N 80:12-19 Ja 3 '18*
- Tremendous cost of Hog Island plant. *Iron Age 101:374-6 F 7 '18*
- World's greatest shipyard at Hog Island. *Il Iron Tr R 62:1054-8 Ap 25 '18*
- Yard of the Federal shipbuilding company, Kearny, N.J. *Il plan Int Marine Eng 24:266-70 Ap '19*

*See also* Ship railroads; Shipbuilding; Shipways

**Electric equipment**

- Electrical distribution system at Hog Island shipyard. H. W. Young. *Il diags plan Elec R 73:683-5 N 2 '18*
- Electrical equipment of Norway-Pacific steel shipyard. W. A. Scott. *Elec R 74:747 My 10 '19*
- Hog Island shipyard to use 35,000 kilowatts. H. W. Young. *Il map Elec R 72:267-9 F 16 '18*
- Motor drive in Newburgh shipyard. W. H. Easton. *Il Elec W 72:160-1 J1 27 '18; Same cond. Int Marine Eng 23:400-2 J1 '18; Same cond. Elec R 73:258-9 Ag 17 '18*
- Selection of motors for shipbuilding plant. D. Elwell. *Il plan Elec W 71:506-9 Mr 9 '18*
- Shipbuilding expedited by electric service; electrical distributing system for Staten Island shipbuilding company. D. Elwell. *Il diags Elec W 71:42-5 Ja 5 '18*

**Employees**

- Adaptability to shipbuilding of craftsmen from outside trades. *Int Marine Eng 23:531-2 S '18*

**Shipyards—Employees—Continued**

Apprenticeship course for shipfitters. W. H. Dooley. *Int Marine Eng* 24:154-6+ Mr '19

Building a town at Bristol, Pa., to house three thousand shipbuilders. *Il plan Eng* N 80:227-30 Ja 31 '18

Carrying Seattle's shipbuilders. *Il map Elec Ry J* 52:966-7 N 30 '18

Conservation and stabilization of man power in shipyard. *Int Marine Eng* 23:649 N '18

Electric railways help win the war. A. M. Taylor. *chart map Elec Ry J* 53:12-14 Ja 4 '19

Employment department, Hog Island shipyard. *Am Mach* 49:1071-5 D 12 '18

Employment manager—a new factor in industrial relationship. E. D. Jones. *Am Gas Eng J* 109:361-4 O 19 '18; Same. *Int Marine Eng* 23:612-14 N '18; Excerpts. *Am Mach* 49:799-800 O 31 '18

Extensive housing plan; large appropriation asked by Shipping board. *Iron Age* 101:149 Ja 10 '18

First war emergency government towns for shipyard workers; Hilton, Virginia. H. V. Hubbard and F. Y. Joannes. *Il diag plans Am Inst Arch J* 6:333-45 Jl '18

First war emergency government towns for shipyard workers; Yorkship village at Camden, N.J. R. S. Childs. *Il diag plan Am Inst Arch J* 6:237-44, 249-51 My '18

Government furnishes shipwrights. *Iron Tr R* 62:807 Mr 28 '18

Government housing plans are progressing. E. N. Hurley. *Eng N* 80:94-5 Ja 10 '18

Great housing plan for workingmen; employees of shipyards and other war industries will be cared for. *Iron Age* 101:611 Mr 7 '18

Hauling shipbuilders to Hog Island—and home again. *Il diag map plan Elec Ry J* 52:448-51 S 14 '18

Housing bill passed; Senate approves measure to authorize expenditure of \$50,000,000 for housing employees of shipyards. *Iron Age* 101:324 Ja 31 '18

Housing our shipyard workers. W. Fawcett. *Int Marine Eng* 23:273-5 My '18

Housing plan taking form. *Iron Tr R* 62:624 Mr 7 '18

How Seattle, Wash., is solving housing problem. *Iron Tr R* 62:336 Ja 31 '18

How shipyard housing work is organized and operated. *Eng N* 81:122-4 Jl 18 '18

Increased pay for shipyard workers. *Int Marine Eng* 23:317 My '18

Industrial training in war time. E. E. McNary. *Il chart Gen Elec R* 21:871-5 D '18

Intensive training of shipyard labor. H. H. Tukey. *Il Ind Management* 57:452-6 Je '19

Labor factors in our shipping program. R. W. Kelly. *Il Ind Management* 55:210-17 Mr '18

Labor turnover high on two war-time contract jobs. S. G. Koon. *Eng N* 82:1159-60 Je 12 '19

Labor union restriction of workmen's output in shipbuilding. *Eng & Contr* 49:495 My 22 '18

Organizing ship builders as a reserve. *Am Lumberman* 2230:42 F 9 '18

Overcoming the labor problem at the Newburgh shipbuilding company plant. *Il Int Marine Eng* 23:524-6 S '18

Plan periodic adjustment of shipbuilders' wages. *Int Marine Eng* 23:317 My '18

Plumbing standards for the housing projects of the Emergency fleet corporation. W. G. Tucker. *plans Arch Rec* 46:47-56 Jl '19

Putting car wheels under shipbuilders. *Il chart map Elec Ry J* 52:186-92 Ag 3 '18

Result of shipyard transportation survey. *Elec Ry J* 51:779 Ap 20 '18

Rochester plan for supplying shipyard labor; abstract. *Am Soc M E J* 40:497 Je '18

Seattle's new war industries. C. P. Norton. *Il Int Marine Eng* 23:212-14 Ap '18

Shipbuilding and labor problems. C. Piez. *Iron Age* 101:860-2 Ap 4 '18

Shipping situation. *Sci Am* 118:142 F 16 '18

Shipyard labor problem. M. Bloomfield. *Int Marine Eng* 23:272 My '18

Teaching the worker to feel the war. C. A. Eaton. *Il Sci Am* 119:190-1+ S 7 '18

Training men for the shipyards. F. F. Pease. *Am Mach* 49:109-11 Jl 18 '18

Training shipyard workers. J. A. Pratt. *Am Mach* 48:420-3 Mr 7 '18

Training shipyard workers at Staten Island. R. V. Rickcord. *Int Marine Eng* 23:101-3 Mr '18

Training shipyard workers by Emergency fleet corporation methods. R. V. Rickcord. *Il Int Marine Eng* 23:325-8+ Je '18

Training 350,000 men for the shipyards; how the Fleet corporation met the problem. J. W. Parry. *Eng N* 82:53-6 Ja 2 '19

Training workers for the shipyards. R. V. Rickcord. *Il Int Marine Eng* 24:38-42 Ja '19

Training workers for wooden shipyards; new course of instruction organized at Pratt institute, Brooklyn, N.Y. *Il Int Marine Eng* 23:526-8 S '18

Transportation or housing. C. S. Stein. *Am Inst Arch J* 6:363 Jl '18

Utilizing house carpenters for building ships. *Am Lumberman* 2248:33-4 Je 15 '18

Wage scale and conditions of labor at Delaware river and Baltimore shipyards; final report of Shipbuilding board. *Iron Age* 101:551-2 F 28 '18

Wage scale for shipbuilding labor on North Atlantic coast. *Eng & Contr* 49:411 Ap 24 '18

What women are doing in the shipyards and shops in Great Britain. *Il Int Marine Eng* 23:403 Jl '18

Who will build the fabricated ships? R. E. Kline. *Int Marine Eng* 23:55-6 F '18

Workers for the shipyards. *Am Mach* 48:343-4 F 21 '18; Same. *Int Marine Eng* 23:99-100 Mr '18

Yorkship village for ship workers. *plan Munic J* 45:85-7 Ag 3 '18

**Lighting**

Electrical distribution system at Hog Island shipyard. H. W. Young. *Il diag plan Elec R* 73:683-5 N 2 '18

Lighting in factories and shipyards. *Illum Engr* 12:271-2 S '19

Shipyard lighting. H. A. Hornor. *Illum Eng Soc* 14:278-85 no 6 '19; Abstract. *Illum Engr* 12:272 S '19

Standardization of lighting can expedite shipbuilding. W. G. Hexamer. *diag Elec W* 71:96-7 Ja 12 '18

**Management**

Analysis of shipyards organization. F. T. Warner. *Int Marine Eng* 24:4 Ja '19

Design departments of Bethlehem shipbuilding corporation centralized at Bethlehem. *Il plan Int Marine Eng* 24:767-9 N '19

Effective arrangement of departments in shipyard organization. G. F. S. Mann. *diag Int Marine Eng* 23:615-17 N '18

Employment of labor; Hog Island shipyard. D. R. Kennedy. *Am Soc M E J* 40:1030-1 D '18; Abstract. *Int Marine Eng* 24:108-9 F '19

Follow-up department at Squantum. G. H. Stebbins. *Int Marine Eng* 24:409-11 Je '19

How to determine shipyard costs. C. Churchill. *Marine R* 49:586-9 D '19

How to increase the efficiency of the shipyards. C. P. Norton. *Am Mach* 48:525-6 Mr 28 '18

Management—the solution of the shipbuilding problem. W. L. Churchill. *charts Ind Management* 56:361-6 N '18

Practical shipyard labor saving. C. S. Bundesman. *diag Ind Management* 57:276 Ap '19

Salvage department at shipyard a money saver. *Eng & Contr* 50:389-90 O 23 '18

Service department of a shipyard. S. W. Wakeman. *Int Marine Eng* 23:37-9 Ja '18

Shipyard journalism. A. G. Brenton. *Inland Ptr* 62:321-2 D '18

Speeding up work at Hog Island. *Iron Age* 101:438-9 F 14 '18

**Sanitation**

Design and construction of water and sewerage works at the Hog Island shipyard. W. H. Blood, Jr. *Il Munic Eng* 55:54-7 Ag '18

Sanitation in emergency shipyards. W. L. Stevenson. *Il Boston Soc C E J* 6:1-18 Ja '19; Abstract. *Munic Eng* 56:70-1 F '19



**Shipyards—Sanitation—Continued**

- Shipping board protects health of shipyard men. P. S. Doane. Eng N 82:422 F 27 '19  
 Water supply and sanitation at government camps and shipyards. S. A. Greeley. Am Water Works Assn J 5:229-31 S '18

**Shirting**

- Plain and fancy cotton shirtings. T. Woodhouse. Il Textile World 53:2789 Ja 5 '18

**Shock. See Shell shock****Shock absorbers**

- Fifth wheel shock absorbing connection for semi-trailers. diag Eng & Contr 49:104 Ja 30 '18  
 New truck has air suspension. Il diag Automotive Ind 37:827-8 N 8 '17  
 Pipe hangers to eliminate vibration. A. J. Dixon. diags Power 46:837 D 18 '17  
 Shock absorbers for automobiles and ambulances. Automotive Ind 38:684+ Ap 4 '18  
 Universal joints as shock reducers. C. A. Scheil. diag plan Automotive Ind 39:1015 D 12 '18

**Shock recorder**

- Development of an airplane shock recorder. A. F. Zahm. Il diags J Fr Inst 188:237-44 Ag '19

**Shoddy**

- Army specifications; question of shoddy. C. Eisenman. Textile World 53:4151+ Mr 9 '18  
 Carding shoddy. Textile World 55:2547 Ap 26 '19  
 Government controls woolen rag market. Textile World 54:346-7 Jl 20 '18  
 Properties of shoddy knitting yarn. W. Davis. Il Textile World 56:1649+ S 20 '19  
 Shoddy and cotton overcoating. Il Textile World 54:2353 N 9 '18  
 Shoddy identification by the microscope. L. J. Matos. diags Textile World 53:4143+ Mr 9 '18  
 Shoddy or reworked wool fiber. L. M. Dillon. Textile World 54:3105+ D 21 '18

**Shoe factories**

- Improving motor drive in Maine shoe factory. Il Elec W 71:303-4 F 9 '18  
 Shoe factory at Litchfield, Illinois. plan Am Arch 113:259-60 F 27 '18  
 Training minor executives in a large shoe factory. R. W. Kelly. Il diags Ind Management 56:316-19 O '18

**Shoe fitting**

- Fitting the shoe to the soldier. Il Sci Am 120:56+ Ja 18 '19

**Shoe industry and trade**

- American boots and shoes in certain foreign markets. Sci Am 118:58 Ja 12 '18  
 American shoes favored in Italy. Sci Am 120:174 F 22 '19  
 Boots and shoes, leather and supplies in Argentina, Uruguay, and Paraguay. H. G. Brock. Il U S Bur For & Dom Com 177:1-182 '19  
 Boots and shoes, leather, and supplies in Brazil. H. G. Brock. U S Bur For & Dom Com 179:1-59 '19  
 International trade in footwear other than rubber, 1908 and 1913. E. Whitney. U S Bur For & Dom Com misc ser 76:1-93 '19  
 Market for boots and shoes in Peru. H. G. Brock. Il U S Bur For & Dom Com 152:1-89 '17  
 Markets for boots and shoes in Chile and Bolivia. H. G. Brock. Il U S Bur For & Dom Com 174:1-192 '18  
 Report of the Federal trade commission on leather and shoe industries. U S Fed Tr Comm 180p Ag 21 '19  
 Shoe and leather trade in Australia. C. E. Bosworth. U S Bur For & Dom Com 159:1-39 '18  
 Shoe and leather trade in the Philippine Islands. C. E. Bosworth. Il U S Bur For & Dom Com 161:1-23 '18  
 Shoe and leather trade of China and Japan. C. E. Bosworth. U S Bur For & Dom Com 173:1-37 '18

*See also* Leather trade; Shoe factories; also McElwain, W. H., company

**Shoe lacing**

- Novel shoe lacing. Il Sci Am 120:296 Mr 22 '19

**Shoes**

- Fresh air for the shod foot. Il Sci Am 118:216 Mr 9 '18  
 High heel in motion picture and X-ray. J. Boyer. Il Sci Am 118:102 F 2 '18

*See also* Leather

**Shoes, Army**

- Fitting the shoe to the soldier. Il Sci Am 120:56+ Ja 18 '19  
 Shoes for soldiers. A. L. Dahl. Il Sci Am 118:544-5+ Je 15 '18  
 Shoes of the French soldier. Il Sci Am 88:184 S 21 '18  
 Utilization of condemned army boots. M. C. Lamb. Sci Am S 85:122 F '18

**Shonts, Theodore Perry, 1856-1919**

- Sketch. por Elec Ry J 54:680-1 S 27 '19; Ry Age 67:621 S 26 '19

**Shooting**

- Trap shooting in our army. Sci Am 118:501 Je 1 '18

*See also* Ballistics; Firearms; Gunnery; Guns; Range finders; Rifle ranges; Rifles

**Shooting, Military**

- Shooting university. E. C. Crossman. Il Sci Am 120:576+ My 31 '19  
 Spotting the shots. C. H. Claudy. Sci Am 119:477+ D 14 '18

**Shop committees**

- Attack on the shop committee plan by the Iron and steel industry labor organization. Ind Management 58:162-3 Ag '19  
 How far should shop committees go? W. L. Stoddard. Ind Management 58:121-3 Ag '19  
 Just where does the shop committee movement stand today? W. L. Stoddard. chart Factory 23:1299-1302 D '19  
 Labor and the shop committee. W. L. Stoddard. Ind Management 58:217-20 S '19  
 Methods in shop committee elections. W. L. Stoddard. Ind Management 58:305 O '19  
 Some dangers in the shop committees. E. H. Fish. Ind Management 58:205 S '19  
*See also* Industrial management—Employee representation

**Bibliography**

- List of references on work shop committees. E. B. Gearhart. Special Libraries 10:203-8 O '19

**Shop conferences. See Foremen's meetings****Shop management**

- C. P. R. shop production methods. E. T. Spidy. Il Ry Mech Eng 93:320-6 Je '19  
 Graphic representation reduces travel in meter repair shop hundreds of miles with consequent saving in costs. H. M. Riley. diags Am Gas Eng J 111:461-7 N 15 '19  
 Unified shop record and management conditions. Ry Age 66:1014-15 Ap 18 '19; Same. Ry Mech Eng 93:263-4 My '19

*See also* Employment management; Factory management; Foundry management; Industrial management; Machine shop management; Mechanical handling; Organization in industry; Railroads—Shops; Routing systems; Shop committees

**Shop paper. See House organs****Shop practice. See Machine shop practice****Shop schools. See Trade schools****Shop stewards**

- Shop stewards and the Coventry strike. Engineer 126:8 Ja 4 '18

**Shop transportation. See Conveying machinery; Mechanical handling****Shops**

*See* Blacksmith shops; Electric railroads—Shops; Electric shops; Locomotive shops; Machine shops; Mine shops; Paint shops; Plumbing shops; Railroads—Shops; Repair shops; Structural shops; Woodworking shops

**Shops, Blacksmith. See Blacksmith shops****Shops, Locomotive. See Locomotive shops****Shops, Machine. See Machine shops**

**Shops, Municipal**

Municipal store and machine shop in Los Angeles. C: W. Geiger. *Il* Munic J 45:45-8 J1 20 '18

**Shops, Railroad. See Electric railroads—Shops; Railroads—Shops****Shops, Repair. See Repair shops****Shops, Structural. See Structural shops****Shore protection**

Making a stream build its own check dams. A. Marple. *Il* diag Eng N 81:368-9 Ag 22 '18  
*See also* Bulkheads; Flood control; Rivers—Bank protection; Rivers—Regulation; Sea walls

**Shoring and underpinning**

Chicago water-works intake crib tilted level with screw jacks. *Il* diag Eng N 82:248-50 Ja 30 '19

Dangers in shoring beams. W. W. Clifford. *diag* Eng & Contr 52:478 O 22 '19

*See also* Building; Foundations; Scaffolding

**Short circuits**

Calculating short-circuit currents in networks. W. R. Woodward. *Il* diag Elec J 16:344-5 Ag '19

Calculating short circuits on power systems. R. F. Gooding. *diag* Elec W 74:827-30, 938-41 O 18, N 15 '19

Calculation of short-circuit currents in alternating-current systems. W. W. Lewis. *Il* *diag* Gen Elec R 22:140-5 F '19

Chasing the elusive bugs out of the commutator. F. Huskinson. *Coal* Age 14:250-1 Ag 8 '18

Device for locating short circuits in motor coils. *diag* Elec W 74:807 O 11 '19

Electrical study course—faults in generators and motors. *diag* Power 48:707-10, 767-70 N 12, 26 '18

Limiting alternator short-circuit currents. R. Bown. *Il* *diag* Elec W 70:477-9 S 8 '17; Discussion. N. S. Diamant. 70:1251-2 D 29 '17

Reactance and short-circuit current. R. E. Doherty. *Il* *diag* Gen Elec R 21:562-4 Ag '18

Short-circuit windings in direct-current solenoids. O. R. Schurig. *diag* Gen Elec R 21:560-2 Ag '18

Simple ground or short-circuit indicator. F. W. Sakon. *diag* Coal Age 16:432 S 11 '19

Simple testing means for short circuit on main. L. C. White. *Elec* W 72:210 Ag 3 '18

Substation short-circuits. R. F. Gooding. *diag* Elec J 16:61-5 F '19

Sudden short circuits of alternators. N. S. Diamant. *diag* Elec W 71:1028-31, 1126-8, 1366 My 18, Je 1, 29 '18

Sustained short-circuit phenomena and flux distribution of salient-pole alternators. N. S. Diamant. *diag* Am Inst E E Pro 37:435-96 My '18

Use of the telephone for finding shorts in electric wiring. S. F. Walker. *diag* Int Marine Eng 23:85-6 F '18

**Short line railroads. See Railroads, Short line****Shorthand machines**

Manufacturing a shorthand machine. M. E. Hoag. *Il* Am Mach 49:853-4, 902-4, 946-7 N 7-21 '18

**Shortline railroad association, American. See American shortline railroad association****Shoshone dam**

Shoshone dam suit decided in favor of contractor. Eng & Contr 49:626-7 Je 19 '18

**Shotguns. See Guns****Shoveling**

Saving labor shoveling. D. J. Hauer. *Concrete* 15:211 N '19

Study of shoveling as applied to mining. G. T. Harley. *Il* *Coal* Age 15:314-22, 356-64 F 13-20 '19; Excerpts. Eng & Contr 51:187, 661-5 F 19, Je 18 '19; Abstract. Eng & Min J 107:481-5, 520-2 Mr 15-22 '19; Summary. Am Inst Min E Bul 146:571-3 F '19

**Shoveling machines**

Armstrong mechanical shovel. *Il* Eng & Min J 106:949-50 N 30 '18

Brownhoist power scraper on wheels. *Il* Eng & Contr 49:109 Ja 30 '18

Jackson shovel, a new digging and loading machine. *Il* Eng & Contr 49:301-2 Mr 20 '18

McDermott continuous twin-scoop loader. *Il* Eng & Min J 107:451 Mr 8 '19; *Coal* Age 15:280-1 F 6 '19; *Iron* Age 103:691 Mr 13 '19; *Iron* Tr R 64:637 Mr 6 '19

Successful shoveling machine. *Il* *Coal* Age 13:670-1 Ap 13 '18

Underground mechanical loading. Eng & Min J 107:990 Je 7 '19

*See also* Electric shovels; Steam shovels

**Shovels**

Regular long-handled shovel. H. M. Wirtz. *diag* Eng & Min J 105:560 Mr 23 '18

*See also* Shoveling machines

**Shovels, Electric. See Electric shovels****Shovels, Steam. See Steam shovels****Show windows**

Business boosting cold wave window. A. J. Edgell. *Il* *Horseless* Age 43:46-7 Ja 1 '18

Christmas windows far and near promote the sale of electrical gifts. *Il* J Elec 43:446-7 N 15 '19

Economy window that will increase sales. A. J. Edgell. *Il* *Horseless* Age 43:20-1 Mr 15 '18

Effective methods of advertising electrical merchandise. W. B. Stoddard. *Il* Elec R 74:725-6 My 3 '19

Four seasonable ideas for tire windows. *Il* *Horseless* Age 42:38 D 15 '17

Group idea in arranging merchandise. R. Falconer. J Elec 42:423 My 1 '19

How to capitalize the spring cleaning custom. A. J. Edgell. *Il* *Horseless* Age 43:22-3 Mr 1 '18

How to display accessories for Fords. A. J. Edgell. *Il* *Horseless* Age 44:20-1 My 15 '18

How to make a window display sell tire service. A. J. Edgell. *Il* *Horseless* Age 43:22-3 F 1 '18

How to make your show window sell lubricants. A. J. Edgell. *Il* *Horseless* Age 44:24-5 Ap 15 '18

Let the new automobile lighting laws work for you. A. J. Edgell. *Il* *Horseless* Age 42:18-19 D 15 '17

Make your show window help Uncle Sam. A. J. Edgell. *Il* *Horseless* Age 43:28-9 Ap 1 '18

Moving cold weather aids at seasons' end. I. R. Merritt. *Dom* Eng 86:432 Mr 8 '19

Patriotic window displays for February. A. J. Edgell. *Il* *Horseless* Age 43:20-1+ Ja 15 '18

Pawtucket window display of products made in the city. C. E. Lasher. *Il* *Gas* Age 41:415-16 My 1 '18

Proper ventilation protects show windows from frost. C. A. Gauss. *diag* Elec R 73:864 N 30 '18

Put a punch in plumbing publicity. W. B. Stoddard. *Il* *Metal* Work 89:267-8 F 22 '18

Schenectady window display of Radiantfire heaters. *Il* *Gas* Age 41:320 Ap 1 '18

Selling 1,000 thrift lights on a rainy afternoon. C. W. Pierson. *Il* *Gas* Age 43:210-13 F 15 '19

Shop-window lighting and business. *Il* *diag* Illum Engr 12:275 S '19

Spark plug display any dealer can make. *Il* *Horseless* Age 43:33-9 Mr 15 '18

Spring business building window display. A. J. Edgell. *Il* *Horseless* Age 43:20-1 F 15 '18

Tire window display with a punch. A. J. Edgell. *Il* *Horseless* Age 44:22-3 My 1 '18

Value of show cards. *Horseless* Age 43:37 Ja 15 '18

Window display as a selling force. O: S. Lasche. *Il* *Gas* Age 41:369-70 Ap 15 '18

Window display during range week. O: S. Lasche. *Il* *Gas* Age 41:414-15 My 1 '18

Window display to push gas ranges. O: S. Lasche. *Il* *Gas* Age 41:566 Je 15 '18

**Shower baths**

Now is the time to sell shower baths. *Dom* Eng 87:374-6 My 31 '19

**Shrapnel shells**

Timing shrapnel with the camera. J: W. Havens. *Il Sci Am* 118:312-13 Ap 6 '18  
 War material for ornaments; artistic and useful articles manufactured from 18 pound shrapnel shells. P. W. Blair. *Il Metal Ind* 15: 207 My '17

**Manufacture**

Chuck for three-inch shrapnel shells. D. A. Baker. *diags Mach* 25:111 O '18  
 Effect of air conditioning upon munitions manufacture. J. I. Lyle. *Il charts diag Am Soc Heat & V E* 23:383-92 '17  
 Heat-treating 3-in. shrapnel shells. *diags Am Mach* 48:441-2 Mr 14 '18  
 Heat treatment and temperature measuring for shells. J. R. Van Wyck. *diags plan Am Mach* 47:1087-90 D 20 '17  
 Making 50,000 French 75-mm. shrapnel per day. R. K. Tomlin, Jr. *Il Am Mach* 48:987-90 Je 13 '18  
 Shrapnel manufacture and test. *Il diags Sci Am* 118:378 Ap 27 '18

*See also* Shells (projectiles)—Manufacture

**Shrews**

Hero shrew. *Il Sci Am S* 87:84 F 8 '19

**Shuttles. See Looms****Siberia**

*See also* Mines and mineral resources—Siberia; Water power—Siberia

**Commerce**

Electrical goods in China, Japan, and Vladivostok. R. A. Lundquist. *Il U S Bur For & Dom Com* 172:177-94 '18  
 Resuming trade with Siberia. map J Elec 43:153-4 Ag 15 '19

**Economic conditions**

Tractor prospects in Siberia and Central Asia. N. A. Stephanoff. map *Automotive Ind* 39: 947-53 D 5 '18

**Sidereal clocks. See Clocks****Sidewalks**

Common practice in sidewalk construction. W. D. Gerber. *Munic Eng* 54:256-7 Je '18  
 Depressed cross-walk connections are convenient for pedestrians. C. C. Wiley. *Il Eng N* 83:281-2 Ag 7 '19

*See also* Pavements

**Sidewalks, Concrete**

Building sidewalk in cramped space. *Il Concrete* 14:203-4 My '19  
 Concrete sidewalks without cinder base. M. R. Thayer. *Munic J* 44:450 Je 1 '18  
 Design of concrete sidewalks and concrete curb and gutter at street intersections. W. R. Palge. *diags plan Munic Eng* 56: 188-9 My '19

Do away with cinders under sidewalks. *Concrete* 12:203 Je '18

Effect of salt on concrete sidewalks. *Concrete* 11:186 D '17

One-course sidewalks. C. C. Widener. *Concrete* 12:59 F '18; Same. *Eng & Contr* 49:571 Je 5 '18

One course sidewalks feature of Donora concrete housing development. *Il Eng & Contr* 51:5 Ja 1 '19

Sidewalk construction at intersections. G: A. Tate. *plans Munic J* 44:10-11 Ja 5 '18

Sidewalk construction for new Boulevard link, Chicago. *Il Eng & Contr* 51:495 My 7 '19

Sidewalk joints around trees will prevent cracking. *diag Concrete* 12:206 Je '18

Some suggested changes in concrete sidewalk specifications. C: E. De Leuw. *Munic Eng* 57:16-17 Jl '19

Zigzag method of building sidewalk on a rough street. *plan Concrete* 15:68 Ag '19

**Sight**

Effect of size of stimulus on the contrast sensibility of the retina. P. Reeves. *J Fr Inst* 186:632-3 N '18

Groundplot in relation to the height and the size of a building. S. R. DeBoer. *Il diag Arch Rec* 45:574-6 Je '19  
 Light sense. *Sci Am S* 88:175 S 13 '19

*See also* Color sense; Eye; Goggles; Spectacles

Sights for firearms. *See Firearms—Sights*

Signal corps. *See United States—Army—Signal corps*

Signals, Electric. *See Electric signals*

Signals, Mine. *See Mine signals*

Signals, Railroad. *See Railroads—Signals*

Signals, Time. *See Time signals*

Signals, Wireless. *See Wireless signals*

**Signals and signaling**

Floating target facilitates wire-drag work off Florida coast. J. H. Hawley. *Il Eng N* 81: 768 O 24 '18

Scientific signalling and safety at sea. *diags Sci Am S* 87:334-5 My 24 '19

Synchronous signalling and safety at sea. J. Joly. *Engineer* 125:331-2 Ap 19 '18; Abstract. *Sci Am S* 85:400 Je 22 '18

*See also* Aeronautics—Signals; Beacons; Electric railroads—Signals; Electric signals; Fire alarms; Fog signals; Light signals; Railroads—Signals; Telegraph; Wireless telegraph

**Signs**

Making common advertising uncommon. *Metal Work* 91:119-20 Ja 24 '19

Portland sign ordinance. *J Elec* 42:114-15 F 1 '19

*See also* Electric signs; Road signs; Signals and signaling; Street signs; Traffic signs

**Signs, Danger**

A G A danger signals. *Il diag Munic J* 44:234-5 Mr 16 '18

Automatic highway signal that shows red day or night. *diag Eng & Contr* 51:109 Ja 29 '19

Danger signal at a grade crossing in Indianapolis. *Il Good Roads n s* 15:268 My 25 '18

Highway danger signal. *diag Munic J* 44:103 F 2 '18

Modern highway danger signals. A. G. Shaver. *Il plan Munic Eng* 55:42-3 Jl '18

Protecting signs used in Rochester. *diag Elec Ry J* 51:240 F 2 '18

*See also* Electric signs; Street signs; Traffic signs

Signs, Electric. *See Electric signs*

**Signs, Illuminated**

Luminous signs as a means of imparting information. *Illum Engr* 11:233-4 O '18

**Sikhs**

Sikhs; a sect that became a nation. D. Singh. *Sci Am S* 85:207-8, 218-19 Mr 30-Apr 6 '18

**Silage**

Presence of acetylmethylcarbinol in saccharine sorghum silage. W. G. Friedemann and C. T. Dowell. *J Ind & Eng Chem* 11:129-30 F '19

Variation in the ether extract of silage. L. D. Haight. *J Ind & Eng Chem* 10:127 F '18

**Silica**

Crushing strength of magnesia-silica mixtures at high temperatures. O. L. Kowalke and O. A. Hongren. *Met & Chem Eng* 18:508 My 15 '18

Determining silica in uranium ores. C. W. Davis. *Eng & Min J* 108:411 S 6 '19

Elimination of gelatinous silica in the hydrometallurgy of zinc. *Eng & Min J* 106:1117-18 D 28 '18

Solubility of silica. V: Lenher and H: B. Merrill. *Am Chem Soc J* 39:2630-3 D '17

Silica brick. *See Fire brick*

**Silica cement**

Making and testing silica cement. R. J. Montgomery. *Il Iron Tr R* 63:1014-16 O 31 '18

**Silicates**

Chemistry of silicates with reference to their use in dental operations. C. C. Vogt. *Sci Am S* 86:14-15 Jl 6 '18

**Silicates—Continued**

Temperature-viscosity relations in the ternary system  $\text{CaO-Al}_2\text{O}_3\text{-SiO}_2$ . A. L. Feild and F. H. Royster. *diags U S Bur Mines Tech Pa* 189:1-33 '18; Abstract. *Am Inst Min E* Bul 132:2037-43 D '17

**Bibliography**

Extraction of potash from complex mineral silicates, such as feldspar, leucite and glauconite (greensand marl). E. C. Buck. *Met & Chem Eng* 18:33-7, 90-5 Ja 1-15 '18

**Silicic acid**

Vibration and syneresis of silicic acid gels. H. N. Holmes, W. E. Kaufman and H. O. Nicholas. *Am Chem Soc J* 41:1329-36 S '19

**Silicides**

Metal carbides borides and silicides and their use in metallurgy. *Sci Am S* 88:119 Ag 23 '19

**Silicofluoride**

Salt cake and nitre cake in making silicofluoride; patent. *Met & Chem Eng* 18:41 Ja 1 '18

**Silicol process**

Production of hydrogen and water glass by the silicol process. *Chem & Met Eng* 20: 289-90 Mr 15 '19

**Silicomanganese. See Silicon-manganese****Silicon**

Alloys of silicon and copper and their high electrical conductivity. J. Scott. *Metall Ind* 16:464-5 O '18

*See also* Silicon-manganese

**Silicon carbide. See Carborundum****Silicon chloride**

Silicon chloride in the war. G. A. Richter. *Chem & Met Eng* 20:386 Ap 15 '19

**Silicon-manganese**

Silico-manganese for steel castings. E. F. Cone. *Iron Age* 104:855-7 S 25 '19

Silicomanganese supply is assured. *Iron Tr R* 63:87-8 Jl 11 '18

Silicon-manganese from electric furnaces. B. G. Klugh. *Iron Age* 104:438-40 Ag 14 '19; Abstract. *Chem & Met Eng* 20:388 Ap 15 '19

**Silk**

Analysis of silk hosiery. J. Chittick. *Textile World* 53:5778 My 25 '18

Future of silks. J. L. Duplan. *Textile World* 53:3807-8 F 16 '18

High prices feature silks' year. *Textile World* 53:3125 Ja 12 '18

Moisture and boil-off tests on silk. *Textile World* 56:675-4 Ag 2 '19

Need for tin in the manufacture of silk. *Sci Am* 119:405 N 23 '18

Printing silks. *diags Sci Am S* 88:168-9 S 13 '19

Properties of natural and artificial silks. J. Chittick. *Textile World* 55:769 Ja 25 '19

Silk calculations. *Sci Am S* 88:111 Ag 16 '19

Silk calculations. J. Chittick. *Textile World* 53:5577 My 18 '18

Silk situation. D. G. Dery. *Textile World* 54:798 Ag 17 '18

Silk used for cartridge cloth. *Textile World* 53:2993 Ja 12 '18

Silk's year erratic. *Textile World* 55:411 Ja 11 '19

Throwing canton silk. J. Chittick. *Textile World* 53:3706 F 9 '18

Trade acceptance in the raw silk industry. R. N. Hirsch; B. H. A. Hofmann. *Am Ind* 19: 24-5 D '18

Wonderful exhibition of old French silks. *Sci Am S* 87:37 Ja 18 '19

*See also* Dyes and dyeing—Silk; Habutai

**Silk, Artificial**

Cross-sections of artificial silks. *Sci Am S* 87: 96 F 8 '19; Same. *Color Tr J* 4:70 Mr '19

Development of artificial silk industry; nitrocellulose, cuprammonium and viscose processes. L. P. Wilson. *Textile World* 53:3371-4 Ja 19 '18

Formation of the thread in the spinning of artificial silk. *Sci Am S* 87:14 Ja 4 '19

**Properties of natural and artificial silks. J.**

Chittick. *Textile World* 55:769 Ja 25 '19

Silkworm's formidable competitor; how artificial silk is being extensively made from paper pulp. R. G. Skerrett. *Sci Am* 121:458 N 8 '19

Weaving artificial silk yarns. *diags Textile World* 55:3885-4 Je 21 '19

**Silk, Substitutes for**

Chemically treated fabrics for powder bags. *Chem & Met Eng* 19:403 S 25 '18

**Silk mills**

Electric drive applied to silk industry. C. T. Guilford. *Electr R* 73:855-7 N 30 '18

**Accounting**

Calculating manufacturing costs of silk. R. H. Butz. *Textile World* 55:3313-4 My 31 '19

Production costs in a silk mill; discussion of the basic principles of a workable system. A. L. Walter. *Textile World* 54:184-5 Jl 13 '18

**Silk yarn**

Silk knitting yarns and substitutes. W. Davis. *Textile World* 55:1175-4 F 15 '19

**Sil-o-cei**

Insulation for by-product coke ovens. P. A. Boeck. *diags Gas Age* 43:24-6 Ja 1 '19

**Silos**

Building brick silos that won't crack. *Bldg Age* 41:105 Mr '19

Coons cypress silo co. builds silos of the wood eternal. *Am Lumberman* 2246:40 Je 1 '18

How a dairy barn and silo were planned for convenience. *diags plans Bldg Age* 40: 67-72 F '18

How to sell silos. *Concrete* 12:48 F '18

Making glazed silo block by new process. *Concrete* 13:134 O '18

Retailer conducts silo building campaign. *Am Lumberman* 2246:41 Je 1 '18

Shoulder a gun or build a silo; Indiana silo drive. *Concrete* 12:193 Je '18

Silo construction. C. K. Shedd and W. A. Foster. *diags plans Iowa state college Bul* 189:97-148 '19

Silo is an essential building. W. E. Frudden. *diags Bldg Age* 40:521 N '18

Silos provide trade for lumber dealers. *diags Am Lumberman* 2282:44 F 8 '19

What kind of silo contract do you make? *Concrete* 14:202 My '19

Wood stave silos vs. the substitute kind. H. M. Koelbel. *Am Lumberman* 2265:57 O 12 '18

Wooden and hollow tile silos. *Am Lumberman* 2285:37 Mr 1 '19

*See also* Silage

**Silos, Concrete**

Building concrete silo in 3 days. *Eng & Contr* 49:509 My 22 '18

Building silos on the jump. *diags Concrete* 12:197-8 Je '18

Cold weather silo job. E. K. Conklin. *Concrete* 15:141 O '19

Concrete block barn and silo. *diags plan Concrete* 12:67 F '18

Concrete silo for twenty head of cattle. F. T. Fellner. *diags plans Bldg Age* 40:344-5 Jl '18

Getting behind the silo sales. J. B. McQueen. *Concrete* 15:55-6 Ag '19

How to hoop stave silos. A. W. Clyde. *Concrete* 15:105-6 S '19

Reinforcing circular structures. chart *Concrete* 12:166 My '18

Silo stave makers look for big business. E. S. Hanson. *Concrete* 14:37-8 Ja '19

Sorghum silage—a new problem. *Concrete* 12:123-4 Ap '18

Stave silo builders talk shop. *Concrete* 14: 115-16 Mr '19

258 stave silos in a season. *Concrete* 14: 72-3 F '19

**Silt**

Carriage of alluvium by water courses. F. Drouhet. *Eng & Contr* 49:522-5 My 29 '18

Silting up of reservoirs. N. F. Robinson. *Eng & Contr* 52:294-6 S 10 '19

**Silver**

- China's effort to combat shortage of silver. Eng & Min J 106:435 S 7 '18
- Gold and silver in 1917. H. D. McCaskey and J. P. Dunlop. J Ind & Eng Chem 11:711-12 J1 '19
- Gold and silver in 1919. Eng & Min J 107:1054-5 Je 14 '19
- Gold and silver statistics. Eng & Min J 105:47 Ja 12 '18
- Melting of silver dollars progresses. Eng & Min J 105:926 My 18 '18
- Native copper and silver in the Nonesuch formation, Michigan. K. Nishio. Il diag Econ Geol 14:324-34 Je '19
- Senate passes silver bill. Eng & Min J 105:804 Ap 27 '18
- Silver. Sci Am 121:115 Ag 2 '19
- Silver exchange for New York. S. R. Wagel. Eng & Min J 108:301-4 Ag 23 '19
- Silver in 1917. E. Brush. Eng & Min J 105:47-51 Ja 12 '18
- Silver in 1918. E. Brush. Eng & Min J 107:41-3 Ja 11 '19
- Use of metallic silver as a reducing agent in the volumetric estimation of iron. G. Edgar and A. R. Kemp. Am Chem Soc J 40:777-84 My '18
- Will dollar silver increase production? Met & Chem Eng 18:435-6 My 1 '18
- See also Assaying; Cyanide process; Silver metallurgy; Silver mines and mining; Silver plating; Silverware
- Silver exchange**
- Silver exchange for New York. S. R. Wagel. Eng & Min J 108:301-4 Ag 23 '19
- Silver halides**
- Halogen salts of silver at Wonder. J. A. Burgess. Econ Geol 12:589-93 O '17
- Occurrence of the silver halides in the oxidized zone of ore deposits. A. Knopf. Econ Geol 13:622-4 D '18
- Silver metallurgy**
- Application of the Cottrell process to the recovery of fume from silver refining operations. W. G. Smith and A. A. Helmrod. Il diags plan Chem & Met Eng 21:360-3 S 15 '19
- Device for charging precipitate. Il Eng & Min J 107:1051-2 Je 14 '19
- Electrodeposition of gold and silver from cyanide solutions. S. B. Christy. Il diags U S Bur Mines Bul 150:1-162 '19
- Electrolytic refining of silver and gold. G. G. Griswold. Il Eng & Min J 107:788-90 My 3 '19; Same. Chem & Met Eng 20:382-3 Ap 15 '19
- Metallurgy of gold and silver. A. W. Allen. Eng & Min J 107:92-6 Ja 11 '19
- Metallurgy of gold and silver. H. A. Megraw. Eng & Min J 105:102-4 Ja 12 '18; Discussion. M. Markus. 105:645 Ap 6 '18
- Review of gold and silver metallurgy. Met & Chem Eng 18:2-3 Ja 1 '18
- Silver volatilization in smelting. F. P. Dewey. Eng & Min J 108:87-9 J1 '19
- Smelting and refining of cobalt silver ore. S. B. Wright. Eng & Min J 107:263-4 F 8 '19
- See also Cupellation; Cyanide process
- Silver mines and mining**

**Colorado**

- Deep-level development in Aspen. F. W. Foote. Il flow sheet Eng & Min J 108:178-80 Ag 2 '19
- Whitepine section of the Tomichi district. J. E. Dick. Il map Eng & Min J 106:331-3 Ag 24 '18

**Mexico**

- Early Indian raids on Mexico. J. B. Tyrrell. Eng & Min J 107:477-8 Mr 15 '19

**Nevada**

- Divide district. J. A. Carpenter. Il Eng & Min J 107:859-61 My 17 '19
- Effect of the war upon Tonopah mining. J. A. Carpenter. Il Eng & Min J 106:801-4 O 5 '18
- Halogen salts of silver at Wonder. J. A. Burgess. Econ Geol 12:589-93 O '17

**Ontario**

- Nipissing mining co., ltd. Eng & Min J 107:917 My 24 '19

**Peru**

- Caylloma silver mines. Eng & Min J 106:353 Ag 24 '18

**Silver nitrate**

- Iodide titration of silver nitrate with palladous nitrate as the indicator. L. Schneider. Am Chem Soc J 40:583-93 Ap '18

**Silver ores**

- Halogen salts of silver at Wonder, Nevada. J. A. Burgess. Econ Geol 12:589-93 O '17; Discussion. J. W. Young. 13:224-5 My '18
- Occurrence of the halogen salts of silver. W. Lindgren. Econ Geol 13:225-6 My '18
- Silver deposition and enrichment at Cobalt, Ont. J. A. Reid. diags Econ Geol 13:385-92 J1 '18

**Silver plating**

- Plating steel knives. Metal Ind 16:360 Ag '18
- Re-finishing Britannia ware. C. H. Proctor. Metal Ind 15:302 J1 '17; Same. Mach 25:329 D '18
- Refinishing silver-plated flatware. Metal Ind 15:152 Ap '17
- Silver plating and oxidizing advertising jewelry and novelties. E. J. Beaudry. Metal Ind 16:27 Ja '18
- Utilization of waste metals in the plating department; with discussion. C. C. Martel. Metal Ind 16:215-17 My '18
- See also Electroplating; Silvering

**Silver salts**

- Catalytic decomposition of certain phenol silver salts; thermal decompositions; the formula of the unpolymerized residues. W. H. Hunter and F. E. Joyce. Am Chem Soc J 39:2640-6 D '17
- See also Silver halides

**Silver sulfide**

- Electrical properties of silver sulphide. G. W. Vinal. Il U S Bur Stand Bul 14:331-9 Je 24 '18
- Spectral photoelectric sensitivity of silver sulphide and several other substances. W. W. Coblenz and H. Kahler. diags U S Bur Stand Sci Pa 344:231-49 '19; Abstract. J Fr Inst 188:563-4 O '19

**Silvering**

- Silvering brass and copper articles. Power 48:510 O 1 '18

**Silverware**

- Cause and removal of fire stains in sterling silver. O. A. Hillman. Metal Ind ns 15:6-7 Ja '17
- Manufacture of sterling silver. Metal Ind 15:66 F '17

**Simmons, Wallace Delafield, 1867-**

- Member of excess profits tax advisory board. por Iron Tr R 62:1007 Ap 18 '18

**Sims, William Sowden**

- Admiral Sims in the team-work for victory. por Sci Am 120:374- Ap 12 '19

**Sims bill**

- Ask \$200,000,000 for war power plants. Elec W 72:408-14 Ag 31 '18
- Emergency power act introduced in Congress. Elec R 73:331-2 Ag 31 '18; Elec Ry J 52:385 Ag 31 '18; Chem & Met Eng 19:226 S 1 '18
- National control of the power resources; Sims bill. Elec W 72:365-6 Ag 24 '18

**Sinclair, Angus, 1841-1919**

- Sketch. por Am Mach 50:134 Ja 16 '19

**Sine bar**

- Making 25 5-in. sine bars. J. Teckeer. diags plan Am Mach 50:449-50 Mr 6 '19
- Sine bars of improved design. W. C. Betz. diags Mach 24:933 Je '18
- Universal sine bar for the toolmaker. J. B. Gray. diags Mach 25:1159-62 Ag '19

**Singing sands**

- Theories and problems relating to musical sands. C. Carus-Wilson. Sci Am S 85:101 F 16 '18

**Single tax**

Single taxers' distinction between land and standing timber explained. *Am Lumberman* 2308:58-60 Ag 9 '19

**Sinking funds**

Governmental sinking funds, serial bonds and depreciation reserves. H. S. Chase. *J Account* 26:253-68 O '18

Sinking fund or serial bond plan. S. Walton. *J Account* 27:384-93 My '19

**Sinks**

Constructing a sanitary drainboard and sink. H. Simon. *diags Bldg Age* 40:279-80 Je '18  
Modern sink job. *diag Metal Work* 91:148 Ja 31 '19

**Sintering**

Combined sintering and smelting; patent. Met & Chem Eng 18:262 Mr 1 '18

Dwight and Lloyd sintering machine. *Il Iron Age* 101:200-1 Ja 17 '18; Same. *Iron Tr R* 62:221 Ja 17 '18

Improved D. & L. sintering machine. *Il Eng & Min J* 106:713 O 19 '18

Improvement in sintering blast furnace flue-dust. *Il Met & Chem Eng* 18:319 Mr 15 '18

Recent improvements in sintering equipment and practice. *diags Eng & Min J* 107:744-5 Ap 26 '19

Sintering and charge delivery at the Bunker Hill plant. C. T. Rice. *Il diags plans Eng & Min J* 106:649-57 O 12 '18

Sintering blast furnace flue dust; patent. Met & Chem Eng 18:262 Mr 1 '18

Sintering ores; patent. Met & Chem Eng 18:42 Ja 1 '18

Sintering zinc residues. K. Stock. *Il plan Chem & Met Eng* 20:525-8 My 15 '19

**Sioux City, Iowa****Churches**

First Congregational church, Sioux City, Iowa; views and plans. *Am Arch* 116:pl 61-4 Ag 13 '19

**Siphons**

Bridge abutment unwatered by siphon. *Eng N* 81:148 Jl 18 '18

County commissioners replace wooden flume across roadway with double iron siphon. *Il Munic Eng* 55:215-16 D '18

Designing a mine siphon. *diag Coal Age* 13:1213 Je 29 '18

Flow of water in siphons; abstract. M. Halliday. *diags Am Soc M E J* 40:193-4 F '18

How to install non-breaking siphon between spring and deep well. *diags Dom Eng* 84:397-8 S 14 '18

**Sirens**

When the Hun comes to Paris; huge sirens that warn the population to take shelter. J. Boyer. *Il Sci Am* 119:104 Ag 10 '18

**Sirups**

Composition and calorific value of sirups and molasses derived from sugar cane. C. A. Browne. *Am Chem Soc J* 41:1432-40 S '19

Syrup from grapes. *Sci Am* 120:185+ F 22 '19

Where gas enters in the making of sirups. G. C. Shadwell. *Am Gas Eng J* 111:188, 191-2 Ag 30 '19

**Sisal hemp**

Sisal. *Sci Am S* 84:379 D 15 '17

**Sizing (textiles)**

Corn starch in the textile industry. W. R. Cathcart. *Textile World* 54:401+, 2298+ Jl 27, N 9 '18

Sizing fine yarns. T. Aspinall. *Textile World* 54:185 Jl 13 '18

Sizing for felt. *Textile World* 53:4811 Ap 20 '18

See also Cotton sizing

**Skates. See Roller skates****Skin effect**

Current distribution in armature conductors. W. V. Lyon. *diags Elec W* 74:66-8 Jl 12 '19

Skin effect in tubular and flat conductors. H. B. Dwight. *Am Inst E E Pro* 37:977-98 Ag '18

Skip stop. See Street railroads—Stops

**Sky**

Blue of the sky. C. Fabry. *Sci Am S* 86:174-6 S 14 '18

Optics of the air; phenomena due to scattering: color of the sky; sky polarization. W. J. Humphreys. *diags J Fr Inst* 188:657-74 N '19

**Skylights**

Daylight vs. sunlight in sawtooth-roof construction. W. S. Brown. *diags Am Arch* 115:33-40 Ja 1 '19; Same cond. *Am Soc M E J* 40:1025-9 D '18; Same cond. *Eng & Contr* 61:82-5 Ja 22 '19

Proportioning skylight and window areas. M. W. Ehrlich. *Il Metal Work* 89:229-32, 299-302 F 15, Mr 1 '18; Discussion. 89:354-7 Mr 15 '18

**Skyscrapers. See High buildings****Slack adjusters. See Brake rigging****Slag**

Acid hearth and slag; abstracts. J. H. Whitely and A. F. Hallimond. *Chem & Met Eng* 21:44-5 Jl 1 '19; *Iron Age* 104:1274-5 D 18 '19

American tin-slag analysis. M. G. F. Söhlén. *Eng & Min J* 107:576-7 Mr 29 '19

Blast furnace slag concrete. J. E. Stead. *Iron Age* 103:750 Mr 20 '19

Copper-smeltery slag from the microscopic and chemical point of view. C. G. Maier and G. D. Van Arsdale. *Il Eng & Min J* 107:815-24 My 10 '19; Abstract. *Chem & Met Eng* 21:46-7 Jl 1 '19

Determination of magnetite in matte and slag. F. G. Hawley. *Eng & Min J* 108:308-10 Ag 23 '19

Furnace slag used largely as fertilizer. *Eng & Min J* 106:314 Ag 17 '18

How slag influences electric steel. J. L. Dixon. *Foundry* 47:483-4 Jl 15 '19

How slag temperatures affect firebrick. R. M. Howe. *Iron Tr R* 63:1288-9 D 5 '18; Same. *Iron Age* 103:255-6 Ja 23 '19; Same. *Chem & Met Eng* 20:167-8 F 15 '19

Influence of gypsum on the blast furnace slags in the manufacture of cement. E. Bereslavsky. *Chem & Met Eng* 20:25-8 Ja 1 '19

Influence of lime on acid open-hearth slags. B. Yaneske. *Foundry* 47:373-6+ Je 15 '19; Abstract. *Chem & Met Eng* 21:43-4 Jl 1 '19; Abstract. *Iron Age* 104:230 Jl 24 '19

Losses in furnace slags. E. H. Roble. *Eng & Min J* 108:265-7 Ag 16 '19

Molten slag is hauled by rail for making embankments. *diag Eng N* 81:267-8 Ag 3 '18

Plant prepares slag for roads and concrete. *Il Eng N* 81:671-2 O 10 '18

Slag aggregate in concrete and mortar. E. Mavant. *Concrete* 14:239-40 Je '19

Slag as an aggregate for concrete ships. C. C. Myers. *Il Iron Age* 102:152-4 Jl 18 '18; Same. *Engineer* 126:443 N 22 '18; Conclusions. *Eng N* 80:956 My 16 '18

Slag control in the iron blast-furnace by means of slag viscosity tables. A. L. Felld. *Chem & Met Eng* 19:294-300 S 15 '18

Slag viscosity tables for blast-furnace work. A. L. Felld and P. H. Royster. *U S Bur Mines Tech Pa* 187:1-35 '18; Abstracts. *Am Inst Min E Bul* 132:2029-36 D '17; Met & Chem Eng 18:652-3 Je 15 '18; *Iron Tr R* 64:271-2 Ja 23 '19; Discussion. *Am Inst Min E Bul* 136:791-4 Ap '18

Solubility of blast-furnace slags. E. C. Jones. *Iron Age* 101:1093 Ap 25 '18

Temperature-viscosity relations in the ternary system CaO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>. A. L. Felld and P. H. Royster. *diags U S Bur Mines Tech Pa* 189:1-33 '18; Abstract. *Am Inst Min E Bul* 132:2037-43 D '17; Abstract. *Met & Chem Eng* 18:652-3 Je 15 '18

Tests of slag concrete. *Ry Age* 64:165-6 Ja 18 '18; Abstract. *Am Soc M E J* 40:271 Mr '18

Viscosity of blast-furnace slag. A. L. Felld. *Il diags Am Inst Min E Bul* 122:307-32 F '17; Same cond. *Iron Tr R* 62:979-85 Ap 18 '18; Discussion. *Am Inst Min E Bul* 123:390-6; 124:473-9 Mr-Apr '17

Widening demand for blast furnace slag. C. E. Wright. *Il Iron Age* 103:241-3 Ja 23 '19; Same cond. *Sci Am S* 87:251 Ap 19 '19

See also Blast furnaces; Cement

- Slag pots**  
Molding slag pots in dry sand. C. J. McMahon. *diags Foundry* 46:11, 33-4 Ja '18
- Slate**  
English slate and tile roofing methods. *il diags Metal Work* 90:703-5 D 27 '18  
Modern roofing materials. C. H. Stringer. *Am Arch* 114:361-4 S 25 '18  
Romance of roofing slate. H. B. Burton. *il Am Arch* 114:307-11, 333-7 S 11-18 '18  
Views of the slate industry of the Anjou. *Sci Am* S 88:25 Jl 12 '19  
Who does the slate roofing in your town? *il Metal Work* 89:522-3 Ap 19 '18
- Sleepers (track).** See Railroad ties
- Sleeping cars**  
Lighting  
See Car lighting
- Slide rule**  
Adding slide rule. A. B. Solomon. *diags Power* 50:437 S 9 '19  
Calculation of hydrometer degrees, gravities and weights with the slide rule. W. Savage. *Chem & Met Eng* 21:395-7 S 15 '19  
Design of special slide rules. A. L. Jenkins. *diags Ind Management* 54:241-8, 384-9; 55:42-4 N '17-Ja '18  
Graphical geometrical progression by means of slide rule. W. W. Kinsley, Jr. *Am Mach* 49:21 Jl 4 '18  
Slide rule. G. Burton-Brown. *Sci Am* S 86:43 Jl 20 '18  
Time slide-rules for standard types of gear-cutting machines. *Mach* 26:134-5 O '19  
To find the diagonal of a rectangle with the slide rule. J. R. Jahn. *Eng N* 81:552 S 19 '18  
Using slide rule for everyday calculations. *il diags Metal Work* 91:55-7+, 141-3+ Ja 10, 31 '19  
Wage payment slide rule. J. B. Carroll. *diags Am Mach* 48:375-6 F 28 '18
- Slide valves**  
Curious displacement of slide valve. E. B. Dell. *diag Int Marine Eng* 23:596 O '18  
Double ported slide valve. *diags Int Marine Eng* 23:600 O '18
- Slides.** See Landslides
- Slimes.** See Ore pulp
- Slippery floors, injury from**  
Injuries caused by slippery floors. C. C. Sherlock. *Power* 48:790 N 26 '18
- Sitting mills**  
Links in the history of engineering; the slitting mill. R. Jenkins. *Engineer* 125:445-6, 486, 488-9, 492 My 24, Je 7 '18
- Slotting machines**  
Beaman & Smith slot-milling machine. *il Am Mach* 50:367 My 1 '19  
New slotting machine of the milling type. J. V. Hunter. *il Am Mach* 49:953-6 N 21 '18  
Putnam slotting machine. *il Mach* 25:670-1 Mr '19  
Slotter developed from war tool. *il Iron Tr R* 64:1150-1 My 1 '19
- Sludge, Sewage.** See Sewage sludge
- Sludge treatment.** See Sewage disposal
- Slush.** See Culm
- Smelter fumes**  
American smelting & refining company's smoke investigations. *Met & Chem Eng* 17:682-3 D 15 '17  
Application of the Cottrell process to the recovery of fume from silver refining operations. W. G. Smith and A. A. Helmrod. *il diags plan Chem & Met Eng* 21:360-3 S 15 '19  
Bureau of mines reports progress in smelting investigations. V. H. Manning. *Eng & Min J* 105:283 F 9 '18  
Electrostatic precipitation in the smelting industry. C. S. Barnum. *Elec W* 73:895-6 My 3 '19  
History and legal phases of the smoke problem. L. Johnson. *Met & Chem Eng* 16:199-204 F 15 '17; Same. *Am Inst Min E Bul* 125:893-906 My '17; Same. *Eng & Min J* 103:877-80, 924-6 My 19-26 '17; Discussion. *Am Inst Min E Bul* 133:126-9 Ja '18  
Smelter fumes. *Sci Am* S 85:407 Je 29 '18  
Smeltery treatment of fume and smoke; photographs. *Eng & Min J* 106:446-7 S 7 '18  
Turning smoke into money; the origin and development of the Cottrell electric precipitation. R. H. Moulton. *il Sci Am* 119:50+ Jl 20 '18  
See also Flue dust
- Smelteries.** See Smelting works
- Smelting**  
Air-volume regulation in smelting and refining furnaces. C. H. Smoot. *il diag Eng & Min J* 107:654-6 Ap 12 '19  
Blast-furnace charge at the Bunker Hill smeltery. C. T. Rice. *il map Eng & Min J* 106:436-8 S 7 '18  
Calculating mixtures for the cupola. W. J. Keep. *Foundry* 46:385 Ag '18  
Colorado smelting investigation. *Eng & Min J* 105:345-6 F 16 '18  
Colorado smelting schedules. *Eng & Min J* 105:626 Ap 6 '18  
Continuous zinc smelter. W. M. Johnson. *diag Met & Chem Eng* 18:654 Je 15 '18  
Mechanical Scotch-hearth smelting. W. E. Newnam. *diags plan Eng & Min J* 106:101-4 Jl 20 '18  
Practice of antimony smelting in China. C. Y. Wang. *il diags plans Am Inst Min E Bul* 136:927-45 Ap '18; Abstracts. *Chem & Met Eng* 19:280 S 15 '18; *Sci Am* S 86:236 O 12 '18  
Present day native smelting. A. R. Hornby. *il Iron Age* 103:426 F 13 '19  
Report of smelter and ore-sales investigation committee, state of Colorado, 1917. *Met & Chem Eng* 18:365-70 Ap 1 '18  
Roaster charge belt feeder. C. T. Rice. *diag Eng & Min J* 106:824 N 9 '18  
Schedule C, now in effect at trail smeltery. *Eng & Min J* 108:223 Ag 9 '19  
Silver volatilization in smelting. F. P. Dewey. *Eng & Min J* 108:87-9 Jl 19 '19  
Smelting and ore-sales investigations in Colorado. *Eng & Min J* 105:358-43 Mr 23 '18  
Smelting copper-nickel pyrrhotite; patent. *Chem & Met Eng* 20:86 Ja 15 '19  
Smelting iron in Sweden 200 years ago. P. Bonde. *il Iron Tr R* 65:1646-7 O 16 '19  
See also Blast furnaces; Furnaces, Metallurgical; Metallurgy; Ore treatment; Slag; Smelter fumes; Smelting works
- Smelting, Electric**  
Commercial feasibility of the electric smelting of iron ores in British Columbia. A. Stansfield. *Chem & Met Eng* 20:630-6 Je 15 '19; Abstracts. *Eng & Min J* 107:224 F 1 '19; *Elec R* 74:805 My 17 '19  
Electric smelting in Brazil. K. Thomas. *Iron Age* 101:778 Mr 21 '18  
Electric smelting in California. *il Eng & Min J* 106:498 S 14 '18  
Electric smelting of domestic manganese ores. H. W. Gillett and C. E. Williams. *U S Bur Mines War Minerals Investigations Ser* 10:1-48 '18 (Type)w  
Electric smelting on the Pacific coast. W. L. Morrison. *J Elec* 42:67-8 Ja 15 '19; Same. *Elec R* 74:228 F 8 '19  
Smelting plant at Great Falls, Mont., will increase its electric power load. *Elec R* 73:218 Ag 10 '18  
Utilization of manganese ores in Sweden. J. Harden. *Met & Chem Eng* 17:701-4 D 15 '17; Same abr. *Iron Age* 101:938-40 Ap 11 '18  
See also Electric furnaces; Electrometallurgy
- Smelting works**  
Blast-furnace plant for smelting copper ore. F. Rutherford. *plan Eng & Min J* 106:122-3 Jl 20 '18  
Highest chimney built for smelter at Anaconda, Montana. *il diags Eng N* 83:764-5 O 23 '19  
Ideal layout for silver-lead smeltery. G. C. Riddell. *diags plan Eng & Min J* 106:115-22 Jl 20 '18

**Smelting works—Continued**

- Improvements at the Consolidated Arizona smelting co.'s plant. F. R. Corwin. Eng & Min J 106:137 JI 20 '18
- Marketing of lead by the smelter. E: Brush. Eng & Min J 104:1123-4 D 29 '17
- Mechanical Scotch-hearth smelting. W: E. Newnam. diag. plan Eng & Min J 106:101-4 JI 20 '18
- New South Wales lead smeltery. flow sheet Eng & Min J 108:394-5 S 6 '19
- New white metal smelting plant; Union smelting and refining company, Inc., Newark, N. J. II Metal Ind 17:1-2 Ja '19
- Sintering and charge delivery at the Bunker Hill plant. C. T. Rice. II diag. plans Eng & Min J 106:649-57 O 12 '18
- Smelting and lead refining at the Bunker Hill plant. C. T. Rice. II Eng & Min J 106:743-9 O 26 '18
- Use of pulverized coal at the Bunker Hill and Sullivan smelting and refining plant. C. T. Rice. II Eng & Min J 106:91-4 JI 20 '18
- See also* Metallurgical plants; Smelter fumes

**Safety devices and measures**

- Safety appliances in smelteries and refineries. G: M. Douglass. II Eng & Min J 106:105-9 JI 20 '18
- Smith, Alfred H.  
Eastern region of Railroad administration under A. H. Smith as director. por Ry Age 68:1346-8 Je 6 '19
- Smith, Jonas Waldo, 1861-  
Recipient of John Fritz medal. Eng N 80:834 Ap 25 '18; Am Inst Min E Bul 139:sup7-9 JI '18

**Smoke**

- Colored smoke for use in military operations; patent. Met & Chem Eng 17:716 D 15 '17
- Electrical precipitator for analyzing smokes. R: C. Tolman and others. diag Am Chem Soc J 41:587-9 Ap '19
- Oscillation method for measuring the size of ultramicroscopic particles. F. V. Wells and R. H. Gerke. II diag. Am Chem Soc J 41:312-29 Mr '19
- Precipitation of solids from smoke and gases. II diag. Ry Age 67:477 S 5 '19
- Relation between intensity of Tyndall beam and size of particles. R: C. Tolman and others. II Am Chem Soc J 41:575-87 Ap '19
- Relation between the intensity of Tyndall beam and concentration of suspensions and smokes. R. C. Tolman and others. diag. Am Chem Soc J 41:300-12 Mr '19
- Ringlemann charts for determining smoke density. Elec R 75:627-8 O 11 '19
- Spraying smoke clouds out of sight; new method of dissipating steamer smoke in the submarine zone. II diag. Sci Am 119:65+ JI 27 '18
- Yarrow anti-submarine smoke system. II diag. Engineer 126:218-19 S 13 '18; Abstract. Am Soc M E J 40:960-1 N '18

*See also* Combustion; Flues; Fuel; Locomotives—Smoke problem; Mechanical draft; Smoke prevention; Soot

**Smoke jacks**

- Timber smoke jack. diag Ry Age 67:250 Ag 8 '19
- Unusual form of roundhouse smoke jack. II diag. plan Ry Age 67:155-7 JI 25 '19
- Wooden smoke jack for roundhouses. diag. Ry R 65:160-1 Ag 2 '19

**Smoke prevention**

- Bureau of mines reports progress in smelting investigations. V. H. Manning. Eng & Min J 105:283 F 9 '18
- Conservation of fuel through smoke regulation. J. W. Henderson. Ry R 62:193-5 F 9 '18
- Controlling smoking chimneys. D. R. Hibbs. diag. Power 47:130 Ja 22 '18
- Development of steam-boiler baffles. A. A. Straub. diag. Power 48:656-9 N 5 '18
- Firing up locomotives. A. Armer. Ry Mech Eng 92:29 Ja '18

Fuel conservation by the economical combustion of soft coal. G. L. Larson. diag. Wis U Bul Eng S 8:469-88 no 7 '17

- History and legal phases of the smoke problem. L. Johnson. Met & Chem Eng 16:199-204 F 15 '17; Same. Am Inst Min E Bul 125:893-906 My '17; Same. Eng & Min J 103:877-80, 924-6 My 19-26 '17; Discussion. Am Inst Min E Bul 138:126-9 Ja '18
- Home fires. Sci Am 121:60 JI 19 '19
- Kosel smoke preventer. II diag. Power 49:89-90 Ja 21 '19
- Report of Master mechanics' association committee on fuel economy and smoke prevention. Ry Age 64:1516-19 Je 21 '18
- Smoke preventing and coal saving suggestions. Ry R 63:362 S 7 '18
- Smoke purification at Anaconda. Met & Chem Eng 18:392 Ap 15 '18
- Smokeless boilers for fuel conservation. II Metal Work 89:18-21 Ja 4 '18
- Smokeless combustion with chaingrate stokers. T: A. Marsh. diag. Elec R 73:448-9 S 21 '18; Same. Power 48:544-5 O 8 '18
- Smokeless soft coal burning. Metal Work 89:76-7 Ja 11 '18
- Solving a problem in smoke abatement; settling chamber catches flue gas dust. Elec R 72:432-3 Mr 9 '18
- Tests to free under side of railroad viaducts from smoke. R. H. Moulton. II Eng N 82:1162-4 Je 12 '19
- Use of intensely heated air to accomplish smokeless combustion. II Heat & Ven 15:67-8 S '18

*See also* Chimneys; Combustion; Electric precipitation; Firing; Locomotives—Smoke problem; Mechanical draft; Smelter fumes; Stokers, Mechanical

**Smoke prevention association**

- 13th annual convention, Newark, N.J., Aug. 20-22. Ry R 63:301-3 Ag 31 '18; Elec R 73:370-1 S 7 '18; Munic J 45:238+ S 21 '18; Power 48:398-400 S 10 '18; Am Soc M E J 40:857 O '18; Correction. Power 48:447, 500 S 24-O 1 '18

**Smokehouses**

- Farm smoke house. diag. Am Lumberman 2271:42a N 23 '18
- Preservation of food products by drying. G. C. Shadwell. II diag. Am Soc Heat & V E 23:537-44 '17

**Smokeless powder**

- Largest smokeless powder plant in the United States; du Pont plant near Nashville, Tenn. Power 47:893 Je 18 '18
- Power installation at the Old Hickory powder plant near Nashville, Tennessee. E. A. Wardenburg. II diag. plans Power 49:748-55 My 20 '19
- Water supply of the Old Hickory works. O. E. Bulkeley. Am Water Works Assn J 6:427-38 S '19

**Smokestacks. See Chimneys****Smuggling**

- Contraband trade between Switzerland and Germany. II Sci Am S 87:52 Ja 25 '19
- War-time smuggling. Sci Am S 84:375 D 15 '17

**Snakes****Diseases and pests**

- Ticks as carriers of animal disease. W. H. Ballou. II Sci Am 120:254-5+ Mr 15 '19

**Sneezing**

- Physiology of sneezing. A. P. Brubaker. Sci Am S 88:266-7 N 8 '19

**Snow**

- Creatures that live in snow. Sci Am 118:50 Ja 12 '18

**Snow plows**

- Lehigh Valley Transit well prepared for snow. W. C. Klein. II Elec Ry J 53:198-4 Ja 25 '19
- Rapid street channel snow plough. II Engineer 127:159 F 14 '19; Eng & Contr 51:469 Ap 30 '19
- Ray snow plow and flanger. II diag. Ry R 63:651-2 N 2 '18
- Rotary disc plow for snow removal. F. Brueggeman. II Eng & Contr 49:347 Ap 3 '18



**Snow plows—Continued**

- Rotary snow plow for highway work. *Il diag*  
Good Roads n s 15:268-9 My 25 '18  
Rotary snowplow operates in 18-ft. drifts. *Il*  
Elec Ry J 52:370-1 Ag 31 '18  
Snow plow on motor truck bucks four-foot  
drifts. F. P. Stott. *Il Eng N* 80:647 Ap 4 '18  
Snow removal from highways. *Il Munic Eng*  
55:185-7 N '18  
Sprinklers and work cars make good snow-  
plows at Chicago. *Il Elec Ry J* 51:285-6 F  
9 '18  
Superheaters on railway snow plows. *diag*  
Ry R 63:186-7 Ag 3 '18

**Snow protection**

- Viaduct protected from snowslides by con-  
crete walls. E. E. Adams. *Il diag* plan Eng  
N 83:470-1 S 4 '19

**Snow removal**

- Contracts for snow removal in New York.  
Munic J 43:637-8 D 29 '17  
Efficient methods of snow removal from high-  
ways outside of urban districts. Good Roads  
n s 17:180+ Ap 26 '19  
General utility sewer. *Il Sci Am* 121:311+ S 27  
'19  
Keeping Pennsylvania's main roads open. G.  
H. Biles. *Il Good Roads n s* 16:195-7 N 23  
'18  
Line truck used for removing snow. *Il Elec Ry*  
J 51:579 Mr 23 '18  
Methods of maintaining winter roads in  
Quebec. A. LaLonde. Eng & Contr 52:15  
Jl 2 '19  
Methods of removing snow from highways.  
R. Beck and others. Eng & Contr 51:239-41  
Mr 5 '19  
Methods of snow removal from highways.  
C. J. Bennett. Eng & Contr 51:251-2 Mr 5  
'19  
New Jersey plans for keeping roads clear of  
snow. Munic J 45:508 D 28 '18  
Organization, methods and equipment em-  
ployed in removing snow from main roads  
in Pennsylvania. G. H. Biles. *Il Munic Eng*  
55:216-18 D '18; Same cond. Eng & Contr  
50:520 D 4 '18  
Pennsylvania's war road example. R. H.  
Johnston. *Il Automotive Ind* 38:601+ Mr 21  
'18  
Provisions for winter highway traffic. *Il Good*  
Roads n s 16:97-100+ S 14 '18  
Removing snow from Pennsylvania highways.  
G. H. Biles. *Il Good Roads n s* 15:107-8+ F  
23 '18; Same. Munic J 44:125-6 F 16 '18;  
Same. Eng & Contr 49:251 Mr 6 '18; Same.  
Eng N 80:408-9 F 28 '18  
Snow and street traffic. Munic J 43:605-6 D  
22 '17  
Snow removal and federal requirements for  
highway transport. R. Beck. Good Roads  
n s 16:204+ N 30 '18  
Snow removal by steam shovel in Newark.  
N. J. *Il Munic J* 44:31-2 Ja 12 '18  
Snow removal from highways. *Il Munic Eng*  
55:185-7 N '18  
Snow removal from New York state high-  
ways. E. Duffey. Munic Eng 56:23-4 Ja '19  
Snow removal in Chicago. G. T. Donoghue. W  
Soc E J 23:183-5 Mr '18; Excerpt. Eng &  
Contr 49:436 My 1 '18  
Snow removal in Chicago. W. J. Galligan. W  
Soc E J 23:186-91 Mr '18; Abstract. Eng N  
80:617-19 Mr 28 '18; Abstract. Eng & Contr  
49:334 Ap 3 '18  
Snow removal in Chicago. H. Richards. W  
Soc E J 23:175-83 Mr '18; Excerpts. Eng &  
Contr 49:335-6 Ap 3 '18  
Snow removal in Rochester. *Il Munic J*  
44:49-51 Ja 19 '18; Eng & Contr 49:429-30  
My 1 '18  
Snow removal in Worcester, Massachusetts.  
*Il Good Roads n s* 15:114-15 F 23 '18  
Snow removal on a Connecticut section of the  
Boston post road. Good Roads n s 15:123 Mr  
2 '18; Munic J 44:204 Mr 9 '18  
Snow removal on trunk line highways. C. J.  
Bennett. Good Roads n s 16:188-9 N 16 '18;  
Same. Munic Eng 55:214-15 D '18; Same abr.  
Eng & Contr 50:520-1 D 4 '18

- Snow removal plans and procedure. Munic  
Eng 57:212-15 N '19  
Snow removed by various methods at Mil-  
waukee. *Il Eng N* 81:857-8 N 7 '18  
Snow sweepers made from open cars. J. W.  
Hulme. *Il Elec Ry J* 53:148 Ja 18 '19  
War trucks average 37.4 miles per day in  
Empire state, but 67 mile per day over the  
Detroit-seaport route. D. Beecroft. *Automotive Ind* 38:485-7 Mr 7 '18

See also Electric railroads—Snow protec-  
tion and removal; Railroads—Snow protec-  
tion and removal; Snow plows; Snow rollers

**Snow rollers**

- Laconia street department uses four snow  
rollers. C. A. French. *Il Eng N* 80:1001-2 My  
23 '18; Same. Munic J 46:108 F 8 '19  
Making smooth hard roads with a snow  
roller. *Il Sci Am* 120:377 Ap 12 '19

**Snow surveys**

- Determination of water-supply from snow  
fields. *diag* Eng N 83:766-8 O 23 '19  
Snow surveys of water sheds. *Il Munic J* 46:  
234-6 Mr 29 '19

**Soap**

- Art of soap-making. *Il Sci Am* 119:230 S 21  
'18  
Improved distillation method for the deter-  
mination of water in soap. R. Hart. *J Ind*  
& Eng Chem 10:598-9 Ag '18  
In unknown soapdom. L. Lodian. *Il Sci Am*  
118:584-5 Je 29 '18  
Luopan soap for textiles. Color Tr J 4:78 Ap  
'19  
Properties of scouring and fulling soaps.  
F. A. Hayes. *Il Textile World* 55:3109+  
My 24 '19  
Retention of soap by wool. A. Woodmansey.  
Textile World 56:1177 Ag 30 '19  
Soap and its textile use. W. H. Butler. *Tex-*  
tile World 54:945 Ag 31 '18  
Textile soaps. Textile World 56:1995 O 4 '19  
Use of gas in the manufacture of soaps and  
similar compounds. G. C. Shadwell. *Il diag*  
Am Gas Eng J 109:313-17 O 5 '18  
Value of soap consumed annually by the tex-  
tile industry. Textile World 54:1601 O 5 '18

**Analysis**

- Some remarks on standard methods of soap  
analysis. W. H. Low. *J Ind & Eng Chem* 11:  
1169-71 D '19  
Tentative standard methods for the sampling  
and analysis of commercial soaps and soap  
products. A. Campbell. *J Ind & Eng Chem*  
11:785-8 Ag '19

**Soap, Substitutes for**

- War substitutes for soap in Germany. *Sci Am*  
S 87:53 Ja 25 '19

**Soap bubbles and films**

- Liquid films. J. Dewar. *diag Sci Am S* 86:203  
S 28 '18

- Soap bubbles and films. J. Perrin. *Sci Am*  
S 88:50-1 Jl 26 '19

- Use of soap films in solving torsion problems.  
A. A. Griffith and G. I. Taylor. *Il diag En-*  
gineer 124:546-7 D 21 '17; Same. *Sci Am S*  
86:140-1 Ag 31 '18; Same cond. *Am Soc M E*  
J 40:276-7 Mr '18; Discussion. *Engineer* 124:  
536 D 21 '17

**Soap dye. See Dye soap****Soap-nut trees. See Soapberry trees****Soapberry trees**

- Soap-nut tree. *Sci Am* 118:209 Mr 9 '18

**Soapstone**

- Soapstone. *Sci Am* 121:408 O 18 '19  
Talc and soapstone in 1918. Eng & Min J 107:  
126 Ja 11 '19

**Soapweed**

- Desert feed for drought seasons. *Il Sci Am*  
119:357 N 2 '18

**Social centers**

- Social center. F. Kimball. *Il plans Arch*  
Rec 45:417-40, 526-43; 46:29-46 My-Jl '19

See also Community centers

- Social problems**  
Human parasitism or service. H. Emerson. chart Ind Management 57:257-62 Ap '19  
See also Cost of living; Dependents; Industrial relations; Labor and laboring classes; Loan sharks
- Social progress**  
American reconstruction problems—nation planning. F. L. Ackerman. Am Inst Arch J 6:506-9 N '18  
Human instincts in reconstruction. W. H. Smyth. Ind Management 57:89-91 F '19
- Social settlements**  
Boston settlements organize industrial relations work. II Automobile 37:459-61 S 13 '17  
Greenwich house, New York city. Arch Forum 31:92, pl 43-6 S '19  
Social center; philanthropic enterprises. F. Kimball. II plans Arch Rec 45:526-43 Je '19  
Social work. See Industrial betterment; Welfare work in industry
- Socialism**  
Socialism, unionism and the engineer. J. P. Channing. Eng & Contr 49:640-2 Je 26 '18  
Société de chimie industrielle  
New York section organized. J Ind & Eng Chem 10:154 F '18  
Societies. See Engineering societies; Lumber associations; Plumbers' associations; Trade unions
- Society for electrical development**  
Annual meeting, New York, May 14. Elec R 72:876 My 25 '18; Elec W 71:1048 My 18 '18  
Plans for outlet campaign completed. Elec R 73:253 Ag 17 '18  
Work of the Society. Elec W 73:1050-1 My 17 '19; Same. Elec R 74:905-6 My 31 '19
- Society for the promotion of engineering education**  
25th convention, Boston, Dec. 6-7. Elec W 72:1139-41 D 14 '18; Eng N 81:1098-9 D 12 '18  
26th annual meeting, Evanston, Ill., June 26-29. Am Soc M E J 40:711-12 Ag '18  
27th annual meeting, Johns Hopkins University. Eng N 83:48+ JI 3 '19
- Society of automotive engineers**  
Annual meeting, New York, Feb. 4-6. Automotive Ind 40:369 F 13 '19; Mech Eng 41:300-1 Mr '19  
Automotive engineering and the great war. G. W. Dunham. Mach 24:538 F '18  
Automotives in the great war; a review of what the United States is doing. C. F. Clarkson. Am Mach 48:153-5 Ja 24 '18; Same. Sci Am S 85:54-5 Ja 26 '18  
Aviation chief topic at S. A. E. winter meeting, New York city. Automotive Ind 38:157-62 Ja 17 '18  
Joint committee on gages of the American society of mechanical engineers and the Society of automotive engineers. Am Soc M E J 40:70-2 Ja '18  
New airplane standards. diags Automotive Ind 37:754-7, 839-41 N 1-8 '17  
Problems considered at aircraft meeting. P. M. Heldt. diags Automobile 37:573-7+ O 4 '17  
S. A. E. standards recommendations. Automotive Ind 38:1175-8 Je 20 '18  
Standardization work in 1918. diags Automotive Ind 40:158-71 Ja 16 '19  
Standards committee acts on division reports. diags Automotive Ind 40:307-11 F 6 '19  
Standards committee in busy session. Automotive Ind 38:136-8, 140-1 Ja 10 '18  
Summer meeting, Dayton, O., June 17-18. Am Mach 48:1126a Je 27 '18; Automotive Ind 38:1161-78 Je 20 '18  
Summer meeting, Ottawa Beach, Mich. Am Mach 51:85-7 JI 10 '19; Automotive Ind 41:1-25 JI 3 '19  
Tractor problems discussed at Chicago meeting. Automotive Ind 38:303-4 F 7 '18
- Society of chemical industry**  
Hamlet with Hamlet left out; meeting, April 18. Chem & Met Eng 20:457 My 1 '19
- Society of industrial engineers**  
Functional organization of activities now in force. Ind Management 58:328-30 O '19
- National conference, New York, March 18-21. Iron Age 103:821-3 Mr 27 '19; Mech Eng 41:491-2 My '19  
Seek national industrial court. Iron Tr R 65:1272-8 N 6 '19
- Society of naval architects and marine engineers**  
Annual meeting, New York, Nov. 15-16. H. H. Brown. Am Soc M E J 40:101 Ja '18  
26th general meeting, Philadelphia, Nov. 14-15. Int Marine Eng 23:706-11 D '18
- Soda-lime**  
Gas mask absorbents. A. B. Lamb, R. E. Wilson and N. K. Chaney. J Ind & Eng Chem 11:431-8 My '19
- Sodium**  
Effect of sodium on mixtures of malonic and succinic esters. G. E. K. Branch and H. E. H. Branch. Am Chem Soc J 40:1708-13 N '18  
Electrolytic and electrothermic processes and products. diags Gen Elec R 21:756-7 N '18  
Equilibria in solutions containing mixtures of salts; the system water and the sulfates and chlorides of sodium and potassium. W. C. Blasdale. diags J Ind & Eng Chem 10:344-7 My '18  
Improved methods for the estimation of sodium and potassium. S. N. Rhue. J Ind & Eng Chem 10:429-31 Je '18  
Investigation of the reaction between antimony and solutions of sodium in liquid ammonia. E. B. Peck. diags Am Chem Soc J 40:335-47 F '18  
Separation of the chlorides and sulfates of sodium and potassium by fractional crystallization. W. C. Blasdale. diags J Ind & Eng Chem 10:347-53 My '18  
Specific heats at low temperatures of sodium, potassium, magnesium and calcium metals, and of lead sulfide. E. D. Eastman and W. H. Rodebush. Am Chem Soc J 40:489-500 Mr '18
- Sodium carbonate**  
Use of soda ash in water softening. W. H. Hobbs. Ry R 63:633-5 N 2 '18
- Sodium chloride. See Salt**
- Sodium compounds**  
Nomenclature of sodium compounds. R. C. Wells. Eng & Min J 107:710 Ap 19 '19
- Sodium cyanide**  
Notes on sodium cyanide. W. J. Sharwood. J Ind & Eng Chem 10:292-5 Ap '18; Excerpta. Eng & Min J 105:918 My 18 '18  
U.S. chemical plant for manufacturing sodium cyanide, Saltville, Virginia. C. O. Brown. II J Ind & Eng Chem 11:1010-13 N '19
- Sodium ferrocyanide**  
Manufacture of sodium ferro-cyanide; patent. Met & Chem Eng 18:264 Mr 1 '18  
Notes on sodium prussiate. L. S. Potsdamer. J Ind & Eng Chem 11:769-70 Ag '19
- Sodium formate**  
Action of sodium hydroxide on carbon monoxide, sodium formate and sodium oxalate. M. C. Boswell and J. V. Dickson. Am Chem Soc J 40:1779-86 D '18
- Sodium hydrosulfite**  
Preparing hydrosulphite of soda. plan Textile World 53:2699+ D 29 '17
- Sodium hydroxide**  
Action of caustic liquors on steel plates; abstracts. C. E. Stromeyer. diags Engineer 124:496 D 7 '17; Iron Tr R 62:548 F 28 '18; Met & Chem Eng 18:372-3 Ap 1 '18  
Action of sodium hydroxide on carbon monoxide, sodium formate and sodium oxalate. M. C. Boswell and J. V. Dickson. Am Chem Soc J 40:1779-86 D '18  
Continuous process of causticizing soda-ash with lime. diags Met & Chem Eng 18:376-7 Ap 1 '18  
Control of caustic. Textile World 54:981 Ag 31 '18  
Furnace settings for caustic pots. F. H. Nickle. II chart diags Chem & Met Eng 20:65-9 Ja 15 '19  
Fusion of sodium hydroxide with several phenols and sulfonic acids. M. C. Boswell and J. V. Dickson. Am Chem Soc J 40:1786-93 D '18

**Sodium hydroxide—Continued**

Fusion of sodium hydroxide with some inorganic salts. M. C. Boswell and J. V. Dickson. *Am Chem Soc J* 40:1773-9 D '18

Sodium pyrogallate solution as an absorbent for oxygen. G. W. Jones and M. H. Meighan. *diags J Ind & Eng Chem* 11:311-16 Ap '19

**Sodium p-hydroxyphenylarsenate**

Preparation of sodium p-hydroxyphenylarsenate. J. B. Conant. *Am Chem Soc J* 41:431-5 Mr '19

**Sodium hyposulfite**

Hypo-scarcity—what to do about it. *Sci Am* S 85:247 Ap 20 '18

**Sodium manganate**

Manufacture of crude sodium manganate. F. Wartenweiler. *Met & Chem Eng* 18:546-7 My 15 '18

Sodium nitrate. See Saltpeter, Chile

**Sodium nitrite**

Use of nitrite of soda. *Textile World* 53:4947 Ap 27 '18

**Sodium nitromethane**

Addition of nitromethane to unsaturated esters. E. P. Kohler and H. Engelbrecht. *Am Chem Soc J* 41:764-70 My '19

**Sodium oleate**

Reagents for use in gas analysis; the absorption of hydrogen by sodium oleate. R. P. Anderson and M. H. Katz. *J Ind & Eng Chem* 10:23-4 Ja '18

**Sodium permanganate**

Electrolytic sodium permanganate. R. E. Wilson and W. G. Horsch. *flow sheet Chem & Met Eng* 20:387-8 Ap 15 '19

Sodium prussiate. See Sodium ferrocyanide

**Sodium pyrogallate solution**

Sodium pyrogallate solution as an absorbent for oxygen. G. W. Jones and M. H. Meighan. *diags J Ind & Eng Chem* 11:311-16 Ap '19

**Sodium silicate**

Some properties of commercial silicate of soda. J. G. Vail. *J Ind & Eng Chem* 11:1029-31 N '19

**Sodium sulfate**

Equilibrium in the system  $\text{Na}_2\text{SO}_4\text{-CuSO}_4\text{-H}_2\text{SO}_4\text{-H}_2\text{O}$ . H. W. Foote. *diags J Ind & Eng Chem* 11:629-31 Jl '19

Solubility of sodium sulfate as a means of determining temperatures. T. W. Richards and V. Yngve. *Am Chem Soc J* 40:164-74 Ja '18

Use of sodium sulfate in the Kjeldahl-Gunning method. C. T. Dowell and W. G. Friedeman. *J Ind & Eng Chem* 10:599-600 Ag '18

See also Niter cake

**Sodium sulfide**

Sodium sulphide and other products from nitre cake. H. P. Bassett. *Chem & Met Eng* 19:709 N 15 '18

Sodium-sulphide precipitation at Nipissing. *Eng & Min J* 103:378-9 Mr 3 '17

**Sodium sulfocyanide**

Use of sodium sulpho-cyanide in black nickel solutions. C. H. Proctor. *Metal Ind* 16:26 Ja '18

Softening of water. See Water softening

**Soil absorption**

Rainfall, absorption and run-off on small rural drainage area. I. E. Houk. *Eng N* 82:875-6 My 1 '19

**Soil analysis**

Accurate determination of soil nitrates by phenol disulfonic acid method. H. A. Noyes. *J Ind & Eng Chem* 11:213-18 Mr '19

Accurate loss-on-ignition method for the determination of organic matter in soils. J. B. Rather. *J Ind & Eng Chem* 10:439-42 Je '18

Ammonia and nitric nitrogen determinations in soil extracts and physiological solutions. B. S. Davison. *diags J Ind & Eng Chem* 10:600-5 Ag '18

Reaction of Hawaiian soils with calcium bicarbonate solutions, its relation to the determination of lime requirements of soils,

and a rapid approximate method for the determination of lime requirements of soils. M. O. Johnson. *J Ind & Eng Chem* 10:31-3 Ja '18

Simplified wet combustion method for the determination of carbon in soils. D. D. Waynick. *diag J Ind & Eng Chem* 11:634-7 Jl '19

Soil acidity; the resultant of chemical phenomena. H. A. Noyes. *diag J Ind & Eng Chem* 11:1040-9 N '19

Use of nickel crucibles for the J. Lawrence Smith fusion in determining soil potassium. S. S. Walker. *J Ind & Eng Chem* 11:1139-40 D '19

**Soil fertility**

Phosphorus, potassium, and nitrogen content of the waters of the inter-mountain region. J. E. Greaves and C. T. Hirst. *J Ind & Eng Chem* 11:451-4 My '19

Soil pressure. See Earth pressure

**Soils**

Action of neutral salts on humus and other experiments on soil acidity. L. J. Gillespie and L. E. Wise. *Am Chem Soc J* 40:796-813 My '18

Composition of the atmosphere of the soil. *Sci Am* 120:428 Ap 26 '19

Dynamiting devastated orchards in France. M. A. Pédallu. *Sci Am* 120:111 F 8 '19

Effect of fertilizers on hydrogen-ion concentration in soils. F. W. Morse. *J Ind & Eng Chem* 10:125-6 F '18

Interpretation of the so-called paraffin dirt of the Gulf Coast oil fields. A. D. Brokaw. *Am Inst Min E Bul* 136:947-50 Ap '18; Discussion. 139:1148-53; 140:1158-62; 143:1674-7; 145:98-101 Jl-Ag. N '18, Ja '19

Lasting benefits of soil blasting. *Sci Am* 119:253 S 28 '18

Rejuvenation of earth and man; clean culture nature's method. S. Morgan. *Sci Am* S 84:402-3 D 29 '17

Soil acidity; the resultant of chemical phenomena. H. A. Noyes. *diag J Ind & Eng Chem* 11:1040-9 N '19

Soil aldehydes; scientific study of a new class of soil constituents unfavorable to crops, their occurrence, properties and elimination in practical agriculture. J. J. Skinner. *il J Fr Inst* 186:165-86, 289-316, 449-80, 547-84, 723-41 Ag-D '18

Soil considered as a living organism. *Sci Am* 121:92 Jl 26 '19

Soil sickness researches. *Sci Am* S 86:378 D 14 '18

Spotting slacker soils. *il Sci Am* 117:500 D 29 '17

Water-holding capacity of soil. E. B. Darlington. *Eng & Contr* 49:599 Je 12 '18

See also Agricultural chemistry; Agriculture; Alkali soils; Clay; Drainage; Fertilizers and manures; Foundation soils; Irrigation; Soil analysis

Soils, Foundation. See Foundation soils

**Solar radiation**

Effect of solar radiation upon balloons. J. D. Edwards and M. B. Long. *U S Bur Stand Tech Pa* 128:1-29 '19

Smithsonian solar constant expedition to Calama, Chile. C. G. Abbot. *Sci Am* S 86:384 D 14 '18

**Solar system**

Companions of the sun. A. D. Watson. *Sci Am* S 84:367-8, 378-9 D 8-15 '17

**Solder and soldering**

Bronze colored solder with a low melting point. *Foundry* 46:270 Je '18

Cadmium as a tin substitute. G. K. Burgess and R. W. Woodward. *Am Inst Min E Bul* 144:1748-50 D '18; Same. *Chem & Met Eng* 19:662 N 1 '18; Abstracts. *Iron Age* 102:964-5 O 17 '18; *Metal Work* 90:497 N 1 '18

Conservation of tin in bearing metals, bronzes, and solders. G. K. Burgess and R. W. Woodward. *U S Bur Stand Tech Pa* 109:1-9 '19

C-H electric can-soldering iron for sealing cans containing hard bread. *il Elec R* 74:117 Ja 18 '19; *Iron Age* 103:236 Ja 23 '19

**Solder and soldering—Continued**

- Electric soldering iron for garages. *Il Elec W 70:1224 D 22 '17*  
 Formulas for the brass foundryman; silver solder. *Foundry 46:248a Je '18*  
 Formulas for the foundryman; melting points of solders. *Foundry 47:546a Ag 15 '19*  
 Hoke-Phoenix melting, brazing and soldering processes. *Il Metal Ind 16:329 Jl '18*  
 How to solder aluminum. *Dom Eng 82:220 F 9 '18*  
 New solder for aluminum is developed. *Il Motor Age 36:38 O 30 '19*  
 Practical pointers on soldering. *diags Metal Work 90:682+ D 20 '18*  
 Simple kinks in soldering work. A. Gemmell. *diags Elec R 72:435-6 Mr 9 '18*  
 Solder for electrical machinery. R. Pittman. *Power 49:787-8 My 20 '19*  
 Solder, its use and abuse. M. L. Lissberger. *Am Inst Min E Bul 144:1759-64 D '18*; Same cond. *Foundry 46:579-80 D '18*; Abstracts. *Metal Ind 16:507-8 N '18*; *Chem & Met Eng 19:658-9 N 1 '18*; *Metal Work 90:496 N 1 '18*  
 Solder, soldering and lead burning. A. Bateman. *diags Dom Eng 86:244-5+ N 16 '18*  
 Solder, soldering flux and soldering. F. A. Kartak. *Metal Work 92:162-4 Ag 8 '19*  
 Solder without tin. C. W. Hill. *Chem & Met Eng 19:170 Ag 15 '18*  
 Soldering and brazing. P. W. Blair. *Metal Ind 16:547-9 D '18*  
 Soldering and brazing operations. *diags Motor Age 34:36-7 S 12 '18*  
 Soldering by electricity. *diag Metal Work 90:188 Ag 16 '18*  
 Soldering of zinc. *Iron Age 103:193 Ja 16 '19*  
 Soldering of zinc. W. H. Hendricks. *Metal Work 90:584-5 N 22 '18*; Same cond. *Foundry 46:557 D '18*  
 Soldering of zinc. E. V. Peters. *Metal Ind 16:497 N '18*  
 Soldering wire joints. J. E. Noble. *Power 48:173 Jl 30 '18*; Discussion. F. Gartmann. 48:315 Ag 27 '18  
 Solders and substitutes for lead-tin solders. C. W. Hill. *diags Metal Ind 16:412-15 S '18*  
 Solders for aluminum. *Il U S Bur Stand Circ 78:1-9 '19*  
 Solders for aluminum. P. D. Merica and L. J. Gurevich. *Il Metal Ind 16:500-3 N '18*  
 Solders for brass and aluminum. *Foundry 46:219 My '18*  
 Strength of solders at elevated temperatures. C. W. Hill and C. H. Carpenter. *Metal Ind 17:82 F '19*  
 Substitutes for tin in bearing metals and solders. *Mach 25:634 Mr '19*  
 War solder for Germans. *Dom Eng 82:92 Ja 19 '18*  
*See also Alloys; Brazing; Plumbing; Welding*
- Soldiers**  
 Allocating 200,000 soldiers. *Am Arch 114:228 Ag 21 '18*  
 C. & N. W. club rooms for enlisted men appreciated. *Ry R 62:624-5 Ap 27 '18*  
 Getting the soldier to think. *Sci Am 118:206 Mr 9 '18*  
 Northwestern opens social service bureau for soldiers at Chicago. *Il Ry Age 63:1183-4 D 28 '17*  
 Providing homes for returned soldiers. *Am Lumberman 2262:62 S 21 '18*  
 Soldiers' and sailors' community house, Riverside Drive, New York; view and plans. *Am Arch 114:pl 103-5 O 9 '18*  
 Soldiers in training and after the war. *Am Lumberman 2259:50 Ag 31 '18*  
 War psycho-neurosis; the psychology of soldiers' dreams. F. W. Mott. *Sci Am S 85:162-3, 185 Mr 16-23 '18*  
*See also European war—Trench newspapers; also Northwestern commission on land settlement for returning soldiers, Soldiers' and sailors' civil relief act*

**Civil employment**

- Back to nature via tractors; government schools train soldiers to operate and maintain farm machines. *Il Motor Age 35:24-5 F 20 '19*

**Canadian Pacific railway's military record.**

- E. W. Beatty. *Il Ry R 64:402-4 Mr 15 '19*  
 Emergency employment committee for soldiers and sailors. D. M. Reynolds. *Il Sci Am 120:428 Ap 26 '19*  
 Farms for returned soldiers. F. K. Lane. *Il map Sci Am 119:372-3+ N 9 '18*  
 Finding situations for mustered-out soldiers and sailors. *Iron Age 103:177 Ja 16 '19*  
 Highway improvement and land reclamation as means for providing for returned soldiers. F. K. Lane. *Eng & Contr 50:522-3 D 4 '18*  
 Land and the returning soldier. *Am Inst Arch J 6:503-5 N '18*  
 Land reclamation would provide work and homes for hosts of veterans. A. P. Davis. *Eng N 81:361-4 Ag 22 '18*  
 Opportunities for returning soldiers. F. K. Lane. *Am Mach 49:424-6 S 5 '18*  
 Post-war problem; what shall be done with men intensively trained during war? J. O. Kammerman. *Elec R 73:1012 D 23 '18*  
 Problem of returned soldiers. S. A. Goldsmith. *Ind Management 55:373 My '18*  
 Soldier-apprentice problem. *Engineer 126:135 Ag 16 '18*  
 Teaching discharged soldiers mining. F. A. Thomson. *Eng & Min J 107:763 Ap 26 '19*  
 Training of returned soldiers in Canada. D. H. McDougall. *Elec W 71:1254-5 Je 15 '18*  
 Training the soldiers in woodworking. *Il Am Lumberman 2259:50 Ag 31 '18*

*See also United States—Employment service*

**Clothing**

- Base clothing repair shop at Fort Sam Houston. *Am Mach 49:138a Jl 18 '18*  
 Clothing and equipment authorized for sale to officers. *Am Mach 48:937 My 30 '18*  
 Gauntlets and gaiters that defy barbed wire. *Il Sci Am 118:571 Je 22 '18*  
 Gloves worn by soldiers in France. W. Davis. *Il Textile World 53:3157+ Ja 12 '18*  
 Hosiery for Scottish Highland regiments. W. Davis. *Il Textile World 53:3813+ F 16 '18*  
 Knitted articles in war service equipment. W. Davis. *Textile World 53:4335+ Mr 23 '18*  
 Lightweight army underwear. *Textile World 53:4022+ Mr 2 '18*  
 Manufacture of cotton cloths for military uses. J. Reynolds. *Il Textile World 53:2987+ Ja 12 '18*  
 New and unusual war textiles. *Il Textile World 53:2952-3+ Ja 12 '18*  
 Officers' uniform making; prices to manufacture suits range from \$5.59 up. *Textile World 54:1605 O 5 '18*  
 Performance of textile service equipment. W. Davis. *Textile World 54:1969+ O 26 '18*  
 Socks worn by soldiers in France; particulars of plain stitch hosiery supplied British army. W. Davis. *diag Textile World 53:2613 D 22 '17*  
 Textile supplies at camps. *Textile World 53:2692 D 29 '17*

*See also Army cloths; Base sorting plant, inc.; Shoes, Army*

**Equipment**

- Life saving shovel. *Il Sci Am 118:386 Ap 27 '18*  
 Marching equipment of a soldier. P. A. Mackenzie. *Il Am Mach 49:795-7 O 31 '18*  
 What the French assault trooper carries. *Sci Am 118:286 Mr 30 '18*

**Protection***See Helmets***Soldiers, Convalescent**

- Railroad men's mountain home. *Ry R 62:721 My 18 '18*  
 Railroad men's mountain home association. *Il Ry Age 64:1284 My 24 '18*

**Soldiers, Disabled**

- Misconceptions regarding returned soldiers. F. H. Sexton. *Am Ind 18:28 Ap '18*

**Rehabilitation**

- Canada furnishes reclamation plan. W. H. Lloyd. *Il Iron Tr R 63:379-81 Ag 15 '18*

**Soldiers, Disabled—Rehabilitation—Continued**

- Conservation and reclamation of the soldiers and civilians. H. E. Mock. Am Ind 18: 37-8 Je '18
- Crippled soldier in industry. F. B. Gilbreth. Am Inst Min E Bul 136:893-9 Ap '18; Discussion. 136:899-903; 137:1025-32 Ap-May '18
- Diamond cutting for disabled men. B. Oppenheimer. Eng & Min J 106:951 N 30 '18
- Disabled men being employed for English electricity works. Elec R 73:332 Ag 31 '18
- Disabled soldier in electric railway service. Il Elec Ry J 52:579-82 S 28 '18
- Employment of German wounded. Sci Am 118: 103 F 2 '18
- Engineer, the cripple and the new education. F. B. Gilbreth and L. M. Gilbreth. Am Soc M E J 40:51-4 Ja '18; Excerpt. Am Mach 47:1124-6 D 27 '17; Excerpt. Iron Tr R 62: 268-9 Ja 24 '18; Discussion. Am Soc M E J 40:54-61 Ja '18
- Facts assembled on war labor problems at conference of industrial and efficiency engineers; abstracts. Iron Age 101:876-81 Ap 4 '18; Iron Tr R 62:861-3 Ap 4 '18
- Fitting the crippled soldier for self-support; abstract of addresses delivered at a special conference of the National association of cotton manufacturers. Am Ind 18:16-17 F '18
- Functional re-education at Hart house. E. A. Boot. Textile World 53:3495-6 Ja 26 '18
- How France is doing it. W. F. Bradley. Il Motor Age 35:8-9 F 27 '19
- How Germans employ war cripples. D. C. McMurtre. Textile World 54:628-9 Ag 10 '18
- How the disabled soldier may become of use to industry. Am Mach 49:972-6 N 28 '18
- How to deal with crippled workers. T. N. Dean. Am Ind 19:11-13 O '18
- How to get better-than-new workmen. J. Heywood. Il Factory 22:40-1 Ja '19
- Human reconstruction. Il Sci Am 120:172-3 F 22 '19
- Human reconstruction reclaims war's disabled for industry. W. H. Lloyd. Il Iron Tr R 64:80-6 Ja 2 '19
- Industrial restoration of disabled soldiers. B. J. Morris. Il Ind Management 56:477-81 D '18
- Industrial training for the war maimed in Great Britain. I. W. Chubb. Il diags Am Mach 48:771-9 My 9 '18
- Industrial work for disabled soldiers. F. W. Keough. Textile World 53:3497 Ja 26 '18
- Industries and education after the war. E. H. Fish. Ind Management 56:475-6 D '18
- Injured heroes weave Blighty homespuns. W. Davis. Il Textile World 55:399-400 Ja 11 '19
- Jobs for cripples. Textile World 53:4489 Mr 30 '18
- Making over the disabled doughboy. J. B. Huber. Il Sci Am 120:542-3 My 24 '19
- Making the maimed independent of misfortune. Il Am Lumberman 2252:48-9 Jl 13 '18
- Many crippled soldiers choose study of motor mechanics. D. C. McMurtre. Il Elec R 74: 130 Ja 25 '19
- Many soldiers reclaimed by nation. Il Iron Tr R 64:824-5 Mr 27 '19
- Physical reconstruction makes useful workers of crippled men. C. Drexel. Il Dom Eng 85: 410-11 D 14 '18; Same. Inland Ptr 62:329-30 D '18
- Problem of employing disabled soldiers considered; some of the disqualifications for duties in electrical industry. Elec R 73:98-9 Jl 20 '18
- Rebuilding the crippled soldier. D. C. McMurtre. Am Ind 18:26-8 Ap '18
- Reconstructing disabled soldiers. F. J. Cotton. Textile World 53:3449-50 Ja 26 '18
- Reconstructing the war's maimed. Il Sci Am 118:450-4 My 18 '18
- Rehabilitating disabled soldiers and sailors. H. E. Mock. Am Mach 49:58-60 Jl 11 '18
- Rehabilitating the disabled French soldier. L. A. H. Pahn. Elec Ry J 53:90 Ja 11 '19
- Rehabilitation of disabled soldiers; a bill approved in conference. Am Ind 18:16 F '18
- Rehabilitation of the maimed soldier. Am Mach 49:37-8 Jl 4 '18
- Reinstatement in industry. Engineer 126:194 S 6 '18

- Restoring injured soldiers and sailors to industry. F. Holmes. Am Ind 18:38-9 Je '18
- Side lights on rehabilitation. Il Sci Am 119: 461-4 D 7 '18
- Soldier-apprentice problem. Engineer 126:135 Ag 16 '18
- Textile industry and disabled soldiers. E. Szepesi. Textile World 53:2959 Ja 12 '18
- Thoughtful placement of labor. D. C. McMurtre. Textile World 53:6010 Je 8 '18; Same. Am Inst E E Pro 37:sup219-22 Jl '18; Same. Inland Ptr 61:469-70 Jl '18; Same. Power 47:890-1 Je 18 '18; Same. Am Mach 49:99-100 Jl 18 '18; Same cond. Eng & Min J 105:1172-3 Je 29 '18; Same cond. Iron Age 101:1466 Je 6 '18; Same cond. Sibley J 32: 162-3 Jl '18; Same cond. Metal Work 90: 103-4 Jl 26 '18; Excerpts. J Fr Inst 186:397-8 S '18
- Training soldiers as mechanics. R. E. Berg. Il Motor Age 35:7-8 F 27 '19
- Use of cripples in industry. J. P. Munroe. Am Inst Min E Bul 145:87-9 Ja '19
- Vocational re-education of Canadian soldiers. T. B. Kildner. Am Ind 18:16-20 D '17
- War-crippled workers in the sanitary line. A. Bateman. Il Dom Eng 86:31-2 Ja 4 '19
- What do you mean—cripple? M. Delcomyn. Il Inland Ptr 62:193 N '18

**Soldiers, Discharged. See Demobilization**

- Soldiers' and sailors' civil relief act**  
Scope of the soldiers' and sailors' civil relief act passed by the national Congress. Dom Eng 83:289-90 My 25 '18

**Solenoids**

- Calculating for electromagnets. F. T. Fawcett. Am Mach 49:740 O 24 '18
- Construction of 120- and 240-volt electromagnets and solenoids. H. W. Townsend. diags Power 49:888-90 Je 10 '19
- How to build low-voltage direct-current electromagnets and solenoids. H. W. Townsend. diags Power 49:806-7 My 27 '19
- Short-circuit windings in direct-current solenoids. O. R. Schurig. diags Gen Elec R 21: 560-2 Ag '18
- Solenoids and electromagnets; principles, proportions, and applications in various kinds of machines. C. A. Clark. charts diags Mach 24:811-17 My '18
- Speed control of induction motors on cranes and hoists by means of solenoid load brakes. R. H. McLain and H. H. Vernon. Il diags Gen Elec R 22:117-25 F '19
- See also Electromagnets

**Solids**

- Reactions between solid substances. Sci Am S 86:96 Ag 10 '18

**Solon, Leon V.**

- Potter and his work. H. V. Magonigle. Il Arch Rec 45:303-10 Ap '19

**Sols. See Colloids****Solubility**

- Critical elaboration of quantitative precipitation methods, exemplified by a method for the determination of phosphoric acid. H. Heldenheim. J Ind & Eng Chem 10:426-9 Je '18
- Refractive index and solubilities of the nitrates of lead isotopes. T. W. Richards and W. C. Schumb. Am Chem Soc J 40:1403-9 S '18
- Solubility of bismuth oxychloride in hydrochloric acid and its relation to complex formation. A. A. Noyes, F. W. Hall and J. A. Beattie. Am Chem Soc J 39:2526-32 D '17
- Solubility of pure radium sulfate. S. C. Lind, J. E. Underwood and C. F. Whittemore. Am Chem Soc J 40:465-72 Mr '18
- Solubility of silica. V. Lenher and H. B. Merrill. Am Chem Soc J 39:2630-8 D '17
- Solubility of sodium sulfate as a means of determining temperatures. T. W. Richards and V. Yngve. Am Chem Soc J 40:164-74 Ja '18
- Solubility; relative values of internal pressures and their practical application. J. H. Hildebrand. Am Chem Soc J 41:1067-80 Jl '19

**Solubility—Continued**

Summary of the literature on the solubility of systems related to niter cake. H. W. Foote. *J Ind & Eng Chem* 10:896-7 N '18

Unique case of a liquid that exhibits a minimum solubility in an unstable region. M. T. Bogert and J. Ehrlich. *Am Chem Soc J* 41:741-5 My '19

**Solution (chemistry)**

Calculation of the temperature coefficient of the distribution ratio. F. H. MacDougall. *Am Chem Soc J* 41:1718-21 N '19

Compressibility of aqueous solutions of casein and peptone. S. Palitzsch. *Am Chem Soc J* 41:346-51 Mr '19

Contraction of volume of certain substances when dissolved in water. *Sci Am S* 85:267 Ap 27 '18

Electrical conductance of solutions in bromine. E. H. Darby. *Am Chem Soc J* 40:347-56 F '18

Heats of dilution and their variations with temperature. F. R. Pratt. *Il diags J Fr Inst* 185:663-96 My '18

Heterogeneous equilibria between aqueous and metallic solutions: the interaction of mixed salt solutions and liquid amalgams. G. M. Smith and E. A. Rees. *Am Chem Soc J* 40:1802-47 D '18

Isopeletic solutions. *Sci Am S* 86:220 O 5 '18

Laws of concentrated solutions; the general boiling-point law. E. W. Washburn and J. W. Read. *diag Am Chem Soc J* 41:729-41 My '19

On the system acetone-ethyl ether. J. Same-shima. *diags Am Chem Soc J* 40:1482-1503 O '18

On the system benzene-carbon disulfide. J. Same-shima. *Am Chem Soc J* 40:1503-8 O '18

Relations between distribution ratio, temperature and concentration in system: water, ether, succinic acid. G. S. Forbes and A. S. Coolidge. *Am Chem Soc J* 41:150-67 F '19

Studies in conductivity; notes on the measurement of the conductivity of solutions. H. I. Schlesinger and F. H. Reed. *diag Am Chem Soc J* 41:1727-32 N '19

Study of percentage solutions. T. J. Bradley. *Sci Am S* 86:295 N 9 '18

*See also* Boiling points; Colloids; Crystallization; Diffusion; Electrolysis; Electrolytes; Ions; Osmosis; Solubility; Solvents

**Solvay process company**

Development of Americanization project. C. H. Paull. *Il Ind Management* 57:213-17 Mr '19

**Solvents**

Electrolytic conductivity in non-aqueous solutions; relations between the conductivity of the solute and several physical properties of the solvent. H. J. M. Creighton. *J Fr Inst* 187:313-18 Mr '19

Recovery of solvents from air-vapor mixtures. E. L. Knoedler and C. A. Dodge. *Il diag J Ind & Eng Chem* 10:593-5 Ag '18

Solvents from kelp. C. A. Higgins. *J Ind & Eng Chem* 10:858-9 O '18; Same. *Am Ind* 19:17-18 O '18

**Sonora, Mexico**

Conditions in Sonora. F. F. Sharpless. *Eng & Min J* 107:1007-8 Je 7 '19

**Soot**

Atmospheric pollution and the impurities of rain-water. J. B. C. Kershaw. *Engineer* 124:443-4 N 23 '17

Avoiding a preventable loss; soot and its effect on heat transfer through boiler-heating surface. *Elec W* 71:1203-6 Je 8 '18

Blasting the soot out of a smokestack. *Elec R* 71:1069-70 D 22 '17; *Elec Ry J* 52:423 S 7 '18; *Eng & Contr* 50:274 S 18 '18

Combustion of soot. *Coal Age* 13:783 Ap 27 '18

Factors affecting heat absorption of boilers. R. June. *Il diags Elec R* 75:270-3 Ag 16 '19; Same abr. (Management of the power plant). *Textile World* 55:935-+ F 1 '19

Soot and soot blowers. *Power* 47:824-7 Je 11 '18

*See also* Boiler cleaning; Chimney cleaning

**Soot blowers**

Atlas steam soot blower. *diags Int Marine Eng* 24:437 Je '19

Avoiding a preventable loss; soot and its effect on heat transfer through boiler-heating surface. *Elec W* 71:1203-6 Je 8 '18

Can lower fuel bill 5 per cent. *Am Gas Eng J* 108:417 My 4 '18

Data on soot-blower performance. *Elec R* 72:1005 Je 15 '18

Diamond soot blowers save 2,200,000 tons of coal in 1917. *Elec R* 72:81-2 Ja 12 '18

Factors affecting heat absorption of boilers. R. June. *Il diags Elec R* 75:270-3 Ag 16 '19; Same abr. (Management of the power plant). *Textile World* 55:935-+ F 1 '19

Mechanical soot blowers make 15 per cent saving. C. W. Smith. *Elec W* 71:164 Ja 19 '18

Operating results obtained by use of mechanical soot blowers. *diag Elec R* 75:284-5 Ag 16 '19

Soot and soot blowers. *Power* 47:824-7 Je 11 '18

Soot blowers for horizontal water-tube boilers. *Il diags Power* 48:2-7 Jl 2 '18

Soot blowers for vertical and hollow staybolt boilers. *Il diags Power* 48:222-8 Ag 13 '18

Soot removal from fire-tube boilers. *Il diags Power* 48:305-8 Ag 27 '18

**Soot cleaners**

Estimated saving effected by use of soot cleaner. *Elec W* 72:355 Ag 24 '18; *Heat & Ven* 15:76 S '18; *Elec R* 73:441 S 21 '18; *Power* 48:348 S 3 '18

Freeing Manning boiler of soot. *Il Textile World* 54:1739 O 12 '18

Protecting soot cleaner elements. *Il Iron Age* 101:1671 Je 27 '18

Removal of soot from heating surfaces and flues. J. Harrington. *Elec R* 73:900-1 D 7 '18; Same abr. *Heat & Ven* 16:54 Ja '19; Excerpt. *Ry Mech Eng* 93:69 F '19

Simple device for cleaning smoke stack. *diag Am Lumberman* 2259:59 Ag 31 '18

Soot removal from fire-tube boilers. *Il diags Power* 48:305-8 Ag 27 '18

**Sopwith, Thomas O. M.**

Pioneer aviator, designer and constructor. E. M. Burbank. *por Flying* 8:622-3 Ag '19

**Sorbic process. See Steel, Hardening of****Sorghum**

Sorghum and paper. *J Ind & Eng Chem* 10:396 My '18

Sorghum; plant of value as a source of food and industrial raw material. *Il Sci Am S* 88:60-1 Jl 26 '19

Sorghum silage—a new problem. *Il Concrete* 12:123-4 Ap '18

*See also* Sugar

**Soria, Spain**

Soria, Osma and Cuenca. G. G. King. *Il Am Inst* 187:313-18 Mr '19

**Sorocold, George**

Links in the history of engineering; a chapter in the history of public water supply. *Engineer* 126:333-4 O 18 '18

**Sound**

Absolute measurement of the intensity of sound. A. G. Webster. *bibliog Il Am Inst E E Pro* 38:889-900 Jl '19

Drum-fire and the difference between the sound of a gun and of an exploding shell. G. F. Sleggs. *Sci Am S* 84:393 D 22 '17

Sound—a unique form of energy. *Sci Am* 121:276 S 20 '19

*See also* Acoustics, Architectural; Hearing; Noise; Phonograph

**Sound perception**

Perception of sound. D. F. Harris. *Sci Am S* 87:235 Ap 12 '19

**Sound-proof construction**

Insulating an office for noisy machines. *diags Ry Age* 67:372 Ag 22 '19

**Sound-ranging devices**

Listening for the enemy. *Il Sci Am* 120:510-11 My 17 '19

Sound detection and sound ranging. U S Bur Mines Bul 178-D:99-102 '19

Sound transmission. See Amplifiers; Geophone; Submarine detectors; Telephone; Wireless telephone

### Sounding

Inspection of drainage ditch cross-sections after contract dredging. E. S. Blaine. *Il diags Eng N 82:1019-22 My 22 '19*  
Sounding rod for canal and stream measurements. W. G. Stewart. *diags Eng & Contr 52:414 O 8 '19*  
Soundings for substructures of small bridges. C. G. Landon. *Eng & Contr 49:78 Ja 23 '18*  
Taking soundings above Niagara falls from the shore. L. R. Brown. *Il diags plan Eng N 81:634-7 O 3 '18*

### South Africa

See also Electric railroads—South Africa

#### Commerce

Is South Africa worth while? W. A. Forbes. *Am Ind 20:34-5 O '19*  
Miles of gold. *Il Sci Am 120:464 My 3 '19*  
Trade to be had for the asking. *Sci Am 119:414 N 23 '18*

#### Economic conditions

Mining conditions in South Africa. E. M. Weston. *Eng & Min J 107:363-4 F 22 '19*

#### Industries and resources

See Automobile industry and trade—South Africa; Mines and mineral resources—South Africa; Tin mines and mining—South Africa

South African federated chamber of Industries Union of South Africa. *Am Ind 19:25-6 N '18*

### South America

Over the Andes in a motor car; South American Studebaker crosses the continent from Atlantic to Pacific on pioneer tour. *Il map Motor Age 34:22-4 Ag 22 '18*

See also Latin America

#### Commerce

American investment abroad and essential raw material. P. Farquhar. *Ry Age 65:108-9 sec 2 JI 12 '18*  
Commercial motion picture. H. G. Plimpton. *Am Ind 18:16-17 Mr '18*  
Direct selling in South America; abstracts. P. S. Steenstrup. *Automotive Ind 40:1019-20 My 8 '19; Am Mach 51:30-1 JI 3 '19*  
Essential qualifications for commercial agents in Latin-America. *Chem & Met Eng 21:113-14 Ag 1 '19*  
Furniture markets of Chile, Peru, Bolivia, and Ecuador. H. E. Everley. *Il U S Bur For & Dom Com 176:1-165 '19*  
Greatest trade expansion in history; increase of \$1,000,000,000 in 1918 shown by records of Latin-American commerce. *map Eng N 81:604-5+ S 26 '18*  
Market for machine tools in South America after the war. L. W. Schmidt. *Am Mach 47:1025-6 D 13 '17*  
South American machine belting market. *Engineer 124:531 D 14 '17*  
South American markets for dried fruits. W. Fischer. *U S Bur For & Dom Com 148:1-35 '17*  
Textile man's observations in South America. C. H. Fish. *Il Textile World 53:2961+ Ja 12 '18*  
Woolens in South America. *Textile World 53:4488 Mr 30 '18*

#### Industries and resources

Market for electrical goods. P. S. Smith. *Il Elec W 73:364-8, 479-81 F 22, Mr 8 '19*

See also Mines and mineral resources—South America

#### Railroads

See Railroads—South America

South Carolina cotton manufacturers' association. See Cotton manufacturers' association of South Carolina

### South Charleston, West Virginia

Housing development that solves the lodger problem; the Naval ordinance housing development. *Il Am Arch 115:565-9, pl 133-9 Ap 23 '19*

### South Norwalk, Connecticut

#### Lighting

Street lighting in a city of average size. C. D. Gray and E. Hagenlocher. *Il Elec W 73:575-8 Mr 22 '19*

### South Philadelphia, Pennsylvania

Westinghouse village at South Philadelphia. *Il plans Am Arch 115:222-30 F 12 '19*

South Philadelphia works. See Westinghouse electric & manufacturing company

### Southeastern cross tie manufacturers' association

Cross tie manufacturers form association. *Am Lumberman 2306:57 JI 26 '19*

### Southern alluvial land association

1st annual meeting, Memphis, Tenn. *Am Lumberman 2227:53 Ja 19 '18*  
Semiannual meeting, Memphis, Tenn., July 12. *Am Lumberman 2253:45 JI 20 '18*

### Southern Appalachian coal operators' association

Annual meeting, Louisville, Ky., Feb. 14. *Coal Age 15:397-9 F 27 '19*

### Southern cypress manufacturers' association

Annual meeting, New Orleans, La., May 15. *Am Lumberman 2244:51-2 My 18 '18*  
Annual meeting, New Orleans. *Am Lumberman 2297:52-3 My 24 '19*

### Southern gas association

10th annual meeting, Chattanooga, Tenn., May 22-23. *Gas Age 41:501-6 Je 1 '18*

### Southern hardwood traffic association

5th annual meeting, Memphis, Tenn., Jan. 15. *Am Lumberman 2227:50-1 Ja 19 '18*

### Southern Pacific railroad

Annual report. *Ry Age 67:89-91, 130-5 JI 18 '19*

Reclamation on the Southern Pacific. F. A. Stanley. *Il Ry Mech Eng 92:381-6, 505-6 JI, S '18*

34th annual report, 1917. *map Ry Age 65:200-2, 232-7 Ag 2 '18*

### Southern pine association

Annual convention, New Orleans, Feb. 19-20. *Am Lumberman 2232:50-5 F 23 '18*  
Exhibits tell notable story of achievement. *Am Lumberman 2234:39 Mr 9 '18*

Mass meeting, New Orleans, Aug. 28. *Am Lumberman 2259:40-1 Ag 31 '18*

Meeting of the stockholders and directors, Memphis, Tenn., April 25. *Am Lumberman 2242:54 My 4 '18*

### Southern railway

Report, June 30, 1917 to December 31, 1917, and the calendar year 1917. *map Ry Age 65:724-5 O 25 '18*

### Southern retail lumber dealers' association

8th annual convention, Memphis, Tenn., Feb. 25-26. *Am Lumberman 2233:45-6 Mr 2 '18*

### Southern supply and machinery dealers' association

Supply conventions, Cleveland, May 15-17. *Iron Age 101:1346-51 My 23 '18; Am Mach 48:1095-9 Je 27 '18*

### Southern textile association

Annual meeting, Greenville, S. C. *Textile World 55:2850-1+ My 10 '19*

Members and guests present at Greenville convention. *Textile World 53:2607+ D 22 '17*

Second exhibit of cotton mill machinery and supplies at Greenville, S. C. *Il Textile World 53:2503-13+ D 15 '17*

Semi-annual meeting, Greenville, S. C. *Textile World 53:2479+, 2605-7+ D 15-22 '17*

12th annual convention, Wrightsville Beach, N. C., June 21-22. *Textile World 53:6322-5+ Je 29 '18*

### Southern traffic league

Statement of Southern traffic league. *Ry R 64:454-6 Mr 22 '19*

- Southwest museum**  
Southwest museum, Los Angeles, Cal. R: F. Bach. diag. plan Arch Rec 43:94-6 Ja '18
- Southwestern electrical and gas association**  
14th annual convention, Galveston, Tex., April 15-17. Elec R 72:721-2 Ap 27 '18; Elec Ry J 51:813-14 Ap 27 '18; Elec W 71:894-5 Ap 27 '18; Gas Age 41:477 My 15 '18  
15th annual convention, Galveston, Texas, May 12-14. Elec Ry J 53:1013-14 My 24 '19; Elec W 73:1124-5 My 24 '19; Am Gas Eng J 110:494-5+ Je 7 '19
- Southwestern lumbermen's association**  
30th annual meeting, Kansas City, Mo., Jan. 23. Am Lumberman 2228:53-5; 2229:64-5 Ja 26-F 2 '18
- Southwestern society of engineers**  
Convention, El Paso, Tex., May 29-31. Eng & Min J 107:1055 Je 14 '19
- Soy bean oil**  
Detecting fraud. Sci Am 121:486 N 15 '19  
Modification of the composition of vegetable oils, with special reference to increasing unsaturation. H. L. White. J Ind & Eng Chem 11:648-51 J '19  
Substitute for linseed oil in paint manufacture. H: A. Gardner. Am Arch 116:29 JI 2 '19; Same. Sci Am 121:196 Ag 23 '19
- Soy beans**  
Lesson from the Orient. Sci Am 118:230 Mr 16 '18  
Soy bean: its culture and uses. W. J. Morse. II map U S Agric Farmers' Bul 973:1-32 '18; Abstract. Sci Am S 86:144 Ag 31 '18  
Soy beans make valuable food. Sci Am S 86:8 JI 6 '18
- Soya oil.** See Soy bean oil
- Spacing tables**  
Automatic spacing and punching machine for structural work. S. A. Hand. II diag. Am Mach 49:1-8 JI 4 '18
- Spain**  
See also Architecture—Spain; Railroads—Spain
- Commerce**
- American progress in Spanish industry. Iron Age 104:513 Ag 21 '19; Same. Eng & Min J 108:414 S 6 '19  
America's trade opportunity with Spain. II Sci Am 118:134 F 9 '18  
Trade with Italy and Spain after the war; article issued by Guaranty trust co. Am Mach 48:945-7 Je 6 '18
- Industries and resources**
- Status of flotation in Spain. Eng & Min J 108:316-17 Ag 23 '19  
See also Electricity supply—Spain; Iron industry and trade—Spain; Mines and mineral resources—Spain
- Navy**
- If Spain went to war. Sci Am 119:206 S 14 '18  
Spanish naval construction. II Engineer 125: 465-6 My 31 '18
- Railroads**
- See Railroads—Spain
- Spanish cedar. See Cedar, Spanish
- Spanish influenza. See Influenza
- Spanish language
- Study and teaching**
- About Spanish. Eng & Min J 107:588-9 Mr 29 '19
- Spark arresters**  
Locomotive front end spark arrester. II diag. Ry Mech Eng 92:118-19 F '18; Same. Ry Age 64:372-3 F 15 '18
- Spark plugs**  
Aeronautic power plant investigations. H. C. Dickinson. diag U S Nat Advisory Com for Aeronautics 1917:491-5 '18  
Deterioration of nickel spark-plug terminals in service. H: S. Rawdon and A. I. Krynitzy. II Am Inst Min Bul 152:1323-50 Ag '19; Discussion. 155:3067-8; 156:3137-8 N-D '19
- Effect of temperature on spark plug insulations. Automotive Ind 40:25 Ja 2 '19  
How welded electrodes in spark plugs prove superiority. J. E. Schipper. II diag Automotive Ind 41:222-4 JI 31 '19  
Ignition work at the Bureau of standards. F. B. Silabee. II diag Automotive Ind 40: 1294-9 Je 12 '19  
Resistance of hot spark plug insulators. R. H. Cunningham. II diag Automotive Ind 39: 907-11 N 28 '18  
Spark gaps. Sci Am S 87:198 Mr 29 '19  
Spark-plug efficiency; abstract. A. M. Low. diag Mech Eng 41:620 JI '19  
Spark plug life. A. Champion. Motor Age 34: 32-3 S 26 '18  
Spark plug sizes for 1918, 1917, 1916, 1915, 1914, 1913 and 1912 cars. Motor Age 34:41 O 3; 37 O 10; 43 O 17; 43 O 24 '18  
Special spark plugs needed for airplane engines. diag Automotive Ind 38:29-32 Ja 3 '18  
Tests of ignition apparatus. P. M. Heldt. II diag Automotive Ind 40:578-9 Mr 13 '19  
Tractor engines and fuel limitations; abstract. H. L. Horning. Mech Eng 41:897-8 N '19  
Tractor spark plugs. O. C. Rohde. Automotive Ind 41:177 JI 24 '19; Same. Motor Age 36:36-7 JI 31 '19  
Ventilated spark plug. diag Aviation 6:627 JI 15 '19
- Spark recorders**  
Spark recorder used in testing apparatus. F. W. Springer. diag Elec W 72:1129-30 D 14 '18
- Sparks.** See Electric sparks
- Sparrow, John P., 1860-1918**  
Sketch. por Power 47:490 Ap 2 '18
- Spars**  
Specialists supply spars for all sections. II Am Lumberman 2262:39 S 21 '18
- Spartanburg textile industrial school, Spartanburg, South Carolina**  
Half-time work, half-time study, model cotton mill planned. Textile World 54:1885+ O 19 '18
- Speaking tubes**  
Speaking tube for airmen. II Sci Am 120:346 Ap 5 '19
- Spearmint**  
Influence of time of harvest, drying and freezing of spearmint upon the yield and odorous constituents of the oil. F. Rabak. J Ind & Eng Chem 10:275-9 Ap '18
- Special libraries.** See Libraries, Special
- Specialization**  
Specialisation and invention. W. G. Cass. Engineer 126:100 Ag 2 '18
- Specific gravity**  
Method of separating materials of different specific gravities. T: M. Chance. II diag Am Inst Min E Bul 134:265-72 F '18; Same. Coal Age 13:866-8 My 11 '18; Discussion. Am Inst Min E Bul 136:794-6 Ap '18; Same. Coal Age 13:868-9 My 11 '18  
Relation of the shrinkage and strength properties of wood to its specific gravity. J. A. Newlin and T. R. C. Wilson. U S Agric Bul 676:1-35 '19; Abstract. Eng & Contr 52:239-41 Ag 27 '19  
Routine determination of specific gravity of coal. A. G. Blakeley. Coal Age 14:1078-9 D 12 '18; Discussion. 15:68-9; 16:70 Ja 9, JI 10 '19  
Specific gravity apparatus for gases. E. J. Brady. J Fr Inst 187:501-2 Ap '19  
Specific gravity table. Eng & Min J 107:1145 Je 28 '19
- Specific heat**  
Specific and latent heat. W. Scott. Metal Work 90:506-6 N 1 '18  
Specific heat of liquid ammonia. N. S. Osborne and M. S. Van Dusen. U S Bur Stand Bul 14:397-432 Je 24 '18; Same cond. Am Chem Soc J 40:1-13 Ja '18  
Specific heat of water. W. R. Bousfield. Am Soc M E J 40:205 F '18



**Specific heat—Continued**

Specific heats at low temperatures of sodium, potassium, magnesium and calcium metals, and of lead sulfide. E. D. Eastman and W. H. Rodebush. *Am Chem Soc J* 40:489-500 Mr '18

What is meant by specific heat? W. D. Owens. *Coal Age* 13:1141 Je 22 '18; Same. *Power* 48:332 S 3 '18

**Specifications**

Building contractor's satire on architects' specifications. *Heat & Ven* 15:55-6 Jl '18

Delays caused by exacting government specifications. *Mach* 24:1115 Ag '18

Government specifications. *Mach* 24:1026 Jl '18

Need of adequate specifications for well-known materials. W. S. Timmis. *Ind Management* 56:503 D '18

Specifications for public works. *Munic J* 46:91 F 1 '19

Suggestions for improving specifications. H. G. Payrow. *Eng & Contr* 52:54 Jl 9 '19

See also Standards, Engineering; also subdivision Specifications under names of subjects, e.g. Bridges—Specifications, Rails—Specifications, Steel—Specifications

**Spectacles**

Glasses for protecting the eyes from injurious radiations. W. W. Coblenz and W. B. Emerson. *U S Bur Stand Tech Pa* 93:1-25 '18

Some uses and properties of nickel silver as applied to the optical trade. G. C. Holder. *Il Metal Ind* 16:69-72 F '18

See also Goggles

**Manufacture**

Design of small machinery. W. E. Thompson. *diags Mach* 26:148-9 O '19

Recent progress in the manufacture of glasses for protecting the eye from injurious radiations. W. W. Coblenz. *J Fr Inst* 188:255-61 Ag '19

**Spectra**

Newton and the colors of the spectrum. R. A. Houstoun. *diags Sci Am S* 87:236-7 Ap 12 '19

Visibility of radiation in the blue end of the spectrum. L. W. Hartman. *J Fr Inst* 185:709 My '18

See also Light; Radioactivity; Spectrum analysis; Ultra-violet rays

**Spectra, Absorption. See Absorption spectra****Spectral selectivity of photographic deposits.**

L. A. Jones and R. B. Wilsey. *diags J Fr Inst* 185:231-67 F '18

**Spectrophotometry**

Photoelectric spectrophotometry by the null method. K. S. Gibson. *diags U S Bur Stand Sci Pa* 349:325-52 '19; Abstract. *Mech Eng* 41:840-1 O '19; Same. *J Fr Inst* 188:547-8 O '19

Ultra-violet and visible transmission of eye-protective glasses. K. S. Gibson and H. J. McNicholas. *U S Bur Stand Tech Pa* 119:1-47 '19

**Spectrum analysis**

Acidimetry of colored solutions: an application of the pocket spectroscopy. A. Tingle. *Am Chem Soc J* 40:873-9 Je '18

Measurements of wave lengths in the spectra of krypton and xenon. P. W. Merrill. *Il U S Bur Stand Sci Pa* 345:251-7 '19

Measurements of wave lengths in the spectrum of neon. K. Burns, W. F. Meggers and P. W. Merrill. *U S Bur Stand Bul* 14:766-75 Jl 12 '19

Quantitative spectrum analysis. *Sci Am* 119:327+ O 19 '18

Spectral energy distribution in the acetylene flame. W. W. Coblenz. *J Fr Inst* 188:399-401 S '19

Spectroscopic determination of lead in copper. C. W. Hill and G. P. Luckey. *Il plan Am Inst Min E Bul* 142:1581-92 O '18

Spectrum analysis and atomic structure. J. J. Thomson. *Sci Am S* 87:382-3 Je 14 '19

Wave-length measurements in spectra from 5600 A to 9600 A. W. F. Meggers. *Il diags U S Bur Stand Bul* 14:371-95 Je 24 '18; Excerpt. *J Fr Inst* 185:547-9 Ap '18

Wave lengths in the red and infra-red spectra of iron, cobalt, and nickel arcs. W. F. Meggers and C. C. Kless. *U S Bur Stand Bul* 14:637-51 Jl 12 '19

Wave lengths of the stronger lines in the helium spectrum. P. W. Merrill. *U S Bur Stand Bul* 14:159-66 Ap 6 '18

See also Light—Wave length; Spectra

**Spectrum of stars. See Stars—Spectra****Speech**

Analysis of the mechanism of speech. D. Jones. *Il diags Sci Am S* 87:221 Ap 5 '19

See also Stammering

**Speed**

Counting revolutions without a counter. W. F. Schaphorst. *diags Coal Age* 13:614-15 Ap 6 '18

Critical speed in tapered shaft design. A. Musso. *diags Mach* 25:59-60 S '18

Speed measuring instruments. See Anemotachometer; Speedometers; Tachometers

Speed of ships. See Ships—Speed

Speed regulation. See Governors (machinery)

**Speed variation**

Designing change-gears. W. C. Steuart. *diags Mach* 26:252-5 N '19

Poole speed-reducing gear for turbine or motor-driven machine. *Il Elec R* 72:82 Ja 12 '18

Speed-reduction device with novel and valuable features. P. Zulinke. *diags Am Mach* 49:267 Ag 8 '18

Spur gear speed reducer. *Il Chem & Met Eng* 20:648 Je 15 '19

Turbine machinery for standard ships. *Il (supp) diags Engineer* 127:371-3 Ap 18 '19

**Speedometers**

Minor speedometer adjustments. *diags Motor Age* 33:39 Je 27 '18

Temperature control on A-C speedometer. *Il diags Automotive Ind* 40:1228-9 Je 5 '19; *Motor Age* 35:44 Je 5 '19

**Spelices**

Treatment of complex spelices. P. Papenordt. *diags Chem & Met Eng* 21:30-3 Jl 1 '19

**Spelling**

Orthography of English words. F. H. Teall. *Inland Ptr* 61:41-2 Ap '18

Science of English spelling. W. C. Holmes. *Sci Am* 120:285 Mr 22 '19

See also Compound words

**Spelter. See Zinc****Sperm oil**

Data on sperm oils used for burning in miners' safety lamps. A. G. Blakeley and E. A. Reilly. *Coal Age* 13:537-8 Mr 23 '18

**Sperry gyroscope company**

Upgrading in the training department. M. R. Lott. *Il Ind Management* 58:100-3 Ag '19

**Sphagnum moss**

Are you collecting sphagnum? G. E. Nichols. *Il diags Sci Am S* 86:308-11 N 16 '18

Sphagnum moss. G. H. Heald. *Sci Am S* 87:48 Ja 18 '19

**Sphalerite**

Relation of sphalerite to other sulphides in ores. L. P. Teas. *Il Am Inst Min E Bul* 131:1917-31 N '17; Discussion. 136:843-5 Ap '18

**Spherometer**

Spherometer of precision. J. Guild. *Il diags Sci Am S* 88:184-5 S 20 '19

**Spices**

Use of microorganisms to determine the preservative value of different brands of spices. F. M. Bachmann. *J Ind & Eng Chem* 10:121-3 F '18

**Spiders' webs**

Fishing with spider's webs. E. W. Gudger. *Il Sci Am S* 87:149-50 Mr 8 '19

- Spiegeleisen**  
 Ferromanganese and spiegeleisen. G: C. Stone. Eng & Min J 105:75-6 Ja 12 '18  
 Low manganese, high phosphorus spiegeleisen from slags; patent. Iron Age 101:1392 My 30 '18  
 Production of spiegeleisen in blast furnaces. P. H. Royster. U S Bur Mines War Minerals Investigations Ser 6:1-19 '18 (Typew)  
 Spiegeleisen in place of ferromanganese. E. F. Cone. Iron Age 101:40-1 Ja 3 '18  
 Use of spiegel in meeting manganese specifications. R. K. Clifford. Iron Age 102:98-9 Ji 11 '18
- Spikes (railroad)**  
 Arch-head track spikes. II Ry R 62:406-7 Mr 16 '18  
 Is the screw spike a good rail fastening? Eng N 80:390-1 F 28 '18  
 Observations of an old trackman on the proper driving of spikes. diags Coal Age 15: 175 Ja 23 '19  
 Pennsylvania report brings up question of free vertical motion of rails. Eng N 80:441 Mr 7 '18  
 Pennsylvania system rejects screw spikes. diags Ry Age 64:294, 307-11 F 8 '18; Conclusions. Ry R 62:384-5 Mr 16 '18; Discussion. W. C. Cushing. Ry Age 64:441-2 Mr 1 '18  
 Screw spikes unsatisfactory on Pennsylvania lines. Eng N 80:413 F 28 '18  
 Tests of the holding power of track spikes. II diags Ry R 65:757-61, 797-801 N 22-29 '19
- Spillways**  
 Automatic gates for protecting spillways. Elec R 74:473 Mr 22 '19  
 New type of spillway with long crest. diags Eng & Contr 52:140 Ji 30 '19  
 Short-circuiting floods in the big Sioux river. F. C. Shenehon. II diags plan Eng N 82: 961-4 My 15 '19  
 Sioux Falls spillway for flood relief of the big Sioux river, South Dakota. F. C. Shenehon. II Munic Eng 56:143-6 Ap '19  
 Spillway capacities required for reservoirs in western United States. J: T. Whistler. Eng N 83:28-32 Ji 3 '19  
*See also* Dams; Irrigation; Reservoirs
- Spinach**  
 Nitrogen distribution in spinach. S. L. Jodidi and S. C. Moulton. Am Chem Soc J 41:1531 O '19
- Spindles**  
 Calculating spindle speed. Textile World 55:3316 My 31 '19  
 Should spindles on fly frames be oiled? Textile World 54:2557+ N 23 '18
- Spinning**  
 Making warps from fine yarns. Textile World 54:1209 S 14 '18  
 Spinning core yarn. diags Textile World 53:4141+ Mr 9 '18  
 Spinning developments in England. J. A. Hunter. Textile World 55:264 Ja 11 '19  
 Wood pulp wet spinning process. Textile World 56:233 Ji 12 '19  
*See also* Cotton spinning; Textile fabrics; Textile industry; Yarn
- Spinning machinery**  
 Care of travelers. P. A. Smith. Textile World 53:6328+ Je 29 '18  
 Draft in roving and spinning frames. W: Smith. Textile World 55:1045+ F 8 '19  
 Drawing mechanism designed to give better control of short fibers. diags Textile World 54:1213 S 14 '18  
 Feed stopping device for spinning and twisting. diags Textile World 53:4231+ Mr 16 '18  
 Four-frame electric drives. C. W. Starker. diags Textile World 54:1609+ O 5 '18  
 Mechanical doffer; device for flyer spinning frames which shows progress. diag Textile World 55:771 Ja 25 '19  
 Preventing nosing-off on bobbins. diags Textile World 53:2523 D 15 '17  
 Roving and spinning frame drafts. Textile World 55:3839 Je 21 '19
- Tape drive in spinning and twisting.** G: H. Goldsmith. diags Textile World 53:2991+ Ja 12 '18
- Spiral gearing.** See Gearing, Spiral
- Spirals, Track.** See Electric railroads—Track
- Spires**  
 Construction of a lantern and fleche, Hennepin avenue church, Minneapolis, Minn. II diags plans Am Arch 114:469-75 O 16 '18
- Spirits, Alcoholic.** See Liquors
- Spiritualism**  
 Philosophy and spiritualism. Sci Am S 87: 345 My 31 '19
- Spirit furnace.** See Furnaces, Metallurgical
- Spitzbergen**  
 Industries and resources  
 Spitzbergen and its resources. map Sci Am S 85:197 Mr 30 '18  
*See also* Iron mines and mining—Spitzbergen; Mines and mineral resources—Spitzbergen
- Splice bars.** See Rail joints
- Splicing.** See Knots and splices
- Spints (surgery)**  
 Surgical machinery up to date. II Sci Am 120: 80 Ja 25 '19
- Spoilage**  
 Spoilage, the fourth factor of cost. F: W. Kilduff. J Account 25:191-5 Mr '18
- Spokane, Washington**  
 Sanitary affairs  
 Reconstruction of Spokane incinerator. A. E. Peterson. II plan Munic J 44:1-3 Ja 5 '18
- Spontaneous combustion**  
 Causes of spontaneous combustion of waste. J. Scott. Eng & Contr 50:118 Ji 31 '18  
 Diffusion of oxygen through stored coal. S. H. Katz. II diags U S Bur Mines Tech Pa 170:1-44 '17; Excerpt. Gas Age 42:200 S 2 '18  
 Effects of moisture on the spontaneous heating of stored coal. S. H. Katz and H. C. Porter. II diags plan U S Bur Mines Tech Pa 172:1-23 '17  
 Keeping the coal pile cool. diag Elec R 74: 642 Ap 19 '19  
 Smother the fire before it appears. G. J. Young. diag Coal Age 13:782-3 Ap 27 '18  
 Spontaneous combustion. M. W. Franklin. Am Soc Heat & V E 24:413-19 '18; Same. Metal Work 90:250-2 Ag 30 '18  
 Spontaneous combustion. G. H. P. Walker. J Fr Inst 184:582-3 O '17; Same. Locomotive 31:249 O '17  
 Spontaneous combustion in hay. Sci Am S 87:94 F 8 '19  
 Spontaneous combustion of coal; statement issued by Bureau of mines. Ry R 62:507 Ap 6 '18; Same. Gas Age 41:482 My 15 '18; Same. Heat & Ven 15:39-40 Ji '18; Same. Am Soc Heat & V E 24:420-2; Discussion. 423-4 '18  
 Spontaneous combustion, what it is and in what materials it occurs. W. Smith. Mech Eng 41:703-4 Ag '19  
 Spontaneous ignition of bituminous coal. J. F. Springer. II diag Power 47:536-9 Ap 16 '18  
 Spontaneous stockpile fires. Coal Age 12:771 N 3 '17; Same. Eng & Min J 105:156 Ja 19 '18
- Spooling**  
 Arrangement of the spooling department. A. W. Anderson. Textile World 54:2837+ D 7 '18  
 Practices in the spooling department. Textile World 55:3837+ Je 21 '19
- Spot welding.** See Electric welding
- Spring making machines**  
 Ryerson universal elliptic spring forming machine. II Ry Mech Eng 93:866-7 Je '19
- Springfield, Illinois**  
 City plan movement and improvement. G: W. Maher. Am Arch 114:543-4 N 6 '18

**Springfield, Massachusetts****Rapid transit**

- Springfield to have zone fares. *Elec Ry J* 51: 663-5 Ap 6 '18  
 Zone fares in Springfield. *Il plan Elec Ry J* 54:628-36 S 27 '19

**Springfield, Missouri**

- Tiny town; experiments of Springfield evolves method of promoting ideals of citizenship. W. H. Johnson. *Il Am Arch* 116:439-43 O 1 '19

**Springs**

- Intermittent siphon in nature; a curious spring in Virginia. E. W. Shuler. *Il diag Sci Am* 119:131 Ag 17 '18  
*See also* Mineral waters

**Springs (mechanism)**

- Charts for the design of helical springs. M. M. Brayton. *charts Am Mach* 48:1007-11 Je 13 '18  
 Design of coil springs. W. F. Brown. *Automotive Ind* 37:918-19 N 22 '17  
 Design of springs for oscillating masses; abstract. G. Lindner. *Am Soc M E J* 40:508 Je '18  
 Device for winding springs. G. J. Horak. *diags Mach* 24:605 Mr '18  
 Helical and elliptical springs. C. T. Edgerton. *diags Chem & Met Eng* 19:762-7 D 1 '18  
 Helical spring calculation. A. H. Lake, Jr. *diags Ry Mech Eng* 92:101-2 F '18  
 Helical spring computations. D. H. Reeves. *charts Mach* 24:430-5 Ja '18  
 New theory of plate springs. D. Landau and P. H. Parr. *diags J Fr Inst* 185:481-507; 136: 699-721; 187:65-97, 199-213 Ap. D '18-F '19; *Abstract. Engineer* 127:397-8 Ap 25 '19; *Correction. J Fr Inst* 185:702 My '18  
 Semi-elliptic springs—manufacture and repair; report of Master mechanics' association committee. *diags Ry Age* 64:1528-31 Je 21 '18; *Ry R* 62:943-7 Je 29 '18  
 Simple coil-spring winding device. A. Larson. *diag Am Mach* 49:401 Ag 29 '18  
 Spring making on a quantity basis. F. B. Jacobs. *Il Iron Tr R* 64:1343-8 My 22 '19  
 Spring with decreasing tension. H. E. Dey. *Mach* 25:153 O '18  
 Standard specifications for carbon steel bars for railway springs; English and Spanish. U S Bur For & Dom Com Ind Stand 10:1-13 '18  
 Tables for calculating helical springs. J. H. Sullivan. *Mach* 25:961-4 Je '18  
 Thermodynamics of springs; abstract. H. Bock. *Am Soc M E J* 41:55 Ja '19  
 Winding springs in a job shop. M. L. Lowrey. *diag Am Mach* 51:164 J 24 '19  
*See also* Automobiles—Springs; Locomotives—Springs; Motor trucks—Springs; Pawl springs; Tractors—Springs

**Testing**

- Results of tests on torsion springs. C. C. Soper. *diags Am Mach* 50:655-6 Ap 3 '19  
 Springs, Automobile. *See* Automobiles—Springs  
 Springs, Bed. *See* Bed springs

**Sprinklers**

- Automatic sprinklers for fire protection. A. Bateman. *Il diags Dom Eng* 86:81-3 Ja 11 '19  
 Keeping sprinklers in trim. *Factory* 23:310-+ Ag '19  
 New code for automatic sprinklers. *Il plans Am Arch* 115:588-95 Ap 23 '19  
 Sprinkler arrangement. *diag Ry Mech Eng* 92:216 Ap '18  
 Sprinklers of equal value as construction in Kansas City fire. *Eng N* 80:1102-3 Je 6 '19  
 Testing sprinkler heads for leaks. J. J. Borckenhausen. *diags Mach* 25:62 S '18  
 Utilization of sprinkler system piping for heating. A. W. Moulder. *diag Heat & Ven* 16:34-6 J 1 '19

**Sprinkling of streets. See** Street sprinkling**Sprinkling systems**

- Fire protection in manufacturing plants. C. E. Rigby. *diags Am Soc M E J* 40:844-5 O '18

**Sprocket wheels**

- Sprocket design theory and practice. W. M. Free. *Il diags Mach* 25:147-50 O '18

**Spruce**

- Bone and sinew for our aircraft; winning the world war in the forests of Oregon and Washington. H. E. Thomas. *Il Sci Am* 118: 564+ Je 22 '18  
 Demobilizing equipment of spruce production division. *Il Eng N* 82:967-9 My 15 '19  
 Development of the aircraft spruce industry. L. K. Hodges. *Il Automotive Ind* 39:1037-40, 1100-1 D 19-26 '18  
 Effect of varying certain cooking conditions in the production of sulphite pulp from spruce. S. E. Lunak. 12 pls U S Agric Bul 620:1-23 '18  
 Emergency seasoning of Sitka spruce. L. A. Welo. *diag Sci Am* S 87:404-5 Je 28 '19  
 Epic of spruce told by chief in command. *Am Lumberman* 2231:44-5 Ap 12 '19  
 Filling the allies' rush order for airplane spruce. N. A. Bowers. *Il Eng N* 81:1023-31 D 5 '18  
 Getting out airplane spruce. F. W. Vincent. *Il Sci Am* 119:438-9 N 30 '18  
 How to distinguish Douglas fir from Sitka spruce lumber. *Am Arch* 116:327 S 3 '19  
 Method of spruce production. *Am Arch* 114: 348-9 S 18 '18  
 Motor trucks and plank roads help to get out airplane spruce. *Il Eng N* 81:1164-6 D 26 '18  
 Motor trucks haul spruce logs for airplane stock. *Il Eng N* 81:1166-7 D 26 '18  
 Preparation of spruce for airplane material. *Il Am Lumberman* 2257:34 Ag 17 '18  
 Prices on New England spruce. *Am Lumberman* 2241:29 Ap 27 '18  
 Red spruce: its growth and management. L. S. Murphy. *Il diags map U S Agric Bul* 544:1-100 '17  
 Soldiers build logging roads in spruce forests. W. A. Welch. *Il Ry Age* 65:805-7 N 8 '18  
 Specifications for spruce cants tentatively set. *Am Lumberman* 2232:68 F 23 '18  
 Spruce and fir output nears requirements. *Automotive Ind* 39:210 Ag 1 '18  
 Use of spruce in aeroplane construction; abstract. J. A. Newlin. *Am Soc M E J* 40:423-4 My '18  
 Spruce turpentine  
 Spruce turpentine. *J Ind & Eng Chem* 10:4 Ja '18  
 Sulfite turpentine. A. W. Schorger. *J Ind & Eng Chem* 10:258-60 Ap '18  
 Toluol from spruce turpentine. *Met & Chem Eng* 18:311, 338 Mr 15-Ap 1 '18  
 Toluol from spruce turpentine. A. S. Wheeler. *J Ind & Eng Chem* 10:359-60 My '18  
 Spurr, Josiah Edward, 1870-  
 Editor-in-chief of the Engineering and mining journal. *por Eng & Min J* 108:471-6 S 13 '19

**Square (instrument)**

- Making accurate squares for gagemakers. J. Teckker. *diags Am Mach* 48:1041-3 Je 20 '18  
 Square testing device. C. H. Tamplin. *diags Mach* 25:253-4 N '18

**Squares**

- Easy method of obtaining squares. L. A. Hornel. *Eng N* 79:1214 D 27 '17

**Squier, George Owen, 1865-**

- Presentation of the Franklin medal to Sir James Dewar and Major General George Owen Squier. *por J Fr Inst* 188:98, 104-12 J 1 '19

**Stables. See** Barns and stables**Stacks. See** Chimneys**Stadia**

- Opening of Pershing stadium in France—built of concrete. *Il Concrete* 15:56 Ag '19  
 Suggestion for a war memorial on Riverside Drive, New York. D. Barber. *Il plan Am Arch* 114:320a-320b, pl 81 S 11 '18

**Stage lighting**

- Art of stage lighting. J. B. Fagan. *Illum Engr* 12:118-24 My '19; *Abstract. Elec R* 74:711-12 My 3 '19; *Discussion. Illum Engr* 12:124-33 My '19

**See also** Theaters—Lighting

**Stage mechanism**

Gun which shoots sound only. *Il Sci Am* 121: 192 Ag 23 '19

*See also* Theaters—Stage scenery

**Bibliography**

Development of scenic art and stage machinery. W. B. Gamble. *N Y Public Library Bul* 23:371-401, 439-56, 527-34, 559-82, 643-66, 739-63 Je-N '19

**Stage scenery.** *See* Theaters—Stage scenery

**Staggered hours**

Have staggered hours come to stay? *Elec Ry J* 52:643-4 O 12 '18

Reducing the peak load of street railways by staggering the business hours. *Eng & Contr* 50:272 S 18 '18

Spread rush-hour travel. *Elec Ry J* 50:1078-9 D 15 '17

Staggered hours for 88,000 Washington employees; Beeler report. *Elec Ry J* 51:655-9 Ap 6 '18; Discussion. 51:787-8 Ap 20 '18

Staggered hours win in Washington. *Elec Ry J* 52:628 O 5 '18

**Stained glass**

Stained glass of the XIII century. *Am Arch* 114:11-12 Jl 3 '18

**Stair building**

Handy table of treads and risers. W. A. Gleason. *Bldg Age* 40:379-80 Ag '18

How to lay out and frame stair-work. W. J. Malette. *diag Bldg Age* 40:102-3 F '18

*See also* Stairways

**Stairways**

Colonial stairway in the residence of William F. Palmer at Winchester, Mass.; illustration and plan. *Bldg Age* 40:290-1 Je '18

Details of a colonial stairway; views and plan. *Bldg Age* 41:322-3 O '19

Details showing construction and manner of detailing. *il diags Bldg Age* 41:200-1 Je '19

Double stairway, its design and construction. *diags plans Am Arch* 115:557-61 Ap 16 '19

Factory stairs and stairways. G. L. H. Arnold. *diags Am Soc M E J* 40:928-32 N '18; Same. *Eng & Contr* 50:509-11 N 27 '18; Same cond. *Textile World* 55:3715+ Je 14 '19

Hazards of walking. H. W. Mowery. *Am Inst Arch J* 7:29-30 Ja '19

How I make a bull-nose step. W. S. Wilkin. *diags Bldg Age* 41:220 Jl '19

Inclination of ladders and stairways. *diag Eng & Min J* 107:1081 Je 21 '19

Main stairs in residence for D. A. Johnson; designs. *Bldg Age* 40:108-11 F '18

Municipal stair regulations. *Am Arch* 113:218-21 F 20 '18

Safe stair construction. *il diag Concrete* 14: 234-5 Je '19

Safe stairway. *Am Arch* 115:217 F 5 '19

Safety provisions for construction of stairways for passenger stations. *Eng & Contr* 49:225-6 F 27 '18

Safety treads for stairways. C. King. *Eng & Contr* 51:87 Ja 22 '19

*See also* Railings; Stair building

**Stairways, Concrete**

Building stair forms. J. A. Muller; C. C. Alley. *diags Concrete* 13:129-30 O '18

Concrete stair design. A. M. Wolf. *il diags Concrete* 13:6-9 Jl '18

Concrete stairs; typical designs and design methods. A. M. Wolf. *il diags Concrete* 13: 58-60 Ag '18

Concrete stairway for reservoir. *il Concrete* 13:84 S '18

Form for a concrete stairway. E. V. Laughlin. *diags Bldg Age* 40:401 Ag '18

**Stammering**

Stammering and the evidence of its inheritance. E. Tompkins. *Sci Am S* 85:126-7 Mr 23 '18

Stammering, and the ladies. E. Tompkins. *Sci Am S* 86:10 Jl 6 '18

**Stamps**

Massey heavy friction drop stamp. *il diags Engineer* 125:344-5 Ap 19 '18

**Standard buildings.** *See* Buildings, Standard

**Standard oil company**

Increase of 10 per cent in wages. *Ry Age* 64: 949-50 Ap 5 sec 2 '18

**Standard time.** *See* Time

**Standardization**

Annual report of the Iron and steel industry committee. *Am Inst E E Pro* 38:939-41 Jl '19

Bureau of standardization of plumbing materials formed at special meeting in Chicago. *Dom Eng* 88:540-2 S 20 '19; *Metal Work* 92: 349-51 S 19 '19

Cooperation. C. A. Adams. *Am Inst E E Pro* 38:879-87 Jl '19

Engineering and industrial standardization. C. A. Adams. *Am Inst E E Pro* 38:549-59 Ap '19; Excerpts. *Elec W* 73:421 Mr 1 '19; Excerpts. *J Elec* 43:411-12 N 1 '19

How we can best adopt standardization for platers' solutions in individual plants. C. H. Proctor. *Metal Ind* 17:310-13 Jl '19

Industrial maintenance and rehabilitation methods during the last three years of the Lodge & Shipley machine tool company of Cincinnati. E. E. George. *il diags Elec W* 73:1167-70 My 31 '19

Industrial viewpoint on standardization. E. E. George. *Elec W* 74:635-6 S 20 '19

National proving house and standardising laboratory. R. Glazebrook. *Engineer* 125: 202-3 Mr 8 '18

Necessity halts industrial waste. L. W. Moffett. *il Iron Tr R* 64:65-8 Ja 2 '19

Outlet box manufacturers adopt standard numbering system. *Elec R* 75:244-5 Ag 9 '19; Same. *J Elec* 43:212 S 1 '19

Report on standardization of school building measurements. H. L. Patterson, E. C. Baldwin and W. B. Ittner. *Am Arch* 116: 379-80 S 17 '19

Some reasons why standard structural specifications are necessary. E. Godfrey. *Eng N* 83:437-8 Ag 28 '19

Standardization; abstracts. G. H. Clamer. *Am Arch* 116:53-4 Jl 9 '19; *Iron Age* 104:116-17 Jl 10 '19

Standardization and interchangeability; factors which help or hinder according to the work in hand. F. H. Colvin. *Am Mach* 50:1143-6 Je 12 '19; Discussion. 51:226, 286, 341 Jl 31-Ag 14 '19

Standardization and the metric system. H. T. Wade. *Iron Tr R* 62:321-2 Ja 31 '18

Standardization as an aid to the peace of the world. *Elec W* 74:773 O 4 '19

Standardization in special machine design. F. E. Johnson. *Mach* 25:599 Mr '19

Standardization of tools. E. J. McKernan. *Ry Age* 67:471-2 S 5 '19

Standardization vs. war progress. V. G. Iden. *il Iron Tr R* 63:81-5 Jl 11 '18

Standardization with metric units. A. Drury. *J Elec* 43:409-11 N 1 '19

Standards. *Am Inst Arch J* 7:339-40 Jl '19

*See also* Standards, Engineering; also subdivision Standards under various subjects, e.g. *Bollers, Marine—Standards, Screw threads—Standards*

**Standardization of jobs.** *See* Jobs, Standardization of

**Standards, Bureau of.** *See* United States—Standards, Bureau of

**Standards, Engineering**

Establishing American engineering standards. *J Elec* 43:164-5 Ag 15 '19; Same cond. *Sci Am* 121:157+ Ag 16 '19

Full facts on the engineering standards movement. *Eng N* 82:848-9 My 1 '19

Gear makers adopt standard contract and set design standards for composition and bevel gears. *Automotive Ind* 41:830-1+ O 23 '19

International standards a by-product of the great world war. H. T. Wade. *Ind Management* 55:289-92 Ap '18

Machine shop session. *diags Am Soc M E J* 41:159-63 F '19

Papers on standardization work of the British engineering standards association, with special reference to screw threads, screw-thread gages and tolerances. *Am Soc M E J* 40:1005-9 D '18

**Standards, Engineering—Continued**

Present status of engineering association standards; symposium. Elec Ry J 54:567-9 S 20 '19

Proposed modified form of screw thread as an international standard. R. Lacy. diags Mech Eng 41:272-3 Mr '19; Same cond. Iron Age 103:607 Mr 6 '19

Reorganization of the Engineering standards committee. E. B. Rosa. Eng N 82: 861-2, 916-18 My 1-8 '19; Excerpts. Elec Ry J 53:859-60 My 3 '19

Standard devices for locomotive. E. J. McKernan. diags Ry Mech Eng 93:613-15 O '19; Excerpt. Ry Age 67:471-2 S 5 '19

Standard specifications for low-carbon steel splice bars; English and Spanish. U S Bur For & Dom Com Ind Stand 4:1-15 '18

Standardizing manufacturing methods; proposal covering methods of handling, tool equipment and gaging systems in making articles for the government. A. A. Dowd. diags Iron Age 101:750-1 Mr 21 '18

Statement issued by the American engineering standards association outlining the scope of its proposed activities and stating its reasons why such an association is necessary. Power 49:930-1 Je 17 '19; Same. Elec R 74:1001-2 Je 14 '19; Same cond. Elec Ry J 53:1100 Je 7 '19; Excerpts. Elec W 73: 1233 Je 7 '19; Excerpts. Eng N 82:1154 Je 12 '19; Excerpts. Iron Age 103:1585 Je 12 '19; Excerpts. Mach 25:1072 Jl '19

Suggested constitution of an American engineering standards committee. Am Inst Min E Bul 135:sup42-5 Mr '18

See also American engineering standards committee; Electric standards; Gas—Standards; Railroads—Standards; Screw threads—Standards; United States—Standards, Bureau of; Units; Weights and measures

**Standards of living**

Standards of living; a compilation of budgetary studies. 49p '19 Bureau of applied economics, Washington, D.C.

**Standards of mass**

Design and test of standards of mass. II diags U S Bur Stand Circ 3:1-89 '18

**Standpipes**

Method of repairing leaks in concrete standpipe. H. C. Morrison. Eng & Contr 49:591 Je 12 '18

Painting iron and steel standpipes! C: W. Sherman. Munic J 47:262-3, 296-8, 313-14 N 1, 15-22 '19

Repairing leaks in Belleville, Wis., concrete standpipe. Munic Eng 53:239-40 D '17

Standpipe demolished after forty years' service. C. N. Schoonmaker. II Eng N 80:174 Ja 24 '18

Tests of paints for interior surface of iron standpipes. A. H. Keen; C: W. Sherman. Eng & Contr 52:416 O 8 '19

Wind pressure on cylindrical structures in practice. R. Fleming. Eng N 83:499-502 S 11 '19; Correction. 83:659 O 2 '19

See also Water towers

Stanley, Francis E., 1849-1918

Sketch. por Automotive Ind 39:250 Ag 8 '18

**Stannic fluoride**

Behavior of solutions of stannic fluoride. N. H. Furman. diags Am Chem Soc J 40:906-14 Je '18

**Stannous salts**

Colloidal products of the reactions between potassium dichromate and stannous salts. J. C. Witt. Am Chem Soc J 40:1026-30 Jl '18

**Starch**

Action of enzymes upon starches of different origin. H. C. Sherman, F. Walker and M. L. Caldwell. Am Chem Soc J 41:1123-9 Jl '19

Apparatus for rapid gastric analysis together with a method for the preservation of starch solution. R. J. Miller. diags J Ind & Eng Chem 11:963-4 O '19

Digestibility of bread; erythrodextrin in starch hydrolysis. J. C. Blake. Am Chem Soc J 40:623-36 Ap '18

Effect of frost and decay upon the starch in potatoes. H. A. Edson. J Ind & Eng Chem 10:725-6 S '18

Influence of aspartic acid and asparagin upon the enzymic hydrolysis of starch. H. C. Sherman and F. Walker. Am Chem Soc J 41:1866-73 N '19

Method for the preparation of soluble starch. J. C. Small. Am Chem Soc J 41:113-20 Ja '19

Quantitative determination of soluble starch in the presence of starch and its hydrolytic cleavage products. J. C. Small. Am Chem Soc J 41:107-12 Ja '19

Sources of starch. Sci Am 121:388 O 18 '19

Specially designed roaster for starch. S. E. Wardell. II Am Gas Eng J 107:561-3 D 22 '17

**Starch, Textile**

Corn starch in the textile industry. P. W. Allen. Textile World 55:3839+ Je 21 '19

Corn starch in the textile industry. W. R. Cathcart. Textile World 54:401+, 2298+ Jl 27, N 9 '18

May control textile starches. Textile World 53:4427 Mr 30 '18

Stiffening skirt belting. Textile World 53:2525 D 15 '17

Starrett, Theodore, 1865-1917

Appreciation. W: P. Comstock. por Arch & Bldg 49:108-10 D '17

**Stars**

Determination of stellar distances. F. W. Dyson. Sci Am S 86:306-7 N 16 '18

Evidence of matter in space obstructing the passage of light. W. W. Campbell. Sci Am S 85:57 Ja 26 '18

Interesting double star. C: N. Holmes. II Sci Am S 85:213 Ap 6 '18

Light-giving power of the stars. H: A. Peck. diags Sci Am S 87:395+ Je 21 '19

Our sun and other sky-furnaces. C: N. Holmes. diags Sci Am S 85:133 Mr 2 '18

Stellar dynamics and statistical mechanics. H. S. Jones. Sci Am S 85:192 Mr 23 '18

**Magnitudes**

Recent work in photographic photometry. E: S. King. Sci Am S 85:72 F 2 '18

**Spectra**

Application of dicyanin to the photography of stellar spectra. P. W. Merrill. II diags U S Bur Stand Bul 14:487-505 Jl 12 '19

**Starting devices**

Slow starting motion mechanism. F. R. Daniels. diags Mach 25:250-1 N '18

See also Automobiles—Starting devices; Electric motors—Starting devices; Gas and oil engines—Starting devices

**State buildings**

California state buildings; views. Am Arch 116:pl 37-45 Jl 30 '19

Sacramento state buildings competition. W: C. Hays. II plans Am Arch 115:124-6, pl 25-34 Ja 22 '19

State councils of defense. See Council of national defense—State councils of defense

**State geologists**

List of the directors of state geological surveys. Eng & Min J 105:150 Ja 19 '18

State highway officials, American association of. See American association of state highway officials

**State institutions**

Water supply and sewage disposal plants of penal and charitable institutions of Wisconsin. W. G. Kirchoffer. Munic Eng 55: 178-9 N '18

**State laws**

Why uniform state laws are needed. Am Ind 18:24-8 Jl '18

State regulation of industry. See Government regulation of industry

**Staten Island**

Connecting Staten Island with Manhattan. Sci Am 120:545+ My 24 '19

Static electricity. See Electricity, Static

**Stationery**

Materials for the household. biblog U S Bur Stand Circ 70:175-91 '17

**Stationery—Continued**

Suggestions for better work in commercial stationery. J. L. Frazier. *Inland Ptr* 62: 177-9 N '18

Stations, Railroad. See Railroads—Stations

Statistics. See subdivision Statistics under names of subjects, e.g. Electric plants (central stations)—Statistics; Lumber trade—Statistics; Railroads—Statistics

Statistics, Industrial. See Industrial statistics

Statues  
Barnard Lincoln. *Am Arch* 113:188 F 13 '18

**Staybolts**

Cutting out stay bolts. R. E. McNamara. *diags Power* 48:122 JI 23 '18

Standard specifications for staybolt iron; English and Spanish. U S Bur For & Dom Com Ind Stand 24:1-15 '19

**Steam**

Efficiency in the use of oil fuel; steam and its properties. J. M. Wadsworth. U S Bur Mines p 17-26 '18

Extinguishing fires in large totally enclosed generators and motors. M. A. Savage. *II diag Gen Elec R* 21:53-5 Ja '18

Gas for raising steam. *Sci Am S* 87:179+ Mr 22 '19

High pressure steam. E. C. Bowden-Smith. *Engineer* 125:96 F 1 '18; Discussion. 125:171, 193; 126:135, 166, 178, 217, 242, 264, 286 F 22-Mr 1, Ag 16-30, S 13-O 4 '18

Method of turning on steam in large lines. *Metal Work* 91:717-18 Je 6 '19

Observations on ice, water and steam. W. D. Owens. *II Coal Age* 13:1056-7 Je 8 '18

Properties of steam. A. J. Nicholson. *Engineer* 126:8 JI 5 '18; Discussion. F. B. Aspinall. 126:60 JI 19 '18

Quality of steam shown by calorimeter test. *Power* 47:849 Je 11 '18

Regnault's latent heat of steam investigations. F. B. Aspinall. *diag Engineer* 125: 525-7 Je 21 '18

Steam versus electricity for auxiliary drive. E. L. Martheleur. *Elec W* 74:128 JI 19 '19

Superheated v. saturated steam. E. W. Sargeant. *Engineer* 125:531 Je 21 '18

Temperature of steam after passing through reducing valve. *Power* 47:485 Ap 2 '18

Use of waste gases for steam generation. J. B. C. Kershaw. *Engineer* 124:27-9 JI 13 '18; Same. *Coal Age* 14:591-4 S 26 '18; Abstract. *Elec W* 70:359-60 Ag 25 '18

See also Boilers; Condensers (steam); Evaporators; Exhaust steam; Steam engineering; Steam engines; Steam flow; Steam heating; Steam pipes; Steam turbines; Superheated steam; Thermodynamics

**Cost**

Capitalization value of steam leaks. R. von Fabrice. *chart Power* 47:656-8 My 7 '18

Cost of coal for generating steam. *chart Elec R* 73:901 D 7 '18

Cost of leakage of steam. *Power* 47:25 Ja 1 '18

Public steam and electrical systems; analysis of the building heating situation in large cities. J. A. M'Hollan. *Elec W* 71:513 Mr 9 '18

Value of higher steam pressures. J. T. Foster. *Elec W* 71:977-8 My 11 '18

Steam, Exhaust. See Exhaust steam

**Steam, Natural**

Electrical energy from the Volterra Solfioni. *II Engineer* 125:124 F 8 '18; Same. *Eng & Contr* 50:422-3 O 30 '18; Same cond. *Power* 47:531 Ap 9 '18

Italy utilizes volcanic power. *Eng & Min J* 107:307 F 15 '19; Same cond. *Power* 49:311 Mr 4 '19

Natural steam turbine plant. *II Power* 48:935 D 24 '18

Setting volcanoes to work. *II Sci Am* 117:305 O 27 '17; Same. *Dom Eng* 81:436-7 D 15 '17

Steam, Superheated. See Superheated steam

**Steam as a disinfectant**

Prevention and arrest of lice-borne diseases. W. Hunter. *Sci Am S* 86:219 O 5 '18

Steam automobiles. See Automobiles, Steam

Steam boats. See Steamboats

Steam boilers. See Boilers

Steam condensers. See Condensers (steam)

**Steam cookers**

Investigation of the uses of steam in the canning factory. J. C. Smallwood. *diags Am Soc M E J* 40:373-9 My '18

**Steam engineering**

Engine-room rules. *Power* 47:417 Mr 19 '18  
Method of turning on steam in large lines; report of educational committee of Northern district heating association. *Power* 50: 124 JI 15 '19

U.S. navy steam engineering school at Hoboken, N.J. *Elec R* 73:329 Ag 31 '18

See also Boiler plants; Boilers; Evaporators; Locomotives; Marine engineering; Mechanical engineering; Power (mechanics); Ship propulsion; Steam engines; Steam plants; Steam turbines; Steamboats; Superheated steam

**Steam engineers**

Massachusetts' only licensed female engineer. *Power* 48:417 S 17 '18

Training engineers and firemen in Wisconsin. A. W. Ruggles. *II Ind Management* 55: 126-8 F '18

**Steam engines**

Anchoring an engine foundation. D. R. Shearer. *diag Power* 46:840 D 18 '17

Behavior of steam in a compound engine. *Power* 49:42-4 Ja 14 '19

Coke fuel steam motor. *II diags Engineer* 126: 101-2+ Ag 2 '18; *Automotive Ind* 39:919-22+ N 28 '18

Corliss engine frame repaired. J. T. Sharp, Jr. *II Power* 47:559 Ap 16 '18

Development of the use of steam since 1876. R. M. Anderson. *Stevens Ind* 35:97-107 Ap '18

Economy of heat engines. H. R. Sankey. *Engineer* 124:489-91 D 7 '17

Engine as a reducing valve. *Power* 47:869 Je 18 '18

Equalizing cutoff without indicating engine. *Power* 47:631 Ap 30 '18

59 engine room pointers. *Eng & Contr* 51: 522-4 My 14 '19

Influence of liners on rod length. *diags Power* 48:309-10 Ag 27 '18

James Watt centenary. H. T. Wade. *II Sci Am* 121:206+ Ag 30 '19

Large wrecked steam engine cylinders restored by oxy-acetylene welding. L. M. Malcher. *II Int Marine Eng* 24:426-8 Je '19; Same cond. *Power* 48:896 Je 10 '19; Abstract. *Iron Age* 103:873 Ap 3 '19

Leak in exhaust piping. C. W. Oakley. *diags Power* 48:22 JI 2 '18

Links in the history of engineering. R. Jenkins. *Engineer* 127:471 My 16 '19

One hundredth anniversary of the birth of George Henry Corliss. H. F. Mueller. *por II diags Power* 47:682-7 My 14 '18

Placing engine on dead-center. *Power* 48:503 O 1 '18

Reasons for putting lap on Corliss-engine valves. *Power* 48:137 JI 23 '18; Discussion. H. F. Gauss. 48:643-4 O 29 '18

Repairing an engine without tools. M. L. Lowrey. *Am Mach* 49:143 JI 25 '18

Selecting the power plant engines. *II Heat & Ven* 15:47-50 F '18

Steam engines for rolling mills. *II diags Engineer* 128:136, 140-1 Ag 8 '19

Thermos-bottle principle applied to steam cylinders. *Power* 49:539, 658 Ap 8, 29 '19

Two Newcomen engines. *II diags Engineer* 127:821-3, 632 Je 27 '18

Unafrow pumping engine. D. A. Decrow. *II diag Am Water Works Assn J* 6:518-23 S '19; Same cond. *Eng N* 82:1193-4 Je 19 '19; Same abr. *Eng & Contr* 52:48-9 JI 9 '19

Una-flow steam engines. L. L. Scott. *Sci Am S* 85:199 Mr 30 '18

Uniflow engine. H. W. Morley. *Engineer* 124: 455 N 23 '17; Same. *Sci Am S* 85:48 Ja 19 '18

Uniflow engine. C. C. Trump. *Engineer* 125: 214 Mr 8 '18

**Steam engines—Continued**

Valve gear broken by blocked valve. E. W. Miller. *Il Power* 47:23 Ja 1 '18  
 What a broken wedge bolt did. *Il Power* 49:480 Ap 1 '19

See also Blowers; Boilers; Condensers (steam); Exhaust steam; Fire engines; Flywheels; Governors (machinery); Heat engines; Injectors; Locomotives; Marine engines; Safety valves; Steam; Steam plants; Steam turbines; Steamboats; Still engine; Superheated steam; Valves

**Lubrication**

Oil consumption in steam-engine lubrication; abstract. *Am Soc M E J* 41:53-5 Ja '19  
 Oiling system and bearing designs. A. E. Windram. *diags Int Marine Eng* 24:745-6 N '19

**Safety devices and measures**

Automatic engine stops essential; abstracts. W. Greenwood. *diags Iron Tr R* 63:617-18 S 12 '18; *Power* 48:651-2 O 29 '18  
 Engine room rules of the National safety council. *Am Gas Eng J* 108:151-2 F 16 '18  
 Guards on engines. *Power* 48:286 Ag 20 '18  
 Safeguarding the engine room. *diags Am Ind* 19:supl-4 D '18

**Testing**

Erecting and testing an engine in 1870. D. W. Foster. *Power* 49:822 My 27 '19  
 Tests of a unafow pumping engine. *Il diag* Munic J 47:256-7 O 25 '19  
 Tests on steam-engine governing; abstract. A. Gramberg. *diag Am Soc M E J* 40:967-8 N '18

Steam fitting. See Steam pipes

**Steam flow**

Flow of steam and vapor. A. G. King. *diags Dom Eng* 81:389-90+, 538-40 D 8, 29 '17  
 Flow of steam through pipes. B. Jones. *Gen Elec R* 22:805-7 O 19  
 Formulas for figuring pipe capacities. Heat & Ven 15:51-2 Ja '18  
 Heating buildings from high pressure mains. H. L. Alt. *diag plan Metal Work* 89:138-40+ Ja 25 '18  
 Measurements of low-pressure steam used for heating the buildings of the University of Michigan. J. E. Emswiler. *diags Am Soc Heat & V E* 24:257-64 '18; Same. Heat & Ven 15:21-7 Mr '18  
 Simplifying calculations for flow of steam in pipes. Heat & Ven 16:19-26 Ap '19

See also Steam meters

**Steam gages**

Double illuminated dial pilot gage. *Il Power* 46:799 D 11 '17  
 Home-made master steam gage. *diags Power* 50:536 S 30 '19

**Steam hammers**

Drop hammers in stamping works at Coventry. *Il Engineer* 124:450, 452 N 23 '17  
 Hand tools for steam hammer work. A. S. Hesse. *diags Am Mach* 51:247-50 Ag 7 '19  
 Notes on the care of the steam hammer. A. S. Hesse. *Am Mach* 50:258 F 6 '19  
 Steam-driven drop hammer. *Il Engineer* 126:202, 210 S 6 '18

**Steam heaters**

Development of the individual forced-blast heating unit. F. R. Ellis. *Il diags Heat & Ven* 16:60-4 Jl '19  
 Heating of industrial buildings—the industrial air heater. *Il diags Engineer* 124:502-3 D 7 '17  
 Rise of the unit air heater. *Il Heat & Ven* 16:19-22 Je '19

**Steam heating**

Advantages of steam heating in dwellings. C. A. Lorie. *diags Metal Work* 89:709-10 My 31 '18  
 Automatic return for condensate from heating pipes to boiler. F. J. Foote. *diag Elec Ry J* 51:765 Ap 20 '18  
 Boiler rating and capacities. H. E. Longwell. *Metal Work* 91:457 Ap 11 '19  
 By-passes on gate valves in steam heating plants. W. H. Wakeman. *diags Dom Eng* 87:377-8 My 31 '19

Capacities of reducing valves for steam heating systems. J. A. Donnelly. Heat & Ven 16:42-3 Jl '19; Same. Metal Work 92:43-4 Jl 11 '19; Same. Power 49:991 Je 24 '19  
 Care of heating and ventilating equipment. H. L. Alt. *diags Power* 48:910-12; 49:156-9, 306-8, 675-9, 723-3 D 24 '18, F 4, Mr 4, My 6-13 '19

Central station heating. J. C. White. U S Bur Mines Tech Pa 191:1-20 '18; Excerpts. Eng & Contr 51:265-7 Mr 12 '19; Excerpts. Heat & Ven 16:33-7 Mr; 35-8 My '19; Excerpts. Power 49:418-19 Mr 18 '19

Central-station heating in Detroit. J. H. Walker. *Il diags Mech Eng* 41:497-503 Je '19; Excerpts. Power 49:952-5 Je 17 '19

Coal for live-steam heating plant. C. W. Naylor. *Power* 47:922 Je 25 '18

Comparative advantages of high and low pressure steam in heating work. Heat & Ven 16:48-9 My '19

Connection of radiators on a steam heating system. *diags Dom Eng* 84:469 S 28 '18

District steam heating as related to fuel conservation. H. S. Markey. *Mech Eng* 41:268 Mr '19

Dripping one-pipe steam-heating systems.

A. L. Baum. *diags Power* 48:194-5 Ag 6 '18

Experience with automatic indirect heating system. A. Blom. *diag Power* 49:27 Ja 7 '19

Experiments in steam circulation. G. Desson. *diag Dom Eng* 88:543-4 S 20 '19

Explanation—vacuum heating for the helper.

A. J. Purcell. *Metal Work* 90:360-1 S 27 '18

Faulty steam fitting. F. Grant. *diags Dom Eng* 86:120-3 Ja 18 '19

Figuring steam consumption in radiation.

J. A. Strawn. Heat & Ven 15:30-1 Je '18

Fitting the boiler to the job. *Metal Work* 92:286-7, 335-7 S 5, 19 '19

Flow of steam and vapor. A. G. King. *diags Dom Eng* 81:389-90+, 538-40 D 8, 29 '17

Fuel saving heating systems. A. G. King. *diags plans Dom Eng* 84:272-4, 390-2+ Ag 24, S 14 '18

Gravity indirect steam heating systems. D. H. Cuyler. *diags Metal Work* 92:153-5+ Ag 8 '19

Greatest heating plant in the world. Heat & Ven 16:43-4 Mr '19

Heating boiler, radiator and pipe sizes. *Metal Work* 90:416-17 O 11 '18

Heating buildings from high pressure mains.

H. L. Alt. *diag plan Metal Work* 89:138-40+ Ja 25 '18

Heating system for one-story factory building. *diags plan Dom Eng* 86:303-5 F 15 '19

Heating system gradually improved. H. H. Yates. *Power* 49:217 F 11 '19

Heating system returns connected wrong.

T. W. Reynolds. *diags Power* 47:917 Je 25 '18

Heating twin house with vacuum system. *Il plan Metal Work* 89:605-6 My 10 '18

How leaking steam ran into money in a hotel plant. Heat & Ven 15:52-3 S '18

How the valve works; different type return line valves used on vacuum heating systems. *Il diags Metal Work* 89:97-9+ Ja 18 '18

Impractical steam heating system. *diag Dom Eng* 86:130 Ja 18 '19

Improving the operation of a heating plant.

W. H. Wakeman. *diag Dom Eng* 87:150 Ap 26 '19

Installation of piping in a low pressure, steam heating system. *diags Dom Eng* 86:84-5 Ja 11 '19

Less coal used when engine is on. *Power* 48:413 S 17 '18

Measurements of low-pressure steam used for heating the buildings of the University of Michigan. J. E. Emswiler. *diags Am Soc Heat & V E* 24:257-64 '18; Same. Heat & Ven 15:21-7 Mr '18

Modern factory heating. A. G. King. *diags plan Dom Eng* 86:27-30, 76-9, 254-7 Ja 4-11, F 8 '19

Modern practice in vapor heating. H. L. Alt. *diags Heat & Ven* 15:17-21 My; 46-50 Je; 44-7 Ag; 56-9 S; 59-60 O; 44-6 N '18; 16:48-52 Ja; 54-6 F; 51-2 Mr; 46-8 Ap; 54 My; 51-3 Je; 59-60 Jl; 59-61 Ag; 58-9 S; 45-7 O; 49-51 N; 47-9 D '19

**Steam heating—Continued**

One-pipe gravity steam systems. Heat & Ven 16:68 Mr; 68-9 Je; 76-7 Jl '19  
 Piping for combined power and heating plants. C. L. Hubbard. diags Dom Eng 82:166-8+, 211-12+ F 2-9 '18  
 Practical economies in the use of steam heat. L. Howell. Heat & Ven 16:22-4 Je '19  
 Problems in locating radiation below boiler level. diags Heat & Ven 15:15-18 F '18  
 Problems in running vacuum heating return piping. diags plan Heat & Ven 16:45-6 N '19  
 Real help for the heating contractor. Il diags Metal Work 90:712-14 D 27 '18  
 Records show value of intermittent heating in steam-heated buildings. Heat & Ven 15: 57-8 D '18  
 Remodeling a candy factory plant to reduce condensation losses. W. H. Rose. Heat & Ven 15:29-31 S '18  
 Remodeling a steam heating system. H. R. Innis. diag Dom Eng 88:346-7 Ag 23 '19  
 Removing oil from condensation. C. L. Hubbard. diags Dom Eng 88:301-3+ Ag 16 '19  
 Repairing feed pipe without shutting down steam plant. W. H. Wakeman. diags Dom Eng 88:591-2 S 27 '19  
 Return and water line problem. diag Metal Work 91:468, 526-7 Ap 11, 25 '19  
 Returning condensation by electric condensation pump. diag Dom Eng 88:550-1 S 20 '19  
 Returning condensation in high and low pressure heating systems. C. L. Hubbard. diags Dom Eng 84:197-8, 236-8 Ag 10-17 '18  
 Right and wrong size boiler connections. D. H. Cuyler. diags Metal Work 91:584-5 My 9 '19  
 Saving steam in industrial heating systems. diags U S Bur Mines Tech Pa 221:1-13 '19; Same cond. Power 50:156-8 Jl 22 '19; Excerpt. Textile World 56:1385+ S 6 '19  
 Setting and cross-connecting boilers for heating systems. F. Grant. diags Dom Eng 87:96-8+ Ap 19 '19  
 Some facts about the early history of steam and hot water heating. J. A. Ward. Dom Eng 81:444-5 D 15 '17  
 Steam-air heating system. diag Dom Eng 84: 358-9 S 7 '18  
 Steam boiler does not work right on heating plant in a church. diags plan Dom Eng 82: 409-10 Mr 16 '18  
 Steam heating at Camp Funston; abstracts. B. Natkin. Power 47:454-5 Mr 26 '18; Heat & Ven 15:46-7 My '18  
 Steam-heating plant. Coal Age 15:161 Ja 16 '19  
 Steam heating problems. Heat & Ven 15:57-8 Je '18  
 Steam heating system for picture theatre, store and factory building. Dom Eng 82:333-4 Mr 2 '18  
 Steam heating system for small residences. diag plans Metal Work 89:767-8 Je 14 '18  
 Steam heating system in a factory. diags Dom Eng 85:249+ N 16 '18  
 Steam heating system that does not work right. diags plan Dom Eng 82:215-16 F 9 '18  
 Unique heating system. W. H. Wakeman. diags Dom Eng 86:130-1 Ja 18 '19  
 Unusual heating installation in a bakery. diags Dom Eng 85:326-7 N 30 '18  
 Using steam in hot-water radiators. J. E. Noble. Il Power 49:825 My 27 '19  
 Vacuum heating systems. diags Heat & Ven 16:67-70 Ag '19  
 Vapor heating. diags Heat & Ven 16:68-9 O; 66-9 N '19  
 Warm air practice makes good on steam system. Il Metal Work 90:503+ N 1 '18  
 Wasteful practices in heating work. W. J. Baldwin. Il diag Heat & Ven 16:30-2 S '19  
 What it pays to know about heating and ventilating. C. L. Hubbard. diags plans Factory 21:224-8 Ag '18

*See also* Heating; Heating from central stations; Hot water heating; Radiators; Steam flow; Steam heaters; Steam pipe coverings; Steam pipes

**Cost**

Community heating of dwellings. Munic J 46:249-52 Ap 5 '19  
 Separation of costs in a combined steam-heating and electric plant. H. W. Meyer. charts Power 50:391-2 S 2 '19

**Rates**

*See* Heating from central stations—Rates

**Steam injectors.** *See* Injectors

**Steam meters**

Co-ordinating furnace requirements with boiler performance. L. Linnell. diags Elec R 72:121-2 Ja 19 '18  
 Efficient meter installation for large buildings. L. E. Croup. diags Heat & Ven 16: 48-9 Jl '19  
 Kent steam meters. Il diags Engineer 127: 580-2 Je 13 '19  
 Metered the condensation. A. A. Wainright. diag Power 50:438 S 9 '19  
 Notes on steam meters; abstract. E. Claassen. Am Soc M E J 41:172 F '19  
 Steam efficiency meter. Engineer 125:39 Ja 11 '18  
 Steam-flow meters solve firebrick troubles. L. Linnell. Elec R 72:1049-50 Je 22 '18  
 Tests with flow meters. J. A. Maguire. chart Coal Age 15:49-51 Ja 9 '19; Same. Power 49: 127-9 Ja 28 '19

*See also* Boiler meters; Steam flow

**Steam motor trucks.** *See* Motor trucks, Steam  
**Steam navigation.** *See* Steamboats

**Steam pipe coverings**

Coal saving by pipe covering. Elec R 73:1018 D 28 '18  
 Conservation of heat losses from pipes and boilers. G. D. Bagley. diag Am Soc M E J 40:918-23 N '18; Same abr. Elec R 74:89-93 Ja 18 '19; Same cond. Power 48:932-4 D 24 '18; Same cond. Textile World 55:355+ Ja 11 '19  
 Fuel saving heating systems. A. G. King. Dom Eng 85:320-2 N 30 '18  
 Heating contractor's opportunity to cash in on pipe and boiler covering. J. A. Ward. Dom Eng 85:246-7 N 16 '18  
 How soon will heat insulating material pay for itself? W. F. Schaphorst. Am Gas Eng J 108:52 Ja 19 '18; Same. Concrete 12:sup20 F '18  
 Metallic guards for steam pipe covering. M. A. Damon. Elec R 73:506-7 S 28 '18  
 Saving coal with insulation. Factory 21:904+ N '18  
 Saving derived from covering steam pipes. Elec W 70:671-2 O 6 '17; Excerpt. Dom Eng 81:501 D 22 '17; Discussion. A. Bolam. Elec W 70:1253 D 29 '17  
 Why you should insulate that bare pipe. C. H. Bromley. Power 48:626 O 29 '18

*See also* Insulation (heat)

**Steam pipes**

Anchorage and protection for underground steam return mains. T. W. Reynolds. diags Elec W 70:209-10 Ag 4 '17; Same. Metal Work 89:576 My 3 '18  
 Capacity of steam mains in square feet of equivalent direct radiation. Heat & Ven 16: 67 Mr; 68 Ap; 66-7 My; 74 Jl '19  
 Comparative cost of pipe coils and radiators. Heat & Ven 15:58-9 My '18  
 Connecting returns from fixtures supplied with steam at various pressures. diag Dom Eng 86:436-7 Mr 8 '19  
 Defective steam piping and how to remedy the defects. W. H. Wakeman. diags Dom Eng 89:271 N 8 '19  
 Durability of materials conveying steam, air and water. A. K. Ohmes. Il diags Am Soc Heat & V E 23:109-20; Discussion. 121-4 '17  
 Expansion of steam pipes. C. L. Hubbard. diags Dom Eng 86:164-7+, 213-15 Ja 25-F 1 '19  
 Faulty steam fitting. F. Grant. diags Dom Eng 85:360-2 D 7 '18  
 Flow of steam and vapor. A. G. King. diags Dom Eng 81:389-90+, 538-40 D 8, 29 '17  
 Flow of steam in pipes—sizes of return mains. Heat & Ven 16:66-7 Je '19



**Steam pipes—Continued**

- Formula for finding the diameter of steam pipe. *diags Dom Eng* 89:379-81 N 22 '19
- From the old to the new in steam pipe conduits. *diags Heat & Ven* 15:27-9 Je '18
- How to support a steam pipe across a span when upright supports can not be used. *diags Heat & Ven* 16:44 Ag '19
- Inside data on central station heating. W. H. Frehsee. *diags Heat & Ven* 15:19-27 Je '18
- Method of installing underground steam lines in Wisconsin. J. C. White. *diags plans Elec R* 75:879-80 N 22 '19
- Notes on dripping mains and risers. *diags Heat & Ven* 16:40-1 O '19
- One-pipe steam systems. *Heat & Ven* 16:66 Ag '19
- Practical piping for steam fitters. D. H. Cuyler. *diags plans Metal Work* 92:225-6 Ag 22 '19
- Proper connections for pipe coils. *diags Heat & Ven* 15:57-8 My '18
- Radiator connections for various types of heating systems. F. Grant. *diags Dom Eng* 86:424-6+ Mr 8 '19
- Report on the relative sizes of steam and return mains in steam heating apparatus. J. K. Smith. *biblog Stevens Ind* 36:106-14 Ap '19
- Rules for flanged fittings; American 1915 standard, standard weight. *Heat & Ven* 15:69-72 Je '18
- Standard sizes of steam and return mains. *diag Metal Work* 91:650-1 My 23 '19
- Steam-carrying capacity of pipes. W. H. Thies. *charts Power* 46:824-6 D 18 '17
- Steam-header pointers. M. A. Saller. *Power* 48:806-7 D 3 '18
- Steam pipe line for engine. *Power* 48:467 S 24 '18
- Steam pipe repair job. *diags Int Marine Eng* 24:111 F '19
- Underground pipe mains—material, depreciation, sizes for steam and water. C. L. Hubbard. *Power* 48:80-3 JI 16 '18
- Underground steam mains. C. L. Hubbard. *diags Power* 47:460-3, 540-3 Ap 2, 16 '18
- Use of cast-iron returns in district heating work. *Heat & Ven* 15:43 Je '18
- See also* Heating from central stations; Pipe fittings; Pipe flanges; Pipe hangers; Piping (power plants); Ships—Piping systems; Steam flow; Steam heating; Steam pipe coverings; Steam traps
- Steam plants**
- Abuse of steam. H. W. Ballou. *Power* 47:306-8 F 26 '18
- Advantages of high pressure and superheat as affecting steam plant efficiency; abstracts. E. Berg. *diag Gen Elec R* 21:216-21 Mr '18; *Elec W* 72:56-8 JI 13 '18; *Am Soc M E J* 40:742-5 S '18; *Elec R* 73:444-7 S 21 '18
- Advisability of higher steam pressures. J. T. Foster. *Elec W* 70:1090-1 D 8 '17
- Appalachian power system. H. S. Slocum. *diag map Power* 49:438-44 Mr 25 '19; Same cond. *Elec W* 73:123-7 Ja 18 '19
- Boiler- and engine-room record sheets. P. R. Duffey. *charts Power* 50:461-3 S 16 '19
- Bonus system reduces coal consumption at Denver. W. E. Casey and E. Weber. *diag Elec Ry J* 53:266-71 F 8 '19; Same. *Eng & Contr* 51:526-8 My 14 '19; Same. *Power* 50:174-9 JI 29 '19
- Care and management of steam plants. *Power* 48:722 N 12 '18
- Cedar Rapids (Ia.) big steam plant. *diag Power* 48:478-85 O 1 '18; Abstract. *Am Soc M E J* 40:962-3 N '18
- Central-station heating in Detroit, Mich. J. H. Walker. *diag plan Power* 47:646-52 My 7 '18
- Cincinnati's new 100,000-kilowatt power station. *diag plan Elec R* 73:397-400, 439-41 S 14-21 '18; *Power* 48:337-44 S 3 '18
- Citizens' gas & electric company's 20,000-kilowatt steam plant at Waterloo. *diag Elec R* 72:861-3 My 25 '18
- Coal conservation. D. M. Myers. *diag Coal Age* 13:450-3 Mr 9 '18
- Condensation tests for the plant. *Power* 48:458 S 24 '18
- Conservation in fuel oil boiler plants. E. A. Rogers. *Ry Mech Eng* 92:599-600 N '18
- Converting a steam plant to stand-by operation. L. M. Klauber. *diag J Elec* 42:353-7 Ap 15 '19
- Economic operation of turbo-electric stations. C. T. Hirshfeld and C. L. Karr. *diag U S Bur Mines Tech Pa* 204:1-27 '18; Same. *Elec R* 73:886-90, 923-8 D 7-14 '18; Same cond. *Elec W* 72:1120-4 D 14 '18
- Economic proportion of hydroelectric and steam power. F. G. Baum. *Am Inst E E Pro* 37:1115-19 S '18; Same. *Elec R* 73:450-1 S 21 '18
- Economical generation of thermal power at coal mines. J. B. C. Kershaw. *diag Coal Age* 12:922-4, 969-72; 13:284-7, 325-8 D 1-8 '17, F 9-16 '18
- Economies in a mine power plant. J. A. Carruthers. *diags Power* 49:720-2 My 13 '19; Same. *Eng & Min J* 107:1032-4 Je 14 '19
- Economy of Arizona power plants using oil fuel. C. R. Weymouth. *Mech Eng* 41:523-6 Je '19; Same. *J Elec* 43:124-8 Ag 1 '19; Same cond. *Power* 50:30-2 JI 1 '19; Abstract. *Elec W* 74:76-7 JI 12 '19; Discussion. *Mech Eng* 41:661-2 Ag '19
- Effect of poor coal on plant efficiency. W. C. Slade. *Power* 47:420-1 Mr 19 '18; Same cond. *Elec W* 71:672-3 Mr 30 '18
- Enormous heating plant at the Great Lakes Naval training station. J. C. Foster. *diag Dom Eng* 86:293-300 F 15 '19
- Exhaust steam at high back pressures. C. Field. *diags plan Chem & Met Eng* 20:18-24 Ja 1 '19
- Factors influencing rates of steam making. W. H. De Muth. *Elec R* 75:74 JI 12 '19
- Features of Muscle Shoals station. E. R. Welles and W. A. Shoudy. *diags plans Elec W* 73:729-33 Ap 12 '19
- Features of steam plant supplementing water power. *diag map Elec W* 71:818-20 Ap 20 '18
- 5000-kilowatt station at Winona, Minn. *diag plan Elec R* 73:321-4 Ag 31 '18
- Fuel economy will continue a serious problem. W. A. Shoudy. *Elec W* 73:14-16 Ja 4 '19
- Fuel situation as it confronts New England. W. H. Kenerson. *Power* 47:306 F 26 '18
- Gasteam plant at Ford City, Ontario. *diag plan Power* 48:186-93 Ag 6 '18
- Getting along with a smaller coal pile. J. Heywood. *diag Factory* 21:654-7, 852-5, 1054-7; 22:242-7 O-D '18, F '19
- Heat balance in typical woolen mill. G. H. Perkins. *diag Textile World* 55:3705-4 Je 14 '19
- Higher steam pressure and superheat. *Elec R* 73:452 S 21 '18
- How one plant was improved. J. F. Wilkinson. *Power* 48:357-8 S 3 '18
- Joliet (Ill.) plant a step toward higher steam pressures. *diag Elec W* 71:146-8, 185-6, 193-5, 242-4 Ja 19-F 2 '18; Same cond. *Power* 47:108-13 Ja 22 '18
- Lifting power plant capacity by its boot straps. C. L. Hubbard. *diag Factory* 22:35-7 Ja '19
- Making three boilers do the work of five. J. J. Spangler. *diag Power* 50:206-8 Ag 5 '19
- Management of railway power plants. W. Olsen. *Ry R* 64:858-9 Je 14 '19
- Massachusetts fuel administration shows how to save coal; bulletin for firemen and engineers. *Textile World* 54:1615+ O 5 '18
- Mechanical equipment of industrial buildings. C. L. Hubbard. *diag Power* 49:244-7 F 18 '19
- Mechanical instruments needed in a power house. C. E. Lewis. *Elec W* 72:795 O 26 '18
- Methods that saved coal in Cuban plant. H. G. Fenton. *Elec W* 72:1227 D 28 '18; Same. *Eng & Contr* 51:524 My 14 '19
- Modern steel plant power house; Corrigan, McKinney & co., Cleveland. *diag Iron Tr R* 61:1263-7+ D 13 '17
- New power plant for St Mary's training school. *diag Power* 50:2-6 JI 1 '19

**Steam plants—Continued**

Notes on surface condensing plants, with special reference to the requirements of large power stations. R. J. Kaula. diags Inst E E J 57:440-6 Je '19; Abstract. Elec W 73:1333 Je 21 '19; Discussion. Inst E E J 57:447-64 Je '19

Oil fuel in New England power plants; abstracts. H: W. Ballou. diag map Am Soc M E J 40:450-2 Je '18; Power 47:886-7 Je 18 '18

Operating records of new Cincinnati plant. Elec W 74:414-15 Ag 23 '19

Peace problems in the power plant; difficulties in use of low grade fuels. G: H. Perkins and P. Barker. Textile World 55:487-8 Ja 11 '19

Plant arrangement and costs of construction; features of latest station of Turners Falls power & electric company. II diags Elec W 72:780-2, 888-90 O 26-N 9 '18

Plant records and the importance of keeping them. L. P. Breckenridge. Power 47:711-12 My 14 '18

Points to consider now that coal is expensive. Factory 20:310-1 F '18

Possibilities for fuel saving in existing plants. A. H. Anderson. Heat & Ven 16:37-9 Ja '19

Powdered coal substituted for fuel oil at Seattle. II Elec R 73:529-31 O 5 '18

Power-plant changes that saved coal. B. S. Remlieu. Power 48:695-6 N 12 '18

Power systems of the North Central states. C. H. Jones. II maps Chem & Met Eng 21:341-7 S 15 '19

Production of electricity by steam power; with discussion. A. Dow. Power 46:810-12 D 11 '17

Saving coal in steam power plants. diag U S. Bur Mines Tech Pa 217:1-8 '19

Some power-plant troubles. T: Sheehan. diags Power 48:882-3 D 17 '18

Something to be proud of; running an ordinary 500-hp. plant during unusual year of 1917. A. Summers. Power 47:627 Ap 30 '18

Space requirements for engines. II Heat & Ven 15:41-3 Mr '18

Steam economics in simple terms. S. A. Worcester. Eng & Min J 107:561-3 Mr 29 '19

Steam-electric power-plant design. A. S. Lolzeaux. Power 47:601-2 Ap 23 '18

Stopping leaks that waste the coal pile. C: L. Hubbard. II Factory 20:29-32, 228-31 Ja-F '18

Tamarack mills power plant. C: H. Bromley. II diags Power 47:426-30 Mr 26 '18

U. S. nitrate plant no. 1. E: R. Welles and C. T. Mitchell. II Power 49:362-6 Je 24 '19

United States nitrate plant, no. 2, at Muscle Shoals, Ala. C: H. Bromley. II chart diags plan Power 49:424-31, 482-8, 558-61 Mr 25-Ap 1, 15 '19

United States nitrates plant no. 2, Muscle Shoals, Ala.—station heat balance. E: R. Welles and H. C. Lockwood. Power 49:802-5 My 27 '19

Up-to-date coal-mine power plant of Clearfield bituminous coal corporation. D. C. Ashmead. II diags plans Coal Age 13:48-52, 232-6 Ja 12, F 2 '18

Use of high-pressure and high-temperature steam in large power stations. J. H. Shaw. Inst E E J 57:73-82 Ja '19; Excerpts. Engineer 126:38-9 Jl 12 '18; Excerpts. Elec R 74:252-6 F 15 '19; Abstract. Mech Eng 41:399-400 Ap '19; Discussion. Inst E E J 57:82-108, 267-76 Ja, Mr '19

Utilizing waste in the power plant. E. Burke. Power 49:184-5 F 4 '19

Warrior steam plant of Alabama power company. W. B. West. II Elec R 72:449-50 Mr 16 '18; Same. Power 47:399-400 Mr 19 '18

Waste prevention in power plants. V: J. Azbe. diags Iron Tr R 62:421-8 F 14 '18

Waste products for steam generation. diags Engineer 126:400-1 N 8 '18

What coal economies can be effected in the small steam plants; symposium. Am Soc M E J 40:pt 2, 649-51 Jl '18

Windsor (W. Va.) power station. II diags plan Power 47:210-16 F 12 '18

Wood-burning station of Northwestern electric company, Portland, Ore. II Elec R 73:573-4 O 12 '18

See also Boiler plants; Boilers; Electric plants; Feed water heaters; Piping (power plants); Power plants; Steam; Steam engineering; Steam engines; Steam turbines

**Cost**

Cost of fuel for steam-electric stations. W. T. Batcheller. J Elec 42:470-2 My 15 '19

First cost of steam plants using small-sized units. H. K. Barrows. Elec W 73:689 Ap 5 '19

**Safety devices and measures**

Placing valves in unsafe positions. V. R. Hughes. II Power 49:266-8 F 25 '19

**Tables, calculations, etc.**

Calculation of plant efficiencies and fuel costs. J. T. Foster. charts Power 49:316-18 Mr 4 '19

Designing data for power plants. Heat & Ven 16:39-42 Mr '19

Steam power. See Power cost; Steam engineering; Steam engines; Steam plants

Steam power plants. See Steam plants

Steam ships. See Steamboats

**Steam shovels**

American steam shovel in England. II Engineer 128:366 O 10 '19

Increased coal output by stripping. A. C. Vicary. II Coal Age 14:94-6 Jl 20 '18

Methods of moving steam shovels. J. R. Sherman. diags Eng & Contr 52:318 S 17 '19

Motor trucks loaded by steam shovel do well on hotel excavation. O. L. Davis. Eng N 79:1077 D 6 '17

Number of wagons required for hauling from steam shovels. Eng & Contr 52:225 Ag 20 '19

Review of modern steam shovel practice, with recommended procedure. L. N. Edwards. diags Munic Eng 56:176-9 My '19; Excerpt. Eng & Contr 51:198-9 F 19 '19

Revolving steam shovel wins its place as railroad ditcher. II Eng N 80:536 Mr 14 '18

Shovel on road job dumps concrete mixed at quarry plant. E. L. Sparks. II Eng N 81:288 Ag 8 '18

Small steam shovel for coal-stripping service. Coal Age 12:1104-5 D 29 '17

Snow removal by steam shovel in Newark. N. J. II Munic J 44:31-2 Ja 12 '18

Steam jet arrangement for supplying water to steam shovel. Eng & Contr 49:475 My 15 '18

Steam-shovel mining of bituminous coal; costs. H. H. Stock. II map Am Inst Min E Bul 129:1385-1417; Bibliography. 1417-19 S '17; Excerpt. Eng & Contr 48:234-5 S 19 '17; Discussion. Am Inst Min E Bul 133:24 Ja '18

Steam-shovel mining on the Mesabi range. L. D. Davenport. II diags plan Eng & Min J 105:403-6, 493-8, 579-83 Mr 2, 16, 30 '18; Excerpts. Eng & Contr 49:388-9; 50:66 Ap 17, Jl 17 '18

Steam shovel operating kinks. diags Eng & Contr 52:333 S 17 '19

Steam-shovel ore cars at New Cornelia, Ajo, Ariz. diags Eng & Min J 105:416-17 Mr 2 '18

Steam shovel work in road construction. Eng & Contr 50:446 N 6 '18

Storing contractor's plant. Eng & Contr 49:481-2 My 15 '18

Use of grade boards for steam shovel loading tracks. L. D. Davenport. Eng & Contr 49:482 My 15 '18

Wisconsin zinc district; discussion. W. N. Smith. II Am Inst Min E Bul 135:705-6 Mr '18; Excerpt. Eng & Contr 49:285 Mr 20 '18

Working dimensions of 300-ton revolving shovel. diag Eng & Min J 105:516 Mr 16 '18

Steam tractors. See Tractors, Steam

**Steam traps**

Analysis of steam trap troubles. L. E. Croup. Heat & Ven 16:47-8 Jl '19

Corliss valve steam trap. II Am Gas Eng J 110:supl6 F 22 '19

**Steam traps—Continued**

- Flasher steam trap. diag Power 46:834 D 13 '17; Elec R 71:991-2 D 8 '17; Ind Management 55:154 F '18
- Improved Bundy trap. II Textile World 56: 1997 O 4 '19
- Inspecting steam traps. Factory 22:520+ Mr '19
- Installing a return trap. W. H. Wakeman. diag Dom Eng 81:546-7 D 29 '17
- Recent steam trap tests. Heat & Ven 15:56-7 D '18
- Steam required for operation of return trap. Power 46:809 D 11 '17
- Steam traps as fuel savers. II Heat & Ven 15: 74-5 S '18
- Steam traps in naval service; abstract. F. G. Hechler. diag Am Soc M E J 40:728 Ag '18
- Swartwout hydromatic vacuum trap. II Power 48:812 D 3 '18
- Trane thermo traps and vents. II Heat & Ven 15:71-2 S '18

See also Steam pipes

**Steam trucks. See Motor trucks, Steam****Steam turbines**

- Advantages of high pressure and superheat as affecting steam plant efficiency; abstracts. E. Berg. diag Gen Elec R 21:216-21 Mr '18; Elec W 72:56-8 JI 13 '18; Am Soc M E J 40:742-5 S '18; Elec R 73:444-7 S 21 '18; Power 48:832-5 D 10 '18; W Soc E J 23: 408-17 Je '18
- A. E. G. turbo-generator. Power 48:324 Ag 27 '18; Sci Am S 86:91 Ag 10 '18
- Auxiliary source of gland-sealing water. C. H. Sonntag. diags Power 49:854 Je 3 '19
- Avoiding distortion in turbine operation. W. Tallmadge. II diags Power 48:762-5 N 26 '18
- Bucket efficiency of impulse and reaction steam turbines; abstract. T. G. E. Lindmark. Mech Eng 41:625-6 JI '19
- Care in the operation of small turbines. J. A. MacMurchy. Power 48:744-5 N 19 '18
- Causes of impaired turbine economy. J. Y. Dahlstrand. diag Elec W 72:4-7 JI 6 '18
- Cleaning turbines and condensers in service. H. E. Wagner. Elec R 71:1114 D 29 '17
- Commercial analysis of the small-turbine situation. W. J. A. London. diags Am Soc M E J 39:981-6 D '17; Abstract. Iron Age 100:1421-2 D 13 '17; Abstract. Elec W 70: 1164-5 D 15 '17; Discussion. Am Soc M E J 40:125-8 F '18; Correction. C. W. Dake. 40: 160 F '18
- Cooling the blading of turbine floating on the line. Elec R 74:865 My 24 '19
- Critical speeds of rotors resting on two bearings. W. Rautenstrauch. diags Am Mach 46: 97-102 Ja 18 '17; Discussion. 46:1133-4; 47: 1053-4 Je 28, D 13 '17
- Economy of heat engines. H. R. Sankey. Engineer 124:489-91 D 7 '17
- Exhaust-steam turbine installations at coal mines. E. I. Roberts. Coal Age 13:1049-52, 1101-6 Je 8-15 '18
- Feed arrangements for turbines having a steam velocity greater than that of sound; abstract. G. Zerkowitz. Am Soc M E J 40: 510 Je '18
- Fifty-thousand kilovolt-ampere Connors Creek turbines. C. F. Hirschfeld. Power 47: 255-6 F 19 '18; Same. Engineer 125:303 Ap 5 '18
- Finding the efficiency ratio. H. L. Doolittle. Power 50:140 JI 22 '19
- Forty-five-thousand kilowatt compound turbine at Providence, R. I. J. P. Riggsby. II diags plans Power 48:292-8 Ag 27 '18
- 45,000-kw. turbine added to plant of Narragansett electric lighting company. II Elec W 71:317 F 9 '18
- 45,000-kw. turbine-generator set at Providence. II Elec R 75:91-3 JI 19 '19
- Future of the steam turbine. Elec Ry J 52: 1096-7 D 21 '18
- Getting a high vacuum at the turbine exhaust. H. L. Smith. Elec Ry J 52:99-101 JI 20 '18
- Getting the most out of turbo-generators. L. H. Parker and J. J. Preble. II diags Elec W 71:564-6 Mr 16 '18
- High speed of steam turbines. J. Breslav. Power 47:21 Ja 1 '18
- High speed of steam turbines. W. F. Schaphorst. Power 46:458-9 O 2 '17; Discussion. 46:639; 47:21, 128-9 N 6 '17, Ja 1, 22 '18
- High steam pressures; with discussion. Power 49:910-12 Je 10 '19
- Higher steam pressure and superheat. Elec R 73:452 S 21 '18
- Improvement of the turbo-alternator; abstract. Elec W 71:1146 Je 1 '18
- Influence of air density on the pneumatic type steam-turbine governor. T. Hall. chart Power 50:514 S 23 '19
- Interborough rapid transit company's 70,000-kw. turbogenerator. II Elec R 75:4-6 JI 5 '19
- International railway installs steam turbine in unique location. II diags plan Elec Ry J 52:44-7 JI 13 '18
- Interpreting steam-turbine test curves. H. E. Brelsford. Power 47:866-8 Je 18 '18
- Large single-shaft turbine in Berlin. F. E. Junge. Power 50:11-12 JI 1 '19
- Large steam turbine design; abstracts. J. F. Johnson. II diag Elec J 16:32-8 Ja '18; Elec R 74:247-50 F 15 '19; Elec W 73:19-21 Ja 4 '19; Mech Eng 41:356-61 Ap '19; Power 49:330-6 Mr 4 '19
- Large turbo-alternator unit; abstract. diag Am Soc M E J 41:61-2 Ja '19
- Largest high-head Francis turbine installed in plant of Puget Sound traction, light and power co. II diag plan Power 47:174-7 F 5 '18; Abstract. Am Soc M E J 40:272-3 Mr '18; Abstract. Elec R 72:417-18 Mr 9 '18
- Limitations of steam turbines and turbo-generators discussed before the A. I. E. E. Elec R 75:872-3 N 22 '19
- Low-pressure turbines for lineshaft drive. R. J. Horne. II Power 47:550-2 Ap 16 '18
- Low-pressure turbines in forge shops. H. V. Schoepflin. diags Power 50:450-3 S 16 '19
- Natural steam turbine plant. II Power 48:935 D 24 '18
- New Commonwealth Edison turbine; abstract. J. F. Johnson. Elec W 72:168 JI 27 '18
- New generating equipment of Commonwealth Edison company. Chicago. II Elec R 72:621-4 Ap 13 '18; Iron Tr R 62:1180-1 My 9 '18
- New theory of the steam turbine; abstracts. H. M. Martin. Am Soc M E J 40:784-7, 871-3, 965-6; 41:150-4 S-N '18, F '19; Sibley J 33:12+ O '18
- New turbine disk and carbon packing rings. diags Power 50:238-9 Ag 5 '19
- Ninety-five thousand kilowatt addition to Northwest station of the Commonwealth Edison co., Chicago. II Power 47:354-8 Mr 12 '18
- One hundred thousand horse-power steam turbine. II plan Sci Am 120:659 Je 21 '19
- Placing a new turbine in service. R. Taylor. diags Power 50:578-82 N 22 '19
- Pneumatic steam-turbine governor. diags Power 50:300-1 Ag 19 '19; Abstract. Mech Eng 41:842 O '19
- Present limits of speed and power of single-shaft Curtiss steam turbines. E. Berg. diag Am Inst E E Pro 38:1223-31 N '19; Same. Elec R 75:861-3 N 22 '19
- Present limits of speed and power of single-shaft steam turbines. J. F. Johnson. II diags Am Inst E E Pro 38:1243-53 N '19; Same. Elec R 75:863-6 N 22 '19
- Problems in designing small turbines for industrial purposes. S. A. Moss. II Gen Elec R 22:620-30. Ag '19
- Refinements in turbine design. A. G. Christle. diags Power 50:362-4 S 2 '19; Same. Sci Am S 88:240-1 O 25 '19
- Reliability of large turbines. J. F. Johnson. II diags Elec W 72:1212-15 D 28 '18
- Sealing of turbo labyrinths in 9400-kw. station. M. Meredith. Elec R 75:411 S 6 '19
- Sealing water for turbine glands. W. M. Wilson. diag Power 48:571-2 O 15 '18
- Six-unit Northwest generating station of the Commonwealth Edison company will develop 165,000 kw. II diags Elec W 71:928-31 My 4 '18
- 60,000-kw. turbine-generator installation. W. S. Finlay, Jr. II diags plan Elec J 16: 172-82 My '19; Excerpts. Elec Ry J 53: 906-8 Mv 10 '19; Excerpts. Elec W 73:932-5 My 10 '19

**Steam turbines—Continued**

- Some facts about monel metal. H. R. Williams. Power 50:14-16 J1 1 '19
- Some hints on turbine operation. H. E. Brelsford. Power 50:105-6 J1 15 '19
- Status of the steam turbine and tendencies in design; abstracts. diags Elec Ry J 53:999-1001 My 24 '19; Power 49:832-3; Discussion. 833-4 My 27 '19
- Steam motor—a new small turbine. II diag Elec R 73:785-6 N 16 '18
- Steam turbine development and tendencies. II diag Elec R 73:612-14 O 19 '18; Same. Sci Am S 86:387 D 21 '18
- Steam turbine of large specific output and the employment of disks with shrunk-on bosses; abstract. diags Am Soc M E J 40: 511-14 Je '18
- Steam turbine progress reviewed historically. chart diag J Elec 42:90-1 Ja 15 '19
- Steam turbine regulation problem. L. M. Klauber. diag Elec R 74:720 My 3 '19
- Steam turbines for building power plants. II diags plan Heat & Ven 15:40-3 Ag '18
- Straightening shaft of 45,000-kw. turbine. E. E. Clock. diag Power 50:377-8 S 2 '19
- Stresses in turbine blading; abstract. G. Stoney. Am Soc M E J 40:pt 1, 594-6 J1 '18
- Trend of turbogenerator development. Elec R 72:630-1 Ap 13 '18
- Turbines for mechanical drives. R. R. Lewis. II diag Gen Elec R 22:438-42 Je '19
- United States nitrate plant no. 2 at Muscle Shoals—main and house turbines. C. H. Bromley. II diags Power 49:482-8 Ap 1 '19
- Use of high-pressure and high-temperature steam in large power stations. J. H. Shaw. Inst E E J 57:73-82 Ja '19; Excerpts. Engineer 126:38-9 J1 12 '18; Excerpts. Elec R 74:252-6 F 15 '19; Abstract. Mech Eng 41: 399-400 Ap '19; Discussion. Inst E E J 57: 82-108, 267-76 Ja, Mr '19
- Ventilation systems for steam turbine alternators. E. Knowlton and E. H. Freiburg-house. diag Gen Elec R 21:240-6, 367-72 Ap-Mr '18
- Westinghouse bleeder turbine. diags Heat & Ven 16:61 Ja '19
- Westinghouse small geared turbines. II Elec W 71:1166 Je 1 '18; Ry R 62:846-7 Je 8 '18; Int Marine Eng 23:434-5 J1 '18
- Westinghouse turbo-generator for direct current. II Iron Tr R 62:1618 Je 27 '18; Am Mach 49:89 J1 11 '18; Elec R 73:143 J1 27 '18; Eng & Min J 106:224 Ag 3 '18
- What is the capacity of a turbine? Power 47:408 Mr 19 '18; Discussion 47:694-5 My 14 '18

See also Ship propulsion; Steamboats

**Failures**

- Boston turbine accident. C. H. Watson. Power 47:629 Ap 30 '18
- Exciter turbine accident at Gorge plant, Akron, Ohio. II diags Power 48:203-5 Ag 6 '18
- Lessons from steam-turbine accidents. Elec W 71:551 Mr 16 '18
- Steam-turbine failures. Power 48:355 S 3 '18
- 35,000-kw. turbine is wrecked in Northwest Station, Chicago. II diags Power 48:345-8 S 3 '18; Elec R 73:175-6 Ag 3 '18
- 25,000-kw. turbine is damaged in new West End station, Cincinnati, Ohio. II diags Power 48:425-6 S 17 '18
- Wreck of a thirty-five thousand kilowatt turbine in the O street station of the Boston elevated railway company. II diags Power 47:390-5 Mr 19 '18

**Gearing**

- Additional power for line shaft through turbine drive, with speed-reduction gear. II Elec R 73:248-9 Ag 17 '18; Same cond. Power 48:533-4 O 8 '18
- Turbine reduction gears. II diag Coal Age 16:153 J1 24 '19

**Lubrication**

- Keeping power plant oil in good condition. H. L. Smith. Elec Ry J 51:1131-3 Je 15 '18; Discussion. E. M. May. Elec Ry J 52:122 J1 20 '18

- Lubrication of steam turbines; papers by members of Lubrication engineers' association of the Texas co. diags Power 47:198-201 F 5 '18
- Notes on turbine bearings and their lubrication. C. H. Bromley. Power 47:734-6 My 21 '18

See also Steam turbines, Marine—Lubrication

**Safety devices**

- Causes of vacuum trouble. L. F. Forseille. diags Power 47:909 Je 25 '18
- Safety devices for steam turbines. II diags (supp) Engineer 125:58-9 Ja 18 '18

**Testing**

- Efficiency test of a large turbine. H. G. Stott and W. S. Finlay, Jr. II Iron Tr R 62:537-40 F 28 '18

**Steam turbines, Marine**

- Evolution of the destroyer. S. M. Robinson. II diags plans Int Marine Eng 24:577-84 S '19
- Franco Tosi co. turbine-driven marine auxiliaries. II diags Engineer 127:636-8, 640 Je 27 '19
- Geared turbines for marine propulsion. C. H. Camp. Power 49:534-6 Ap 8 '19
- How turbine problems were met. F. Hodgkinson. Marine R 49:348-9 J1 '19
- Marine engineering from 1911 to 1917. Sci Am S 84:390-1 D 22 '17
- Marine steam turbines and reciprocating engines. Sci Am S 85:121 F 23 '18
- Marine turbine governors. P. M. Robinson. II diags Int Marine Eng 24:689-90 O '19
- Progress in turbine ship propulsion. F. Hodgkinson. Engineer 127:135-6 F 7 '19; Same. Power 49:225 F 11 '19
- Reducing speeds magnetically. II diags Sci Am 117:499+ D 29 '17
- Steam turbines and gears for marine service. II diags plans Power 50:424-6 S 9 '19
- Tosi marine steam turbines. II diags plan Int Marine Eng 23:117-21 Mr '18
- Tosi turbine-driven auxiliaries. II Int Marine Eng 24:99-100 F '19
- Turbine engine manufacture under government supervision. Iron Age 102:274 Ag 1 '18
- Turbine machinery for standard ships. II (supp) diags Engineer 127:371-3 Ap 18 '19
- Turbines of the U.S.S. New Mexico. E. O. Hunt. II diags Gen Elec R 22:233-43 Ap '19
- Turbo-electric ship Wulsty Castle. II diags Engineer 125:423-6, 428 My 17 '18
- 2500 h.p. Rateau marine geared turbines. II diags plan Engineer 126:36-8 J1 12 '18

**Lubrication**

- Forced lubrication for marine turbines. Marine R 49:187 Ap '19
- Forced lubrication for turbines. Iron Tr R 62:605 Mr 7 '18

**Manufacture**

- Manufacturing scheme of the South Philadelphia works. O. Otto. II Elec J 16:122-6 Ap 19
- Westinghouse marine engineering works. E. K. Hammond. II Mach 25:538-44, 789-96, 929-33 F, My-Je '19

Steam valves. See Valves

Steam vehicles. See Automobiles, Steam; Motor trucks, Steam

**Steamboats**

- Centenary of transatlantic steam navigation. F. B. C. Bradlee. II Int Marine Eng 24:347-8 My '19
- Charts for use in the design of propelling machinery for usual type of cargo ships. J. L. Haynes. Int Marine Eng 24:132-4 Mr '19
- Commerce absorbs transport ships. II diags plans Marine R 49:326-9 J1 '19
- 8,000-ton or B type steamship building at Hog Island shipyard. Int Marine Eng 24:737-8 N '19
- Great Lakes to have new wrecker; the Favorite. II diag Marine R 49:238-40 My '19
- Highly superheated steam used on steamship Pearl Shell. II diags Int Marine Eng 23:304-5 My '18
- Italian geared turbine cargo steamer. II diag plans Int Marine Eng 24:94-94a F '19

**Steamboats—Continued**

- Our proposed 1,000-foot steamers. *Il Sci Am* 121:151+ Ag 16 '19  
 Pioneer of the trans-Atlantic liner. R. G. Skerrett. *Il Sci Am* 120:503+ My 17 '19  
 Pioneer ships in American ocean trade. F. B. C. Bradlee. *Il Int Marine Eng* 24: 618-20 S '19  
 Power and speed of steamers. A. R. Liddell. *Engineer* 128:430-1 O 31 '19  
 Power, speed and dead-weight carrying capacity of screw steamers. H. P. Frear. *Sibley J* 32:168-70 Ag '18  
 Steamboat-inspection rules amended. *Int Marine Eng* 23:416-17 J1 '18  
 S. S. Fairmont. *Int Marine Eng* 23:27 Ja '18  
 Thousand-foot ship. *Sci Am* 121:128 Ag 9 '19

*See also* Boilers, Marine; Freight ships; Marine engines; Ship propulsion; Shipbuilding; Shipping; Ships; Steam turbines, Marine; Towboats; Warships

**Steamers.** *See* Steamboats

**Steamship terminals.** *See* Terminals

**Steamships.** *See* Steamboats

**Steel**

- Addition of steel to cast iron. J. E. Hurst. *Engineer* 126:93 Ag 2 '18; Same. *Sci Am S* 86:235 O 12 '18  
 Aircraft steels. A. Sauvage. *Am Inst Min Bul* 153:sup2323-38 S '19; Discussion. 156:3202-3 D '19  
 American institute of mining and metallurgical engineers session on iron and steel. *Chem & Met Eng* 21:459-61 O 8 '19  
 Applying X-ray to study of steel. W. E. Ruder. *Iron Tr R* 65:1188-9 O 30 '19  
 Basic steel and the war. *Iron Age* 102:586 S 5 '18  
 Carbon in iron and steel. *Am Mach* 50:400 F 27 '19  
 Damascene steel. N. T. Belalew. *Am Arch* 114:347 S 18 '18  
 Deep etching and rail and forging defects. F. M. Waring and K. E. Hofmann. *Il Iron Age* 104:13-14 J1 3 '19; Same. *Ry R* 65:11-12 J1 5 '19; Same cond. *Iron Tr R* 64:1687-8 Je 26 '19; Excerpts. *Ry Age* 67: 17-18 J1 4 '19; Abstract. *Eng N* 83:15 J1 3 '19; Discussion. *Iron Age* 104:14-16 J1 3 '19; *Iron Tr R* 65:43-4 J1 3 '19; *Ry R* 65:12-15 J1 5 '19; *Eng N* 83:15 J1 3 '19  
 Deep etching of steel. *Sci Am S* 88:217 O 11 '19  
 Differential crystallization in a cast-steel runner. F. B. Foley. *Il Am Inst Min Bul* 151:1117-21 J1 '19; Same. *Iron Tr R* 65:30 J1 3 '19; Discussion. *Am Inst Min Bul* 154:2934-5 O '19  
 Effects of sulphur on steel. A. E. White. *Foundry* 47:722 O 15 '19  
 Effervescing steel. H. D. Hibbard. *Il Am Inst Min Bul* 153:sup2595-2608 S '19  
 Erosion of runs. H. M. Howe. *Il diags Am Inst Min E Bul* 134:335-90 F '18; Excerpts. *Iron Tr R* 62:374-7 F 7 '18; Summary. *Iron Age* 101:389 F 7 '18; Discussion. *Iron Age* 101:554-6 F 28 '18; *Am Inst Min E Bul* 136: 734-61 Ap '18  
 Erosion tests of rifle barrels. A. E. Bellis. *Il Am Inst Min Bul* 151:1073-7 J1 '19; Same. *Iron Age* 104:226-8 J1 24 '19  
 Flakes in alloy steel. E. E. Thum. *Chem & Met Eng* 21:145-6 Ag 1 '19  
 Flakes in alloy steel; divergent views of Howe, Clayton, Rawdon, Foley and Laney. *Il Chem & Met Eng* 20:216-19 Mr 1 '19  
 Flaky and woody fractures in nickel-steel gun forgings. C. Y. Clayton, F. B. Foley and F. E. Laney. *Il Am Inst Min E Bul* 146:203-37 F '19; Same abr. *Iron Age* 103:761-3 Mr 20 '19; Discussion. *Am Inst Min Bul* 149: 792-804; 150:969-79 My-Je '19  
 Flaky fractures and their possible elimination. H. Styrl. *Chem & Met Eng* 20:478-83 My 1 '19; Discussion. 20:556-7 Je 1 '19  
 Formula for strength of basic steel. A. M. McWilliam. *Iron Age* 102:1508-11 D 19 '18  
 Gear steels. J. H. Parker. *Mach* 25:861-3 My '19; Same. *Iron Age* 103:1092-3 Ap 24 '19; Same. *Am Mach* 50:1007-9 My 22 '19

- Grain-size inheritance in iron and carbon steel. Z. Jeffries. *Il Am Inst Min E Bul* 131: 1883-99 N '17; Abstract. *Am Soc M E J* 39: 1036-7 D '17; Discussion. *Am Inst Min E Bul* 135:699-700; 136:727-34; 137:1023-5 Mr-My '18  
 How to study steel. C. Johns. *Sci Am S* 88: 2-3+ J1 5 '19  
 Identification marks for steel. *Mach* 24:515 F '18  
 Identification of bar steel. *Mach* 26:36-8 S '19  
 Importance of non-metallic inclusions in steel. *Sci Am S* 86:147 S 7 '18  
 Inclusions and ferrite crystallization in steel. E. G. Mahin. *Il J Ind & Eng Chem* 11:739-45 Ag '19  
 Inclusions in steel; abstract. H. D. Hibbard. *Foundry* 47:372 Je 15 '19  
 Inclusions in steel and ferrite lines; with discussion. J. E. Stead. *Engineer* 125:422-3 My 17 '18  
 Influence of some elements on the tenacity of basic steel; abstract. A. McWilliam. *Am Soc M E J* 40:958 N '18  
 Innovation in strip steel practice. *Automotive Ind* 39:59 J1 11 '18  
 Iron, carbon and phosphorus. J. E. Stead. *Chem & Met Eng* 19:592 O 1 '18  
 Macro-etching and macro-printing. J. C. W. Humphrey. *Il Iron Age* 104:293-4 J1 31 '19; Abstract. *Eng N* 82:1207-8 Je 19 '19  
 Macrography of steel. H. Le Chatelier. *Iron Age* 104:774 S 18 '19  
 Mechanical properties of steel and iron. *Iron Age* 104:565-8 Ag 28 '19  
 Mechanical properties of steel; discussion. W. H. Hatfield. *Engineer* 127:552-3 Je 6 '19  
 Mechanism of fracture in steel; abstract. W. E. Ruder. *Il J Fr Inst* 187:635-6 My '19  
 Metallography of rifle-barrel steel. G. F. Butterworth, Jr. *Il Am Inst Min Bul* 151: 1107-11 J1 '19; Same. *Iron Age* 104:226-6 J1 24 '19  
 Microstructural features of flaky steel. H. S. Rawdon. *Il Am Inst Min E Bul* 146:183-201 F '19; Same cond. *Iron Age* 103:759-61 Mr 20 '19  
 Microstructure of very low carbon steel. R. E. Bedworth. *J Fr Inst* 188:407-8 S '19  
 New system of reinforcing metals. *Il diags Engineer* 125:322 Ap 12 '18  
 Nicu steel from nickel-copper-iron ore shows high strength. *Eng N* 80:812 Ap 25 '18; Same cond. *Mach* 24:1002 J1 '18  
 Observations on flaky and woody steel. F. Gholitti. *Il Chem & Met Eng* 20:271-3 Mr 15 '19  
 Observations on so-called flakes in steel. H. Styrl. *Il Chem & Met Eng* 20:342-51 Ap 1 '19  
 Path of rupture in steel fusion welds. S. W. Miller. *Il Am Inst Min E Bul* 146:311-38 F '19; Discussion. 148:750-2; 149:809-10 Ap-My '19  
 Prevention of columnar crystallization by rotation during solidification. H. M. Howe and E. C. Groesbeck. *Il diags Am Inst Min E Bul* 146:361-5 F '19; Discussion. 149:790-1 My '19  
 Removing oxide scale by pickling. E. E. Corbett. *Iron Tr R* 64:564-8 F 27 '19  
 Rolling temperatures of steels. H. C. H. Carpenter. *Iron Age* 104:295-6 J1 31 '19  
 Stainless steel. *Chem & Met Eng* 21:438 O 1 '19  
 Steel foundrymen's session on ordnance. *Iron Age* 102:958-9 O 17 '18  
 Story of steel. *Ry R* 65:503-4 O 4 '19  
 Structures in steel fusion welds. S. W. Miller. *Il Am Inst Min E Bul* 134:391-408 F '18; Same cond. *Iron Tr R* 62:713-18 Mr 21 '18; Discussion. *Am Inst Min E Bul* 136:720-4; 137:1023 Ap-My '18; Discussion. Z. Jeffries. *Iron Tr R* 62:1365-6 My 30 '18  
 Supposed reversal of inheritance of ferrite grain size from that of austenite. H. M. Howe. *Am Inst Min E Bul* 129:1365-7 S '17; Discussion. 133:105-6 Ja '18  
 Temperature of steel and colors exposed to the sun. *Eng & Contr* 50:224-5 Ag 28 '18  
 Tensile strength and hardness of steel. H. M. Brayton. *charts Iron Age* 102:627-9 S 12 '18

**Steel—Continued**

Volute aging break. H: M. Howe and E. C. Groesbeck. *Il Am Inst Min E Bul* 146:181-2 F '19

Warping of steel by repeated quenching. J. H. Whiteley. *Il Iron Age* 102:1256-7 N 21 '18  
Welding of steel. B. K. Smith. *Am Mach* 49: 1035-6 D 5 '18; Same. *Ry Mech Eng* 92:628 N '18

See also Annealing; Armor plate; Bessemer process; Bridges, Iron and steel; Cars, Steel; Case hardening; Concrete, Reinforced; Corrosion and anti-corrosives; Electrolytic corrosion; Foundry practice; Iron; Manganese steel; Metallography; Metals; Nickel steel; Open hearth process; Railroad ties, Steel; Rails; Semi-steel; Springs (mechanism); Steel, Hardening of; Steel, Heat treatment of; Steel, Structural; Steel alloys; Steel castings; Steel construction; Steel industry and trade; Steel ingots; Steel metallurgy; Steel works; Tool steel; Tungsten steel; Vanadium steel; Wire; Wire rope; Zirconium steel

**Analysis**

Analysis of ferrozirconium and zirconium in steel. J. D. Ferguson. *Eng & Min J* 106: 356 Ag 24 '18

Chemist's part in speeding up steel output. A. F. MacFarland. *diags Iron Age* 101:1645-8 Je 27 '18

Chromium in steel. G. L. Kelley and W. C. Wright. *Iron Age* 103:1507 Je 5 '19

Combustion train for carbon determination. J. B. Stetser and R. H. Norton. *diag Iron Age* 102:443-5 Ag 22 '18

Composition and properties of steels. H. Enssaw. *Am Mach* 49:669-72 O 10 '18

Critical study of the Ledebur method for determining oxygen in iron and steel. J. R. Cain and E. Pettijohn. *U S Bur Stand Tech Pa* 118:1-33 '19

Determination of manganese in steel in the presence of chromium and vanadium by electrometric titration. G. L. Kelley and others. *J Ind & Eng Chem* 10:19-23 Ja '18

Determination of oxygen in steel. P. Oberhoffer. *diags Iron Age* 102:1573 D 26 '18

Determination of phosphorus in high-speed steels. E. C. Kraus. *Met & Chem Eng* 16: 124 F 1 '17; Discussion. *Met & Chem Eng* 17:625-6, 681-2; 18:61 D 1-15 '17, Ja 15 '18

Determination of phosphorus in vanadium steels, ferrovanadium, non-vanadium steels, and pig iron. C. M. Johnson. *J Ind & Eng Chem* 11:113-16 F '19

Determination of uranium in alloy steels and ferro-uranium. G. L. Kelley, F. B. Myers and C. B. Illingworth. *J Ind & Eng Chem* 11:316-17 Ag '19

Determination of uranium, zirconium, chromium, vanadium and aluminum in steel. C. M. Johnson. *Chem & Met Eng* 20:523-4, 588-9 My 15-Je 1 '19

Determination of vanadium in steels by electrometric titration; the selective oxidation of vanadyl salts by nitric acid in the presence of chromic salts. G. L. Kelley and others. *J Ind & Eng Chem* 11:632-4 Ji '19

Determining gases in steel and the deoxidation of steel. J. R. Cain. *Am Inst Min Bul* 152:1309-22 Ag '19; Discussion. 155:3027-32; 156:3119-21 N-D '19

Electrolytic resistance method for determining carbon in steel. J. R. Cain and L. C. Maxwell. *chart diags J Ind & Eng Chem* 11:852-60 S '19

Gases occluded in steel. T: Baker. *Iron Age* 103:938 Ap 10 '19

Microscopic analysis of iron and steel. C. G. Nicholson. *Il Sci Am* 121:460+ N 8 '19

Modification of the cyanide method for the estimation of nickel in steels. L. F. Miller. *Chem & Met Eng* 20:613 Je 15 '19

Phillips neutroscope or apparatus for simplifying sulphur analyses. *diag Iron Age* 103:957 Ap 10 '19

Rapid determination of carbon in steel by the barium carbonate titration method. J. R. Cain and L. C. Maxwell. *J Ind & Eng Chem* 10:520-2 Ji '18

Standard apparatus for the determination of sulfur in iron and steel by the evolution method. H. B. Pulsifer. *Il diag J Ind & Eng Chem* 10:545-50 Ji '18

**Case hardening**

See Case hardening

**Corrosion**

Further data on effect of copper in reducing corrosion of steel. *Eng N* 83:14 Ji 3 '19

How many engineers know the chemical theory of rusting? *Eng & Contr* 51:207 F 26 '19

Lime as a protection for steel. M. Meigs. *Power* 47:483 Ap 2 '18

Metallic coatings for rust-proofing iron and steel. H: S. Rawdon, M. A. Grossman and A. N. Finn. *diags Chem & Met Eng* 20:458-64, 530-7 My 1-15 '19

**Prices**

Agreed prices for steel castings. Foundry 46: 58-62 F '18

American iron and steel institute announces price changes. *Iron Tr R* 63:600 S 12 '18

American iron and steel institute general steel committee recommends more price schedules. *Iron Tr R* 62:146-7 Ja 10 '18

Appeal to iron and steel industry; manufacturers asked to adjust prices in harmony with those agreed upon. E. H. Gary. *Iron Age* 101:134-5 Ja 10 '18

Average monthly prices of iron and steel products, 1906-1917. *Iron Tr R* 62:123 Ja 3 '18

Average monthly prices of leading iron and steel products, 1907-1918. *Iron Tr R* 64:124 Ja 2 '19

Bar market during 1917. *Iron Tr R* 62:32-3 Ja 3 '18

Bar market has many new features. *Iron Tr R* 64:108-9 Ja 2 '19

Basing cases may raise questions. *Iron Tr R* 65:109-10 Ji 10 '19

Changes in price regulations announced. *Iron Age* 102:290-1 Ag 1 '18

Chicago prices depend on Pittsburgh. E. G. Grace. *Iron Tr R* 65:848-50 S 25 '19

Cincinnati iron trade conditions in 1917. C: L. Smith. *Iron Age* 101:61-2 Ja 3 '18

Corporation favors Pittsburgh base. *Iron Age* 104:732-3, 771-3 S 11-18 '19

Developments of the Pittsburgh market in 1917. R. A. Walker. *Iron Age* 101:59-60 Ja 3 '18

Director Hines criticizes steel prices. *Iron Age* 103:1451-2 My 29 '19

Doings of the United States Railroad administration. *Ry Age* 66:937-9 Ap 11 '19

Eastern Pennsylvania iron and steel market in 1917. C. E. Wright. *Iron Age* 101:62-3 Ja 3 '18

Endless confusion would follow change of base. G. E. Frederick. *Iron Tr R* 65:1266-7 N 6 '19

Features of the Chicago iron trade in 1917. C: Lundberg. *Iron Age* 101:60-1 Ja 3 '18

Fluctuations in iron and steel prices for twenty-four years. *Iron Tr R* 64:96a Ja 2 '19

Government's purchasing policy leads to controversy. *Coal Age* 15:1045-6 Je 5 '19

Investigation of basing system to be made. *Iron Age* 104:172+ Ji 17 '19

Iron and steel prices during the war. *Iron Age* 103:1642-3; 104:579-81 Je 19, Ag 28 '19

Iron and steel prices for twenty years, 1898-1917. *chart (supp) Iron Age* 101:68-75 Ja 3 '18

Iron and steel prices for twenty-one years, 1898-1918. *supp Iron Age* 103:18-19 Ja 2 '19

Judge Gary announces additional prices. *Iron Age* 100:1542-3, 1564 D 27 '17; *Iron Tr R* 61: 1370-1 D 27 '17

Many price changes. *Iron Age* 102:758-62 S 26 '18

Mills to reply in basing case. *Iron Tr R* 65: 283 Ji 31 '19

Mills' views on basing point controversy. *Iron Age* 104:643-5 S 4 '19

Minor price changes are announced. *Iron Age* 102:648-9 S 12 '18; Same. *Iron Tr R* 63:600, 745 S 12, 26 '18

Movement to stabilize prices fails. *Iron Age* 103:1299-1306 My 15 '19

**Steel—Prices—Continued**

Official prices revised to date. Iron Tr R 62: 1294-5 My 23 '18  
 One base stabilizes industry. Iron Tr R 65: 640-2 S 4 '19  
 Pittsburgh base blocks West. Iron Tr R 65: 780-1 S 18 '19  
 Pittsburgh basing for steel products. Iron Age 104:231-3, 343 JI 24-31 '19  
 Pittsburgh iron and steel markets. B. E. V. Luty. Eng & Min J 105:72-3 Ja 12 '18  
 Pittsburgh iron and steel markets, 1918. B. E. V. Luty. Eng & Min J 107:60-2 Ja 11 '19  
 Plan of price stabilization abandoned. Ry Age 66:1189-92 My 16 '19  
 Price controversy up to president. Ry Age 66:992-3 Ap 18 '19  
 Railroad administration and steel prices. Iron Age 103:903-4, 951-3, 1024-7 Ap 3-17 '19  
 Reasons for price decision. E. H. Gary. Iron Tr R 63:1337-9 D 12 '18; Same cond. Iron Age 102:1460-2 D 12 '18  
 Revision of prices of steel products. Iron Age 101:1356-7, 1374-6 My 23 '18  
 Rulings on steel price. Iron Age 101:211 Ja 17 '18  
 Shell steel demand crowds market. Iron Tr R 62:26-7 Ja 3 '18  
 Steel prices fixed for second quarter. Eng N 80:689 Ap 4 '18  
 Suggested price-basing points. J. E. MacMurray. Iron Age 103:611-12 Mr 6 '19; Excerpts. Iron Tr R 64:709 Mr 13 '19

**Specifications**

British adopt twenty standard steel specifications. Automotive Ind 40:418-19 F 20 '19  
 Concessions made in steel standards by Testing society. Iron Tr R 63:33 JI 4 '18  
 Low phosphorus limit required by government in acid castings impossible to meet because of limited supply of raw material. Iron Tr R 62:385 F 7 '18  
 Metallurgical practice; abstract. H. L. Campbell. Chem & Met Eng 20:433 Ap 15 '19  
 New and revised specifications. Iron Age 102:14-15 JI 4 '18  
 Ordnance steel for army and navy. J. H. Hall. Iron Tr R 63:834-6 O 10 '18; Same. Iron Age 102:1084-6 O 31 '18; Same. Foundry 46:535-7 N '18  
 Propose revised standards. Iron Tr R 64: 1688+ Je 26 '19  
 Specifications for aircraft steels. A. L. Colby. Iron Age 102:70-1 JI 11 '18  
 Standard specifications; English and Spanish. U S Bur For & Dom Com Industrial Standards nos 14-22, 30-44 '19  
 Standard specifications for open-hearth steel girder and high tee rails; English and Spanish. U S Bur For & Dom Com Industrial Standards 3:1-19 '18  
 Standard specifications for steel; English and Spanish. U S Bur For & Dom Com Industrial Standards nos 2, 5-13 '18  
 Steel for allied aircraft; joint Anglo-American specifications are being perfected. Iron Tr R 63:663-4 S 19 '18

**Testing**

Action of caustic liquors on steel plates; abstracts. C. E. Stromeyer. diags Engineer 124:496 D 7 '17; Iron Tr R 62:548 F 28 '18; Met & Chem Eng 18:372-3 Ap 1 '18  
 Application of magnetic analysis. C. W. Burrows and F. P. Fahy. II diag Iron Tr R 64:1686-7 Je 26 '19  
 Brittleness in electroplated steel. T. S. Fuller. Iron Tr R 62:669-71 Mr 14 '18  
 Composition and properties of steels. H. Enssaw. Am Mach 49:669-72 O 10 '18  
 Discussion of papers at the fall session of the Iron and steel Institute. J. Horton. Iron Tr R 63:953-5 O 24 '18  
 Durability of high speed steels. R. Pollakoff. II diags Iron Age 103:295-6 Ja 30 '19  
 Duration of shop tests on tool steels. A. L. Jenkins. Am Mach 47:1036 D 13 '17  
 Effect of cold-working and rest on resistance of steel to fatigue under reversed stress. H. F. Moore and W. J. Putnam. diags Am Inst Min E Bul 146:391-404 F '19; Abstract. Eng N 82:619-20 Mr 27 '19; Discussion. Am Inst Min Bul 148:719-27; 151:1029-30 Ap, JI '19

Effect of phosphorus on soft steels; abstracts. J. S. Unger. II Iron Age 101:1538-40 Je 13 '18; Iron Tr R 62:1495-8 Je 13 '18  
 Effect of the presence of a small amount of copper in medium-carbon steel. C. R. Hayward and A. B. Johnston. Am Inst Min E Bul 133:159-67 Ja '18; Same abr. Iron Tr R 62:320-1 Ja 31 '18; Same cond. Iron Age 101:452-3 F 14 '18; Abstract. Eng & Min J 105:371 F 23 '18; Abstract. Mach 24:965 Je '18; Discussion. Am Inst Min E Bul 136: 726-7 Ap '18  
 Effect of time and low temperature on physical properties of medium-carbon steel. G. A. Reinhardt and H. L. Cutler. Am Inst Min Bul 151:1091-8 JI '19; Same cond. Iron Tr R 65:164-6 JI 17 '19; Abstract. Mech Eng 41:766 S '19; Discussion. Am Inst Min Bul 154:2335-7; 156:3139-43 O, D '19  
 Effects of cold working on the elastic properties of steel. J. A. Van Den Broek. II Engineer 125:443-4 My 24 '18  
 Example of crystal crushing. Chem & Met Eng 20:72 Ja 15 '19; Discussion. G. F. Comstock. 20:309-10 Ap 1 '19  
 Experimental data obtained on Charpy impact machine. F. C. Langenberg. II diags Am Inst Min Bul 152:1471-99 Ag '19; Discussion. 155:3051-5; 156:3164-5 N-D '19  
 Exposure tests of sheeting material. S. L. Hoyt. Chem & Met Eng 21:142-4 Ag 1 '19; Abstract. Eng N 83:521 S 11 '19  
 Fatigue tests of nickel steel and chrome-nickel steel; abstracts. H. F. Moore and A. G. Gehrig. Eng & Contr 52:97-8 JI 23 '19; Eng N 83:82-3, 389 JI 10, Ag 21 '19  
 Formula for calculating the tenacity of basic steel. A. McWilliam. Engineer 126:340-1 O 18 '18  
 Hair-line defects in crankshafts. P. J. Piccl-rilli. II diags Automotive Ind 39:1041-4, 1104-5+ D 19-26 '18  
 Hardness testing; and the relation between ball hardness and scleroscope hardness. A. F. Shore. Engineer 126:239 S 20 '18  
 Hardness tests of gun-barrel steel. W. K. Shepard. Am Mach 50:739-42 Ap 17 '19  
 High-speed tool-steel efficiencies. J. O. Arnold and F. Ibbotson. II Iron Tr R 64: 1419-21 My 29 '19  
 Influence of heat treatment on the electrical and thermal resistivity and thermoelectric-potential of some steels. E. D. Campbell and W. C. Dowd. Met & Chem Eng 18:68-90 Ja 15 '18  
 Influence of hot-deformation on the qualities of steel; abstracts. G. Charpy. Engineer 126:238 S 20 '18; Iron Age 103:1079-81 Ap 24 '19; Discussion. Engineer 126:238-9 S 20 '18; Iron Age 103:1215-16 My 8 '19  
 Investigation of magnetic steel analysis. N. J. Gebert. Iron Age 104:509-11 Ag 21 '19  
 Limitations of carbonizing process. E. F. Lake. Iron Tr R 61:1385-6 D 27 '17  
 Location of flaws in rifle-barrel steel by magnetic analysis. R. L. Sanford and W. B. Kouwenhoven. II diags U S Bur Stand Sci Pa 343:219-30 '19  
 Magnetic analysis for determining quality; abstracts. Iron Age 104:42-4 JI 3 '19; Eng & Contr 52:90 JI 23 '19  
 Magnetic permeability of steel. F. P. Fahy. II diags Chem & Met Eng 19:247-50 S 1 '18  
 Mechanical properties of steel. W. H. Hatfield. Engineer 127:458-9 My 9 '19  
 Metallography and heat treatment of metals used in aeroplane construction. F. Grotta. II Chem & Met Eng 19:131-3, 191-7, 241-7 Ag 1-S 1 '18  
 Microscopic study of welded tires. S. W. Miller. II diags Ry Mech Eng 92:104-10 F '18  
 Modern high-speed steel. J. A. Mathews. Eng N 83:120 JI 17 '19  
 New method of establishing working strength of metals; the useful limit point. Iron Age 101:591 F 28 '18  
 Physical qualities of high chrome steel. L. R. Seidell and G. J. Horvitz. II Iron Age 103: 291-4 Ja 80 '19  
 Physical tests of rolled shell steel. J. J. Mahon. II Iron Age 102:1082-3 O 31 '18

**Steel—Testing—Continued**

- Punching test to indicate strength of steel trench helmets. H. A. Thomas. *diag Eng N* 80:365 F 21 '18
- Specific density of steel. H. E. Doerr. *diags Iron Age* 103:184 Ja 16 '19
- Steel tests used by workmen. J. F. Keller. *Mach* 24:810 My '18
- Steels used in airplane work. W. H. Hatfield. *Automobile* 37:102-4, 154-6, 507-9 JI 19-26, S 20 '17; *Abstract. Engineer* 123:386-7 Ap 27 '17
- Stress lines in steel after permanent deformation. A. McCance. *diags Sci Am S* 88:196-7 S 27 '19
- Study of the joining of metals. J. A. Capp. *II Gen Elec R* 21:947-56 D '18
- Testing materials for hardness. H. Ensaw. *Am Mach* 50:257-8 F 6 '19
- Testing steel by magnetic analysis. R. L. Sanford. *II diags Iron Tr R* 65:1181-3 O 30 '19
- Tests of oxyacetylene welded joints in steel plates. H. F. Moore. *II diags III U Eng Exp Sta Bul* 98:1-21 '17; *Excerpts. Eng & Contr* 48:542 D 26 '17; *Summary. Am Gas Eng J* 107:sup18 D 29 '17; *Same. Ry Mech Eng* 92:111-12 F '18
- Thermal and electric conductivity of carbon steels. *Iron Age* 101:614 Mr 7 '18
- Thermal expansion of different kinds of steel at high temperatures; abstracts. K. Honda. *Am Soc M E J* 40:190-1 F '18
- Using X-rays in examination of steel. H. S. Rawdon. *II Iron Tr R* 65:1329-31 N 13 '19
- Value of the impact test. Captain Philpot. *Engineer* 125:338 Ap 19 '18; *Same. Am Soc M E J* 40:514-15 Je '18
- Value of the notch bar test questioned. *Automotive Ind* 39:202-3 Ag 1 '18
- X-ray supplements magnetic testing. H. M. Howe. *Iron Tr R* 65:1189+ O 30 '19
- See also* Brinell hardness test; Steel—Specifications
- Steel. Hardening of**
- Automatic hardener; patent. *diag Chem & Met Eng* 21:48 JI 1 '19
- Blue water gas used for metal melting in Great Britain. A. Forshaw. *Am Gas Eng J* 107:588-93 D 29 '17
- Experimental investigation of the influence of the rate of cooling on the hardening of carbon steels; abstract. A. M. Portevin. *Chem & Met Eng* 21:41-2 JI 1 '19
- Fuel bill with gas only \$57 a month higher than with coal in carbonizing installation, but four times as much work is turned out. E. A. Pilnacek. *II Am Gas Eng J* 110:71-2 Ja 25 '19
- Gage making in a shell plant. F. D. Jones. *II diags Mach* 25:1-6 S '18
- Hardening and tempering certain railway materials. G. Schultz. *Mech Eng* 41:391 Ap '19
- Hardening and tempering of steel. C. A. Edwards. *Engineer* 125:161-2 F 22 '18
- Hardening carbon steel. *J Ind & Eng Chem* 10:574 JI '18
- Hardening formed high-speed cutters. W. R. Bennett. *Am Mach* 48:587 Ap 4 '18
- Hardening of steel by chromium and copper. L. Grenet. *Sci Am S* 85:105 F 16 '18
- Hardening steel automatically and accurately. *Sci Am* 119:187 S 7 '18
- Heat treating and hardening tool steel bushings. E. S. Brown. *Iron Age* 101:481 F 14 '18
- How to treat high-speed steel. J. L. Thorne. *Iron Age* 102:314 Ag 1 '18
- Improved packing methods for carburizing. W. H. Addis. *II diags Am Mach* 50:679-80 Ap 10 '19
- Influence of time on variation of hardened steel gages. C. Eldridge. *Mach* 25:373 D '18
- Limitations of carbonizing process. E. F. Lake. *Iron Tr R* 61:1385-6 D 27 '17
- Mechanism of the hardening of carbon steels. P. Chevenard. *Sci Am S* 85:170 Mr 16 '18
- Simplest hardening equipment for carbon steel; abstract. *Elec W* 71:887 Ap 27 '18
- Sorbic treatment for rails. *II diag Elec Ry J* 54:29-30 JI 5 '19; *Eng & Contr* 52:225 Ag 20 '19
- Steel hardening process makes substitute for manganese specials. *Elec Ry J* 52:704 O 19 '18

- Steels used in airplane work. W. H. Hatfield. *Automobile* 37:507-9 S 20 '17
- Stress lines in steel after permanent deformation. A. McCance. *diags Sci Am S* 88:196-7 S 27 '19
- Thermal relations in the treatment of steel. C. F. Brush. *Am Inst Min Bul* 153:sup2389-2407 S '19
- Use of X-rays in metallurgy. *Iron Age* 103:1650-2 Je 19 '19
- Work of the factory metallurgist. R. H. Sherry. *Automobile* 37:587 O 4 '17

*See also* Case hardening; Steel, Heat treatment of

**Steel, Heat treatment of**

- Annealing and heat treating of steel and melting of non-ferrous metals in the electric furnace; abstract. T. F. Bally. *Elec W* 70:1110 D 8 '17
- Application of heat in steel treating. A. F. MacFarland. *diags Iron Age* 101:612-14 Mr 7 '18; *Same. Am Mach* 48:627-30 Ap 11 '18; *Same cond. Ry Mech Eng* 92:164-6 Mr '18
- Automatic gas-fired furnace for heat treating artillery shell. W. J. Harris, Jr. *II diag Am Gas Eng J* 109:169-73 Ag 24 '18; *Same. Iron Age* 102:566-8 S 5 '18; *Same. Gas Age* 42:366-7 O 15 '18
- Burning of steel. W. H. Cathcart. *Iron Age* 101:1269 My 16 '18
- Change in dimension of heat-treated bars. *Iron Age* 102:313-18 Ag 1 '18
- Commercial steels and their heat treatment. L. H. Pomeroy. *Engineer* 125:430-1 My 17 '18
- Cooling properties of technical quenching liquids. N. B. Pilling and T. D. Lynch. *II diags Am Inst Min Bul* 153:sup2347-67 S '19; *Discussion. 156:3176-9 D '19*
- Development of grain boundaries in heat-treated alloy steels. R. S. Archer. *II Am Inst Min E Bul* 146:51-5 Ja '19; *Same. Iron Age* 103:366-7 F 6 '19; *Discussion. Am Inst Min Bul* 149:787-8 My '19
- Dilatometer method of investigating heat-treating of carbon steel; abstract. *diags Mech Eng* 41:540-2 Je '19
- Effect of annealing on the electrical resistance of hardened carbon steels. I. F. Parkhurst. *diags J Ind & Eng Chem* 10:515-18 JI '18
- Effect of mass on heat treatment; with discussion. E. F. Law. *Iron Age* 103:1139-40 My 1 '19
- Effect of rate of temperature change on transformations in an alloy steel. H. Scott. *II U S Bur Stand Sci Pa* 335:91-100 '19; *Same. Am Inst Min E Bul* 146:157-67 F '19; *Discussion. 149:807-8 My '19*
- Electric furnace for forging and annealing of steel. W. S. Scott. *II Elec R* 72:941-4 Je 8 '18; *Same. Chem & Met Eng* 19:86-9 JI 15 '18; *Same cond. Iron Tr R* 63:440-2 Ag 22 '18; *Abstract. Iron Age* 101:1676-7 Je 27 '18
- Electric furnace for heat treating of small airplane parts. D. D. Miller. *II Am Mach* 49:373-6 Ag 29 '18
- Electric furnace in the forge shop for the heating of billets for forging. T. F. Bally. *Iron Age* 101:1654 Je 27 '18
- Electric furnaces for heat treatment. T. F. Bally. *II Iron Age* 101:1199-201 My 9 '18
- Electric heating and heat treating. T. F. Bally. *II Automotive Ind* 39:188-90 Ag 1 '18
- Electric muffle for decalcification point. *Iron Age* 102:849 O 3 '18
- Electric treatment of airplane forgings. D. D. Miller. *II Iron Age* 102:381-5 Ag 15 '18
- Electrical heat treatment of steel. H. P. MacDonald. *II Automotive Ind* 41:115-17 JI 17 '19
- Electrically heated soaking pit. T. F. Bally. *diags Iron Age* 103:1419-21 My 29 '19; *Same. Iron Tr R* 64:1416-18 My 29 '19; *Discussion. Iron Age* 103:1421-2 My 29 '19
- Forging temperatures and rate of heating and cooling of large ingots. F. E. Bash. *Am Inst Min Bul* 153:sup2869-80 S '19; *Discussion. 155:3020 N '19*
- Fundamental principles to be considered in the heat treatment of steel. R. A. Hayward. *Chem & Met Eng* 20:519-23 My 15 '19



**Steel, Heat treatment of—Continued**

- Heat-treating gears for army trucks in the electric furnace. D. D. Miller. *Il Am Mach* 49:461-4 S 12 '18
- Heat-treating shells. J. M. Hall. *Chem & Met Eng* 20:193 F 15 '19
- Heat treating sub-chaser parts. L. A. Danse. *Il Iron Tr R* 62:1421-3 Je 6 '18
- Heat-treating 3-in. shrapnel shells. *diags Am Mach* 48:441-2 Mr 14 '18
- Heat treatment and temperature measuring for shells. J. R. Van Wyck. *diags plan Am Mach* 47:1087-90 D 20 '17
- Heat treatment of alloy steel. K. A. Juthe. *Am Mach* 50:1077-9 Je 5 '19
- Heat-treatment of automobile parts. A. W. Medhurst. *Mach* 24:478 Ja '18
- Heat treatment of axle steel. E. A. Pearson. *Coal Age* 14:232-3 Ag 1 '18
- Heat treatment of axles. D. D. Miller. *Il Ry Mech Eng* 92:419-21 JI '18
- Heat-treatment of British high-explosive shells and shrapnel. J. M. Hall. *Mach* 25:49 S '18
- Heat treatment of cast steel. J. H. Hall, A. E. Nissen and K. Taylor. *Il diags Am Inst Min Bul* 153:sup2881-2922 S '19; Discussion. 156:3154-5 D '19
- Heat treatment of French high explosive shells. G. B. Waterhouse. *Iron Age* 104:595 Ag 28 '19
- Heat treatment of gear blanks. C. R. Poole. *Automotive Ind* 38:826-6 Ap 25 '18; Same. *Iron Tr R* 62:1110-11 My 2 '18; Same. *Am Mach* 48:829-31 My 16 '18; Excerpts. *Mach* 24:845 My '18
- Heat treatment of heavy forgings. W. Beardmore. *Il diags Iron Tr R* 62:216-18 Ja 17 '18; Same cond. *Iron Age* 99:1544-5; Discussion. 1545 Je 28 '17
- Heat-treatment of iron and steel; purposes and results; with discussion. G. Hutton. *Ry Age* 67:426 Ag 29 '19
- Heat treatment of low-carbon steel. W. M. Wilkie. *Il Mech Eng* 41:239-44 Mr '19
- Heat treatment of railroad materials. C. B. Bronson. *Iron Age* 104:25-7 JI 3 '19; Same. *Ry R* 65:71-3 JI 12 '19; Same abr. *Ry Age* 67:314-16 Ag 15 '19; Excerpts. *Eng & Contr* 52:339 S 17 '19
- Heat treatment of side rods. H. E. Gamble. *Ry R* 65:296-7 Ag 30 '19
- Heat treatment of steel. *diags Motor Age* 35:32-3 My 22 '19
- Heat treatment of steel. P. Kreuzpointner. *Am Mach* 49:52 JI 11 '18
- Heat treatment of steel; abstracts. E. F. Law. *Sci Am S* 86:32 JI 13 '18; *Am Soc M E J* 40:720-1 Ag '18
- Heat treatment of steel by electric furnaces. H. Otto. *diags Ry Mech Eng* 93:615-16 O '19
- Heat treatment of steel for small petrol marine engines. *Engineer* 127:159-60 F 14 '19
- Heat treatment of steel rails during rolling. *Iron Age* 103:487 F 20 '19
- Heat treatment of steels; abstracts. F. C. A. H. Lantsberry. *Iron Tr R* 62:487-8 F 21 '18; *J Fr Inst* 185:420 Mr '18
- Heat treatment of tool steel. S. U. Brayshaw. *Iron Age* 103:1508 Je 5 '19
- Hollow steel axles and safety first. J. Pollak. *Il Iron Age* 101:1129-31 My 2 '18
- How the power house aids the forge. L. F. Johnson. *Il Iron Tr R* 64:1221-6 My 8 '19
- Identification of bar steel. *Mach* 26:36-8 S '19
- Industrial furnace heating with water gas. O. L. Kowalke. *diags Gas Age* 43:444-6 Ap 15 '19
- Influence of heat treatment on the electrical and thermal resistivity and thermoelectric-potential of some steels. E. D. Campbell and W. C. Dowd. *Met & Chem Eng* 18:86-90 Ja 15 '18
- Influence of size on heat-treating. E. J. Janitzky. *Am Mach* 50:1153-4 Je 12 '19
- Influences of surface tension. F. C. Thompson. *Il diags Iron Tr R* 62:1299-1304 My 23 '18
- Internal stresses in steel; French method of measuring those developed by rapid cooling. E. C. Buck. *Iron Age* 102:1264 N 21 '18

- Metallographic investigation of transverse-fissure rails with special reference to high-phosphorus streaks. G. F. Comstock. *Il Am Inst Min E Bul* 143:1699-1714 N '18; Same cond. *Iron Tr R* 63:1457-62 D 26 '18; Same cond. *Iron Age* 103:613-16 Mr 6 '19; Discussion. *Am Inst Min E Bul* 147:598-602; 149:869-94 Mr. My '19
- Metallography and heat treatment of metals used in aeroplane construction. F. Grotts. *Il Chem & Met Eng* 19:121-8, 191-7, 241-7 Ag 1-S 1 '18
- Metallurgical practice; abstract. H. L. Campbell. *Chem & Met Eng* 20:433 Ap 15 '19
- Notes on heat treatment of steel. T. D. Lynch. *Il diags chart plan Eng Soc W Pa* 35:215-37; Discussion. 238-42 Je '19
- Ordnance steel for army and navy. J. H. Hall. *Iron Tr R* 63:834-6 O 10 '18; Same. *Iron Age* 102:1084-6 O 31 '18; Same. *Foundry* 46:535-7 N '18
- Physical tests of rolled shell steel. J. J. Mahon. *Il Iron Age* 102:1082-3 O 31 '18
- Possibilities of double heat-treatment of steel. B. Stoughton. *Mach* 24:539 F '18
- Proper annealing of steel. P. Kreuzpointner. *Il Am Mach* 49:947-8 N 21 '18
- Properties of high speed steel. G. J. Horvitz. *Il Iron Age* 103:1711-14 Je 26 '19
- Purposes and results of the heat-treatment of iron and steel. G. Hutton. *Ry Mech Eng* 93:542-3 S '19
- Quenching liquids. *Mach* 24:720 Ap '18
- Quenching of steel causes warping. J. H. Whitely. *diags Iron Tr R* 65:562 Ag 28 '19
- Reheating as cure for rail fissures. G. F. Comstock. *Il Iron Tr R* 63:1457-62 D 26 '18
- Relative size in heat treatment. T. G. Straub. *Iron Age* 104:167-8 JI 17 '19
- Remarks concerning the heat treatment of steel and their application to the treatment of steels used for airplane motors. A. Sauveur. *J Fr Inst* 188:189-97 Ag '19
- Static, dynamic, and notch toughness. S. L. Hoyt. *Il Am Inst Min E Bul* 146:339-51 F '19; Discussion. 150:987-8 Je '19
- Steel mill practice and heat treating. A. F. MacFarland. *diags Iron Age* 103:1353-5 My 22 '19; Same. *Iron Tr R* 65:288-90 JI 31 '19
- Steel works heat-treating plant of United alloy steel corporation, Canton, Ohio. *Il Iron Age* 100:1347-50 D 6 '17; Same abr. *Am Gas Eng J* 107:567-8 D 22 '17
- Steels for gears and their treatment. G. A. Richardson. *Il Iron Age* 101:1668-70 Je 27 '18; Abstract. *Am Soc M E J* 40:721-2 Ag '18
- Structure and strength of overheated rivet steel. S. H. Graf. *Il Eng N* 82:280-2 F 6 '19
- Temperature indicating and controlling systems. F. D. Jones. *Il diag Mach* 25:1015-23 JI '19
- Temperature observations on heating, quenching and drawing of a large steel forging. O. A. Knight and F. F. Hansen. *diag Chem & Met Eng* 20:590-1 Je 1 '19
- Tempering thin snap gages. J. H. Follen. *Am Mach* 49:36 JI 4 '18
- Thermal relations in the treatment of steel. C. F. Brush. *Am Inst Min Bul* 153:sup2389-2407 S '19
- Time effect in tempering steel. A. E. Bellis. *Am Inst Min E Bul* 134:331-3 F '18; Same. *Iron Tr R* 62:380 F 7 '18; Same. *Iron Age* 101:550 F 28 '18; Discussion. *Am Inst Min E Bul* 136:725-6 Ap '18
- Triad tool steel heating furnace. *Il Iron Age* 101:553 F 28 '18
- Turned rough stock reduces costs. *Il Iron Tr R* 63:253-4 Ag 1 '18

**Bibliography**

- Double heat treatment with special reference to armor plate and guns. E. C. Buck. *Iron Age* 101:1658 Je 27 '18

**Steel, Structural**

- Approved list of British standard sections for shipbuilding, constructional, and other general purposes. *Engineer* 124:567 D 28 '17
- Automatic spacing and punching machine for structural work. S. A. Hand. *Il diags Am Mach* 49:1-8 JI 4 '18

**Steel, Structural—Continued**

- Fast steel erection due to joint drafting room, shop and field work. *Il* diags Eng N 81:757-9 O 24 '18
- Making pressed-steel reinforcing. *Il* plan Iron Tr R 64:1073-80 Ap 24 '19
- Present status of fabricated steel industry. G: E. Gifford. Eng & Contr 49:229-30 F 27 '18
- Revolutionary demand upon shape mills and fabricating shops for material. Iron Tr R 62:34-5 Ja 3 '18
- Ship steel standardization. Iron Age 101:1144 My 2 '18
- Standard specifications for steel; English and Spanish. U S Bur For & Dom Com Industrial Standards nos 2, 5-13 '18
- Standardization of ship steel. *Int* Marine Eng 24:47-9 Ja '19; Iron Age 102:1363-4 N 28 '18; Iron Tr R 62:1245-6 N 28 '18; Eng & Contr 50:596-7 D 25 '18
- Standardizes steel ship materials. F. T. Llewellyn. Iron Tr R 64:1549-51 Je 12 '19
- Steel for reconstruction. *Il* Sci Am S 87:20 Ja 11 '19
- Structural material made of thin sheet steel. *Il* diags Am Arch 115:249-54 F 12 '19
- Structural steel absorbed by war. Iron Tr R 64:114+ Ja 2 '19
- Study of the fabricated ship problem from the steel manufacturer's standpoint. E. C. Kreutzberg. *Il* Iron Tr R 62:8-12 Ja 3 '18
- See also* Bridges, Iron and steel; Cars, Steel; Painting, Structural; Ships, Iron and steel; Steel construction; Steel reinforcing bars
- Bibliography**
- Structural service department; structural iron and steel. Am Inst Arch J 6:46-7 Ja '18
- Steel, Tool.** *See* Tool steel
- Steel alloys**
- Alloy steel process. Iron Tr R 65:431 Ag 14 '19
- Alloy steels for helmets and armor. J: A. Coyle. *diag* Chem & Met Eng 20:618-20 Je 15 '19
- Casting tools from an air-hardening steel. *Il* Foundry 47:66-7 F '19
- Corrosion-proof steels; recent progress in the development of iron alloys that resist rust. F. Rowlinson. Sci Am 121:156 Ag 16 '19
- Corrosion tests of steel alloys. R. Hadfield. Iron Tr R 62:656-8 Mr 14 '18
- Effect of rate of temperature change on transformations in an alloy steel. H. Scott. *Il* U S Bur Stand Sci Pa 335:91-100 '19; Same. Am Inst Min E Bul 146:157-67 F '19; Discussion. 149:807-8 My '19
- High-speed steel substitutes. P. H. Kuehn-Rich. Chem & Met Eng 20:248 Mr 1 '19
- New high speed alloy containing zirconium; patent. Iron Age 101:949 Ap 11 '18
- Story of stainless steel. Iron Age 104:294 Jl 31 '19
- See also* Chromium steel; Cobaltchrom; Kinite; Manganese steel; Nickel steel; Tool steel; Tungsten steel; Vanadium steel
- Steel balls.** *See* Balls, Steel
- Steel barges.** *See* Barges, Steel
- Steel barrels.** *See* Barrels, Steel
- Steel bridges.** *See* Bridges, Iron and steel
- Steel cars.** *See* Cars, Steel
- Steel carving**
- Masterpiece of steel carving. *Il* Mech Eng 41:906 N '19
- Steel castings**
- Annealing of steel castings. R. Durrer. Iron Age 101:590 F 28 '18
- Army cast steel specifications revised. Foundry 46:241-2 Je '18
- Better steel castings are required. H. A. Neel. Foundry 47:824-6 N 15 '19
- Cast high speed steel tools. M. Grennet. Iron Age 101:1204 My 3 '18
- Cast-steel anchor chain developed to meet war need; abstracts. H. J. Cox. Eng N 81:129-30 Jl 18 '18; Iron Age 102:25-6 Jl 4 '18
- Cast steel ship development. M. F. Hill. *Il* Iron Age 103:1351-2 My 22 '19; Same. Sci Am S 88:19+ Jl 12 '19
- Chester as a steel foundry center. E. F. Cone. *Il* Iron Age 104:839-41 S 25 '19
- Converter steel castings. J: Sonnenfeld. Iron Age 102:88 Jl 11 '18
- Cooling rate affects steel casting design. J. G. Fletcher. Foundry 46:201-4, 248-9 My-Je '18
- Deformation of steel castings. T. Brown. Foundry 46:411-13 S '18
- Difficult steel casting. R. Hadfield. *diag* Iron Age 103:809 Mr 27 '19
- Diversified output at Canton plant, Ohio. *Il* chart plan Foundry 47:243-50 My 1 '19; Same. Iron Tr R 64:1211-17 My 8 '19
- Eastern plant makes ship castings. E. C. Kreutzberg. *Il* Foundry 47:468-71 Jl 15 '19
- Electric furnace economical for making steel castings. W. E. Moore. Elec W 73:847 Ap 26 '19
- Electric furnace for steel castings. D. D. MacGuffie. Iron Age 101:1282-3 My 16 '18
- Electric steel castings made in Chicago shop. *Il* plan Foundry 47:352-5 Je 1 '19
- Electric steel for small castings. R. F. Flinterman. Iron Age 101:1398-1400 My 30 '18; Excerpt. Met & Chem Eng 18:511-12, 610 My 15-Je 1 '18
- Elementary points on steel converter practice. G: P. Fisher. Foundry 47:147 Ap 1 '19
- Experiences in electric steel foundry. *Il* diags Elec W 74:830-4 S 20 '19
- Experiments with cast steel chain. C. K. Brooks. *diags* Iron Age 102:26-8 Jl 4 '18; Excerpts. Eng N 81:130 Jl 18 '18; Excerpts. Foundry 46:374-5 Ag '18
- Heat treatment of cast steel. J: H. Hall, A. E. Nissen and K. Taylor. *Il* diags Am Inst Min Bul 153:sup2881-2922 S '19; Discussion. 156:3154-5 D '19
- Hoosier foundry seeks difficulties. D. M. Avey. *Il* Foundry 47:505-9 Ag 1 '19; Same. Iron Tr R 65:701-5 S 11 '19
- How a large pump casing was molded and cast. *Il* Foundry 47:281-3 My 15 '19
- How one steel foundry met the need for ship and railway castings. H. C. Estep. *Il* *diag* plan Foundry 46:415-23 S '18
- How semisteel shells are being made in France. E. Ronceray. Foundry 46:93-6 Mr '18; Same. Iron Age 101:806-8 Mr 7 '18; Same. Iron Tr R 62:666-8 Mr 14 '18; Same. Sci Am S 85:406-7 Je 29 '18
- How steel castings are made in California. *Il* Foundry 46:129-33 Mr '18
- How to make ordnance steel castings. E. R. Swanson. Iron Tr R 63:836-7 O 10 '18; Same. Iron Age 102:1086-7 O 31 '18; Same. Foundry 46:538 N '18
- Huge chain cable is now cast successfully. *Il* Foundry 46:310-13 Jl '18
- Increased sulphur content for steel castings. G. Muntz. Foundry 46:191-2 My '18
- Investigation of the failure of a cast-steel anchor. *Il* diags Iron Age 104:773-4 S 18 '19
- Making cast steel wheels for U. S. army trucks at Dayton steel foundry. *Il* *diag* Foundry 46:396-401 S '18
- Making castings used in ship construction. B. Shaw and J. Edgar. *diags* Foundry 47:251-5+, 297-300+, 336-9, 388-92, 417-20, 474-8, 523-7, 540-4, 597-600, 647-50, 705-8, 738-41, 785-8, 832-5, 870-3 My 1-D 1 '19
- Making steel in the iron foundry. G: P. Fisher. Foundry 47:693-4 O 1 '19
- Manufacture and testing of cast steel chain cables; memorandum issued by Lloyd's register of shipping. Engineer 126:134-5 Ag 16 '18
- Manufacture of cast steel road wheels. *Il* Engineer 128:5-6 Jl 4 '19
- Melting process chosen depends on requirements. H. E. Diller. *Il* *diag* Foundry 47:411-15 Jl 1 '19
- Method of gating test bars affects results. A. W. Sorgenz. *Il* diags Foundry 47:559-60 Ag 15 '19
- New duplexing process is invented. H. E. Diller. *Il* Foundry 47:662-5 S 15 '19
- Ordnance steel for army and navy. J: H. Hall. Iron Tr R 63:834-6 O 10 '18; Same. Iron Age 102:1084-6 O 31 '18; Same. Foundry 46:535-7 N '18
- Plea for less rigid sulphur limits. A. E. White. Foundry 47:691-2 O 1 '19; Excerpt. Iron Tr R 65:986 O 9 '19

**Steel castings—Continued**

- Preventing occlusion of gases. R. Hadfield. Iron Tr R 65:504-5 Ag 21 '19
- Rapid development of the electric cast steel anchor chain industry. W. L. Merrill. II diags Int Marine Eng 23:630-4 N '18; Same abr. Gen Elec R 21:388-92 Je '18; Abstract. Mach 25:294 D '18
- Remarkable development of Davidson cast tool steel. II Ry Mech Eng 93:371 Je '19
- Shells from cast steel. diags Iron Age 101:1215 My 9 '18
- Silico-manganese for steel castings. E. F. Cone. Iron Age 104:855-7 S 25 '19
- Standard specifications for castings recommended. Iron Age 101:1008-9 Ap 18 '18
- Standard specifications for steel castings; English and Spanish. diag U S Bur For & Dom Com Ind Stand 17:1-21 '19
- Steel casting standards modified by Ordnance department. Iron Tr R 62:1170 My 9 '18
- Steel castings for our first line of defense. W. S. Duxsey. II diags Foundry 47:367-72 Je 15 '19
- Steel castings on the Pacific coast. J. D. Fenstermacher. II Iron Age 103:233-5 Ja 23 '19
- Steel foundry methods on war work. II Iron Tr R 62:1113-20 My 2 '18
- Sulphur in steel castings. Iron Age 101:757-8 Mr 21 '18; Discussion. G. Munz. 101:918 Ap 4 '18
- Where converter castings are made. II plan Foundry 47:608-11 S 1 '19

See also Steel ingots

**Steel columns. See Columns, Steel****Steel construction**

- Additional data on bolted connections. W. E. Belcher. Eng N 83:529-30 S 11 '19
- Approximate formulas useful in structural design. R. Fleming. Eng N 82:534-5 Mr 13 '19
- Bolts in field connections of steel-frame buildings; a study of data and experience. R. Fleming. II diags Eng N 83:316-21 Ag 14 '19; Discussion. 83:771-2, 896-8 O 23, N 13 '19
- Common errors in detailing steelwork for buildings. E. Godfrey. diags Eng N 83:730-3 O 16 '19
- Details of construction and structural design. E. N. Pike. diags Arch Forum 31:93-5 S '19
- Guest-Lenox system of building construction. II Engineer 125:269 Mr 29 '18
- How to find the proper size steel channels for various spans. G. E. Thackray and W. A. Glesen. Bldg Age 41:324-5 O '19
- Huge steel buildings at ordnance base depot in France. R. K. Tomlin, jr. II plan Eng N 82:124-9 Ja 16 '19
- Practical considerations in design of steel mill buildings. R. Fleming. Eng & Contr 51:567-8 My 28 '19
- Practice in bridge and girder yards from a theoretical standpoint. G. Kenworthy. diags Engineer 124:5-6, 25-7, 48-50, 91-3 Jl 6-20, Ag 3 '17; Discussion. 125:382, 476-7, 512, 531; 126:80-1 My 8, 31, Je 14-21, Jl 19 '18
- Railway station of Illinois Central railroad is combined with tall office building. diags plan Eng N 80:181-2 Ja 24 '18
- Relation of steel framing to architectural design. E. N. Pike. Arch Forum 31:65-7 Ag '19
- Safety measures for preventing accidents in steel erection. E. A. Gibbs. Eng & Contr 52:460-1 O 22 '19; Same cond. Eng N 83:801-3 O 30 '19
- Standard specifications for structural steel for buildings; English and Spanish. diags U S Bur For & Dom Com Ind Stand 8:1-21 '18
- Standardization of structural steelwork. R. B. Reid. II diags Eng & Contr 52:514 O 29 '19
- Steel construction characterizes Chicago church. II diags plans Eng N 81:860-3 N 7 '18
- Steel-frame hall forms top story of concrete building. II diags plan Eng N 79:1103-6 D 13 '17
- Steel framing for long-span construction. N. A. Richards. diags plans Arch Forum 30:23-7 Ja '19

Structural features of 130 ft. tower of new Pennsylvania freight station in Chicago. J. E. Love. II diags Eng & Contr 48:523-4 D 26 '17

Tests to determine the rigidity of riveted joints of steel structures. W. M. Willson and H. F. Moore. II diags Ill U Eng Exp Sta Bul 104:1-55 '17

Truscon system of steel buildings. II diags plan Ry R 63:635-6 N 2 '18

See also Barges, Steel; Bridges, Iron and steel; Cars, Steel; Columns, Steel; Concrete, Reinforced; Concrete construction; Corrosion and anti-corrosives; Elevated railroads; Girders; Ships, Iron and steel; Steel, Structural; Strains and stresses; Strength of materials; Towers, Steel; Water towers, Steel

**Steel cutting**

- Charts for the proper cutting speed of steel. H. M. Brayton. Am Mach 51:691-2 O 9 '19
- Quick method of coping steel beams. F. W. Harth. diags Iron Age 103:694 Mr 13 '19

Steel-engraving. See Engraving

**Steel forgings**

- Anatomy of a drop forging. L. Aitchison. Iron Age 104:47 Jl 3 '19
- Defective forgings. O. A. Knight. diags Iron Age 103:1696 Je 26 '19; Discussion. 104:448-9 Ag 14 '19
- Drop-forging high-speed milling cutters. J. V. Hunter. II diag Am Mach 51:165-8 Jl 24 '19
- Experimental data obtained on Charpy impact machine. F. C. Langenberg. II diags Am Inst Min Bul 152:1471-99 Ag '19; Discussion. 155:3051-5; 156:3164-5 N-D '19
- Fibrous structure in high carbon steel. A. W. Lorenz. Chem & Met Eng 21:203-4 Ag 15 '19
- Flakes in nickel steel gun forgings. R. A. Hayward. charts Chem & Met Eng 21:116 Ag 1 '19
- Flaky and woody fractures in nickel-steel gun forgings. C. Y. Clayton, F. B. Foley and F. B. Laney. II Am Inst Min E Bul 146:203-37 F '19; Same abr. Iron Age 103:761-3 Mr 20 '19; Discussion. Am Inst Min Bul 149:792-804 My '19
- Forging motor cylinders from tubing. W. F. Verner. II Iron Tr R 64:1624-6 Je 19 '19
- Fusion welding applied to drop forgings. S. W. Miller. II Iron Age 104:287-93 Jl 31 '19; Same cond. Am Mach 51:378-82 Ag 21 '19
- Photographing of etched sections of steel forgings at low magnifications. F. B. Foley. II plan Chem & Met Eng 21:140-1 Ag 1 '19
- Standard specifications for carbon-steel and alloy-steel blooms, billets, and slabs for forgings; English and Spanish. U S Bur For & Dom Com Ind Stand 60:1-19 '19
- Standard specifications for carbon steel and alloy steel forgings; English and Spanish. diags U S Bur For & Dom Com Ind Stand 11:1-25 '18
- Standard specifications for carbon steel forgings for locomotives; English and Spanish. diags U S Bur For & Dom Com Ind Stand 13:1-19 '18
- Standard specifications for quenched and tempered alloy-steel axles, shafts, and other forgings for locomotives and cars; English and Spanish. diag U S Bur For & Dom Com Ind Stand 62:1-25 '19
- Standard specifications for quenched and tempered carbon-steel axles, shafts, and other forgings for locomotives and cars; English and Spanish. diags U S Bur For & Dom Com Ind Stand 12:1-25 '18
- Temperature observations on heating, quenching and drawing of a large steel forging. O. A. Knight and F. F. Hansen. diag Chem & Met Eng 20:590-1 Je 1 '19

Steel hardening. See Steel, Hardening of

**Steel industry and trade**

- British-American co-operation in steel. Iron Age 103:689-90 Mr 13 '19
- Factors in world trade competition. Met & Chem Eng 18:224-5 Mr 1 '18

**Steel industry and trade—Continued**

- Flexibility of the steel industry. Chem & Met Eng 19:111 Ag 1 '18
- Huge loss of steel brings problem. G. H. Manlove. II Iron Tr R 64:371-5 F 6 '19
- Plan to improve foreign trade statistics. Iron Age 103:685-7 Mr 13 '19; Same. Iron Tr R 64:714-15 Mr 13 '19
- Prospects for world trade in steel. S: A. Benner. Iron Tr R 64:26-7 Ja 2 '19
- Salvage of war steel under way in France. C. D. Snow. Iron Age 103:1724-5 Je 26 '19
- Status of the electric steel industry. E. F. Cone. Iron Age 103:60-2 Ja 2 '19
- Steel manufacturers agree to co-operate. E. H. Gary. Iron Age 103:699-700 Mr 13 '19; Same. Iron Tr R 64:689-90 Mr 13 '19
- Steel markets of the Pacific. T: T. Read. Iron Age 102:1570-2 D 26 '18
- Steel production of the nations at war. E. F. Lange. Engineer 125:262 Mr 22 '18
- Steel retrenchment at home and abroad. Iron Age 102:885 O 10 '18
- Wages and hours of labor in the iron and steel industry; 1907-1915; with a glossary of occupations. U S Bur Labor Statistics Bul 218:1-526 '17
- War problems of the steel trade. W: B. Dickson. Iron Age 102:1015-16 O 24 '18
- War remakes steel map of Europe. A. O. Backert. diagms map Iron Tr R 64:1701-6+ Je 26 '19
- World's iron and steel output. Mach 26:70 S '19
- World's steel trade. Ry R 63:723-4 N 16 '18
- See also Iron industry and trade; Rolling mills; Steel—Prices; Steel works; also United States steel corporation
- Canada**
- War expands Canadian steel output. P. Thompson. II Iron Tr R 64:573-5 F 27 '19
- France**
- Coke bars France's steel future. Iron Tr R 65:775-7 S 18 '19
- France must export half her steel output. J. F. Shadgen. Iron Age 104:559-60 Ag 28 '19
- French maximum prices for iron and steel. Iron Age 102:580 S 5 '18
- French steel industry in war time. Iron Age 101:1628-9 Je 20 '18
- German wiles gain Normandy ore. F. Miltoun. Iron Tr R 62:1310-11 My 23 '18
- Growth of the mining and metal industries in France. Eng & Min J 106:364 Ag 24 '18
- Iron wealth of Lorraine. F. Miltoun. Iron Tr R 63:208 JI 25 '18
- See also Steel works—France
- Germany**
- Advances in German steel and coal prices. Iron Age 102:697 S 19 '18
- Fate of the De Wendel works in Lorraine. Iron Age 101:1600 Je 20 '18
- German steel industry. Iron Age 103:1748a Je 26 '19
- German steel industry after the war. Iron Age 101:1601 Je 20 '18
- German steel industry and the future. Engineer 126:224 S 13 '18
- German steel trade; notes from speeches of prominent German steel-makers. Iron Age 100:1467 D 13 '17
- German steel trade plans. H. Munzesheimer. Iron Tr R 63:1354-5 D 12 '18
- Germany's fall as a world steel power. Sci Am 121:31 JI 12 '19
- Iron and steel industry in occupied Germany. Engineer 128:262 S 12 '19
- Meaning and methods of German competition. E. T. Good. Engineer 125:333-4 Ap 19 '18
- Metals required for the German steel industry. Eng & Min J 108:141 JI 26 '19
- War had little effect on German steel. Iron Tr R 64:1016-17 Ap 17 '19
- Great Britain**
- Britain has iron-steel exchange. J. Horton. Iron Tr R 65:298-9 JI 31 '19
- British iron and steel trades in 1917. L. H. Quin. Iron Age 101:140-1 Ja 10 '18
- British output of pig iron and steel in 1917. Iron Age 101:1486b Je 6 '18
- British steel at high mark. Iron Tr R 62:1311 My 23 '18
- British steel exports and imports at low ebb in 1917. Iron Age 101:593 F 28 '18
- British steel output up 39 per cent. J. Horton. Iron Tr R 64:1282-3 My 15 '19
- British war steel output. Iron Age 103:129 Ja 9 '19
- Electric furnaces in the United Kingdom, 1918; abstracts. R. G. Mercer. Engineer 127:490 My 16 '19; Iron Age 103:1497-8 Je 5 '19
- Future of the steel trade. Engineer 127:155-6 F 14 '19
- Iron, steel, and engineering industries in 1917. Engineer 125:2-4 Ja 4 '18
- Trusts. Engineer 125:122 F 8 '18
- Two years of state control in British iron and steel industry. J. Horton. II Iron Tr R 62:261-7 Ja 24 '18
- India**
- Aspects of the Indian steel industry. A. McWilliams. Iron Age 102:554-7 S 5 '18
- British skill wins over German in India. A. McWilliams. Iron Tr R 63:442 Ag 22 '18
- Italy**
- Future of American steel trade with Italy. Iron Age 104:625-6 S 4 '19
- Italian iron and steel imports in 1917. Iron Age 102:669 S 12 '18
- Japan**
- Conditions in Japan. Iron Age 103:1633 Je 19 '19
- Future of the Japanese steel industry. J. P. Suzukl. Iron Tr R 63:389-90 Ag 15 '18
- Japanese development in steel-making. T: T. Read. II map Iron Age 101:1259-62 My 16 '18
- Japan's heavy imports of American steel and machinery. Iron Age 101:393 F 7 '18
- Steel industry in Japan. Engineer 125:476 My 31 '18
- Luxemburg**
- Iron and steel production in Luxemburg. map Iron Tr R 65:1050-1 O 16 '19
- Luxemburg industry far behind. Iron Tr R 65:1050 O 16 '19
- Notes on Luxemburg's steel industry in 1914 to 1918. A. S. de Bonnier. Eng & Min J 108:415-16 S 6 '19
- United States**
- Conference between the War industries board and a large delegation of steel manufacturers, May 17. Iron Age 101:1324-5 My 23 '18
- Eight-hour basic day in the steel trade. Iron Age 102:850-1 O 3 '18
- Federal iron and steel census issued. Iron Tr R 64:712-13 Mr 13 '19
- Federal trade commission reports steel company profits are abnormal. Iron Tr R 63:41-2 JI 4 '18
- Fitting mill tonnage to war's decree. L. W. Moffett. II Iron Tr R 62:48-51 Ja 3 '18
- 14th general meeting of the American iron and steel institute in New York, May 31. Met & Chem Eng 18:628-9 Je 15 '18
- Full text of the pig iron and steel agreement. Automotive Ind 38:1116-17 Je 13 '18; Same. Iron Tr R 62:1477 Je 13 '18
- Government steel requirements. J. L. Replogle. Ry R 62:682-3 My 11 '18
- Government steel requisitions are on safe side. W. H. Taylor. Eng N 80:1217-19 Je 27 '18
- Great machine distributes steel. M. L. Feiser. II Iron Tr R 64:34-40 Ja 2 '19
- Greater tool-steel capacity; mills adding furnaces to keep pace with demand. Iron Age 102:577 S 5 '18
- Iron and steel are millions short; heavy losses of production in recent months. II Iron Tr R 62:530-1 F 28 '18
- Iron and steel exports show increase. Iron Age 103:886-7 Ap 3 '19
- Iron and steel in 1917. Met & Chem Eng 18:6-7 Ja 1 '18
- Iron and steel in the South. Met & Chem Eng 18:436 My 1 '18
- Iron and steel-producing capacity. Met & Chem Eng 17:679 D 15 '17

**Steel industry and trade—United States—Cont.**

- Iron and steel statistics in 1917. Eng & Min J 105:72 Ja 12 '18
- Italy's war buying of American steel. E. D'Amico. Iron Age 103:1075-7 Ap 24 '19
- J. L. Replogle takes over steel distribution. Iron Age 101:1528-30 Je 13 '18
- Meeting of steel manufacturers, New York, April 26. Iron Age 101:1206-13 My 9 '18; Same cond. Iron Tr R 62:1192-5 My 9 '18
- Metals prove backbone of warfare; plan for concerted export trade effort under Webb bill. E. A. S. Clarke. Iron Tr R 62:1064-5 Ap 25 '18
- Munition steel exports in 1917. Iron Age 101:411 F 7 '18
- New regulations for exporting steel. Iron Tr R 63:823 O 10 '18
- No evidence of steel shortage can be obtained. Automotive Ind 37:816-18 N 8 '17
- Priority regulations further explained. Iron Tr R 63:336-7 Ag 8 '18
- Production of ingots and rolled products. Iron Age 103:497-500 F 20 '19; Same cond. Iron Tr R 64:520 F 20 '19
- Production of ingots and rolled products in 1918. Iron Age 104:310-13 Jl 31 '19
- Production of steel and finished material in 1918 second in history. Iron Tr R 65:310-11 Jl 31 '19
- Record breaking exports of iron and steel in 1917. Iron Age 101:390-1 F 7 '18
- Record of American steel world war. J. G. Butler, jr. Iron Age 103:1436-9 My 29 '19; Abstract. Iron Tr R 64:1426-7 My 29 '19
- Record of whole industry is shown in weekly reports received by steel director Replogle. Iron Tr R 62:496-8 F 21 '18
- Ruling on steel product sales report. Metal Work 90:258-9 Ag 30 '18
- Sales of steel products and replacement of stock to be reported. Metal Work 90:44-9 Jl 12 '18
- Slight increase of iron and steel exports. Iron Age 103:628-9 Mr 6 '19
- Stabilizing steel trade's future. II Iron Tr R 62:113-14+ Ja 3 '18
- Steel capacity is 50,000,000 tons. R. V. Sawhill. Iron Tr R 64:78-9 Ja 2 '19
- Steel earnings are improving. J. W. Hill. Iron Tr R 65:1073 O 16 '19
- Steel export situation. V. E. Karminski. Iron Age 102:182c-182d Jl 18 '18
- Steel exporting; complicated procedure now necessary. G. F. Creveling. Iron Tr R 62:1269-70 My 16 '18
- Steel exports in 1917 set record. Iron Tr R 62:444 F 14 '18
- Steel exports partially recover. Iron Tr R 65:1059 O 16 '19
- Steel industry meets the mark; abstracts. E. H. Gary. Iron Tr R 62:1442-3 Je 6 '18; Iron Age 101:1463-5 Je 6 '18
- Steel production during the war. Chem & Met Eng 21:115 Ag 1 '19
- Steel situation as it affects the jobbers. S. L. Orr. Iron Age 101:1394-5 My 30 '18
- Sweeping control of sale and distribution of mill and furnace products now exercised by government. C. J. Stark. Iron Tr R 62:13-15 Ja 3 '18
- United States steel corporation's production and shipments in 1917. Iron Age 101:889-90 Ap 4 '18
- U.S. steel works outstrip Germany. Iron Tr R 62:46-7 Ja 3 '18
- Value of iron and steel exports declines. Iron Age 103:186-7 Ja 16 '19
- War writes steel's brightest page. E. C. Kreutzberg. Iron Tr R 64:42-51 Ja 2 '19
- Washington hopeful regarding steel supply; War industries board orders retrenchment in various products. Iron Age 102:814-15 O 3 '18
- What is future of steel exports? L. H. Atkinson. Iron Tr R 62:499-500 F 21 '18
- Year of prodigious war effort. Iron Age 103:1-4 Ja 2 '19
- A year of war and of marshaling the industry to supply the needs of the United States and its allies. Iron Age 101:55-8 Ja 3 '18

See also Steel—Prices

**Steel ingots**

- British iron and steel institute discusses war-time problems. J. Horton. Iron Tr R 63:160-1 Jl 18 '18
- Causes of defects in steel ingots. J. N. Kilby. diag Iron Age 102:266-9, 369 Ag 1-8 '18
- Cutting steel ingots with oxy-hydrogen. W. B. Perdue. II Iron Tr R 63:504-5 Ag 29 '18
- Dish-cast steel ingots. J. A. Holden. Iron Age 102:869 O 3 '18
- Forged tires and axles. L. Genze. Iron Age 103:240 Ja 23 '19
- Forging temperatures and rate of heating and cooling of large ingots. F. E. Bash. Am Inst Min Bul 153:sup2869-80 S '19; Discussion. 155:3020 N '19
- Increase of steel-ingot output. Eng & Min J 108:387 S 6 '19
- Making and heat-treating heavy forgings. F. D. Jones. II Mach 25:583-90 Mr '19
- Making ingots for rolled wheels. L. H. Fry. Iron Tr R 65:1186-7 O 30 '19
- Making sand-cast forging ingots. W. L. Booth. II Iron Age 102:1139-40 N 7 '18
- Producing bitter pills for Fritz. G. Satterthwaite. Iron Tr R 63:384-8 Ag 15 '18
- Producing multiple ingots for tires. G. Aertsen. II Iron Tr R 65:1249 N 6 '19
- Shells from cast steel. diags Iron Age 101:1215 My 9 '18
- Sound steel by lateral compression. B. Talbot. diags Iron Age 102:836-8 O 3 '18; Same. Sci Am S 86:380-1 D 14 '18; Excerpts. Engineer 125:480-1 My 31 '18
- Steel shells from steel castings. II Sci Am 117:493+ D 29 '17
- TWP hydraulic ingot stripper. II Iron Age 103:1148 My 1 '19
- See also Steel castings; Steel metallurgy; Steel works
- Steel metallurgy**
- Alloy steels for helmets and armor. J. A. Coyle. diag Chem & Met Eng 20:618-20 Je 15 '19
- American electric steel by the Triplex process. II (supp) diags Engineer 127:126-7 F 7 '19
- Aspects of the Indian steel industry. A. McWilliams. Iron Age 102:554-7 S 5 '18
- Blowing air into electric furnace steel. C. M. Carmichael. Iron Tr R 63:726 S 26 '18
- British experience with electric steel. Iron Age 103:1572-3 Je 12 '19
- Chemist's part in speeding up steel output. A. F. MacFarland. diags Iron Age 101:1645-8 Je 27 '18
- Damascene steel. N. T. Belaiew. Sci Am S 86:275 N 2 '18
- Deoxidation of steel by ferromanganese. A. L. Feld. J Ind & Eng Chem 11:242-4 Mr '19
- Determination of the temperature of liquid steel under industrial conditions. C. Johns. Engineer 125:389-91 My 3 '18; Abstracts. Met & Chem Eng 18:152 F 1 '18; Sci Am S 85:27 Ja 12 '18
- Determining gases in steel and the deoxidation of steel. J. R. Cain. Am Inst Min Bul 152:1309-22 Ag '19; Discussion. 155:3027-32: 156:3119-21 N-D '19
- Diagram of steel manufacture. Iron Age 102:1386a D 5 '18
- Economical production of electric steel. J. A. Holden. Iron Age 104:440-1 Ag 14 '19
- Effervescing steel. H. D. Hibbard. II Am Inst Min Bul 153:sup2595-2608 S '19
- Electric carbon tool steel; details of British practice in a 3-ton Heroult furnace. J. A. Holden. Iron Age 101:1222-3 My 9 '18
- Electric furnace and steel converter compared. C. R. Messinger. Foundry 46:71-2 F 18; Same. Iron Age 101:446-7 F 14 '18
- Electric furnace in the steel foundry. W. E. Moore. Iron Age 102:1206-7 N 14 '18
- Electric furnaces as applied to steel making. H. L. Hess. II Mech Eng 41:245-8 Mr '19
- Electric furnaces for steel foundries. W. E. Moore. II diags plan Elec J 16:360-6 S '19; Excerpts. Mech Eng 41:874-6 N '19
- Electric furnaces for the production of steel and ferro-alloys. J. A. Seede. II diags plan Gen Elec R 21:767-80 N '18

**Steel metallurgy—Continued**

- Electric, open-hearth, and Bessemer steel temperatures. F. E. Bash. Am Inst Min Bul 153:1739-50 S '19
- Electric steel. F. D. Jones. Il diags Mach 24:1104-10 Ag '18
- Electric steel development. D. F. Campbell. Iron Age 102:685 S 19 '18
- Electric steel in England; reasons for the prohibition of furnace installations. Iron Age 101:458 F 14 '18
- Electric steel making. A. V. Farr. Il Mach 25: 40-2 S '18; Same cond. Automotive Ind 39: 97-9 Jl 18 '18; Same cond. Iron Age 102:74-6 Jl 11 '18; Same cond. Am Mach 49:753-5 O 24 '18
- Electric steel refining. Iron Age 102:89 Jl 11 '18
- Future of electric steel. J. A. Mathews. Iron Age 102:884 O 10 '18
- High grade electric steel; pure metal in quantity by a new process. Il Sci Am 119:51 Jl 20 '18
- High sulphur is not so bad as it is painted. T. Mauland. Foundry 46:84 F '18
- History and present status of electric steel. J. A. Mathews. Met & Chem Eng 16:578-4 My 15 '17; Abstract. Iron Tr R 62:275 Ja 24 '18
- How research work brings results. H. E. Diller. Il Foundry 47:545-9 Ag 15 '19
- How slag influences electric steel. J. L. Dixon. Foundry 47:488-4 Jl 15 '19
- Hurried processes developing faults. J. E. Schipper. Il Automotive Ind 38:221-2 Ja 24 '18
- Importance of electric furnaces in steel production. C. H. Booth. Elec R 73:173-4 Ag 3 '18
- Inclusions and ferrite crystallization in steel. E. G. Mahin. Il J Ind & Eng Chem 11:739-45 Ag '19
- Iron and steel technology—1917. R. J. Anderson. Iron Tr R 62:156-60 Ja 10 '18
- Liquid ferromanganese in steel making. Iron Age 102:298-9 Jl 25 '18
- Making and rolling crucible steel. J. D. Knox. Il plan Iron Tr R 64:1009-16 Ap 17 '19
- Making electric steel for ball bearings. A. V. Farr. Il diag Iron Tr R 64:211-15 Ja 16 '19
- Making electric steel for roller bearings. E. K. Hammond. Il diag Mach 25:318-26 D '18
- Making high-grade tool steel. J. D. Knox. Il Iron Tr R 65:153-7 Jl 17 '19
- Manganiferous iron ores of the Cuyuna district, Minnesota. E. Newton. Minn U Sch Mines Bul 5:75-119 '18
- Manipulating slags in electric steel furnaces; patent. Iron Age 101:1202 My 9 '18
- Manufacture of electric tool steel. E. A. Suverkrup. Il Am Mach 48:351-8 F 28 '18
- Manufacture of high-speed steel. J. W. Andrew and G. W. Green. Il Iron Age 104:703-7 S 11 '19; Same cond. Engineer 127:553-4 Je 6 '19; Abstract. Chem & Met Eng 21:42-3 Jl 1 '19
- Manufacture of modern high speed steel. J. A. Mathews. Iron Age 104:17-20 Jl 3 '19; Same. Ry Mech Eng 93:489-92 Ag '19; Excerpts. Iron Tr R 64:1683-4 Je 26 '19; Abstract. Eng N 83:120 Jl 17 '19; Discussion. Iron Age 104:20-3 Jl 3 '19
- Manufacture of steel for ordnance materials in England and in France. F. F. McIntosh. Eng Soc W Pa 35:140-63 Ap '19; Abstract. Iron Tr R 65:631+ S 4 '19; Discussion. Eng Soc W Pa 35:164-70 Ap '19
- Melting process chosen depends on requirements. H. E. Diller. Il diag Foundry 47: 411-15 Jl 1 '19
- Metallurgical treatment of high speed steel. J. L. Thorne. Met & Chem Eng 18:422 Ap 15 '18
- Modern electric furnace practice. J. K. Harrison. Il Iron Tr R 62:913 Ap 11 '18
- Modern steel-making by electricity. H. Etchells. J Elec 43:310-12 O 1 '19
- Modern steel metallurgy; abstract. C. H. F. Bagley. Chem & Met Eng 21:45 Jl 1 '19
- Nicu steel and its manufacture. G. M. Colvocoresses. Chem & Met Eng 20:88 Ja 15 '19
- Non-metallic impurities in steel; with discussion. H. D. Hibbard. Il Iron Age 103:1427-32 My 29 '19
- Phases of iron and steel metallurgy in 1917. J. E. Johnson, Jr. Iron Age 101:77-82+ Ja 3 '18
- Phases of iron and steel metallurgy in 1918. J. H. Hall. Iron Age 103:27-8 Ja 2 '19
- Pointers on electric steel furnace practice. H. E. Diller. Il diag Foundry 47:239-42 My 1 '19
- Pyrometry and steel manufacture. A. H. Miller. Am Inst Min Bul 152:1501-10 Ag '19; Same cond. Iron Tr R 65:427-8+ Ag 14 '19
- Recarburizing steel with molten spiegel. Il Iron Tr R 64:1293-4 My 15 '19
- Refining basic electric steel. W. H. Payne. Iron Tr R 65:1052-3+ O 16 '19
- Refining of steel by electric furnace process. C. A. Tupper. Il Elec R 71:963-6 D 8 '17
- Scientific steel metallurgy. J. O. Arnold. Iron Age 101:942-3 Ap 11 '18
- Slag conditions in the open hearth. J. H. Whiteley and A. F. Hallimond. Foundry 47: 767 N 1 '19
- Stages in steel refinement. A. Reynolds. Iron Age 103:401-2 F 6 '19
- Status of the electric steel industry. Iron Age 101:84-5, 113 Ja 3 '18
- Steel converter process for foundries. G. P. Fisher. Iron Age 103:352 F 6 '19
- Super-refining steels electrically. diags Iron Tr R 65:1332 N 13 '19
- That missing page from the blue-back speller; use of manganese ferro-alloys in steel making. Chem & Met Eng 19:794; 20:53, 501, 612 D 15 '18, Ja 15, My 15, Je 15 '19
- Transformation of steels. K. Honda. Iron Age 102:1388 D 5 '18
- Triplex process of making electric steel. T. W. Robinson. Il plans Iron Age 101:1471-6 Je 6 '18; Same cond. Iron Tr R 62:1432-8 Je 6 '18; Same cond. Chem & Met Eng 19: 15-20 Jl 1 '18; Discussion. J. A. Mathews. Iron Age 101:1476-7 Je 6 '18; Same. Iron Tr R 63:152-3 Jl 18 '18
- Tungsten and the steel industry. Sci Am 120:158+ F 15 '19
- Typical scenes in a steel plant. Il Sci Am S 86:376-7 D 14 '18
- Uses of zirconia in steel metallurgy. Iron Age 101:1276-7 My 16 '18
- Way to make steel direct from ore. Il diags Iron Tr R 65:366 Ag 7 '19
- See also* Annealing; Armor plate; Bessemer process; Iron metallurgy; Open hearth process; Rolling mills; Steel, Hardening of; Steel, Heat treatment of; Steel castings; Steel ingots; Steel works; Tool steel
- Steel pipes.** See Pipes, Steel
- Steel plates.** See Plates, Iron and steel
- Steel protection.** See Metal protection; Painting, Structural
- Steel rails.** See Rails
- Steel reinforcing bars**
- High carbon vs. mild steel reinforcing bars. L. J. Mensch. Eng & Contr 48:522 D 26 '17
- How to bend reinforcing. diags Concrete 12: 62 F '18
- Standard specifications for billet-steel concrete reinforcement bars; English and Spanish. U S Bur For & Dom Com Ind Stand 38:1-17 '19
- Standard specifications for rail-steel concrete-reinforcement bars; English and Spanish. U S Bur For & Dom Com Ind Stand 39:1-13 '19
- Twisting munition steel bars tests them for reinforcement. M. V. Sauer. Eng N 79:1119 D 13 '17
- See also* Concrete, Reinforced
- Steel ships.** See Ships, Steel
- Steel stacks.** See Chimneys, Iron and steel
- Steel strike, 1919**
- Agitators sow vicious doctrines. A. J. Hain. Il Iron Tr R 65:911-14 O 2 '19
- Gary refuses to arbitrate strike. Iron Tr R 65:1128-9 O 23 '19
- Many loyal as many others strike. Iron Age 104:881-7 S 25 '19

**Steel strike, 1919—Continued**

Radicals condemned by congressman Cooper. Iron Age 104:925-7 O 2 '19  
 Report of the senate committee on the steel strike. Ry R 65:742-3 N 15 '19  
 Senate committee report on steel strike. Ry Age 67:825-8 O 24 '19  
 Steel strike caused by union agitators. Ry R 65:504-6 O 4 '19  
 Steel strike investigated by Congress. Ry R 65:465-7 S 27 '19  
 Steel workers return slowly. Ry R 65:610-11 O 25 '19  
 Strike chiefs held most to blame; senate committee recommendations. Iron Tr R 65:1334-7 N 13 '19  
 Trend of strike against the striker. Iron Age 104:919-21, 930-1 O 2 '19  
 U.S. Senators visit steel strikers. Ry R 65:574-5 O 18 '19

**Steel tape**

Correcting steel-tape readings for sag and stretch. W. S. Weeks. charts Eng N 83: 404 Ag 28 '19

**Steel testing.** See Steel—Testing

**Steel ties.** See Railroad ties, Steel

**Steel towers.** See Towers, Steel

**Steel treaters' society, American.** See American steel treaters' society

**Steel wheels.** See Car wheels

**Steel wool**

Experience with a little known cleaning medium. G. P. Butler. Metal Ind 16:549 D '18

**Steel workers**

Walk-out of union steel workers halted by leaders. Ry R 65:311-12 Ag 30 '19

See also Steel strike, 1919

**Steel works**

Big things in steel; some things seen in a plant where big guns are made. Il Sci Am 8 86:56 JI 27 '18

Carbon monoxide poisoning in the steel industry. J. A. Watkins. diag U S Bur Mines Tech Pa 156:1-16 '17; Same cond. Iron Age 99:1492-3 Je 21 '17; Excerpt. Automobile 37: 728-9 O 25 '17

Close control of steel processes. Il Iron Age 103:1569-71 Je 12 '19

Concrete lined pit built without shifting bracing for heat treatment furnace of the Polak steel co., Carthage, O. H. D. Loring. diag plan Eng N 81:497-9 S 12 '18

Design, selection and standardization of steel motors discussed at a joint meeting of sections of the American institute of electrical engineers with the Association of iron and steel electrical engineers. Cleveland, O., March 8. Iron Tr R 62:871 Mr 14 '18

Doubles steelmaking capacity. G. H. Manlove. Il diag plans Iron Tr R 65:87-95 JI 10 '19

Electric trucks and tractors in the iron and steel industry. B. J. Dillon. Il Elec R 75: 518-20 S 27 '19

Making and rolling crucible steel. J. D. Knox. Il plan Iron Tr R 64:1009-16 Ap 17 '19

Making cold-drawn screw and shaft stock. R. I. Clegg. Il Iron Age 103:1129-31 My 1 '19

Making pressed-steel reinforcing. Il plan Iron Tr R 64:1073-80 Ap 24 '19

Novel car for transporting molten iron. Il Sci Am 118:436 My 11 '18

Selection of steel mill auxiliary motors and control as affected by mechanical features of the drive. J. D. Wright. Il diag Am Inst E E Pro 37:255-60 Mr '18

Steel works electrification; abstract. Elec W 72:215 Ag 3 '18

Triplex process of making electric steel. T. W. Robinson. Il plans Iron Age 101:1471-6 Je 6 '18; Same cond. Iron Tr R 62:1432-8 Je 6 '18; Same cond. Chem & Met Eng 19: 15-20 JI 1 '18; Discussion. Iron Age 101: 1476-7 Je 6 '18

Use of electricity in the iron and steel trades; Newcastle local section; chairman's address. A. H. W. Marshall. Inst E E J 56:23-9 D '17

See also Rolling mills; Steel industry and trade

**Accounting**

Accurate inventories aid output. C. E. Lynn. Iron Tr R 64:828-9, 956-8, 1081-2 Mr 27, Ap 10, 24 '19

Classifying indirect expenses. M. H. Potter. diag Iron Tr R 65:361-2 Ag 7 '19

Finding organization expense. M. H. Potter. Iron Tr R 65:232 JI 24 '19

Fixing building factors in costs. M. H. Potter. Iron Tr R 65:97-8 JI 10 '19

**Laboratories**

Speeding up the steel works laboratory. H. C. Kimber. diag Chem & Met Eng 19:512-14 S 28 '18

**Lighting**

Better lighting of iron and steel mills and fabricating plants. F. H. Bernhard. Il Elec R 73:841-5 N 30 '18

**Safety devices and measures**

Hazards reduced in steel industry. Il Iron Tr R 63:1341-5 D 12 '18

Promoting safety in steel plant. H. P. Heyne. Iron Tr R 65:1110-11 O 23 '19

Safe practices in the open-hearth. L. M. Rice. Iron Age 101:331 Ja 31 '18

Safety movement in the iron and steel industry, 1907 to 1917. L. W. Chaney and H. S. Hanna. Il U S Bur Labor Statistics Bul 234: 1-299 '18

**Alabama**

South has war-built fabricating shop. Il plan Iron Tr R 65:359-60 Ag 7 '19

**Australia**

Australian iron and steel plant erected on American principles; plant of the Broken Hill proprietary co., Newcastle, N. S. W. Il diag plan Iron Tr R 63:1118-24 N 14 '18

**Belgium**

Belgian plants in hard struggle. F. Miltoun. Il Iron Tr R 65:969-72 O 9 '19

Belgian steel industry. Il Iron Age 103:942-3 Ap 10 '19

Belgians spurn German offers; Cockerill company needs \$13,000,000 worth of equipment, but declares it will never make purchases from the despoiler. F. Miltoun. Il Iron Tr R 65:1252-4 N 6 '19

**Canada**

Canada's electric steel plant at Toronto. Il diag Iron Age 101:1053-7 Ap 25 '18; Elec R 73:177-8 Ag 3 '18

**France**

Americans to build steel mill for Berlet automobile company at Lyons. plan Iron Tr R 64:1490-1 Je 5 '19

German appropriation of French machinery. Il Iron Age 104:362-3 Ag 7 '19

German destruction in northern France. L. Descroix. Il Iron Age 104:85-90 JI 10 '19

Great French steel works in ruins. C. M. Muchnic. Il Iron Tr R 64:1477-83 Je 5 '19

Schneider's—an industrial pillar. F. Miltoun. Iron Tr R 65:1178-9 O 30 '19

**Great Britain**

Fuel economy and consumptions in the manufacture of iron and steel. W. A. Bone, R. Hadfield and A. Hutchinson. diag Engineer 128:316-17, 341-3 S 26-O 3 '19; Abstract. Iron Age 104:1066-6; Discussion. 1067-9 N 27 '19

Modernize English steel plants. Il Iron Tr R 65:559-62 Ag 28 '19

New steel works built in England. J. Horton. Il diag Iron Tr R 64:879-83 Ap 3 '19

**Illinois**

Iron and steel plants near Chicago. E. E. Thum. Chem & Met Eng 21:319 S 15 '19

Keystone steel and wire company. F. B. Crosby. Il plans Gen Elec R 21:332-43 My '18

Steel and wire plant of Keystone co. near Peoria. Il plan Iron Age 101:42-4 Ja 3 '18

**Indiana**

Mark mfg. co. and Iroquois iron co. merge. Il Iron Age 102:66-9 JI 11 '18; Same, with layout. Iron Tr R 63:97-9 JI 11 '18

**Steel works—Indiana—Continued**

Holling equipment of the Inland steel co. *il* plan Iron Age 104:155-61 J1 17 '19

**Japan**

Kiushu steel works in Japan. *diag* Iron Age 103:1639 Je 19 '19; Iron Tr R 65:230-1 J1 24 '19

**Maryland**

Maryland steel plant extensions are near completion. L. W. Moffett. *il* *diag* Iron Tr R 65:17-22 J1 3 '19

**Michigan**

Where steel works will supply Ford enterprises. *il* Iron Tr R 62:986-7 Ap 18 '18

**Ohio**

Modern steel plant power house; Corrigan, McKinney & co., Cleveland. *il* Iron Tr R 61:1263-7+ D 13 '17

New plant of Canton sheet steel co. J. D. Knox. *il* Iron Tr R 62:595-9 Mr 7 '18

Steel works heat-treating plant of United alloy steel corporation, Canton, Ohio. *il* Iron Age 100:1347-50 D 6 '17; Same *abr.* Am Gas Eng J 107:567-8 D 22 '17

Valley plant produces own steel; Trumbull steel company. *il* plan Iron Tr R 64:641-5 Mr 6 '19

**Pennsylvania**

Making seamless tubes; plant of the Standard seamless tube co. *il* *diags* Iron Tr R 64:259-64 Ja 23 '19

**Russia**

Pre-war Russian iron and steel plants. A. Gouvy. *il* Iron Age 102:1501-6 D 19 '18

**Scotland**

Glengarnock works of David Colville and sons, limited. *il* (supp) *diags* plan Engineer 128:75-8 J1 25 '19

**Spain**

Iron and steel works at Sagunto, Spain. plan Iron Age 101:48-9 Ja 3 '18

**United States**

How the Inland steel co. met war demand. *il* *diags* Iron Age 104:91-7 J1 10 '19

New iron and steel works construction during 1917. Iron Age 101:86-97, 116 Ja 3 '18

Uncle Sam operates a steel works. M. L. Feiser. *il* Iron Tr R 64:1409 My 29 '19

**Wales**

Welsh steel plant self-contained. J. Horton. *il* Iron Tr R 65:1441-5 N 27 '19

**West Virginia**

Additional units in the hot and cold-rolled strip department of the Weirton steel co. have been placed in operation. *il* Iron Tr R 63:961-4 O 24 '18

**Steering gear**

Steering gear layout. Int Marine Eng 24:649 S '19

Steering gear problem. *diag* Int Marine Eng 23:544 S '18

*See also* Automobiles—Steering gear

**Stefansson, Vilhjalmur**

Stefansson in the Arctic. J: G. Holme. *il* Sci Am 120:603+ Je 7 '19

**Steinmetz, Charles Proteus**

Portrait. Automotive Ind 40:833 Ap 17 '19

**Stellite**

Brazing high-speed steel tips to machine-steel cutting tools. Am Mach 48:43, 508 Ja 3, Mr 21 '18

Brazing stellite to steel shanks. *diag* Mach 24:759 Ap '18

Development of stellite; melting problems solved by Snyder electric furnaces. E. Haynes. *il* Iron Age 102:886-8 O 10 '18; Same. Iron Tr R 63:905-6 O 17 '18

Electric welding of high-speed steel and stellite in tool manufacture. P. T. Van Bibber. *il* *diags* Am Mach 50:425-32 Mr 6 '19

Finish-turning with stellite. P. P. Hale. *diags* Am Mach 49:528 S 19 '18

Notes on the manufacture and fabrication of stellite. *il* *diags* Mach 24:571-2 F '18

Reflecting power of stellite and lacquered silver. W. W. Coblenz and H. Kahler. U S Bur Stand Sci Pa 342:215-17 '19

Reflecting power of tungsten and stellite. W. W. Coblenz and W. B. Emerson. *diags* U S Bur Stand Bul 14:307-16 Je 17 '18

Stellite; alloys of cobalt, chromium, tungsten and molybdenum. E. Haynes. *il* Met & Chem Eng 18:541-2 My 15 '18; Same. Eng & Min J 105:997-8 Je 1 '18

Stellite and high speed compared. L. Guillet and H. Godfroid. Iron Age 102:1584-5 D 26 '18

Stellite as a substitute for platinum. E. Haynes. J Ind & Eng Chem 9:974-5 O '17; Abstracts. J Fr Inst 185:154-5 Ja '18; Mach 24:822 My '18

Useful cobalts. Sci Am 118:452 My 18 '18

Using up stellite scrap. T. Pilkington. *diag* Am Mach 50:309 F 13 '19

Wheels for grinding stellite. Am Mach 47:1120 D 27 '17

**Stenches. See Odors****Stencils and stenciling**

Japanese stencil. I. D. Little. *il* Color Tr J 4:135-8 Je '19

**Stenographers**

Mental tests for typists and stenographers. M. P. Jaques. Ind Management 58:145-7 Ag '19

**Stereochemistry**

Configurations of organic compounds and their relation to chemical and physical properties. A. Michael. Am Chem Soc J 40:704-23, 1674-1707 Ap, N '18

Molecular rearrangements in the camphor series; the decomposition products of the methyl ester of isocamphoronic acid; a new reaction involving the formation of the methyl ether of a hydroxy acid. W. A. Noyes and G. S. Skinner. Am Chem Soc J 39:2692-718 D '17

*See also* Atoms; Chemistry, Physical; Isomerism; Polarization (light)

**Sterilization**

Army's artillery against disease. *il* Sci Am 118:277 Mr 30 '18

Improved method of sterilizing liquids. Sci Am 118:158 F 16 '18

Influence of cold shock in the sterilization of canned foods. L. D. Bushnell. J Ind & Eng Chem 10:432-6 Je '18

Simple sterilizer for farm dairy. *il* *diags* Metal Work 92:372-3 S 26 '19

Sterilization by pressure. B. H. Hite, N.J. Giddings and C. E. Weakley, Jr. *il* Sci Am 120:693 Je 28 '19

Temperature-time relations in canned foods during sterilization. G. E. Thompson. *diags* J Ind & Eng Chem 11:657-64 J1 '19

**Stettinius, Edward R., 1865-**

Purchasing agent for world's greatest buyer—the U. S. army. por Iron Tr R 62:335 Ja 31 '18

**Stevens, Edwin A., 1858-1918**

Sketch. por Stevens Ind 35:156-61 Ap '18

**Stevens commission. See American railway commission****Stevens Institute of technology**

Influence of the work of the Stevens family and of graduates of Stevens Institute of technology on engineering work leading up to the construction of the Catskill aqueduct. F. DeR. Furman. Stevens Ind 34:275-82 O '17

Navy steam-engineering training school. Am Mach 48:601 Ap 4 '18

**Stibnite**

Blast-furnace smelting of stibnite. W. R. Schoeller. Eng & Min J 105:211-12 Ag 3 '18

Electrolytic antimony from stibnite. D. J. Demorest. Eng & Min J 105:10 Ja 5 '18

**Still engine**

Features of the Still engine. Sci Am 121:298 S 30 '19



**Still engine—Continued**

Prime mover of high efficiency; the Still engine. F. E. D. Acland. *diags Sci Am S 88: 204-5, 218-19 S 27, O 11 '19; Abstracts. Engineer 127:540-1 My 30 '19; Power 50:78-9 JI 8 '19; Elec R 75:98-9 JI 19 '19; Automotive Ind 40:1404-5 Je 19 '19; Mech Eng 41:627 JI '19; Marine R 49:596-7 D '19*  
 Steam and internal combustion combined. F. E. D. Acland. *II Sci Am 121:313+ S 27 '19*

**Stillis. See Distillation****Stitches**

Comparative tests of stitches and seams. W. S. Lewis. *II diags U S Bur Stand Tech Pa 96:1-7 '17*

**Stock-killing animals. See Animals, Predatory****Stock rooms. See Stores systems****Stock yards**

Using trucks to haul stock. *II map Motor Age 34:20-1 Ag 15 '18*

**Stockings. See Hosiery****Stockroom. See Stores systems****Stocks**

Unpaid capital stock. J. Robinson. *J Account 25:263-5; 26:239-40 Ap, S '18*

**Stocks (instruments of punishment)**

Stocks and pillories of old England. *II Sci Am S 87:132-3 Mr 1 '19*

**Stoker manufacturers association**

Stoker manufacturers form new association. *Elec R 73:696 N 2 '18*

**Stokers, Mechanical**

Abuses of stokers. M. O'Leary. *Power 48:902 D 17 '18*

Application of stokers to modern locomotives. *Ry R 65:424-5 S 20 '19; Same cond. Ry Age 67:638-9 S 26 '19; Same cond. Ry Mech Eng 93:572 O '19*

Automatic cleaning feature for underfeed stoker. *diags Elec Ry J 54:585 S 20 '19*

Automatic stoker operation. W. R. Caton. *diags Power 46:875-6 D 25 '17*

Boller settings—chain grate stokers. C. H. Bromley. *diags Power 47:788-92 Je 4 '18*

Boller settings—multiple retort under feed stokers. C. H. Bromley. *II diags Power 48: 112-17 JI 23 '18*

Brady traveling-grate stoker. *II Power 48: 166-7 JI 30 '18*

Burning slack containing excessive moisture. J. F. McCall. *diag Power 47:472-3 Ap 2 '18; Discussion. F. A. Combe. 47:744 My 21 '18*

CoKal stoker. *diags Power 48:877 D 17 '18*

Coking-coal chain grate. *II Power 50:12 JI 1 '19*

Combustion characteristics of coals. J. G. Worker. *Elec R 73:849-51 N 30 '18; Same. Ry R 63:824-6 D 7 '18*

Comparison of mechanical stokers. R. June. *II diags Elec R 74:1033-5; 75:100-2 Je 21, JI 19 '19; Same cond. Textile World 54: 2863+; 55:661 D 7 '18, Ja 18 '19*

Efficient combustion of bituminous coal with underfeed stokers. R. C. Hlne. *II chart diag Ind Management 55:388-91 My '18*

Efficient underfeed stoker. *II Sci Am 119:256 S 28 '18*

Elvin locomotive stoker tested out on Erie. *II diags Ry Age 66:202-4 Ja 17 '19; Ry R 64: 132-4 Ja 25 '19; Ry Mech Eng 93:103-6 F '19*

Factors influencing rates of steam making. W. H. De Muth. *Elec R 75:74 JI 12 '19*

Figuring furnace-grate area. *diags Power 47: 756-8 My 28 '18*

Fuel-burning equipment of some large modern central stations. J. G. Worker. *II diags Elec R 74:411-15 Mr 15 '19; Same. Elec J 16:55-60 F '19*

Functioning of the chain-grate stoker. T. A. Marsh. *II diag Power 50:342-4 Ag 26 '19*

General characteristics of chain grate stoker. T. A. Marsh. *diags Power 49:172-3 F 4 '19; Same. Elec W 73:217 F 1 '19*

Grate area and the underfeed stoker. F. H. Daniels. *Power 47:373-4 Mr 12 '18*

Harrington forced-blast traveling grata. *II Power 49:360-1 Mr 11 '19; Elec R 74:437-8 Mr 15 '19; Iron Tr R 64:696-7 Mr 18 '19*

Holding up the curtain wall to a stoker. J. J. Neville. *diags Power 47:447 Mr 26 '18*

How can soft coal be burned without smoke in marine boilers; symposium. *Am Soc M E J 40:pt 2, 619-22 JI '18; Abstract. Int Marine Eng 23:466-7 Ag '18*

Improved Green chain-grate stoker. *II Power 49:718-19 My 13 '19*

Influence of chemistry upon improvement in stoker design. C. H. McClure. *Elec R 74: 620-1 Ap 19 '19*

Laclede-Christy chain grate stoker. *II Munic J 45:313-14 O 19 '18*

Locomotive stokers and smoke prevention; abstracts. W. S. Bartholomew. *Ry Age 65: 451-3 S 6 '18; Ry R 63:339-41 S 7 '18*

Material for dump-plate bearing bar. H. G. Burrill. *Power 47:593 Ap 23 '18*

Mechanical coal grader for chain-grate stokers. *diag Elec R 72:961 Je 8 '18*

Mechanical stoking and fuel efficiency. *II chart diag Ry R 64:39-41 Ja 4 '19*

Mechanical stoking and fuel efficiency. *II W. S. Bartholomew. Ry R 65:2-5 JI 5 '19; Ry Age 67:163-7 JI 25 '19; Mech Eng 93: 465-9 Ag '19*

Moloch underfeed stoker. *II Ind Management 55:243-4 Mr '18*

Negus-Tiffany coal agitator. *II diags Power 50:266 Ag 14 '19*

New Jones automatic stoker. *II charts Power 48:845-6 D 10 '18*

Operating experiences with water-backs for underfeed stokers. J. Dallas. *Elec R 74: 1046-7 Je 21 '19*

Operation of forced-draft equipment. J. F. Tutein. *Power 48:554 O 15 '18*

Plant of the Standard stoker company at Erie, Pa. *II Ry R 64:896-7 Je 14 '19*

Problems involved in fuel changes; ash, and not coal, is the trouble maker. A. Bement. *Power 48:381-2 S 10 '18*

Raising steam with the waste products of yesterday. *II diag Coal Age 14:676-81 O 10 '18*

Reducing carbon loss in ash pit. *diags Elec R 72:881-2 My 25 '18*

Report of the committee of American railroad association on mechanical stokers. *Ry R 64:995-6 Je 28 '19*

Riley two-speed gear box. *II diags Power 50:13 JI 1 '19*

Roach underfeed stoker. *II diags Power 46: 864-5 D 25 '17; Ind Management 55:156 F '18*

Selection of stokers at mines. T. A. Marsh. *II Coal Age 15:446-7 Mr 6 '19*

Self-cleaning stoker; Under-feed stoker co. *II Iron Age 103:176 Ja 16 '19*

Smokeless combustion with chaingrate stokers. T. A. Marsh. *diags Elec R 73:448-9 S 21 '18; Same. Power 48:544-5 O 8 '18*

Stoker capacity vs. boiler forcing rates. J. T. Foster. *Power 47:576-8 Ap 23 '18*

Stoker installations as agencies in coal and iron conservation. *Power 48:602 O 22 '18*

Stoker of the future. J. Harrington. *Elec R 73:442-3 S 21 '18*

Stokers to burn coke breeze. *II Iron Age 103:816-17 Mr 27 '19*

Sudden peak loads on chain-grate stokers. H. F. Gauss. *chart Power 50:20-2 JI 1 '19*

Superheat in forced-draft stoker installations. H. R. Greene. *Power 47:836 Je 11 '18*

To what kinds of plants and coals are the different types of mechanical stokers respectively adapted, and what is the limiting factor to their use in the small plant; symposium. *diags Am Soc M E J 40:pt 2, 636-42 JI '18*

Underfeed stokers permit advances in design. H. A. Lynette. *Elec W 74:292 Ag 9 '19*

Ventilating the side wall was unsuccessful. L. B. B. Love. *diags Power 47:592 Ap 23 '18*

Waterworks operation. *Munic J 45:322-4 O 26 '18*

**Stoking. See Firing**

Stone, Irving K., 1841-  
 Pioneer press-builder. C. Stephen. *por In-land Ptr 60:515-16 Ja '18*

**Stone**

General limiting test values for broken stone. *Eng & Contr 50:158 Ag 7 '18*

**Stone—Continued**

Standardization of screen openings in production of broken stone for road purposes. Eng & Contr 50:332-3 O 2 '18  
 Stone industry in 1917. Eng & Contr 50:570 D 18 '18

*See also* Blasting; Building stone; Concrete stone; Granite; Limestone; Masonry; Pavements, Stone; Quarries and quarrying; Road materials; Rocks; Sandstone; Slate; Stone cutting; Stone preservation

**Bibliography**

Structural service department; building-stones in general—exterior and interior. Am Inst Arch J 6:143-50 Mr '18  
 Structural service department; stone masonry, broken stone, sand, and gravel. Am Inst Arch J 6:98-9 F '18

**Stone, Concrete.** *See* Concrete blocks; Concrete stone

**Stone, Crushed**

Commercial sizes of crushed stone. F. H. Jackson and C. W. Mitman. Eng & Contr 52:72-3 JI 16 '19  
 Crushed stone sold in the United States in 1917. G. F. Loughlin. Concrete 14:sup24 F '19  
 Detroit united railway builds large stone crusher plant. II plan Elec Ry J 53:726-7 Ap 12 '19  
 Does a stock pile pay? Concrete 13:sup31 S '18  
 Standard sizes of crushed stone from the standpoint of the producer. R. W. Scherer. Eng & Contr 50:533-5 D 4 '18  
 Use of crushed stone. Munic J 46:45 Ja 18 '19

**Stone age**

Relationship of the most ancient flint implements to the later river-drift palaeoliths. J. R. Moir. diags Sci Am S 86:28-30 JI 13 '18

*See also* Stone implements and weapons

**Stone and Webster library**

Library service in the industrial laboratory. G. W. Lee. J Ind & Eng Chem 11:587-8 Je '19

**Stone cutting**

Effect of the air hammer on the hands of stonecutters. diags U S Bur Labor Statistics Bul 236:1-147 '18  
 Modern marble and granite working; the processes by which the hardest blocks are worked as freely as wood. R. F. Yates. II Sci Am 117:452-3 D 15 '17

**Stone implements and weapons**

Oldest flint implements; a study of the methods by which they were produced. J. R. Moir. diags Sci Am S 85:205-6 Mr 30 '18  
 Relationship of the most ancient flint implements to the later river-drift palaeoliths. J. R. Moir. diags Sci Am S 86:28-30 JI 13 '18

Stone age in America. A. F. Bonney. II Sci Am S 85:340 Je 1 '18

**Stone pavements.** *See* Pavements, Granite; Pavements, Stone

**Stone preservation**

Preservation of decaying stone, with a view to the conservation of ancient buildings. A. P. Laurie and C. Rankin. Sci Am S 86:302-4 N 9 '18

**Stoneware.** *See* Pottery

**Stopcocks**

Automatic hydrogen sulfide stopcock. C. H. Classen. diags J Ind & Eng Chem 10:131-2 F '18

Device for removing plugs from stopcocks. V. C. Allison. diags plan J Ind & Eng Chem 11:468 My '19

Special stopcock for dropping liquids arranged for equalizing the pressure above and below the outlet in the stopcock. H. L. Fisher. diags J Ind & Eng Chem 10:1014-15 D '18

**Stopping methods.** *See* Mining engineering

**Storage**

Economic factors connected with storing. H. B. Twyford. II Iron Age 102:395-8 Ag 15 '18

Need for storage facilities. F. L. Stuart. Ry Age 63:1181-2 D 28 '17; Same abr. Eng N 79:1175-6 D 20 '17  
 Perishable commodities need storage room in terminals. G. C. White. Ry Age 63:1116-17 D 21 '17

Principles of purchasing and storing. D. T. Farnham. II diags Ind Management 57:108-12 F '19

*See also* Coal storage; Cold storage; Freight houses; Oil storage; Stores systems; Warehouses; Water storage

**Storage batteries**

Battery in cold weather. II Motor Age 36:23 O 16 '19

Battery rental service. Elec R 72:814 My 11 '18

Calculation of storage-battery capacities. C. W. Hazelett. Elec W 71:990 My 11 '18

Care of storage batteries. diag Motor Age 36:31+ N 20 '19

Characteristics of starting and lighting batteries of the lead acid type. O. W. A. Oetting. diags Elec J 16:134-9 Ap '19

Complete battery service all year for \$4 flat rate. II chart Motor Age 35:7-10 Je 12 '19

Electric storage batteries; abstract. Elec W 72:72 JI 13 '18

Electric storage battery co. Chem & Met Eng 21:490 O 15 '19

Electrolysis and batteries. H. H. Bliss. II diags J Elec 43:120-2 Ag 1 '19

Factors affecting the life of lead-acid storage batteries. P. L. Rittenhouse. Automotive Ind 41:474-5 S 4 '19

Farm lighting as a field for small storage batteries. G. W. Hill. Elec R 74:297-8 F 22 '19

Know your battery better. J. H. Tracy. Coal Age 15:1036-8 Je 5 '19

Large batteries for power purposes. E. C. McKinnon. diags Inst E E J 57:493-509; Discussion. 510-31 JI '19

Lead-burning transformer for small storage batteries. II Power 49:979 Je 24 '19

Maintenance of Edison-type storage batteries. O. Gottschalk. Elec Ry J 53:315 F 15 '19

Making lead battery parts. II Motor Age 36:22-3 O 16 '19

Rechargeable dry storage battery. II Elec R 73:470 S 21 '18

Removal of sediment from storage cells. M. W. Pullen and F. F. Skirvan. II Elec W 73:432 Mr 1 '19

Selling, charging and repairing storage batteries. Horseless Age 43:26 Ap 1 '18

Solco battery flush and gravity indicator. diags Motor Age 36:48-9 JI 17 '19

Storage batteries; abstract. O. W. A. Oetting. Elec W 72:897 N 9 '18

Storage battery. Coal Age 13:330-1 F 16 '18

Storage battery for exit lights. Elec R 72:964-5 Je 8 '18

Taking care of storage battery. diags Motor Age 35:28-9 Je 19 '19

Train lighting storage batteries. E. Wana-maker. Ry R 65:791-4 N 29 '19

Vesta incorporates many improvements. II Motor Age 36:33-4 O 30 '19

Willard new tractor storage battery. diags Motor Age 34:37 N 28 '18

Willard tractor battery. diags Automotive Ind 39:837 N 14 '18

*See also* Electric batteries

**Charging**

Army development of charging sets. A. E. Flowers. II diag Elec W 73:1312-16 Je 21 '19

Battery charging at the Cleveland railway shops. II diag Elec Ry J 53:366 F 22 '19

Battery-charging installations for industrial trucks. II Elec R 72:778-9 My 4 '18

Battery charging outfit. diag Motor Age 34:28-9 O 31 '18

Charging batteries from a shop-motor circuit. W. E. Ness. Elec Ry J 52:200-1 Ag 3 '18

Charging batteries with old generator. diags Motor Age 35:31 Je 12 '19

Charging panel for storage batteries. diag Motor Age 35:42-3 F 20 '19

Charging rack for Edison batteries. F. Huskinson. diags Coal Age 13:724-5 Ap 20 '18

**Storage batteries—Charging—Continued**

- Charging rates for lead and alkaline batteries. Elec W 74:24 J1 5 '19  
 Cutler-Hammer charging apparatus for miners' electric lamps. Il Elec R 71:1076-7 D 22 '17; Elec W 71:231 Ja 26 '18  
 Emerson battery-charging outfit. Il Elec W 71:1010 My 11 '18  
 Generators adapted to charge storage batteries. H. H. Metzenheim. Elec W 74:583 S 13 '19  
 Hobart battery-charging outfit. Il Elec W 71:698 Mr 30 '18  
 Home-made apparatus for using steam to soften binder on battery. Il Motor Age 35:26-7 Ja 9 '19  
 Locomotive type ampere-hour meter for truck, tractor and locomotive battery charging. Il Elec R 75:38 J1 5 '19  
 Points in charging of alkali storage batteries. M. Meredith. Elec W 74:882-3 O 25 '19  
 Practical release for battery-charging circuit. H. Dean. diag Elec R 74:114 Ja 18 '19  
 Storage battery charging. diags Motor Age 35:35-7 Ja 30 '19  
 Storage-battery charging panel. F. Huskinson. diags Coal Age 13:360 F 23 '18  
 Unipanel sectional units for charging batteries of trucks. Il Elec R 74:966 Je 7 '19  
 What equipment does a battery service station need? L. S. Armstrong. Motor Age 36:33-4 Ag 7 '19

**Manufacture**

- Battery manufacture; conveyor system used extensively in Willard plant. Il Automotive Ind 37:1007-10 D 6 '17

**Testing**

- Cadmium test of battery. Il diags chart Motor Age 34:36-7 O 24 '18  
 Storage battery cars. See Motor cars (railroad)—Storage battery  
 Storage battery locomotives. See Electric locomotives; Locomotives, Mine  
 Storage battery rooms  
 Features of battery room design. E. C. McKinnon. diags Elec R 72:927-8 Je 1 '18  
 Flood lighting for storage battery rooms. Elec R 73:867 N 30 '18

**Storage of coal. See Coal storage****Store buildings**

- Automobile sales building, Indianapolis. Il plans Am Arch 114:301-3 S 4 '18  
 Big profits in remodeling store fronts. W. S. French. diags Bldg Age 41:21-2 Ja '19  
 Book building, Detroit, Mich.; views and plans. Am Arch 113:pl 209-11 Je 12 '18  
 Ditson building, Tremont street, Boston, Mass.; views and plans. Am Arch 113:pl 67-64 F 13 '18  
 I. N. Van Nuys building, Los Angeles, Cal. Am Arch 113:pl 215-19 Je 19 '18  
 Sales and service building for Gomery-Schwarz co., Philadelphia, Pa.; view and plans. Am Arch 113:pl 185-6 My 29 '18  
 Shop for Columbia graphophone co., New York; views. Am Arch 112:pl 276-80 D 12 '17  
 Store front architecture. diags plan Bldg Age 40:73 F '18  
 W. P. Story building, Los Angeles, Cal. Am Arch 113:pl 220-3 Je 19 '18  
 See also Department stores

**Heating and ventilation**

- Heating and ventilation of combined store and apartment buildings. C. L. Hubbard. diags Dom Eng 83:80-2+ Ap 20 '18

**Lighting**

- All-glass front; Hallidie building, San Francisco, Cal. Il diags plan Am Arch 113:393-4 Mr 27 '18  
 Common sense found very essential in illumination. F. J. Pearson. Elec R 72:722-3 Ap 27 '18  
 Fundamentals of illumination design; appendix of illustrative problems. W. Harrison. Il Gen Elec R 21:538 Ag '18

- General level of illumination intensities in large department stores of New York city. W. F. Little and J. F. Dick. Illum Eng Soc 13:201-6; Discussion. 206-12 no 3 '18  
 Good example of showcase lighting. Il Elec R 73:471 S 21 '18

**Store door delivery. See Freight handling****Storehouses. See Warehouses****Stores systems**

- Accounting of materials. J. Kenvin. Coal Age 14:764-5 O 17 '18  
 Accurate inventories aid output. C. E. Lynn. Iron Tr R 64:828-9 Mr 27 '19  
 Breaking in stock clerks. Factory 21:76+ J1 '18  
 Comprehensive stock record form. D. O. Barrett. Iron Age 102:1386 D 5 '18  
 Conservation of material by the store department. J. G. Stuart. Ry Age 66:497-500 F 28 '19  
 Definitions for storeroom material. H. B. Twyford. Iron Age 104:357-9 Ag 7 '19  
 Efficiency in the handling of railway supplies; methods employed by the Santa Fe. C. E. Parks. Il Ry Age 65:423-7, 491-3 S 6-13 '18  
 Factory management in garment trades. M. Gordon. Il Ind Management 57:446-51 Je '19  
 Fixing quantities of materials in stock. E. W. Taft. Iron Age 101:855-6 Ap 4 '18  
 Following incoming material through. B. L. Van Schaick. Il Factory 22:688-9 Ap '19  
 Four stock room stunts that make our work easier. J. T. West. Il Factory 21:1052-3 D '18  
 Fundamental principles of railway store-keeping. H. C. Pearce. Ry R 64:171-2 F 1 '18  
 Handling material and supplies at coal mines. R. M. Magraw. diags Coal Age 13:818-22 My 4 '18  
 How to record materials received. B. J. Yungbluth. Elec Ry J 52:1095-6 D 21 '18  
 Keeping account of material. Factory 23:642+ S '19  
 Keeping track of factory material. J. G. Hickman. Factory 22:465-9, 702-7 Mr-Apr '19  
 Keeping track of stock without red tape. Factory 21:845-6 N '18  
 Making stockkeeping easy. Il Factory 20:364+ F '18  
 New shop accounting system. Automotive Ind 40:859 Ap 17 '19  
 Organization—a material planning department. C. A. Marston and J. E. Schipper. Il Automotive Ind 37:1090-2 D 20 '17  
 Principles of purchasing and storing. D. T. Farnham. Il diags Ind Management 57:33-8, 108-12 Ja-F '19  
 Saving time in the stock room. Il Factory 20:678+ Ap '18  
 Sectional stock-room bins. Il Mach 26:34-5 S '19  
 Service profits depend on: stockroom. H. C. Skinner. diags Motor Age 36:23-6 O 2; 31-2 O 23 '19  
 Speeding up the stock room; the parts service department stock room of the Buick motor company, New York. Il plan Horseless Age 43:36-7 F 1 '18  
 Stock parts and their routing. L. D. Burlingame. Il diags Mach 25:1109-14 Ag '19  
 Storekeeping organization in Russia; where means of communication are primitive, truckmen illiterate and storekeepers poorly educated. F. R. Clark. Ind Management 55:368-72 My '18  
 Systematizing the handling of supplies. Textile World 56:1649 S 20 '19  
 Textile mill organization and costs. E. Szepesi. diags Textile World 53:1963+, 2358, 2611, 3369+ N 10, D 8, 22 '17, Ja 19 '18  
 Woolen mill accounts—supplies. R. H. Butz. Textile World 55:1569 Mr 8 '19  
 See also Inventories; Symbols
- Storm King highway**  
 Roads in the Hudson River district with unusual construction features. W. A. Welch. Good roads n s 15:135-6+ Mr 9 '18  
 Storm King road. H. E. Breed. Il diags Good Roads n s 14:291-6 D 8 '17
- Storms**  
 Excessive storms observed by the United States weather bureau. C. W. Sherman. Eng N 82:1066-7 My 29 '19

- Stove trade**  
Pointers from an old time stove salesman. Metal Work 91:109-10, 208-9 Ja 24, F 14 '19  
Stove trade for 1919 will tax resources. Metal Work 92:188-90 Ag 15 '19  
Why the price of stoves has not come down. Metal Work 91:138+ Ja 31 '19
- Stoves**  
Call for the old fashioned stove. Metal Work 89:75-6 Ja 11 '18  
Constructing range canopies or hoods. W: Neubecker. diags plan Metal Work 90:301-2, 362-3, 405-7, 495-6, 630-1+ S 13, 27, O 11, N 1, D 6 '18  
Cooking stoves in Paraguay. Sci Am 118:421 My 4 '18  
Evolution of cooking and heating stoves. H. H. Manchester. II Foundry 46:17-22 Ja '18  
Ships' range. II Marine R 49:560-1 N '19  
See also Blast furnace stoves; Electric stoves; Fireless cookers; Gas stoves; Heating; Ovens
- Stoves, Alcohol.** See Alcohol stoves
- Stoves, Blast furnace.** See Blast furnace stoves
- Stoves, Electric.** See Electric stoves
- Stoves, Gas.** See Gas stoves
- Stoves, Portable**  
Stove that packs like a suit case. II Sci. Am 119:298 O 12 '18
- Stowage**  
Stowage factors for ship cargoes. 72p '19 U.S. Shipping board, Division of planning and statistics, Washington, D.C.
- Straightening**  
Arch-tube straightener. G. E. Baldwin. diags Am Mach 48:759 My 2 '18  
Face plates aid straightening and bending work in the shop. II diags Elec Ry J 54:559-60 S 20 '19  
How to straighten a bent steel tubing. D. A. Hampson. diags Horseless Age 43:42 Mr 1 '18  
Jack straightens bent steel column. W: E. Rudolph. diags Eng N 82:491 Mr 6 '19  
Rod-straightening fixture. C. F. Meyer. diags Am Mach 50:79-80 Ja 9 '19  
Straightening a bent shaft. M. Bertrande. diag Power 48:963 D 31 '18  
Straightening a car axle in ten minutes. H. C. Ebeling. II Elec Ry J 52:702 O 19 '18  
Straightening bent parts. II Motor Age 34:30-1, 36 Jl 18-25 '18  
Straightening hardened tools. Sci Am 119:233 S 21 '18  
Straightening rods and tubing. Mach 24:645 Mr '18  
Straightening shaft of 45,000-kw. turbine. E. E. Clock. diag Power 50:377-8 S 2 '19  
Tools of the automobile repair shop. D. A. Hampson. diags Horseless Age 43:32-3+ Ja 15; 38-9+ F 1; 42-3+F 15 '18
- Straightening machines**  
Blake-Knowles climax core wire straightening machines. II Metal Ind 16:187 Ap '18  
Kane & Roach bending and straightening machines. II Mach 25:1000-1 Je '19; Am Mach 51:90 Jl 10 '19  
Machine for straightening a dented fender. II Motor Age 36:29+ S 11 '19  
Straightener made from old air pumps. C. T. Rice. Eng & Min J 107:190 Ja 25 '19
- Strain gages.** See Extensometers
- Strainers**  
Pipe line strainer. II Chem & Met Eng 21:207 Ag 15 '19
- Strains and stresses**  
Analysis and tests of rigidly connected reinforced concrete frames. M. Abe. II diags Ill U Eng Exp Sta Bul 107:1-102 '19; Abstract. Eng & Contr 52:91-3 Jl 23 '19; Conclusions. Mech Eng 41:547-8 Je '19  
Analysis of statically indeterminate structures by the slope deflection method. W. M. Wilson, F. E. Richart and C. Weiss. diags Ill U Eng Exp Sta Bul 107:1-102 '19; Abstract. Mech Eng 41:624-5 Jl '19  
Analysis of stresses in bulkhead stiffeners (bracketed end connections). diags Int Marine Eng 24:729-34 N '19
- Arch analysis by a method using variable elastic weights. F. J. Dulude. diags Eng N 82:471-3 Mr 6 '19  
Bar sizes and bond stresses charted. C: W. Martin. Concrete 14:60-1 F '19  
Beam deflections under distributed or concentrated loading. J. B. Kommerz. diags Eng N 82:44-6 Ja 2 '19  
Bending moments in grillage beams. R. Fleming. diag Eng & Contr 50:585-6 D 25 '18  
Bending stresses in concrete ships—a warning. Sci Am 118:354 Ap 20 '18  
Bond between steel and concrete. M. O. Fuller. Concrete 15:201-3 N '19  
Calculation of boiler stresses. G. E. Parks. Ry Mech Eng 92:139-43 Mr '18  
Combined bending and twisting moments. V: M. Summa. diags Mach 26:41-2 S '19  
Combined stresses. V: M. Summa. diags Mach 25:1061-2 Jl '19  
Computing moments on irregularly spaced flat-slab panels. W. S. Tait. Eng N 80:652-4 Ap 4 '18  
Concentrated load tests of yellow-pine beams for shear. L. R. Manville and C. R. Hill. II diag Eng N 83:69-71 Jl 10 '19  
Continuous reinforced concrete beams; what happens at the ends? L. C. Jordan. diags Eng & Contr 50:588-91 D 25 '18  
Crane girder problem. R. Fleming. diags Eng & Contr 51:73-4 Ja 22 '19  
Critical speeds of rotors resting on two bearings. W. Rautenstrauch. diags Am Mach 46:97-102 Ja 18 '17; Discussion. 46:1133-4; 47:1053-4 Je 28, D 13 '17  
Cross relations of deformations in different kinds of loading: tension—compression—torsion—transverse. G. B. Upton. diags Sibley J 32:142-5 Je '18  
Deflection of continuous beams and rigid frames. F. E. Richart. diags Eng N 83:564-5 S 18 '19  
Design of offset beams. V: M. Summa. diags Ry Mech Eng 92:514-17 S '18  
Determination of stresses in wire rope as applied to modern engineering problems. J. F. Howe. diags Am Soc M E J 40:1016-21 D '18  
Diagram for locating stirrups in concrete beams. M. J. Lorente. diags Eng N 83:310-11 Ag 14 '19  
Distribution of internal work in beams and slabs. H: T. Eddy. diag Eng N 81:460-2 S 5 '18  
Doctrine of material stresses; abstract. R. F. Gwyther. Am Soc M E J 40:780-1 S '18  
Failure of ductile materials under fluctuating stresses; abstract. H. A. Webb and W. H. Barling. diag Am Soc M E J 40:pt 1, 584-6 Jl '18  
Forces acting directly or indirectly upon the truck side frame. N. Litchfield. diag Elec Ry J 52:286-8 Ag 17 '18  
Formula for oblique bearing on timber questioned. J. Fee; H: S. Jacoby. diags Eng N 80:48-9 Ja 3 '18; Discussion. E. R. T. Berggren. 80:231 Ja 31 '18  
Formulas for combined bending and torsion. A. L. Jenkins. Mach 24:552 F '18  
Formulas for design of wedge-shape reinforced concrete footings. R. P. Davis. diags Eng & Contr 50:593-4 D 25 '18  
Freight car and tender truck bolsters; general principles involved in design, loading and testing. G. S. Chiles and R. G. Kelley. diags Ry Mech Eng 92:211-16, 270-4 Ap-May '18  
Helical and elliptical springs. C. T. Edgerton. diags Chem & Met Eng 19:762-7 D 1 '18  
High cooling and rolling stresses found in steel rails. J. E. Howard. Eng N 80:812 Ap 25 '18  
Local stresses in box bolsters. L. E. Endsley. II diags plans Ry Mech Eng 92:343-8 Je '18  
Long-span concrete beams should have fixed ends. W. S. Tait. II diags Eng N 81:359-61 Ag 22 '18  
Low working stress for square-end steel columns is recommended by column committee of the American society of civil engineers; abstracts. Eng N 80:250-3 F 7 '18; Eng & Contr 49:223-5 F 27 '18; Discussion. Eng N 80:242-3, 474-5 F 7, Mr 7 '18

**Strains and stresses—Continued**

- Malleable iron in engineering construction. H. A. Schwartz. *Il diags Foundry* 47:19-24 Ja '19; Same. *Iron Tr R* 63:899-904 O 17 '18
- New and little-known methods of calculation of girders, beams and arches. J. S. Martin. *charts diags Eng Soc W Pa* 34: 579-633; Discussion. 634-9 D '18
- New data on ship stresses. *Il diags Eng N* 83: 550-3 S 18 '19
- Notes on flat slab design: bending moments, exterior panels, spandrels, arrangement of reinforcement. A. M. Wolf. *diags Eng & Contr* 49:307-10 Mr 27 '18
- Overstrain and fatigue failure of steel as related to grain structure. H. S. Prichard. *Il diags Eng N* 80:1086-90 Je 6 '18
- Practical applications of the combined stress theory. N. B. Hunt. *Mach* 25:1171-2 Ag '19; Correction. *Mach* 26:44 S '19
- Practice in bridge and girder yards from a theoretical standpoint. G. Kenworthy. *diags Engineer* 124:5-6, 25-7, 48-50, 91-3 Jl 6-20, Ag 3 '17; Discussion. 125:382, 476-7, 512, 531; 126:60-1 My 3, 31, Je 14-21, Jl 19 '18
- Pressure on inclined cuts of timber by simple diagram. C. A. Melick. *diags Eng N* 80:180 Ja 24 '18
- Resistance of a group of piles. H. M. Westergaard. *W Soc E J* 22:704-13 D '17; Same. *Eng & Contr* 49:501-3 My 22 '18
- Resistance of materials. G. S. Chiles and R. G. Kelley. *diags Ry Mech Eng* 93:123-6, 181-4, 241-3 Ap-May '19
- Simple method for design of booms. A. Raymond. *diag Eng & Contr* 51:209 F 26 '19
- Steel roof trusses are designed as elastic arches. W. S. Tait. *Il diags plan Eng N* 80: 761-4 Ap 18 '18
- Stress distribution in bolts and nuts. C. E. Stromeyer. *Il diags Int Marine Eng* 23:589-91 O '18
- Stress lines in steel after permanent deformation. A. McCance. *diags Sci Am S* 88:196-7 S 27 '19
- Stress measurement. *Engineer* 128:117-18 Ag 1 '19; Same. *Eng & Contr* 52:506 O 29 '19
- Stresses and strains in a lateral. E. F. Hollinger. *Il diags J Elec* 42:433-4 My 1 '19
- Stresses in bolts in fulcrum brackets. V. M. Summa. *diags Ry Mech Eng* 92:156-8 Mr '18
- Stresses in crankshafts. V. M. Summa. *diags Mach* 26:240-1 N '19
- Stresses in machines when starting or stopping. F. Hymans. *diag Am Soc M E J* 40: 383-6 My '18; Same. *Iron Tr R* 62:1370-2 My 30 '18
- Stresses in turbine blading; abstract. G. Stoney. *Am Soc M E J* 40:pt 1, 594-6 Jl '18
- Stresses in turbine wheels. W. Knight. *diag Mach* 24:516-19 F '18
- Stresses in wire rope. S. Hardesty. *Mech Eng* 41:257-60 Mr '19
- Structural engineering. *Eng & Contr* 50:427-8 O 30 '18
- Study of mechanical hysteresis will advance our knowledge of materials. F. J. Schlink. *Eng N* 80:1035-7 My 30 '18
- Tests of large bridge columns. J. H. Griffith and J. G. Bragg. *Il diags U S Bur Stand Tech Pa* 101:1-139 '18
- Tests show high shears in deep reinforced-concrete beams. W. A. Slater. *Il diag Eng N* 82:430-3 F 27 '19
- Twisting and bending moments in square and rectangular bars. V. M. Summa. *diag Mach* 24:681 Ap '18
- Useless waste in concrete construction due to legal requirements. W. S. Tait. *diags Am Arch* 115:79-84 Ja 8 '19
- Wind pressures and wind stresses in tower design. R. Fleming. *diags Eng N* 83:660-4 O 2 '19
- See also Bridge design; Bridges—Load; Building; Columns; Earth pressure; Elastic limit; Elasticity; Extensometers; Girders; Graphic statics; Mechanics, Applied; Riveting; Roofs; Ships—Strains and stresses; Strength of materials; Torque; Torsion; Trusses; Wind pressure*

**Strasburg**

Famous sites on the battlefield in France—the fair city of Strasburg. *Il Am Arch* 116:263-6 Ag 27 '19

**Stratford, Connecticut****Sewerage**

Sewerage works of Stratford. C. Potts. *diag plan Munic J* 47:160-1 S 13 '19

**Straw**

To run cars on straw for fuel saving. *Il Motor Age* 34:16 O 31 '18

**Strawbridge & Clothier**

Mutual aid associations of Strawbridge & Clothier. J. Jackson. *U S Bur Labor Statistics Bul* 227:168-72 '17

**Stray currents**

Leakage resistance of electric railway roadbeds. E. R. Shepard. *Il charts diags Elec Ry J* 53:172-8 Ja 25 '19

*See also Electrolytic corrosion*

**Stream flow**

Common use of records of minimum stream flow is pernicious. G. F. Ladshaw. *Eng N* 80:359-60 F 21 '18; Discussion. D. M. Wood. 80:675-6 Ap 4 '18

Effects of ice on river discharge. C. H. Pierce. *diags 3 pls Boston Soc C E J* 5:414-19 D '18

Flow in channels with large expansion ratio; abstract. R. Kröner. *Am Soc M E J* 40:106-7 Ja '18

Fundamental principles in the development of water power. D. R. Shearer. *diags Power* 48:563-5 O 15 '18; Criticism. 48:819 D 3 '18

Long-term variations in the flow of the Hudson river. E. H. Sargent. *Eng N* 83:360 Ag 21 '19

Stream flow and percolation water. S. Hall. *diags Eng & Contr* 52:499-503 O 29 '19

*See also Water flow*

**Stream measurement**

Graduated slope gage and movable stilling box for canal measurements. W. G. Steward. *Il diags plan Eng & Contr* 50:543-4 D 11 '18

New England rivers have similar run-off characteristics. *Eng N* 82:577 Mr 20 '19

0.2 and 0.8 method of current meter measurement in power canals. A. T. Safford. *Boston Soc C E J* 5:400-6 D '18

River-gages placed at bridge piers. G. A. Gray. *Il Eng N* 81:32 Jl 4 '18

Russian engineers make intensive hydro-metric survey in Crimean upland. D. Kotcherin. *Il diags Eng N* 80:657-8 Ap 4 '18

Sounding rod for canal and stream measurements. W. G. Stewart. *diags Eng & Contr* 52:414 O 8 '19

Use of the current meter in stream gaging. C. H. Pierce. *Boston Soc C E J* 5:393-400 D '18

*See also Water flow*

**Stream pollution. See Water pollution****Street, George Edmund**

Hispanic society publications; George Edmund Street; unpublished notes and reprinted papers. M. Wilcox. *Arch Rec* 43:481-4 My '18

**Street accidents**

Damage suits from street defects. J. Simpson. *Munic J* 45:484-5 D 21 '18

Scientific accident prevention in the large city. C. L. Edholm. *Il map Sci Am* 118:9 Ja 5 '18

Street lighting and traffic accidents. W. Harrison. *charts Elec R* 75:605-6 O 11 '19

*See also Automobile accidents; Street railroads—Accidents*

**Street and electric railway employees of America, Amalgamated association of. See Amalgamated association of street and electric railway employees of America****Street car service. See Street railroads—Schedules; Street railroads—Service****Street cars**

Auto-trolley-car shows big saving in operating costs. *Elec Ry J* 52:249 Ag 10 '18

**Street cars—Continued**

Automatic H.L. control for Boston surface cars. A. D. Webster. *Il diag Elec J* 16:459-64 O '19

Betterments available in car equipment. C. W. Squier. *Il Elec Ry J* 51:500-7 Mr 16 '18

Boston Elevated's latest surface cars. *Il plan Elec Ry J* 50:1167 D 29 '17

Boston's snake cars. *Il Sci Am* 118:407 My 4 '18

Car bodies must be designed for economy as well as strength. N. Litchfield. *diags Elec Ry J* 51:754-7 Ap 20 '18

Center-entrance and exit cars for Allentown, Pa. *Il Elec Ry J* 52:247 Ag 10 '18

Center entrance and exit, pay-as-you-pass trailers for Dayton, O. *Il Elec Ry J* 51:669 Ap 6 '18

Changing for prepayment operation 198 of the world's best known cars. *Il Elec Ry J* 52:747 O 26 '18

Classifying passenger cars for given conditions. N. Litchfield. *plans Elec Ry J* 51:370-2 F 23 '18

Considerations in the choice of car equipment. C. W. Squier. *diags Elec Ry J* 51:354-6 F 23 '18

Double-end pay-as-you-pass cars for Gary, Ind. *Il Elec Ry J* 54:83 Jl 12 '19

Electric car equipped for hospital service at Boston. *Il diags Elec Ry J* 51:766-7 Ap 20 '18

Experiences with interurban car axles. A. B. Metcalfe. *Elec Ry J* 51:94 Ja 12 '18

Fifteen-bench open cars changed to closed type. J. Zimmer. *Il Elec Ry J* 52:1147-8 D 28 '18

\$55,000 car remodeling job at Rochester, N.Y. *Il Elec Ry J* 51:773-4 Ap 20 '18

Four-motor multiple-unit cars at Dayton, O. *Il Elec Ry J* 51:814-15 Ap 27 '18

Front-entrance, center-exit car and higher schedule speed; pay-as-you-pass cars. *Il diags Elec Ry J* 51:120-4 Ja 19 '18

Fundamentals of successful transportation. H. C. Eddy. *Elec Ry J* 51:91 Ja 12 '18

High passenger density the outstanding feature of new service to Hog Island. *Il diags Elec Ry J* 52:404-8 S 7 '18

How the pay-as-you-pass car was developed. P. Witt. *Il plan Elec Ry J* 51:30-3 Ja 6 '18

Large interurban car remodeling job. *Il Elec Ry J* 51:93-4 Ja 12 '18

Light open cars for amusement park traffic. *Il Elec Ry J* 53:879 My 3 '19

Light-weight cars. H. G. Bradlee. *Elec Ry J* 52:793-4 N 2 '18

Maintenance of car equipment. J. M. Yount. *Elec Ry J* 52:240-1 Ag 10 '18

Making over open cars for prepayment fare collection. *Il Elec Ry J* 54:113 Jl 19 '19

Mechanical developments of the industry. H. A. Johnson. *Elec Ry J* 53:229-30 F 1 '19

New type of car for the New South Wales tramways. *Il Elec Ry J* 52:1146-7 D 28 '18

New York railways convert 439 cars to prepayment type. *Il diag plan Elec Ry J* 51:529-30 Mr 16 '18

Post-payment center-exit car in Philadelphia. *Il plan Elec Ry J* 53:861-2 My 3 '19

Proposed Ford light-weight car. *Elec Ry J* 53:869 My 3 '19

Railway builds cars for use on steep grades. *Il plan Elec Ry J* 52:509-10 S 21 '18

Savings attainable with present-day car design. N. Litchfield. *Il Elec Ry J* 51:496-500 Mr 16 '18

Side lights on the zone fare—car capacity. W. Jackson. *Elec Ry J* 53:875 My 3 '19

Use of ball bearings on electric railways. *Elec Ry J* 51:284-5 F 9 '18

Zone fare in practice—Glasgow; cars, schedule making, employees, fare accounting. W. Jackson. *Il diags plan Elec Ry J* 53:632-8 Mr 29 '19

*See also* Car cleaning; Car fenders; Car houses; Car painting; Car trucks; Car wheels; Cars; Electric railroads—Rolling stock; Street railroads

**Doors**

*See* Car doors

**Heating**

*See* Car heating

**Repair**

Better car maintenance an urgent necessity. M. B. Lambert. *Elec Ry J* 51:624-5 Mr 16 '18

Car body maintenance in Belfast. P. Williamson. *Il Elec Ry J* 53:1058-9 My 31 '19

Reclaiming old cars as a war measure. K. A. Schaller. *Il Elec Ry J* 52:202-3 Ag 3 '18

**Safety cars**

A. E. R. A. war board submits brief on one-man cars. *Elec Ry J* 52:193-5 Ag 3 '18

Analysis of one-man car possibilities. J. A. Beeler. *Elec Ry J* 52:568-9 S 28 '18

Are reconstructed safety cars worth while? H. S. Cooper. *Elec Ry J* 51:1200 Je 22 '18

Capabilities and economies of the one-man light-weight safety car. J. C. Thirwall. *Il diag Gen Elec R* 21:281-4 Ap '18

Cars of to-day; light-weight one-man safety car and the pay-as-you-pass car. J. F. Layng. *Elec Ry J* 51:23-4 Ja 5 '18

Claim agent's experience with one-man cars. A. Dixon. *Elec Ry J* 54:720; Discussion. H. G. Winsor. 721 O 11 '19

Competition between safety car and jitney. M. B. Lambert. *Elec Ry J* 52:375-6 Ag 31 '18

Earnings of the safety car. T. C. Roderick. *Elec Ry J* 54:26 Jl 5 '19

Experience of Stone & Webster in operation of 1-man trolley cars. H. G. Bradlee. *Eng & Contr* 51:195-6 F 19 '19

Foot control mechanism makes one-man car operation easier. *Il Elec Ry J* 51:977 My 18 '18

Future of the Birney safety car. L. C. Bradley. *Elec J* 16:419 O '19

General observations on Birney cars. J. C. Thirwall. *Elec Ry J* 54:sup33-5 O 11 '19

How safety cars save fuel and men; experiences in twelve cities from 20,000 to 400,000 in population. *Il Elec Ry J* 52:547-68 S 28 '18

Kansas City one-man cars; specifications. *Elec Ry J* 52:681 O 12 '18

Light-weight safety cars best for all. W. G. Kaylor. *Elec Ry J* 51:173-5 Ja 26 '18

One-man car operation. S. W. Greenland. *Elec Ry J* 54:67-9; Discussion. 63-4 Jl 12 '19

One-man car operation. C. W. Kellogg. *Elec Ry J* 54:sup58-61 O 11 '19

One-man car service started in Brooklyn. *Elec Ry J* 53:418 Mr 1 '19

One-man cars of economical design. A. Wade. *Il Elec Ry J* 51:769 Ap 20 '18

Pay-as-you-leave one-man car at Plymouth, Mass. *Il Elec Ry J* 51:241 F 2 '18

Possible operating economies and sales methods. W. Jackson. *Elec Ry J* 54:sup117-21 O 11 '19

Safety car. N. H. Callard, Jr. *Il Elec J* 16:447-52 O '19

Safety car a live subject. *Elec Ry J* 53:1272-3 Je 28 '19

Safety car discussed. *Elec Ry J* 53:1179-80 Je 14 '19

Safety car experience in Virginia. H. N. Callard, Jr. *Il Elec Ry J* 54:430 Ag 30 '19

Safety car in the movies. *Il Elec Ry J* 54:667-9 S 27 '19

Safety car is a live proposition. P. J. Kealy. *Elec Ry J* 53:1170-2 Je 14 '19

Safety-car operation in Seattle. *Elec Ry J* 53:466 Mr 8 '19

Safety car scores a success in Kansas City. P. J. Kealy. *Elec Ry J* 54:sup31-3 O 11 '19

Safety cars and the results of their operation. E. M. Walker. *Elec Ry J* 54:161-2 Jl 26 '19

Safety cars for Brooklyn. *Il diags Elec Ry J* 54:784-9 O 25 '19

Safety cars in Gary make jitneys unprofitable. *Il map Elec Ry J* 53:967-8 My 17 '19

Safety cars increase earnings 25 per cent in Terre Haute, Ind. *Il map Elec Ry J* 53:1263-6 Je 28 '19

Service and jitney competition. G. H. Clifford. *Elec Ry J* 54:sup35-6 O 11 '19

**Street cars—Safety cars—Continued**

Service with the safety type car. E. A. Palmer. *Il Elec J* 16:426-8 O '19  
 Six hundred safety cars in sixty cities. *Elec Ry J* 53:467-9 Mr 8 '19  
 Some observations and queries on safety car operation. F. J. Moore. *Elec Ry J* 54:131-2 JI 19 '19  
 Standardization of Birney safety car. G. Wells. *Elec Ry J* 54:sup36 O 11 '19  
 Why not apply the safety car to interurban service? D. C. Hershberger. *Elec Ry J* 53:1270 Je 28 '19  
 Why the safety car is popular. H. L. Andrews. *Elec Ry J* 53:652-4 Mr 29 '19

**Standards**

Engineers get together on standard car design at the request of the United States housing corporation. *Elec Ry J* 52:455, 620 S 14, O 5 '18

**Street cleaning**

Auto flushing at Chicago in 1917 cost 7.7 ct. per 1,000 sq. yd. *Eng & Contr* 50:248 S 4 '18  
 Cleaning streets and removing garbage; liability of municipalities for damage or other torts committed in connection with such service. J. Simpson. *Munic J* 45:126-8 Ag 17 '18  
 Experiences with street flushing at Worcester, Mass. A. T. Rhodes. *Eng & Contr* 50:230 S 4 '18  
 First year's operation of Bureau of street cleaning of Philadelphia. R. C. Hicks. *Eng & Contr* 50:531-2 D 4 '18  
 Foreman's report for street cleaning. *Eng & Contr* 49:442 My 1 '18  
 General phases of street cleaning. G. H. Horton and others. *Eng & Contr* 50:443-4 N 6 '18  
 Philadelphia Bureau of street cleaning. *Il Munic J* 45:368-9 N 9 '18  
 Portable street flusher. *Il Sci Am S* 86:37 JI 20 '18  
 Recommended procedure in cleaning streets in Rochester, N.Y. J. W. Routh and J. T. Child. *Munic Eng* 56:90-1 Mr '19  
 Report submitted to the American society of municipal improvements on street cleaning. *Good Roads n s* 16:160-1 O 26 '18  
 Street and sewer work in Cincinnati. *Munic J* 45:150 Ag 24 '18  
 Street cleaning and refuse collection in Newark. *Il Munic J* 47:180-2, 200-2 S 20-27 '19  
 Street cleaning in Pittsburgh, Pa. J. F. O'Toole. *Il Munic Eng* 55:205-6 D '18  
 Street cleaning in San Francisco. C. W. Geiger. *Il Munic J* 46:315-17 O 26 '18  
 Street cleaning methods. *Il Munic J* 46:101-4, 125-7, 187-91 F 8-15, Mr 8 '19  
 Street cleaning report for Rochester. map *Munic J* 46:41-4 Ja 18 '19  
 Wash the streets to remove the germs. *Eng & Contr* 50:457 N 13 '18

See also Refuse collection; Snow removal; Street railroads—Snow protection and removal; Street sprinkling

**Cost**

Cost of street cleaning at St Paul by patrol system. *Eng & Contr* 50:246 S 4 '18  
 Cost of street cleaning at St Paul, Minn. *Eng & Contr* 52:159 Ag 6 '19  
 Cost of street flushing and squeegee work at St Paul. *Eng & Contr* 50:246 S 4 '18  
 Cost of street flushing at Rochester, Minn. *Eng & Contr* 50:165 Ag 7 '18  
 Motor apparatus in use in the Department of public works, Bureau of streets. W. F. Schwartz. *Good Roads n s* 16:128+ O 5 '18; Same. *Munic Eng* 55:149-50 O '18; Same. *Eng & Contr* 50:445 N 6 '18; Same. *Munic J* 45:317-18 O 26 '18; Same cond. *Eng N* 81:663-4 O 10 '18  
 St Paul's street cleaning and waste disposal. *Munic J* 47:87 Ag 9 '19  
 Street cleaning and refuse disposal in Savannah. *Munic J* 46:44-5 Ja 18 '19  
 Working costs for motor sweeping at Hackney, England. N. Scorgie. *Eng & Contr* 50:132 JI 31 '18

**Street cleaning apparatus**

Street cleaning methods. *Il Munic J* 46:125-7 F 15 '19  
**Street cleaning apparatus, Motor**  
 Austin motor sweeper. *Il Good Roads n s* 18:201 O 29 '19  
 Combination flushing-sprinkling-refuse collection equipment of the New York department of street cleaning. J. T. Fetherston. *Il Munic Eng* 54:34 Ja '18  
 Combination motor flusher and sprinkler for Jackson, Michigan. *Il Munic Eng* 55:156 O '18  
 Gasoline engine turns street sweeper. *Il Sci Am* 118:407 My 4 '18  
 Motor truck operation and accounting. C. A. Dickens. *Il Munic Eng* 53:sup27+ D '17  
 Motorcycle street cleaner that sweeps 6½-ft. swath. *Il Eng & Contr* 49:125 Ja 30 '18  
 Ottawa has greatly reduced the cost of street cleaning by use of motor flushers. A. F. Macallum. *Eng & Contr* 49:329 Ap 3 '18  
 Performance of a motor street sweeper in Lansing, Michigan. C. S. Wilcox. *Il Munic Eng* 55:177-8 N '18  
 Power street sweeper. *Sci Am* 120:404 Ap 19 '19  
 Savings made by motorizing street cleaning equipment at Albany, N.Y. *Il Eng N* 83:762-3 O 23 '19  
 Study of street flushing. *Il diag Munic J* 46:187-91 Mr 8 '19  
 Suggested procedure for machine flushing in street cleaning. J. W. Routh. *diags Eng & Contr* 51:142-3 F 5 '19  
**Street decoration**  
 New York street decorations for the parade of overseas troops. R. H. Shreve. *Il Arch Forum* 30:93-4 Ap '19  
 Victory loan decorations in Chicago. *Il Arch Forum* 31:22-4 JI '19  
 Victory way New York street decorations for Victory loan drive. *Il plan Arch Forum* 30:151-2 My '19

Street excavations. See Street openings

Street lamps. See Street lighting fixtures

**Street lighting**

Aesthetics of street lighting. M. Lucklesch. *Illum Eng Soc* 13:355-6 no 6 '18  
 Data on lamp operation and maintenance. C. H. Shepherd. *Elec W* 73:1215-16 Je 7 '19  
 Development of the Chicago street-lighting system. W. G. Keith. *Elec R* 75:559-61 O 4 '19  
 Gas-filled lamp and its effect on illuminating engineering. F. W. Willcox. *Il diags Illum Engr* 12:148-51 Je '19; Discussion. 12:161-71, 179-81 Je-JI '19  
 Good practice in business and residential electric street lighting. H. F. Bloomquist. *Munic Eng* 55:81-2 Ag '18  
 Historical lighting of Independence Square, Philadelphia. E. F. Kingsbury. *Il diags plan Illum Eng Soc* 12:449-56; Discussion. 456-63 no 9 '17  
 How wattage of luminous arcs was reduced in Detroit. J. R. Cravath. *Elec W* 74:580 S 13 '19  
 Lighting of San Francisco's triangle district. A. F. Dickerson. *Il diag J Elec* 42:414-15 My 1 '19  
 Lincoln (Nebraska) lighting department. *Munic J* 44:281 Ap 6 '18  
 Potential grading on series lighting circuits. *Elec W* 71:769-70 Ap 13 '18  
 Renovation of discolored arc-lamp globes. A. Herz. *Il Elec W* 72:935-6 N 16 '18; Abstract. *Illum Engr* 11:231 O '18  
 Report of the Illuminating engineering society committee on progress. *Illum Eng Soc* 12:372-80 no 8 '17  
 Report of the Illuminating engineering society committee on progress. *Illum Eng Soc* 13:473-8 no 9 '18  
 Series street-lighting systems. *diag Elec R* 74:478-9 Mr 22 '19  
 South Norwalk's new street lighting. *Il Munic J* 46:320-2 My 3 '19  
 Street lighting and traffic accidents. W. Harrison. *charts Elec R* 75:605-6 O 11 '19

**Street lighting—Continued**

- Street lighting in a city of average size. C. D. Gray and E. Hagenlocher. *Il Elec W* 73:575-8 Mr 22 '19
- Street lighting in Baltimore. *Munic J* 47:107 Ag 16 '19
- Street lighting in Islington. *Illum Engr* 11:161 Je '18
- Street lighting in 1917. *Munic J* 44:184-6 Mr 2 '18
- Street lighting problem of the city of St. Louis. R. T. Toensfeldt. *Munic Eng* 57:166-8 O '19
- Street-lighting problems of London, England. *Elec R* 75:59 Jl 12 '19
- Street-lighting rates are reduced in Boston. *Elec W* 71:532 Mr 9 '18; Same. *Munic J* 44:287-8 Ad 6 '18
- Street-lighting reconstruction problems. L. Gaster. *Illum Engr* 12:225-32; Discussion. 233-8 Ag '19
- Street lighting with reference to the manufacturer, the central station, and the municipality. G. L. Thompson. *Gen Elec R* 21:679-81 O '18
- Street lights in Columbus. L. Rowe. *Munic J* 46:264 Ap 12 '19
- Unusual street-lighting practice for small towns, West Liberty, Ia. *Elec W* 70:1141 D 15 '17

*See also* Electric lighting; Lighting

**Bibliography**

- List of references on street lighting. A. C. Mitchell. *Special Libraries* 10:24-7 Ja '19

**Contracts**

- Regulation of street lighting companies. *Gas Age* 41:179 F 15 '18
- Street lighting contract—notice of termination. *Gas Age* 41:178-9 F 15 '18

**Cost**

- Cost of lighting streets at Galesburg, Ill. *Elec W* 72:600 S 28 '18

**Finance**

- Methods of assessment for ornamental lighting; situation in Syracuse, N.Y. *Elec W* 71:1043-4 My 18 '18

**Records**

- Simple lamp-record system for street lighting circuits. T. D. McDowell. *Elec R* 74:668-9 Ap 26 '19

**Street lighting fixtures**

- Economizing in street lighting. *Il diags Munic J* 44:346-7 Ap 27 '18
- Features of Chicago's new parkway lighting system. *diags Elec W* 71:516 Mr 9 '18
- Hints on economical and ornamental street lighting. F. M. Jourdan. *Il diags Munic Eng* 54:255-6 Je '18
- Improving the lighting from street lanterns. F. Brueggeman. *Il diags Elec W* 73:951 My 10 '19
- Ornamental utilitarian street lighting units. S. L. E. Rose and H. E. Butler. *Il diags Gen Elec R* 21:430-5 Je '18
- Street lighting in a city of average size. C. D. Gray and E. Hagenlocher. *Il Elec W* 73:575-8 Mr 22 '19
- Utilizing existing poles for yard-lighting fixtures. *diag Elec W* 71:100 Ja 12 '18

**Street oiling****Cost**

- Cost of street oiling and street sprinkling at St. Paul. *Eng & Contr* 50:232 S 4 '18
- Cost of street oiling in Hamilton, Ont. E. R. Gray. *Eng & Contr* 50:238 S 4 '18

**Street openings**

- Method and cost of using compressed air equipment in making street openings. H. L. Hicks. *Il Munic Eng* 53:235-6 D '17
- Opening and restoring pavements. *Good Roads n s* 17:274 Je 28 '19
- Recommendations pertaining to street openings and pavement restoration. B. H. Wait, W. T. Chollar and J. B. Vandever. *Munic Eng* 57:12-13 Jl '19
- Repairing pavement openings. *Il diag Munic J* 46:215-18 Mr 22 '19

- System controls openings in city pavements. D. B. Davis. *Eng N* 81:707-8 O 17 '18
- Using air compressor on varied trench work in New York city. C. L. Edholm. *Il Munic Eng* 53:196-7 N '17

**Street railroads**

- Are high costs of service likely to develop permanent competition? L. H. Palmer. *Elec Ry J* 54:sup11-13 O 11 '19
- Helping to win the war; how shipbuilding has increased railway problems. P. H. Gadsden. *Elec Ry J* 51:714-15 Ap 13 '18
- Results of journal canvass of opinion on Mortimer resolution. *Elec Ry J* 52:837-9 N 9 '18
- What ails the street cars? J. A. Beeler. *Elec Ry J* 54:sup122-5 O 11 '19
- Why gasoline can't compete in city service. F. Kingsley. *Elec Ry J* 53:829-31 Ap 26 '19
- See also* Boston Elevated railroad; Electric railroads; Elevated railroads; Street cars; Subways; Also names of cities, subhead

**Rapid transit**

- Trainmen as witnesses. M. Farifias. *Elec Ry J* 52:800 N 2 '18

**Accounting**

- Zone fares have been found satisfactory in Milwaukee. *Il Elec Ry J* 54:619 S 27 '19

**Buildings****See Car houses****Cars****See Street cars****Claims**

- Getting results in the claims department. H. Rimelspach. *Elec Ry J* 52:158 Jl 27 '18
- Psychology of claim adjustments. J. H. Handlon. *Elec Ry J* 54:157-8 Jl 26 '19

**Construction****See Electric railroads—Construction; Street railroads—Track****Cost**

- Cost data on special work construction. M. Bernard. *diags Elec Ry J* 50:1170; 51:195 D 29 '17, Ja 26 '18
- Cost of constructing street railway track. C. K. Keen. *Eng & Contr* 51:200 F 19 '19
- Sewer work puts extra tax on way department in Brooklyn. *Il Elec Ry J* 53:1279-80 Je 28 '19

**Employees**

- Brooklyn unionists fight discharge. *Elec Ry J* 52:516-17 S 21 '18
- Cleveland women object; organize to fight dismissal from railway service by federal labor investigators. *Elec Ry J* 52:630-1 O 5 '18
- Denver situation clearing; city to re-grant temporary 6-cent fare. *Elec Ry J* 54:129-31 Jl 19 '19
- Duluth street railway has women car and shop workers. *Il Elec Ry J* 52:414 S 7 '18
- Effort to fix status of women: final ruling asked in regard to Cleveland women. *Elec Ry J* 52:1110-11 D 21 '18
- Electric railway policy. G. Weston. *Elec Ry J* 54:529-30 S 13 '19
- Employment of women in railway work. T. G. Aston. *Elec Ry J* 51:1193-4 Je 22 '18
- Getting employees to make suggestions; Denver tramway suggestion campaign. *Elec Ry J* 50:1156-8 D 29 '17
- Health of women in railway service. A. Bowman. *Elec Ry J* 52:706 O 19 '18
- How Croydon, England is carrying on. T. B. Goodyer. *Elec Ry J* 52:574-6 S 28 '18
- Keeping the men on the job; the Houston company has clubhouse, cafe and co-operative association. *Il Elec Ry J* 52:420 S 7 '18
- Making it pleasant for the men at El Paso, Tex. *Il Elec Ry J* 52:654 O 12 '18
- More than half of Glasgow corporation tramways' men with colors. J. Dalrymple. *Il Elec Ry J* 52:576-8 S 28 '18
- Philadelphia rapid transit system co-operative plan extended. *Elec Ry J* 52:459-62 S 14 '18



**Street railroads—Employees—Continued**

Philadelphia's wonderful record. Elec Ry J 54:537 S 13 '19

Position of the Amalgamated association of Street & electric railway employees of America on the question of employment of women as conductors. Elec Ry J 52:470 S 14 '18

Preparing for and managing strikes. Elec Ry J 52:1133-4 D 23 '18

Terms of Toronto strike settlement. Elec Ry J 54:191 JI 26 '19

Trainmen as witnesses. M. Farifas. Elec Ry J 52:800 N 2 '18

Woman conductor should keep her job after the war. P. Witt. Elec Ry J 52:663-4 O 12 '18

Woman conductors must go, Cleveland investigators decide. Elec Ry J 52:586 S 28 '18; Same cond. Munic J 45:274 O 5 '18

Women a problem in Detroit. Elec Ry J 52:1111-12 D 21 '18

Women conductors a success at Kansas City. II Elec Ry J 52:617-18 O 5 '18

Women conductors in Kansas City, Kenosha and Camden. II Elec Ry J 51:1147-8 Je 15 '18

Women conductors in New York; reports. B. M. Squires; R. Bell. Elec Ry J 51:1006-13 My 25 '18

Women conductors on surface cars of New York railways. Elec Ry J 50:1075 D 16 '17

Women for St Louis cars. Elec Ry J 50:1137 D 22 '17

Women on B. R. T. surface cars. Elec Ry J 50:1181 D 29 '17

Women operate one-man cars in Keokuk. II Elec Ry J 52:1140 D 28 '18

Women successful as conductors. T. S. Williams. Elec Ry J 51:416-17 Mr 2 '18

Zone fare in practice, Leeds, England. W. Jackson. II Elec Ry J 54:59-61 JI 12 '19

*See also* Street railroads—Wages

**Equipment and supplies**

Ice cutter made from a snowplow. II diag Elec Ry J 52:699 O 19 '18

*See also* Electric motors, Railway; Electric railroads—Equipment and supplies; Sand cars; Sanders; Street cars

**Fare collecting**

Board of arbitration in Boston listens to arguments for and against Rooke automatic register. Elec Ry J 54:413 Ag 23 '19

Change boards on safety cars. II diag Elec Ry J 54:342 Ag 16 '19

Collecting zone fares in Boston. A. S. Richey. map Elec Ry J 53:134-8 Ja 18 '19

Collection and registration of fares. W. J. Harvie. Elec Ry J 54:sup61-4 O 11 '19

Collection of odd street railway fares. R. T. Sullivan. II Elec Ry J 54:853-6 S 27 '19

Collection of zone fares. G. Kuemmerlein, jr. Elec Ry J 54:sup68 O 11 '19

Developments in fare-registering and ticket-issuing devices. II Elec Ry J 54:669-70 S 27 '19

Fare boxes replacing ticket choppers on the Hudson tunnel lines. Elec Ry J 51:422 Mr 2 '18

Fare collection with frequent changes in rates. W. A. Doty. Elec Ry J 54:sup40-1 O 11 '19

How zone fares are collected; resumé of European and American practice. II Elec Ry J 52:373-5 Ag 31 '18

Identification check assists fare collection. Elec Ry J 52:1060 D 14 '18

Mechanical aids in handling fares. II Elec Ry J 54:217-20 Ag 2 '19

Providing safe storage for fare-box vaults. II Elec Ry J 54:753 O 18 '19

Ten-cent fares and 7-cent tickets. Elec Ry J 53:831-2 Ap 26 '19

Three zone system in Detroit. diag Elec Ry J 53:1107 Je 7 '19

Ticket issuing machine for fare collection. II Elec Ry J 54:245-6 Ag 2 '19

Typical zone tickets from abroad. F. C. Cusani. Elec Ry J 54:479-81 S 6 '19

Zone fare collection as seen by a British tramway manager. Elec Ry J 52:1137-9 D 28 '18

Zone fare registering machines. II Elec Ry J 53:695-6 Ap 5 '19

Zone tickets adopted for Portland. II map Elec Ry J 53:723-31 Ap 12 '19

*See also* Electric railroads—Fare collecting

**Fares**

Advocates zone system. R. McCulloch. Elec Ry J 52:593 S 28 '18

Automatic rate system is fair to all; a year's experience with a service-at-cost franchise in Westerville, Ohio. H. W. Clapp. Elec Ry J 52:230-1 Ag 10 '18

Basis of Portland (Me.) rates. Elec Ry J 52:310 Ag 17 '18

Bay State asks 10-cent city fare. Elec Ry J 52:707 O 19 '18

Both Washington railways find cost and wage burdens more than present fares will stand. Elec Ry J 52:526 S 21 '18

Buffalo interurban fares can be raised. Elec Ry J 53:1027 My 24 '19

Buffalo vote on six-cent fare unfavorable. Elec Ry J 52:353 Ag 24 '18

Burdens from which we should be relieved. R. B. Rifenberck. Elec Ry J 54:66-7 JI 12 '19

Camden's view of the New Jersey zone plan. E. G. C. Bleakly. Elec Ry J 54:sup126-7 O 11 '19

Can service costs be collected from the traveling public? J. D. Mortimer. Elec Ry J 54:sup14-17 O 11 '19

Charlotteville's fare increase carried unanimously. Elec Ry J 51:1030 My 25 '18

Chicago asks seven cents. Elec Ry J 52:436 S 7 '18

Chicago riders are now paying higher fares. Elec Ry J 52:951 N 30 '18

Commissions without power in New York; Rochester decision of Court of appeals. Elec Ry J 51:811-12 Ap 27 '18; Same. Munic J 44:420-1 My 18 '18

Congestion not due to graded fares. W. Jackson. II map Elec Ry J 53:355-9 F 22 '19

Connecticut fare brief filed. Elec Ry J 51:588 Mr 23 '18

Connecticut six-cent fare is reasonable. Elec Ry J 51:620-1 Mr 30 '18

Constitutional barrier against fair rates; decision of Public service commission of first district, New York. Elec Ry J 51:125-8 Ja 19 '18

Court upholds increased fare for Toledo, O. Munic J 45:176 Ag 31 '18

Decision in Indianapolis fare case. Elec Ry J 50:1095 D 15 '17

Denver tramway inaugurates 6-cent fare with intensive publicity. Elec Ry J 52:613 O 5 '18

Detroit railway abandons six-cent fare following protest that vents itself in violence. Elec Ry J 52:311 Ag 17 '18

Discussion by mayor, railroad executive and commissioners follows 6-cent fare appeal in New York city. Elec Ry J 51:628 Mr 30 '18

Discussion of fare systems. Elec Ry J 54:610-12 S 27 '19

Enter, the transfer-less zone system at last! Elec Ry J 54:268 Ag 9 '19

Fare increase on Holyoke street railway. Elec Ry J 52:1156 D 28 '18

Fare increases blocked in New York. Elec Ry J 51:696-7 Ap 13 '18

Fare should be flexible. R. McCulloch. Elec Ry J 51:822 Ap 27 '18

Fares in Chicago, Cleveland and Philadelphia compared. L. A. Busby. Elec Ry J 54:795-6 O 25 '19

Fares in Los Angeles, Scranton, Chicago, Syracuse, Worcester. Elec Ry J 53:890-3 My 3 '19

Fares up in 388 cities. Elec Ry J 53:1193 Je 14 '19

Favors six-cent fare instead of zone system. M. C. Brush. Elec Ry J 51:229-30 F 2 '18

Federal action rather than suggestion needed. F. Putnam. Elec Ry J 52:298-9 Ag 17 '18; Discussion. 52:379-80 Ag 31 '18

First two weeks with 7-cent fare in Boston show gain of 30 per cent in gross. Elec Ry J 52:347 Ag 24 '18

**Street railroads—Fares—Continued**

- Five-cent fares in Detroit. Elec Ry J 50:1053-4 D 8 '17
- Five cent—seven cent fares for Pittsburgh. maps Elec Ry J 52:15-16 JI 6 '18
- Foreign fare practice. H. Jackson. Elec Ry J 54:431-5 Ag 30 '19
- Future fare system for small cities. J. A. Emery. Elec Ry J 54:695 O 4 '19
- Georgia commission lacks jurisdiction over rates; recommends a six-cent fare. Elec Ry J 52:391 Ag 31 '18
- Getting the zone system started at Providence. II diag Elec Ry J 52:65-6 JI 13 '18
- Graduated fare at Brisbane, Australia. J. S. Badger. diag map Elec Ry J 54:481-4 S 6 '19
- Graduated fare system. N. W. Storer. Elec J 16:417-18 O '19
- Higher fares. W. H. Taft. Elec Ry J 53:1248-9 Je 21 '19
- Higher fares granted in 238 cities. Elec Ry J 52:309 Ag 17 '18
- Higher rates sought in Kansas City, Mo. Elec W 74:33 JI 5 '19
- How to base fares according to distance. A. H. Masters. Elec Ry J 52:514 S 21 '18
- Increases in North Carolina. Elec Ry J 52:477 S 14 '18
- Indeterminate franchise is most equitable; zone rates for electric railroads. H. Erickson. Elec Ry J 53:1266-7 Je 28 '19
- Indianapolis fare hearings reviewed. Elec Ry J 52:527 S 21 '18
- Industry is facing more serious problems. Elec Ry J 52:115-17 JI 20 '18
- Iowa state board of conciliation. W. G. Raymond. Elec Ry J 53:1274-6 Je 28 '19
- Is the one-cent fare zone the answer to the fare question? Elec Ry J 52:223-4 Ag 10 '18
- Is the zone system the solution? T. Conway, Jr. Elec Ry J 52:776-8 N 2 '18
- Italy prefers straight to zone fares. F. C. Cusani. Elec Ry J 53:464-6 Mr 8 '19
- Jersey cities win big car fare fight. Munic J 46:79-80 JI 27 '18
- Legislative action likely in Boston case; public control bill with service-at-cost provision reported for Boston Elevated railway. Elec Ry J 51:778 Ap 20 '18
- Maine public utilities commission grants new rate schedule to Lewiston, Augusta & Waterville street railway. diag Elec Ry J 51:654 Ap 6 '18
- Making casual riders pay. R. Schaddelee. Elec Ry J 53:693-4 Ap 5 '19; Discussion. 53:747-8, 793-4 Ap 12-19 '19
- Montreal fares. Elec Ry J 52:78, 635 JI 13, O 5 '18
- Municipal ownership offer from city results from inability to agree on fares. Elec Ry J 52:383 Ag 31 '18
- Net result of the 5-cent fare. J. R. Ribbins. Elec Ry J 54:570-1 S 20 '19
- New Jersey fare decision. Munic J 45:99 Ag 8 '18
- New Jersey zone fares in doubt. Elec Ry J 54:715-17 O 11 '19
- New York fares up again. Elec Ry J 53:1249-50 Je 21 '19
- New York transfer cases adjourned. Elec Ry J 51:380 My 4 '18
- No panacea for all troubles. L. S. Storrs. Elec Ry J 52:779-80 N 2 '18
- Obstacles encountered in establishing the zone system in New Jersey. Elec Ry J 54:744-5 O 18 '19
- Optimism prevails at Pennsylvania association meeting. Elec Ry J 54:15-17 JI 5 '19
- Oregon commission had jurisdiction; in Portland six-cent case, State supreme court upholds commission rate change. Elec Ry J 52:308 Ag 17 '18
- Pittsburgh railways charging higher fares. II Elec Ry J 51:278 F 9 '18
- Portland, Ore., case closed. Elec Ry J 51:543 Mr 16 '18
- Portland, Ore., six-cent fare in court. Elec Ry J 51:479 Mr 9 '18
- Possibilities in readiness-to-serve fare schedules. L. R. Nash. Elec Ry J 54:647-52 S 27 '19
- Possible operating economies and sales methods. W. Jackson. Elec Ry J 54:supl17-21 O 11 '19
- Rate-making is a sovereign power, Oregon circuit court rules. Elec Ry J 51:617-18 Mr 30 '18
- Relief for Los Angeles; fare advance in suburbs. Elec Ry J 52:528 S 21 '18
- Report of Price, Waterhouse & co. presented in Syracuse fare case. Elec Ry J 52:261 Ag 10 '18
- Review of six New York fare cases. Elec Ry J 51:636 Mr 30 '18
- Revolutionary change in public service railway fare system. Elec Ry J 54:282-4 Ag 9 '19
- Rhode Island company files new tariff after central five-cent zone proves inadequate. A. E. Potter. Elec Ry J 52:434 S 7 '18
- Rhode Island recommendations defended. Elec Ry J 51:591 Mr 23 '18
- St Louis wants zones. Elec Ry J 52:435 S 7 '18
- Seven-cent fare denied by New Jersey commission. Elec Ry J 52:79 JI 13 '18
- Seven-cent fare for Boston on Aug. 1. Elec Ry J 52:174 JI 27 '18; Same. Munic J 45:186 Ag 17 '18
- Seven-cent fare for Ithaca. Elec Ry J 52:941 N 23 '18
- Seven-cent fares in New Jersey. Munic J 45:335-6 O 26 '18
- Seven-cent minimum fare allowed to the Middlesex & Boston street railway, Newtonville, Mass. Elec Ry J 52:62 JI 13 '18
- Side lights on the fare zone—why fare stages should vary in length. W. Jackson. Elec Ry J 53:1223 Je 21 '19
- Side lights on the zone fare—car capacity. W. Jackson. Elec Ry J 53:875 My 3 '19
- Side lights on the zone fare—congestion or diffusion? W. Jackson. II Elec Ry J 54:276 Ag 9 '19
- Side lights on the zone fare—good service absolutely essential. W. Jackson. Elec Ry J 53:1099 Je 7 '19
- Sidelights on the zone fare—home owning by British workmen. W. Jackson. Elec Ry J 53:1017-18 My 24 '19
- Side lights on the zone fare—the bane of comparative statistics. W. Jackson. Elec Ry J 53:1052 My 31 '19
- Sidelights on the zone fare—the problem of currency. W. Jackson. Elec Ry J 53:921-2 My 10 '19
- Six-cent fare for Buffalo. Elec Ry J 51:1209 Je 22 '18
- Six-cent fare for Kansas City. Elec Ry J 52:30-1 JI 6 '18
- Six cent fare for Providence. Elec Ry J 54:702 O 4 '19
- Six-cent fare for Trenton, N.J. Elec Ry J 52:635 O 5 '18
- Six-cent fare granted to Portland, Ore., line. Elec Ry J 51:184-6 Ja 26 '18
- Six-cent fare needed in Connecticut. Elec Ry J 50:1076-7 D 15 '17
- Six-cent fare permitted in St Louis. Elec Ry J 51:1014-15 My 25 '18
- Six-cent fare turned down; Rhode Island House votes in favor of adopting zone system. Elec Ry J 51:710 Ap 13 '18
- Six cents for Albany. Elec Ry J 52:352 Ag 24 '18
- Six cents in Baltimore. Elec Ry J 52:673 O 12 '18
- Six cents on Chicago Elevated. Elec Ry J 52:940 N 23 '18
- Some light on British tramway conditions. W. L. Madgen. Elec Ry J 54:439-42 Ag 30 '19
- Springfield (Mass.) to have zone fares. Elec Ry J 51:663-5 Ap 6 '18
- State commission has power to raise rates. Munic J 43:615-16 D 22 '17
- Status of the electric railway; zone fares are desirable. D. C. Jackson. Elec Ry J 54:391-3 Ag 23 '19
- Status of the higher fare in the state of New York. T. Conway, Jr. Elec Ry J 51:1235-9 Je 29 '18
- Supreme court decides Detroit United railway case. Elec Ry J 53:149-50 Ja 18 '19

**Street railroads—Fares—Continued**

Ten-cent fare announced for Boston. Elec Ry J 54:45-6 JI 5 '19  
 Ten cents in Pittsburgh. Elec Ry J 53:1293 Je 28 '19  
 To zone or not to zone. Elec Ry J 51:775 Ap 20 '18  
 Tramway & railway world discusses journal's Glasgow articles. Elec Ry J 54:34 JI 5 '19  
 Twenty-four fare increases since July 1, 1918. Elec Ry J 52:593 S 28 '18  
 Two points of view of accountants who inquired into Rochester situation. Elec Ry J 52:594 S 23 '18  
 Unlimited rides for Racinians. Elec Ry J 54:502-3 S 6 '19  
 Use salesmanship in selling transportation. Elec Ry J 51:184-6 Ja 26 '18  
 Why Holyoke's zone fares are insufficient. map Elec Ry J 52:456-8 S 14 '18  
 Zone fare in practice; Aberdeen, Scotland. W. Jackson. II map Elec Ry J 53:814-22 Ap 26 '19  
 Zone fare in practice; Belfast. W. Jackson. II plan Elec Ry J 53:909-14, 1005-11 My 10, 24 '19  
 Zone fare in practice, Croydon, England. II map Elec Ry J 54:466-74 S 6 '19  
 Zone fare in practice; Dublin. W. Jackson. II map Elec Ry J 53:1038-43, 1087-92 My 31-Je 7 '19  
 Zone fare in practice, Edinburgh. W. Jackson. II diag plans map Elec Ry J 53:854-9 My 3 '19  
 Zone fare in practice—Glasgow. W. Jackson. II map Elec Ry J 53:355-9, 446-53, 632-8 F 22, Mr 8, 29 '19  
 Zone fare in practice, Leeds, England. W. Jackson. II Elec Ry J 54:56-61 JI 12 '19  
 Zone fare in practice; London county council. W. Jackson. II map Elec Ry J 54:210-15, 270-5 Ag 2-9 '19  
 Zone fare in practice; Reading, England. W. Jackson. II map Elec Ry J 53:1258-62 Je 28 '19  
 Zone fare in practice; the British electric traction company. W. Jackson. II Elec Ry J 54:154-7 JI 26 '19  
 Zone fare in practice; West Ham. W. Jackson. II map Elec Ry J 53:1163-9 Je 14 '19  
 Zone fares and city planning. R. H. Whitten. Elec Ry J 54:831 N 1 '19  
 Zone fares are not a primary cause of congestion. Elec Ry J 51:401 Mr 2 '18  
 Zone fares finally win in Rhode Island. Elec Ry J 51:786 Ap 20 '18  
 Zone fares have been found satisfactory in Milwaukee. II map Elec Ry J 54:613-20 S 27 '19  
 Zone fares in Springfield. II plan Elec Ry J 54:628-36 S 27 '19  
 Zone-mile system of the Public service railway. II Elec Ry J 54:637-44 S 27 '19  
 Zone system advisable for large cities. I. H. Moir. Elec Ry J 52:1107-8 D 21 '18  
 Zone system approved for Holyoke (Mass.) company. Elec Ry J 51:77-80 Ja 12 '18  
 Zone system best for Rhode Island; special commission reports. diags Elec Ry J 51:570-3 Mr 23 '18  
 Zone system does not cause congestion. F. Putnam. Elec Ry J 52:49-50 JI 13 '18  
 Zone system impracticable in Boston. M. C. Brush. Elec Ry J 51:324 F 16 '18  
 Zone system in Portland. II map Elec Ry J 54:621-7 S 27 '19  
 Zone system proposed for Boston. A. S. Richey. Elec Ry J 52:1141-3 D 28 '18  
 Zone systems. Elec Ry J 54:sup47-50 O 11 '19  
 Zones for San Diego. Elec Ry J 53:983 My 17 '19  
 See also Electric railroads—Fares; Street railroads—Fare collecting; Street railroads—Transfers

**Finance**

Application no. 3808; history of San Diego electric railway. Elec Ry J 53:273-9 F 8 '19  
 Can effect of fare increase be predicted? C. E. Schutt. diags Elec Ry J 53:741-2 Ap 12 '19  
 Cleveland railway shows deficit for 1917. Elec Ry J 52:255 Ag 10 '18

Earnings of the safety car. T. C. Roderick. Elec Ry J 54:26 JI 5 '19  
 \$860,000 of relief—with a string attached; Public service railway of Newark, N. J., receives less than one-quarter of desired financial aid. Elec Ry J 52:113-15 JI 20 '18  
 Elements of value in Pittsburgh street-railway case. Eng N 83:807-8 O 30 '19  
 Higher fare stems tide. Elec Ry J 53:755-6 Ap 12 '19  
 Is the zone system the solution? T. Conway, Jr. Elec Ry J 52:776-8 N 2 '18  
 Massachusetts plan of public control for Buffalo cars. Munic J 45:434 N 30 '18  
 Merger at Indianapolis approved. Elec Ry J 54:91-2 JI 12 '19  
 Nickel in 1913 and 1919. W. H. Burke. Elec Ry J 54:512-15 S 13 '19  
 Philadelphia rapid transit wants six-cent fare. Elec Ry J 51:1031 My 25 '18  
 Portland, Ore., situation reviewed. Elec Ry J 50:1131-2 D 22 '17  
 Public is too apathetic. C. Ogburn. Elec Ry J 53:692-3 Ap 5 '19  
 Public service railway, Newark, N.J., needs \$3,500,000. Elec Ry J 51:622-3 Mr 30 '18  
 Reasonable rate of return has advanced; testimony at Milwaukee (Wis.) fare hearing. J. D. Mortimer. Elec Ry J 51:83-5 Ja 12 '18  
 St Louis fare case started. Elec Ry J 51:544 Mr 16 '18  
 Street railway credit and cost of capital. F. H. Sisson. Elec Ry J 54:178-80 JI 26 '19  
 Supplement to report 3808. Elec Ry J 53:1086 Je 7 '19  
 Worst year the industry has experienced. Elec Ry J 53:55-8 Ja 4 '19  
 Zone system approved for Holyoke (Mass.) company. Elec Ry J 51:77-80 Ja 12 '18  
 See also Street railroads—Fares; Street railroads—Franchises; Street railroads—Taxation; Street railroads—Valuation; Street railroads, Municipal

**Franchises**

Advantages of service-at-cost for electric railroads. H. C. Clark. Elec Ry J 53:1219-20 Ja 21 '19  
 Another case involving franchise obligations in the state of Washington. Elec Ry J 51:727 Ap 13 '18  
 Automatic rate system is fair to all; a year's experience with a service-at-cost franchise in Westerville, Ohio. H. W. Clapp. Elec Ry J 52:230-1 Ag 10 '18  
 Cincinnati settlement ordinance passed; service-at-cost. Elec Ry J 52:384 Ag 31 '18; Same. Munic J 45:194-5 S 7 '18  
 City representation in electric railways. R. P. Woods. Elec Ry J 54:726-7 O 11 '19  
 Cost of service plan; is it not a step towards stabilizing the relations between utilities and their communities. H. C. Clark. Am Gas Eng J 109:471-6 N 16 '18  
 Decision in Tacoma franchise test case. Elec Ry J 51:936-7 My 11 '18  
 Denver situation clearing; city to re-grant temporary 6-cent fare. Elec Ry J 54:129-31 JI 19 '19  
 Franchise changes proposed in Cincinnati subcommittee report. Elec Ry J 52:302 Ag 17 '18  
 Incentive to efficiency is needed. W. C. Culkins. Elec Ry J 54:79 JI 12 '19  
 Maintenance and depreciation allowances in service-at-cost franchises. A. L. Drum. Elec Ry J 53:512-14 Mr 15 '19  
 Montreal cost-of-service plan. J. E. Hutcheson. diag Elec Ry J 54:sup24-6 O 11 '19  
 Move toward an amicable agreement between the city of Seattle, Wash., and the Puget Sound traction, light & power co. Elec Ry J 52:166 JI 27 '18  
 Need for incentive for economical operation under service-at-cost franchises. W. A. Draper. Elec Ry J 54:177-8 JI 26 '19  
 New franchise for Montreal tramways. Elec Ry J 51:288 F 9 '18  
 Philadelphia lease lays good basis for future. Elec Ry J 51:166-7 Ja 26 '18  
 Philadelphia partnership plan shows foresight. Elec Ry J 51:179-82 Ja 26 '18

**Street railroads—Franchises—Continued**

Rate-making is a sovereign power. Oregon circuit court rules. Elec Ry J 51:617-18 Mr 30 '18

Rate of return in service-at-cost franchises. E. Gruhl. Elec Ry J 53:502-5 Mr 15 '19

Recent developments in service-at-cost franchises for utilities. L. R. Nash. diags Elec Ry J 53:15-33 Ja 4 '19

Regulating rates in Iowa. W. Chamberlain. Elec Ry J 54:28-9 Jl 5 '19

St Louis franchise settlement rejected. Elec Ry J 52:711 O 19 '18

Service at cost. C. Townley. Elec J 16:416-17 O '19

Service-at-cost contracts explained. L. R. Nash. Elec Ry J 54:174 Jl 26 '19

Service at cost for Youngtown. Elec Ry J 53:99-100 Ja 11 '19

Some elements of the Cincinnati franchise. W. A. Draper. Elec Ry J 54:sup18-21 O 11 '19

Status of franchises. Elec Ry J 51:629 Mr 30 '18

Tentative Chicago franchise settlement terms. Elec Ry J 51:982 My 18 '18

Youngstown service-at-cost franchise. R. P. Stevens. Elec Ry J 54:sup21-4 O 11 '19

**Inspection**

Street inspector as he was and is to be. E. Dana. Il Elec Ry J 54:372-3 Ag 23 '19

**Law**

Massachusetts decision on the one-man car. J Elec 42:225 Mr 1 '19

**Loops**

More terminal loops; new plan relieves congestion in San Francisco. Il plan Elec Ry J 53:103 Ja 11 '19

Prepayment area in San Francisco. Il plan Elec Ry J 53:454 Mr 8 '19

Report on Cleveland rapid transit recommends street-car loop subways. maps Eng N 83:170-3 Jl 24 '19

Street-car loop subway proposed by Pittsburgh. diag Eng N 82:1059 My 29 '19

Union station loop operation in Denver. Il map Elec Ry J 52:1132-3 D 28 '18

See also Street railroads—Track

**Maintenance and repair**

Car maintenance data from Aberdeen. Elec Ry J 53:604 Mr 22 '19

Handling cars with broken axles. Il diag Elec Ry J 53:785-6 Ap 19 '19

Maintenance practice of the San Francisco municipal railway. N. A. Eckart. Il diags Elec Ry J 53:559-61 Mr 22 '19

See also Street railroads—Track

**Management**

A. E. R. A. war board submits brief on one-man cars. Elec Ry J 52:193-5 Ag 3 '18

Analysis of one-man car possibilities. J. A. Beeler. Elec Ry J 52:568-9 S 28 '18

Case of the rural trolley. Sci Am 118:376 Ap 27 '18

Dispatching the work of the busy executive; office of the president of the Boston Elevated railway. Elec Ry J 50:1116 D 22 '17

Duties of a carhouse starter. P. Castillo. Elec Ry J 52:801 N 2 '18

Houston, Texas adopts telephone dispatching. Elec Ry J 52:413-14 S 7 '18

How Croydon, England is carrying on. T. B. Goodyer. Elec Ry J 52:574-6 S 28 '18

How safety cars save fuel and men; experiences in twelve cities from 20,000 to 400,000 in population. Il Elec Ry J 52:547-68 S 28 '18

Light-weight safety cars best for all. W. G. Kaylor. Elec Ry J 51:173-5 Ja 26 '18

New Orleans adopts modern transportation organization. N. H. Brown. Elec Ry J 52:957 N 30 '18

One-man car operation. C. W. Kellogg. Elec Ry J 54:sup58-61 O 11 '19

Pay-as-you-leave one-man car at Plymouth, Mass. Il Elec Ry J 51:241 F 2 '18

Philadelphia rapid transit system co-operative plan extended. Elec Ry J 52:459-62 S 14 '18

Philadelphia's answer to the traction question. T. E. Mitten. Elec Ry J 54:sup114-16 O 11 '19

Plain words on transportation service. A. Jackson. Elec Ry J 53:1049-51 My 31 '19

Portland revises merit and demerit system. Elec Ry J 51:809-10 Ap 27 '18

Possible operating economies and sales methods. W. Jackson. Elec Ry J 54:sup117-21 O 11 '19

Rochester lines save coal. J. F. Hamilton. Elec Ry J 51:270 F 9 '18

Speeding up traffic in Dallas, Texas. J. A. Beeler. diag Elec Ry J 53:1000-2 D 7 '18

Stotesbury management of the Philadelphia rapid transit company announces further liberal modification of employees' co-operative plan. Elec Ry J 52:343 Ag 24 '18

Street railway outlook. H. C. Eddy. Elec Ry J 54:691-2 O 4 '19

Street railway situation in Pittsburgh. E. V. Babcock. Elec Ry J 54:sup116-17 O 11 '19

Two-car train operation at Davenport. Il map Elec Ry J 52:463-5 S 14 '18

Use salesmanship in selling transportation. Elec Ry J 52:244 Ag 10 '18

Zone fare in practice—Glasgow. W. Jackson. Il map Elec Ry J 53:355-9, 446-53, 632-3 F 22, Mr 8, 29 '19

See also Street railroads—Employees; Street railroads—Public relations; Street railroads—Routing; Street railroads—Schedules; Street railroads—Stops; Street railroads—Telephone service

**Municipal ownership**

Cleveland plan better than municipal ownership. J. J. Stanley. Elec Ry J 52:931 N 23 '18

Detroit refuses to pay the price. Elec Ry J 53:739-40 Ap 12 '19

Private operation with public ownership seems the best solution. T. E. Mitten. Elec Ry J 53:272 F 8 '19

Public ownership. Elec Ry J 52:795-6, 891-2 N 2, 16 '18

Public ownership may be only means of restoring credit. F. J. Macleod. Elec Ry J 54:427-30 Ag 30 '19

Public ownership the obvious policy for electric railways. R. McCulloch. Elec Ry J 52:772-4 N 2 '18

Seattle votes for M. O. Elec Ry J 52:896 N 16 '18

Solving the traction problem. D. F. Wilcox. Elec Ry J 53:1220-1 Je 21 '19

Through a commissioner's eyes. C. E. Elmquist. Elec Ry J 53:509-10 Mr 15 '19

Traction situation in Seattle. M. O. Hanson. Elec Ry J 54:386 Ag 23 '19

See also Street railroads, Municipal

**Printing**

Complete printing department for an electric railway. Il Elec Ry J 53:530-1 Mr 15 '19

**Public relations**

Advertisement series on public relations. Elec W 71:987 My 11 '18

Arousing public interest in crossing construction work. J. C. Davidson. Il Elec Ry J 50:1108-10 D 22 '17

Educational publicity in Twin Cities. Elec Ry J 54:400-1 Ag 23 '19

Iowa state board of conciliation. W. G. Raymond. Elec Ry J 53:1274-6 Je 28 '19

Make better use of claim agents in public relations work. Elec Ry J 52:142 Jl 27 '18

Men with the nerve to tell the people the facts are needed. J. E. Hedges. Elec Ry J 54:sup 5-8 O 11 '19

Moving cars through congested intersections; an appeal to the public to step lively. A. Gaboury. Elec Ry J 51:233 F 2 '18

Practising the public be told policy in Portland, Me. Elec Ry J 51:456 Mr 9 '18

Problem must be solved. P. H. Gadsden. Elec Ry J 52:1045-7 D 14 '18

Public, if informed, is fair; Houston, Texas, fare situation. F. Putnam. Elec Ry J 52:662-3 O 12 '18

**Street railroads—Public relations—Continued**

Publicity fermenting in the electric railway situation. I. Lee. Elec Ry J 51:188 Ja 26 '18  
Selling service for a fair price. F. Putnam. Elec Ry J 51:861-2 My 4 '18

Selling transportation on a commercial basis. C. Renshaw. Elec Ry J 52:415-16 S 7 '18  
Street railway outlook. H. C. Eddy. Elec Ry J 54:691-2 O 4 '19

Telling the public; Columbus (Ohio) company newspaper advertisements. Elec Ry J 51:1013 My 26 '18

Things to consider in handling the public. W. H. Boyce. Elec J 16:433-5 O '19

*See also* Street railroads—Fares; Street railroads—Franchises; Street railroads—Municipal ownership; Street railroads—Regulation; Street railroads—Service; Street railroads, Municipal

**Rates**

*See* Street railroads—Fares

**Records**

Individual hand-made and printed run cards. Elec Ry J 52:802 N 2 '18  
Maintenance records that prove invaluable. Elec Ry J 51:806-9 Ap 27 '18

**Regulation**

Public control for Buffalo, N.Y. Elec Ry J 52:897 N 16 '18

*See also* Street railroads—Franchises; Street railroads—Municipal ownership; Street railroads—Public relations; Street railroads, Municipal

**Rolling stock**

*See* Sand cars; Street cars

**Routing**

Bridgeport well pleased with safety cars. II map Elec Ry J 53:316-19 F 15 '19  
Relieving congestion at the Diamond in Youngstown, Ohio. II diag map Elec Ry J 53:969-70, 1062 My 17, 31 '19

Relieving congestion in Baltimore's delivery district. L. H. Palmer. II Elec Ry J 53:1082-6 Je 7 '19

Sixty-five seats per passenger; war brings rerouting in New Orleans. Elec Ry J 51:1184-5 Je 22 '18

Washington increases car-miles and reduces car-hours; Beeler report. Elec Ry J 52:614 O 5 '18

*See also* Street railroads—Loops

**Safety devices and measures**

Many-sided safety campaign in Philadelphia. II Elec Ry J 54:399-400 Ag 23 '19

**Schedules**

Advantages of higher schedule speeds. J. A. Beeler. Elec Ry J 54:657-60 S 27 '19

How to determine the free running speed of a car; effect on schedule speed of number and time of stops and of rates of acceleration and braking. J. F. Layng. Elec Ry J 51:15-22 Ja 5 '18

Washington increases car-miles and reduces car-hours; Beeler report. Elec Ry J 52:614 O 5 '18

*See also* Street railroads—Service; Street railroads—Stops

**Service**

Automobile parking chokes Washington traffic channels; fifth section of Beeler report. diag Elec Ry J 51:613-17 Mr 30 '18

Business follows service. E. M. Walker. Elec Ry J 54:660-2 S 27 '19

Handling crowds at Ohio state fair grounds. II diag plan Elec Ry J 51:846-7 My 4 '18

Moving cars through congested intersections; an appeal to the public to step lively. A. Gaboury. Elec Ry J 51:233 F 2 '18

Relieving the most congested point in the national capital. diag Elec Ry J 51:223-4 F 2 '18

Saving fuel through operating economies. Elec Ry J 51:267-70 F 9 '18

Train service for war-time rush-hour traffic in Dayton, Ohio. II Elec Ry J 52:339-40 Ag 24 '18

Zone fare in practice—Glasgow. W. Jackson. diag map Elec Ry J 53:446-53 Mr 8 '19

*See also* Street railroads—Schedules; Street railroads—Traffic

**Shops**

*See* Electric railroads—Shops

**Snow protection and removal**

Effective snow boards for city service. II diag Elec Ry J 52:371 Ag 31 '18

Line truck used for removing snow. II Elec Ry J 51:579 Mr 23 '18

Snow fighting in Montreal. A. Gaboury. Elec Ry J 52:363-70 Ag 31 '18

**Special work**

*See* Street railroads—Track

**Stops**

Coal conservation suggestions for the central station industry. P. B. Noyes. Elec R 73:609-11 O 19 '18

Economies of the skip-stop. J. A. Beeler. Elec Ry J 53:1097-9 Je 7 '19

Efficient operation with the skip-stop service. Elec Ry J 52:1050-1 D 14 '18

Estimated savings in skip stops. C. E. Stuart. Elec Ry J 51:1102 Je 8 '18

Fuel administration and the skip stop. J. F. Layng. Elec Ry J 53:34-8 Ja 4 '19

How to determine the free running speed of a car; effect on schedule speed of number and time of stops and of rates of acceleration and braking. J. F. Layng. Elec Ry J 51:15-22 Ja 5 '18

Letter from the United States Fuel administration. Elec Ry J 52:422 S 7 '18

Practical traffic relief offered to Washington; second section of Beeler report. Elec Ry J 51:312-13 F 16 '18

Save 2000 tons of coal a month in Cincinnati by skip stops. Elec Ry J 51:460 Mr 9 '18

Savings made by skip stops. E. J. Burdick. Elec Ry J 53:185 Ja 25 '19

Skip-stop. Elec R 73:326 Ag 31 '18

Skip stop at Washington adds 10 to 15 per cent to service, II plan Elec Ry J 51:848-50, 925-6 My 4-11 '18

Skip-stop being considered; bulletin of Fuel administration describes advantages. Elec Ry J 51:340-1 F 16 '18

Skip-stop campaign in Philadelphia. Elec Ry J 52:1010 D 7 '18

Skip stop for Bay State. Elec Ry J 51:988 My 18 '18

Skip-stop operation gives 11 per cent reduction in power consumption. Elec Ry J 53:572 Mr 22 '19

Skip-stop plan of saving 10 per cent in street railway fuel and a greater per cent in trip time. Eng & Contr 50:183-4 Ag 21 '18

Skip-stop results in Toledo. A. Swartz. charts Elec Ry J 53:690-1 Ap 5 '19

Skip stop will save one million tons of coal. C. Renshaw. Elec Ry J 52:17-18 Jl 6 '18

Skip stops for Kansas City. Elec Ry J 52:353 Ag 24 '18

Skip stops spell safety. E. J. Burdick. Elec Ry J 53:96-8 Ja 11 '19

Skip stops will save 1,500,000 tons of coal annually. Elec Ry J 52:419 S 7 '18

Space-grabbing automobile; with section of Beeler report. Elec Ry J 52:147-9 Jl 27 '18

Telling the public the truth about the skip stop. II Elec Ry J 53:233-6 F 1 '19

Toledo railways & light company says skip stop saves fuel. Elec Ry J 50:1094 D 15 '17

Universal enforcement of the skip-stop plan by the Fuel administration is a great object lesson in economics. Eng & Contr 50:228-9 S 4 '18

**Taxation**

Net earnings rule in special franchise taxation. M. Saxe. J Account 25:17-26 Ja '18

**Street railroads—Continued****Telephone service**

Operating without telephones;—preparedness plans made by Boston Elevated railway during the recent strike of telephone operators. E. Dana. map Elec Ry J 54:23-4 JI 5 '19  
West Ham's telephone control system. II diag Elec Ry J 54:397-8 Ag 23 '19

**Terminals**

Proposed street railway subway terminal for Buffalo, N. Y. plans Munic Eng 54:167-8 Ap '18

**Tickets**

Metal tickets as a substitute for multiple coins. J. F. McLaughlin. Elec Ry J 54:sup42 O 11 '19  
Publicity for metal tickets. Elec Ry J 52:613 O 5 '18  
Suggestions for mechanical ticket issue as applied to a differential fares scheme. T. E. Thomas. Elec Ry J 53:1109 Je 7 '19  
Typical zone tickets from abroad. F. C. Cusani. Elec Ry J 54:479-81 S 6 '19  
*See also* Street railroads—Fare collection

**Track**

Brick is first choice in paving. Elec Ry J 53:1271-2 Je 28 '19  
British track laid without ties; Leeds practice. diags Elec Ry J 53:743-4 Ap 12 '19  
Built-up sections of track for diverting traffic. W. L. Whitlock. II Elec Ry J 51:770-1 Ap 20 '18  
Chicago rehabilitation track standards prove successful. II diags Elec Ry J 53:864-9 My 3 '19; Abstract. Eng & Contr 51:544-5 My 21 '19  
Concrete railway track support. A. C. Irwin. diags Eng & Contr 52:65-7 JI 16 '19  
Cost data on special work construction. M. Bernard. diags Elec Ry J 50:1170; 51:195 D 29 '17, Ja 26 '18  
Cost of constructing street railway track. C. K. Keen. Eng & Contr 51:200 F 19 '19  
Doing a big track construction job in Pittsburgh with a minimum of labor. G. W. Emory. II diags Elec Ry J 50:1168-9 D 29 '17  
Drag-line car for handling track materials. II Elec Ry J 54:531-2 S 13 '19  
Effect of motor truck traffic on street railway track. Eng & Contr 49:440 My 1 '18  
Effective home-made track grinder. C. L. Carter. II Elec Ry J 52:380 Ag 31 '18  
Emergency special work made with arc welder. II Elec Ry J 53:1060 My 31 '19  
Estimating the life of curved special work. M. Bernard. Elec Ry J 53:1018 My 24 '19  
Evolution of foundations for street car pavements and tracks. M. A. Stewart. II Eng & Contr 50:13-14 JI 3 '18  
Granite block between street car tracks using cement mortar cushion. M. A. Stewart. diag Eng & Contr 50:8 JI 3 '18  
Greater uniformity in track spirals will conduce to economy. E. M. T. Ryder. Elec Ry J 51:649-52 Ap 6 '18; Discussion. 51:775-6, 868-9, 926, 1017, 1156-7 Ap 20, My 4-11, 25 Je 15 '18  
How to maintain track. R. H. Findley. Elec Ry J 54:762-4 O 18 '19  
How to secure long track life. H. S. Cooper. Elec Ry J 54:533-4 S 13 '19  
How various types of special work layouts have been developed in Brooklyn. M. Bernard. diags Elec Ry J 51:863-4 My 4 '18  
How way engineers rate labor-saving appliances for use in track work. Elec Ry J 51:522-3 Mr 16 '18  
Keeping the track special work in repair. R. C. Cram. Elec Ry J 51:1137-40 Je 15 '18  
Latest British street-railway track construction. diags Eng N 83:83 JI 10 '19  
Machine for removing sheet asphalt pavement from between street car tracks. II Eng & Contr 51:193 F 19 '19  
Making the old track last a little longer. P. N. Wilson. II Elec Ry J 52:1053-4 D 14 '18

Manganese special work repaired by welding. J. M. Scott. II diags Elec Ry J 53:1237-8 Je 21 '19; Same abr. Eng & Contr 52:63 JI 16 '19  
Money-saving factors in the maintenance of special work. R. C. Cram. II map plan Elec Ry J 52:103-8 JI 20 '18  
New ballasted track standards and construction at Dallas. II diags Elec Ry J 53:499 S 21 '18  
Old rails used for ties in street railway track. II Eng & Contr 50:368 O 16 '18; Same. Elec Ry J 52:845 N 9 '18  
Paving blocks and sectional paving for railway tracks. II diags Elec Ry J 54:30-1 JI 5 '19  
Pneumatic tools for breaking up pavement. W. P. Burn. II Elec Ry J 54:563-4 S 20 '19  
Preventing disintegration of paving along the rail head. diags Elec Ry J 51:1241 Je 29 '18  
Replacing downtown special work in Denver, Colo. W. L. Whitlock. II Elec Ry J 51:375-6 F 23 '18  
Risers increase life of frogs and mates. C. L. Hawkins. II diags Elec Ry J 53:1230-1 Je 28 '19  
San Francisco's municipal street railway. II Munic J 45:401-4 N 23 '18  
Solid manganese vs. manganese-insert special work. W. L. Whitlock. II Elec Ry J 52:425 S 7 '18  
Some emergency special work construction. T. B. McMath. II diags Elec Ry J 53:145-6 Ja 18 '19  
Some results of rail conservation. W. R. Dunham, Jr. II diags Elec Ry J 53:562-5 Mr 22 '19  
Special track work for street railways. J. V. Hunter. II diags Am Mach 49:335-8 Ag 22 '18  
Special work designed to give longer life. W. L. Whitlock. II Elec Ry J 51:527 Mr 16 '18  
Street railway track paving with wood blocks. diags Eng & Contr 51:253-4 Mr 5 '19  
Street railway tracks without ties. Eng & Contr 51:547 My 21 '19  
Subsoil and its important relation to track construction. R. C. Cram. II diags Elec Ry J 52:495-8 S 21 '18  
Track construction methods employed in Chicago street widening plan. II diags Elec Ry J 51:608-12 Mr 30 '18  
Track puller for paved streets. T. W. Bulpin. II diags Elec Ry J 52:296 Ag 17 '18; Same. Eng & Contr 50:568 D 18 '18  
Types of track construction used in Brooklyn during 1917. Elec Ry J 52:250 Ag 10 '18  
Unusually difficult special work job. H. P. Hunting. II plan Elec Ry J 51:1140-1 Je 15 '18  
Using modern appliances in track construction. W. L. Whitlock. II diags Elec Ry J 53:995-8 My 24 '19  
Utilizing gas welding at Salt Lake City. J. M. Bamberger. II Elec Ry J 52:1056 D 14 '18  
Winter track construction at Sharon, Pa. A. B. Stitzer. II diag Elec Ry J 52:1085-6 D 21 '18

*See also* Electric railroads—Track; Rails; Street railroads—Loops

**Traffic**

Cleveland rapid transit report. charts plans Elec Ry J 54:71-4 JI 12 '19  
Code of traffic principles. H. B. Flowers. Elec Ry J 54:sup55-8 O 11 '19  
Dissecting passenger interchange time graphs. D. D. Ewing. Elec Ry J 52:610-12 O 5 '18  
Electrically-operated destination signs direct traffic in a transfer station of the Boston Elevated railway. II Elec Ry J 52:883 N 16 '18  
Fundamentals of successful transportation. H. C. Eddy. Elec Ry J 51:91 Ja 12 '18  
Have staggered hours come to stay? Elec Ry J 52:643-4 O 12 '18  
Hundred per cent efficiency in street car loading. II Sci Am 119:93 Ag 3 '18  
Loading surface cars at 400 passengers per minute in Detroit. W. E. Cann. II Elec Ry J 51:88 Ja 12 '18

**Street railroads—Traffic—Continued**

Methods of observing and analyzing passenger traffic. R. H. Horton. Elec Ry J 54:75-8 JI 12 '19

Reducing the peak load of street railways by staggering the business hours. Eng & Contr 50:272 S 18 '18

Report on Trenton, N.J. P. Witt. Elec Ry J 51:138 Ja 19 '18

Safety-car operation in Seattle. Elec Ry J 53:466 Mr 8 '19

Service conditions determine car equipment characteristics. C. W. Squier. Elec Ry J 51:748-51 Ap 20 '18

Spread rush-hour travel. Elec Ry J 50:1078-9 D 15 '17

Staggered hours for 88,000 Washington employees; Beeler report. Elec Ry J 51:655-9 Ap 6 '18; Discussion. 51:787-8 Ap 20 '18

Staggered hours win in Washington. Elec Ry J 52:628 O 5 '18

Traffic characteristics. J. A. Dewhurst. charts Elec Ry J 53:694-5 Ap 5 '19

Traffic study in Pittsburgh. charts diag maps plan Elec Ry J 51:842-6 My 4 '18

See also Street railroads—Loops

**Transfers**

Chicago surface lines print 4,000,000 transfers a day. Il Elec Ry J 52:380-1 Ag 31 '18

Denver tramway adopts novel transfer. H. C. Kendall. Elec Ry J 50:1113-15 D 22 '17

Home-made machine for dating extra transfers. R. A. Willson. Il diag Elec Ry J 50:1124 D 22 '17

New transfer for Kansas City. Il Elec Ry J 54:401 Ag 23 '19

Retaining a record of transfers. Il Elec Ry J 51:50 Ja 5 '18

Transfer charge refused in New York. Elec Ry J 51:1167-8 Je 15 '18

**Valuation**

Pittsburgh valuation reviewed. Elec Ry J 54:436-8 Ag 30 '19

**Wages**

Bonus system reduces coal consumption at Denver. W. E. Casey and E. Weber. Il Elec Ry J 53:266-7 F 8 '19; Same. Eng & Contr 51:526-8 My 14 '19; Same. Power 50:174-9 JI 29 '19

Cleveland wage discussion. Elec Ry J 51:821 Ap 27 '18

Data presented by the Kansas City railways to the War labor board show 81 per cent rise in the cost of living since 1900 but 146 per cent advance in wages. Elec Ry J 52:740-2 O 26 '18

Detroit and Cleveland wages under advisement. Elec Ry J 51:1064 Je 1 '18

Employees demand wage of 60 cents an hour. Elec Ry J 52:11-14 JI 6 '18

Grand Rapids men get 40-46 cents. Elec Ry J 52:631 O 5 '18

Kansas employees' demands excessive. Elec Ry J 52:629 O 5 '18

Principles in labor awards; board explains general basis followed in its decisions. Elec Ry J 52:243 Ag 10 '18

Rates increased to cover bonuses given by French tramways. Elec Ry J 51:1047 Je 1 '18

St. Louis wages adjusted. Elec Ry J 51:1106 Je 8 '18

Twelve-cent wage advance in Cleveland. Elec Ry J 54:85 JI 12 '19

War labor board grants 48-cent maximum for surface lines in Chicago, Cleveland and Detroit; maxima in smaller cities 42 cents and 45 cents. Elec Ry J 52:207-8 Ag 3 '18

War labor board hands down seven decisions. Elec Ry J 52:806-7 N 2 '18

**Australia**

Graduated fare at Brisbane. J. S. Badger. diag map Elec Ry J 54:481-4 S 6 '19

**England**

Zone fare in practice; Leeds. W. Jackson. Il map plans Elec Ry J 54:7-12 JI 5 '19

Zone fare in practice; Reading. W. Jackson. Il map Elec Ry J 53:1258-62 Je 28 '19

**Great Britain**

Some light on British tramway conditions. W. L. Madgen. Elec Ry J 54:439-42 Ag 30 '19

**Italy**

Italy prefers straight to zone fares. F. C. Cusani. Elec Ry J 53:464-6 Mr 8 '19

Stamp tax cuts traffic. Elec Ry J 52:999 D 7 '18

**United States**

Maintenance man's experiences during the war. F. R. Phillips. Elec Ry J 54:19-20 JI 5 '19

Street railway situation. J. H. Pardee and others. Elec J 16:405-21 O '19

**Street railroads, Municipal**

Complete report of the Municipal railway of San Francisco for the two years ended June 30, 1917. Elec Ry J 53:294 F 8 '19

Has the municipal railway of San Francisco shown adequate profit? H. P. Gillette. Eng & Contr 52:59-60 JI 16 '19

Lincoln (Ill.) municipally-owned street railway successful. H. C. Matheine, jr. Munic J 44:251 Mr 23 '18

Maintenance practice of the San Francisco municipal railway. N. A. Eckart. Il diag Elec Ry J 53:559-61 Mr 23 '19

Municipal lines have suffered in Great Britain. C. J. Spencer. Elec Ry J 52:571-2 S 28 '18

Municipal railway operation at Seattle, Washington. T. F. Murphine. Elec J 16:428-30 O '19

Municipal railway profit. T. F. Murphine. Elec Ry J 54:496 S 6 '19

Municipal railway system of San Francisco. M. M. O'Shaughnessy. Eng & Contr 51:531 My 21 '19

San Francisco buses a costly accommodation. Elec Ry J 52:376 Ag 31 '18

San Francisco municipal ownership gains. Elec Ry J 53:932-3 My 10 '19

San Francisco's municipal railway is no gold mine. Eng & Contr 51:184 F 19 '19

San Francisco's municipal street railway. Il Munic J 45:401-4 N 23 '18

Seattle takes over its railway. Elec Ry J 53:534, 708 Mr 15, Ap 5 '19

Seattle transfer Oct. 1. Elec Ry J 52:586 S 28 '18

Seattle's purchase of street-car lines arranged for. Elec R 74:65-6 Ja 11 '19

**Street signs**

Road and street signs. Il Munic Eng 53:228-9 D '17

**Street sprinkling**

Ford combination promises street sprinkling economy. R. W. Stewart. Il Eng N 80:475 Mr 7 '18; Same. Eng & Contr 49:579 Je 5 '18

Study of street flushing. Il diag Munic J 46:187-91 Mr 8 '19

See also Street oiling

**Cost**

Cost of street oiling and street sprinkling at St. Paul. Eng & Contr 50:232 S 4 '18

Street sweepers. See Street cleaning apparatus

**Street traffic**

Analysis of the traffic count in downtown Chicago. G. C. D. Lenth. Il plans W Soc E J 23:79-98 F '18; Abstract. Eng N 80:254-6 F 7 '18; Excerpts. Eng & Contr 49:564-6 Je 5 '18; Discussion. W Soc E J 23:99-169 F '18

Automobile parking chokes Washington traffic channels; fifth section of Beeler report. diag Elec Ry J 51:613-17 Mr 30 '18

Chicago motor vehicles increase but horse vehicles decrease. Eng N 80:311 F 14 '18

Heavy traffic on New York streets. C. M. Pinckney. Sci Am 120:404 Ap 19 '19

Safety island that is not one. Munic J 45:232 S 21 '18

Staggered hours for 88,000 Washington employees; Beeler report. Elec Ry J 51:655-9 Ap 6 '18

Traffic study in Pittsburgh. charts diag maps plan Elec Ry J 51:842-6 My 4 '18

**Street traffic—Continued**

Transit commission. E. K. Morse. Eng Soc W Pa 34:431-9; Discussion. 440-60 JI '18

See also Automobile laws and regulations; Road traffic; Safety islands; Street railroads—Traffic; Traffic regulations

**Streets**

Control of new streets in relation to extension of water mains. B. Brewer. Eng N 83:705 O 9 '19

Experiences at Worcester, Mass., in public work construction by city forces. A. T. Rhodes. Eng & Contr 51:12-13 Ja 1 '19

Labor cost of clearing and grubbing preparatory to paving. H. R. Ferriss. Eng & Contr 49:441 My 1 '18

Lake Shore drive (Chicago) intersection shows advanced practice in curb design. B. F. Affleck. diag Munic Eng 53:207-8 N '17; Same. Concrete 12:68 F '18

Method of obtaining proper surface contour at street intersections. diag Eng & Contr 49:429 My 1 '18

New York bureau of municipal research recommends that the city engineer of Indianapolis be also the street commissioner. Eng & Contr 49:568 Je 5 '18

Procedure in office of construction engineer, employing small staff, supervising expenditure of \$2,000,000 for new improvements. H. W. Skidmore. Munic Eng 54:170-3 Ap '18

Rapid method of staking out street intersections. C. E. Bayley. diag Eng & Contr 49:562 Je 5 '18

Relation of street systems to highways outside of urban district. N. P. Lewis. Eng & Contr 51:249 Mr 6 '19; Same. Good Roads n s 17:99-100 Mr 1 '19; Excerpts. Eng N 82:465-6 Mr 6 '19

Statistics on street and alley paving in American municipalities. Eng & Contr 49:426 My 1 '18

Street improvements in housing developments. Good Roads n s 15:262-+ My 25 '18

Thoroughfares. O. C. Simonds. W Soc E J 23:418-22; Discussion. 422-31 Je '18

What is a street? Munic J 46:51 Ja 18 '19

See also Alleys; City planning; Curbs; Dust prevention; Grading (earthwork); Gutters; Pavements; Roads; Sidewalks; Snow removal; Street cleaning; Street lighting; Street openings; Street traffic; Subways (streets)

**Finance**

Assessments for street improvements. Munic J 46:151-4 F 22 '19

**Grades**

Improving hillside streets. II Munic J 46:150-1 F 22 '19

Reduce grades by spiral development of hillside streets. II plan Eng N 81:321-2 Ag 15 '18

Regrading hillside streets in San Francisco. C. W. Geiger. II Good Roads n s 17:29-30 Ja 25 '19

**Law**

Liability for trespass in street work. J. Simpson. Munic J 45:304-5 O 19 '18

Set-back lines; power to establish them from a legal standpoint. W. J. Locke. Munic J 45:487-8 D 21 '18

Shade trees in streets. J. Simpson. Munic J 46:432-3 Je 14 '19

Why engineers should become leaders in a campaign for revision of laws governing street improvement. Eng & Contr 49:421-2 My 1 '18

**Widening**

Track construction methods employed in Chicago street widening plan. II diags Elec Ry J 51:608-12 Mr 30 '18

Using old concrete base in new pavement on widened streets. W. W. Whipkey. diags Munic Eng 53:206 N '17

**Width**

Cost of wide streets. Munic J 44:300-1 Ap 13 '18

Width of roadway and corner cut-off. R. H. Whitten. diags Munic J 45:166-7 Ag 21 '18

**Streets, Oiled**

Oil construction for the streets in Oakland, Cal. C. W. Geiger. II Munic J 46:380-1 My 31 '19

**Strength of materials**

How things break; a study of the mechanism of fractures in materials. C. Freminville. II diags Sci Am S 86:248-9, 264 O 19-26 '18

Metallurgical information required by engineers. C. F. Jenkin. Engineer 127:325-6 Ap 4 '19; Same. Eng & Contr 52:150-1 JI 30 '19

New method of establishing working strength of metals; the useful limit point. Iron Age 101:591 F 28 '18

Resistance of materials. G. S. Chiles and R. G. Kelley. diags Ry Mech Eng 93:123-6, 181-4, 241-3 Mr-My '19

Safe loads on planks and timbers for scaffolds, falsework and other structures. Eng & Contr 52:356 S 24 '19

Structural material made of thin sheet steel. II diags Am Arch 115:249-54 F 13 '19

Testing of materials. W. Rosenhain. Automotive Ind 41:508-10 S 11 '19

Tests of hollow building tiles. B. D. Hathcock and E. Stillman. U S Bur Stand Tech Pa 120:1-29 '18; Abstract. Eng & Contr 51:411-13 Ap 23 '19

Tests of large bridge columns. J. H. Griffith and J. G. Bragg. II diags U S Bur Stand Tech Pa 101:1-139 '18

Useless waste in concrete construction due to legal requirements. W. S. Tait. Am Arch 115:187-9, 211-12, 254-6 Ja 29-F 12 '19

See also Bricks—Testing; Building materials; Elastic limit; Elasticity; Graphic statics; Steel—Testing; Strains and stresses; Trusses; Wood—Testing

**Stresses.** See Strains and stresses

**Stretchers**

Stretcher that gives up its load painlessly. II Sci Am 120:80 Ja 25 '19

**Strickland, William**

Portrait. Am Inst Arch J 7:346 Ag '19

**Strikes**

Beating the strikers at Kansas City. II Elec Ry J 53:470-2 Mr 8 '19

Both parties rebuked in Milwaukee. Elec Ry J 53:976 My 17 '19

Bridgeport strike. Iron Age 102:570-1, 670, 726-7, 755-6 S 5-26 '18

British railways tied up by sudden strike. Ry R 65:497-9, 532-4 O 4-11 '19

Brooklyn strike. Elec Ry J 54:295, 352 Ag 9-16 '19

Buffalo strike still unsettled. Elec Ry J 52:668 O 12 '18

Chicago strike settled. II Elec Ry J 54:293 Ag 9 '19

Chicago surface and elevated lines tied up. Elec Ry J 54:249-50 Ag 2 '19

Cleveland men out on strike. Elec Ry J 52:1020 D 7 '18

Cleveland strike settled. Elec Ry J 52:1061 D 14 '18

Coventry strike of munition workers. Engineer 124:501 D 7 '17

Des Moines strike settled. Elec Ry J 54:446-7 Ag 30 '19

General strike in the West called off. Am Lumberman 2284:46d F 22 '19

Great Britain's nine-day railway strike. R. E. Thayer. II Ry Age 67:727-34 O 10 '19

How Switzerland handled a railway strike. Ry R 64:226 F 8 '19

Jurisdictional strikes. E. J. Russell. Arch Forum 81:109 S '19

Organized labor opposes anti-strike legislation. Ry Age 67:691-2 O 3 '19

Organizing to cause strike is illegal; decision by the Supreme court of United States in Hitchman case. Iron Age 100:1436-7 D 13 '17; Coal Age 12:1020-1 D 15 '17; Elec Ry J 50:1087 D 15 '17; Eng N 79:1133 D 13 '17

Pittsburgh men go out in spite of contract. Elec Ry J 54:405-6 Ag 23 '19

Preparing for and managing strikes. Elec Ry J 52:1133-4 D 28 '18

President Wilson and striking railroad shopmen. Ry R 65:193-4 Ag 9 '19

Railway strike cripples British ironworks. Iron Tr R 63:1003-4 O 31 '18



**Strikes—Continued**

- Results of British railway strike.** H. N. Casson. *Il Ry R* 65:690 N 8 '19
- Shop stewards and the Coventry strike.** Engineer 125:8 Ja 4 '18
- Steel strike—and others.** Eng & Min J 108:637-8 O 18 '19
- Strike declared on Boston elevated.** Elec Ry J 54:134 JI 19 '19
- Strike problem.** Sci Am 121:478 N 15 '19
- Strike results in Arizona.** Eng & Min J 104:1086 D 22 '17
- Strikes and lockouts in 1916, 1917 and 1918.** E. L. Whitney. Am Ind 20:15-18 Ag '19
- Striking employes in Vancouver shut down central station system.** Elec R 73:174-5 Ag 8 '18
- Striking shopmen decide to return to work.** Ry R 65:231-4 Ag 16 '19
- Terms of London strike settlement.** Elec Ry J 53:478-9 Mr 8 '19
- Terms of Toronto strike settlement.** Elec Ry J 54:191 JI 26 '19
- Tri-city railway strike settled.** Elec Ry J 54:352-3 Ag 16 '19
- Unions denounce their brethren in Birmingham (England) munition plants for walking out.** Iron Tr R 68:451-2 Ag 22 '18
- See also* Arbitration, Industrial; Coal miners' strike, 1919; Labor and laboring classes; Steel strike, 1919

**Strip mills.** See Rolling mills

**Strippers**

- Automatic double-acting stripper for drawing operations.** B. Menkin. *Il diags Mach* 25:192 N '18
- Radiators made on double stripper.** *Il Foundry* 47:753-4 O 15 '19
- Stripper for cutting-off tool.** D. A. Hampson. *diag Mach* 25:546-7 F '19

**Stripping.** See Hydraulic excavation

**Strontium**

- Strontium in 1917.** J. M. Hill. Eng & Min J 106:221 Ag 3 '18

**Strontium bromide**

- Transition temperatures of strontium chloride and strontium bromide as fixed points in thermometry.** T. W. Richards and V. Yngve. Am Chem Soc J 40:89-95 Ja '18

**Strontium chloride**

- Ionization relations of potassium and strontium chlorides in mixtures.** G. M. Smith and E. A. Rees. Am Chem Soc J 40:1802-47 D '18
- Transition temperatures of strontium chloride and strontium bromide as fixed points in thermometry.** T. W. Richards and V. Yngve. Am Chem Soc J 40:89-95 Ja '18

**Structural engineers**

- Who is a structural engineer?** Eng & Contr 50:581-2 D 25 '18

**Structural painting.** See Painting, Structural

**Structural shops**

- Fabricated-ship plant planned for later general use.** M. E. Allen. *Il diags plan Eng N* 83:79-82 JI 10 '19
- Inland ship-steel fabricating plants of the Emergency fleet corporation.** L. G. Fishach. *Il diags Eng N* 82:832-6 F 13 '19

**Structural steel.** See Steel, Structural

**Structures. Theory of**

- Indeterminate structures.** G. Paaswell. *diags Eng & Contr* 52:348-9 S 24 '19
- Less theory and more horse sense in structural engineering courses.** E. Godfrey. Eng & Contr 51:575-7 My 23 '19
- New principle in the theory of structures; abstracts.** G. F. Swain. *diags Eng & Contr* 51:679-81 Je 25 '19; Eng N 82:564-5 My 1 '19

**Stucco**

- Application of stuccos.** Eng & Contr 52:107 JI 23 '19
- Back-plastered stucco houses.** H. L. Park. *Il plans Concrete* 12:34-5 Ja '18; Same. Bldg Age 40:153 Mr '18
- Block, monolithic and stucco cottages.** *Il diags plans Concrete* 14:88 F '19
- California stucco house.** C. H. Smallwood. *Il plan Concrete* 12:34 Ja '18

**Cement-stucco house of simple design.** C. A.

Byers. *Il plans Concrete* 12:217 Je '18

**Centrifugal stucco gun used on large construction work.** *Il Eng N* 81:474 S 5 '18

**Color stucco that is beautiful and lasting.** *Il Bldg Age* 40:99-102 F '18

**Coloring stucco.** Factory 20:670 Ap '18

**Cost of applying stucco with the centrifugal stucco gun.** *Il Eng & Contr* 51:228-9 F 26 '19

**Hodges electric stucco applying machine.** *Il Coal Age* 16:730-1 O 30 '19

**How to do stucco work.** H. C. Campbell. *diags Bldg Age* 41:135-7 Ap '19

**Improving plant appearance.** Factory 20:870+ My '18

**Is this good construction?** Bldg Age 40:358 JI '18

**Leaner mix to solve stucco problem.** J. C. Pearson. Concrete 14:51 Mr '19

**Making a success of stucco work.** *diag Bldg Age* 41:284-5+ S '19

**Report of the committee of American concrete institute on treatment of concrete surfaces.** Am Arch 116:57-9 JI 9 '19

**Sioux City stucco house.** *Il plans Concrete* 14:245 Je '19

**Standard recommended practice for Portland cement stucco.** *diags Eng & Contr* 52:251-2 Ag 27 '19

**Stucco and timber house in the Middle West.** *Il diags plans Bldg Age* 40:354-7 JI '18

**Stucco coated cottage.** *Il plans Bldg Age* 40:91-2 F '18

**Stucco-coated house.** *Il diags plans Bldg Age* 40:323-5 JI '18

**Stucco coated house with an interesting floor plan.** *Il diags plans Bldg Age* 40:125-8 Mr '18

**Stucco house showing popular western tendencies.** *plans Bldg Age* 41:94 Mr '19

**Stucco overcoating.** Concrete 12:121-2 Ap '18

**Stuccoing machine with whirling spider device.** *Il Eng & Contr* 49:93 Ja 30 '18

**Use of magnesite in building construction.** *Il Am Arch* 114:438-43 O 9 '18

*See also* Cement

**Testing**

- Review of stucco tests of Bureau of standards.** J. C. Pearson. Eng & Contr 50:387 O 23 '18; Summary. Concrete 13:51 Ag '18

**Students' army training corps.** See United States—Army—Students' army training corps

**Studio buildings**

- Apartment studio building, no. 200 West 57th street; views and plans.** Am Arch 113:38, 41, pl 17-27 Ja 9 '18
- Rodin studio apartments, 57th street and 7th avenue, New York city; views and plan.** Arch & Bldg 49:pl 179-81 D '17

**Stumps.** See Clearing of land

**Submarine bases**

- Attack on Zeebrugge and Ostend; brilliant bottling-up expedition against the German submarine bases.** *Il maps Sci Am* 118:433+ My 11 '18

**Submarine boat corporation**

- Intensive training of shipyard labor.** H. H. Tukey. *Il Ind Management* 57:452-6 Je '19

**Submarine boats**

- Abolish the submarine.** Sci Am 119:452 D 7 '18
- Argument for the submarine.** Sci Am 121:224 S 6 '19

**Below deck on a U-boat.** W. O. Rogers. *Il Power* 49:784-7 My 20 '19

**Early attempts at submarine building.** H. H. Manchester. *Il diag plan Am Mach* 48:1081-5 Je 27 '18

**Future of the submarine.** Engineer 127:179-80 F 21 '19

**Future of the submarine.** Sci Am 121:200 Ag 30 '19

**German submarine designs.** Sci Am S 86:218-19 O 5 '18

**Is the German U-boat an American invention?** Sci Am 117:450 D 15 '17

**K class of submarines.** Engineer 127:173-4 F 21 '19

**Latest German submarines are small cruisers.** Mach 24:886 Je '18

**Submarine boats—Continued**

- Notes on the operation of submarine Diesel engines. F. C. Sherman. Power 47:708-10 My 14 '18  
 Peace conference and the submarine. Sci Am 120:136 F 15 '19  
 Salvaging submarine. H. Daniel. Il Sci Am 121:154-5+ Ag 16 '19  
 Submarine; modern development of an old invention. M. F. Hay. Sci Am S 85:50-1 Ja 26 '18  
 Submarine situation. C. H. Claudy. Il Sci Am 120:198-9 Mr 1 '19  
 Submersible cargo vessels. Sci Am S 85:381 Je 15 '18  
 Tosi Diesel engines for submarines. diag Mech Eng 41:699-700 Ag '19  
*See also* Submarine warfare

**Electric equipment**

- Electrical equipment on submarines. Il diag Int Marine Eng 24:762-4 N '19  
 Electrical equipment used on submarines. H. C. Coleman. Il diag Elec J 16:295-9 Jl '19

**Testing**

- German submarine dry dock and testing tank. Il Sci Am 120:661 Je 21 '19  
 Submarine cables. *See* Cables, Submarine

**Submarine chasers**

- Building the Ford submarine-chaser Eagle. Il Int Marine Eng 24:23-7 Ja '19  
 Crankcases for sub chaser engines are molded and cast. H. C. Estep. Il Foundry 46:244-7 Je '18; Same. Iron Tr R 63:139-42 Jl 18 '18  
 Eagle boats by new Ford methods. Il Automotive Ind 39:136-7 Jl 25 '18  
 Ford eagles. Il Sci Am 120:257 Mr 15 '19  
 Ford methods in ship manufacture. F. E. Rogers. Il plan Ind Management 57:1-6, 119-24, 289-95, 456-64; 58:3-11 Ja-F, Ap, Je-Jl '19  
 Great submarine-chaser factory produces Eagles by indoor shipbuilding system. Il diag Eng N 81:698-702 O 17 '18; Same. Am Mach 49:841-4 N 7 '18; Same abr. Int Marine Eng 23:702-5 D '18  
 Heat treating sub-chaser parts. L. A. Danse. Il Iron Tr R 62:1421-3 Je 6 '18  
 Italian submarine chasers. Il Engineer 124:566 D 23 '17  
 Manufacturing Eagles at Ford shipyard. C. Lundberg. Il Iron Age 102:679-84 S 19 '18  
 Shipbuilding methods of the Eagle chaser factory. Il diag plan Eng N 81:788-95 O 31 '18  
 Sub chaser. Sci Am 121:369 O 11 '19  
 United States 110-foot submarine chasers. R. P. Sanborn. Il diag plans Int Marine Eng 24:337-43 My '19

**Submarine detectors**

- Development of submarine detector and some of its exploits. B. S. Beach. Il chart Elec R 74:500-5 Mr 29 '19  
 General electric company in the great world war. J. R. Hewett. Gen Elec R 22:602-3 Ag '19  
 Hunting submarines with a sound detector. B. S. Beach. Il chart Sci Am 120:335+ Ap 5 '19  
 Hydrophone for locating submarines. Il diag Sci Am 120:229 Mr 8 '19  
 Problems of the vessel operator. J. C. McLennan. Marine R 49:466 O '19  
 Submarine range-finding by means of reflected sound waves. Il diag Sci Am 120:67+ Ja 25 '19  
 Trailing an enemy's submarine. Il diag J Elec 42:534-5 Je 1 '19

**Submarine mines. *See* Mines, Submarine****Submarine warfare**

- American mystery ships. E. A. Dime. Sci Am 120:600+ Je 7 '19  
 Decoy ships for submarines. Il Sci Am 120:77+ Ja 25 '19  
 Eight months of U-boat warfare. L. M. Pasano. Int Marine Eng 23:114-16 Mr '18  
 Safety zone for the submarine; is it better to face the gun than the depth bomb? P. A. Hislam. Sci Am 119:9 Jl 6 '18

- Science and its application to marine problems. J. C. McLennan. Engineer 128:67-8, 92 Jl 18-25 '19  
 Submarine; modern development of an old invention. M. F. Hay. Sci Am S 85:50-1 Ja 26 '18

*See also* Mines, Submarine; Submarine boats; Submarine chasers

**Protective devices**

- Anti-submarine barrage. Sci Am 118:354 Ap 20 '18  
 Anti-U-boat operations of the French navy. Il Sci Am 119:333+ O 26 '18  
 British close the North sea. map Sci Am 118:501 Je 1 '18  
 Closing the North sea. Sci Am 118:496 Je 1 '18  
 Curved or S courses, a protection against torpedo and gunfire. diag Sci Am 120:72-3+ Ja 25 '19  
 Effect of mines and torpedoes on merchant ships. Engineer 125:247-8 Mr 22 '18  
 Effect of torpedo explosions on the structure of merchant ships; report of committee of the council of the Institution of naval architects. Int Marine Eng 23:275-6 My '18  
 Electrical means employed in the anti-submarine campaign. J. C. McLennan. Elec R 75:439-41 S 13 '19  
 Filming the sea with oil to beat the U-boat. D: F. Zook. Sci Am 118:167 F 23 '18  
 How the convoy system operated. H. C. Estep. Il Marine R 49:132-5 Mr '19  
 Ingenious ways of destroying U-boats. Il Sci Am 118:273 Mr 30 '18  
 Latest North sea mine field. map Sci Am 118:523 Je 8 '18  
 Offensive against the submarine, with annotations to the suggestions to inventors made by the Naval consulting board. J. A. Steinmetz. Am Soc M E J 40:220-4 Mr '18  
 Our shipping problem. H. Maxim. diag plan Sci Am 118:273 Mr 30 '18  
 Protection against the submarine. Il Sci Am 118:572+ Je 22 '18  
 Role of the kite-balloon in anti-submarine operations. R. W. Neeser. Il Sci Am 119:25+ Jl 13 '18  
 Ship within a ship. Il diag Sci Am 118:161 F 23 '18  
 Spraying smoke clouds out of sight; new method of dissipating steamer smoke in the submarine zone. Il diag Sci Am 119:65+ Jl 27 '18  
 Yarrow anti-submarine smoke system. Il diag Engineer 126:218-19 S 13 '18; Abstract. Am Soc M E J 40:960-1 N '18  
*See also* Camouflage; Submarine detectors
- Substations, Electric. *See* Electric substations**
- Substitutes**
- Finding substitute materials; why central stations should co-operate in solving the problems confronting many manufacturers. A. Schelble. Elec R 73:202-3 Ag 10 '18  
 German art of make, believe. Sci Am 120:169+ F 22 '19  
 German substitutes for cattle feed. Sci Am 118:313 Ap 6 '18  
 New German textile substitute; abstract. Am Soc M E J 40:pt 1, 581 Jl '18  
 New materials in the electrical industry in Germany; abstract. S. Frid. Elec W 72:561 S 21 '18  
 Substitute materials in electrical apparatus; abstract. Elec W 74:138 Jl 19 '19  
 Substitutes in the German electrical industry. Sci Am S 85:294-5 My 11 '18  
 Where substitutes save the day. Sci Am 118:146 F 16 '18  
*See also* Brass, Substitutes for; Butter, Substitutes for; Gasoline, Substitutes for; Leather, Substitutes for; Paper textiles; Platinum, Substitutes for; Platinum chloride, Substitutes for; Rubber, Substitutes for; Sugar, Substitutes for; Tin, Substitutes for
- Suburban homes**
- Selection of a site for a suburban development. Arch Forum 30:185-6 Je '19
- Subway cars. *See* Cars, Subway**

**Subway stations**

Architectural treatment of stations on the dual system of rapid transit in New York city. S. J. Vickers. *Il Arch Rec* 45:15-20 Ja '19

**Subways**

Completion of the Boston subway. *Il diag Ry R* 65:257-61 Ag 23 '19

Difficult subway work under land and water. *Il diag Sci Am* 119:209 S 14 '18

Features of New York city's new rapid transit system. R. Ridgway. *Il diags Boston Soc C E J* 5:193-225 My '18

New construction methods in subway work under Philadelphia City Hall. *Il diags plans maps Eng N* 83:300-9 Ag 14 '19

Pittsburgh plans subway. *Elec Ry J* 54:84 J 12 '19

Progress on subway construction. Madrid, Spain. *Il diags Ry R* 65:25-7 J 5 '19

Progress on the Boston subway. *Il Ry R* 61:781-5 D 29 '17

Report on Cleveland rapid transit recommends street-car loop subways. *maps Eng N* 83:170-3 J 24 '19

Six years of rapid-transit progress in New York. D. L. Turner. *diags maps Eng N* 82:865-9 My 1 '19

Solving construction problems in Canal street subway. A. J. Mayell. *Il diags plan Eng N* 82:650-2 Ap 3 '19

Subways in Madrid, Spain, nears completion. *Il diags Elec Ry J* 54:21-2 J 5 '19

Why London riders don't go astray underground. *maps Elec Ry J* 53:1104-5 Je 7 '19

*See also* Cars, Subway; New York (city)—Subways; Subway stations; Tunnels and tunneling; Twin Peaks tunnel

**Lighting**

Subway lighting for new Cleveland bridge. W. Harrison and E. A. Anderson. *Il Elec W* 74:513-15 S 6 '19

**Signals**

Blue lights and their significance in the New York subways. E. A. Porr. *Il diags Elec Ry J* 54:579-81 S 20 '19

**Ventilation**

Ventilation of subways and tunnels. M. Biraute. *Eng & Contr* 49:553-4 My 29 '18

**Subways (conduits)**

Construction of tunnels for light and power cables. G. B. Springer. *plan Elec R* 74:273-4 F 15 '19

**Subways (streets)**

Relieving arches in subway distribute stress to piers. *Il diags Eng N* 82:667-9 Ap 3 '19

**Success**

Efficiency and other factors for success. L. Witmer. *Eng & Contr* 51:196-8 F 19 '19

How to succeed. J. L. Bailey. *Gen Elec R* 21:383-4 My '18

Important but under-estimated asset. J. R. Ruckstell. *J Account* 26:343-8 N '18

Some of the whys of success and failure. H. L. Doherty. *Gas Age* 42:544-5 D 16 '18

*See also* Business

**Succinic acid**

Relations between distribution ratio, temperature and concentration in system: water, ether, succinic acid. G. S. Forbes and A. S. Coolidge. *Am Chem Soc J* 41:150-67 F '19

**Sucrose octanilate**

Nitration of sucrose: sucrose octanilate. E. J. Hoffman and V. P. Hawse. *Il Am Chem Soc J* 41:235-47 F '19

**Sudan grass**

African Sudan grass—the emergency war forage crop. L. L. DeBra. *Il Sci Am* 118:525 Je 8 '18

**Sudbury, Ontario**

Genesis of the Sudbury nickel-copper ores as indicated by recent explorations. H. M. Roberts and R. D. Longyear. *Il diags maps Am Inst Min E Bul* 134:555-84 F '18; Discussion. 138:848-58 Ap '18

Magmatic ore deposits. A. M. Bateman. *Econ Geol* 12:391-426 Ag '17; Discussion. W. H. Goodchild. 18:137-43 Mr '18

Platinum occurrence in Sudbury ores. *Eng & Min J* 105:835 My 4 '18

Quantitative measurements of minerals of the nickel-eruptive. M. A. Dresser. *Il diags Econ Geol* 12:568-80 O '17

**Sueding machine**

Sueding machine for finishing cloth used in imitation leather gloves. *Il Textile World* 55:3969 Je 28 '19

**Sugar**

Deterioration of manufactured cane sugar by molds. N. Kopeloff and L. Kopeloff. *J Ind & Eng Chem* 11:845-50 S '19

Deterioration of raw cane sugar: a problem in food conservation. C. A. Browne. *Il J Ind & Eng Chem* 10:178-90 Mr '18

Fourteen pounds of sugar out of ten. J. J. Willaman. *Sci Am* 119:130 Ag 17 '18

Industrial and agricultural chemistry in British Guiana; with a review of the work of Professor J. B. Harrison. C. A. Browne. *J Ind & Eng Chem* 11:874-7 S '19

Nitration of sucrose: sucrose octanilate. E. J. Hoffman and V. P. Hawse. *Il Am Chem Soc J* 41:235-47 F '19

Plant of value as a source of food and industrial raw material. *Il Sci Am S* 88:60-1 J 26 '19

Sugar from several points of view. G. Martineau. *Sci Am S* 87:154-5 Mr 8 '19

Valuation of raw sugars. W. D. Horne. *J Ind & Eng Chem* 10:809-12 O '18

*See also* Beets and beet sugar; Glucose; Maltose; Maple sugar; Sirups; Sorghum; Sugar cane; Sugars

**Analysis and testing**

New Baumé scale for sugar solutions. F. J. Bates and H. W. Bearce. *U S Bur Stand Tech Pa* 115:1-11 '18

Polariscope situation and the need of an international saccharimetric scale. C. A. Browne. *J Ind & Eng Chem* 10:916-18 N '18

**Manufacture**

Complete electrification of sugar mills. C. G. Hadley. *Il Elec W* 72:1022-4 N 30 '18

Economy of electric drive in cane sugar mills. C. A. Kelsey. *Il Gen Elec R* 21:252-68 Ap '18

Electricity in beet-sugar factories. E. M. Ellis. *Il Gen Elec R* 21:188-95 Mr '18

Operating features of an electrically driven sugar mill. F. A. Ortiz. *Il Elec R* 72:369-71 Mr 2 '18

Role of oxidases and of iron in the color changes of sugar cane juice. F. W. Zerban. *J Ind & Eng Chem* 10:814-17 O '18

Seeding method of graining sugar. H. E. Zitzkowski. *J Ind & Eng Chem* 10:992-4 D '18

Sugar making in Cuba. *Il Sci Am S* 86:120-1 Ag 24 '18

Theory and practice in the design of multiple evaporators for sugar factories. A. L. Webre. *diags J Ind & Eng Chem* 10:191-8 Mr '18

**Sugar, Substitutes for**

Saccharin as a sugar substitute. *Sci Am S* 85:229 Ap 13 '18

**Sugar beet. See Beets and beet sugar****Sugar cane**

Cane by-products in Natal. *J Ind & Eng Chem* 10:745 S '18

Color changes of sugar-cane juice and the nature of cane tannin. F. W. Zerban. *J Ind & Eng Chem* 11:1034-6 N '19

Composition and calorific value of sirups and molasses derived from sugar cane. C. A. Browne. *Am Chem Soc J* 41:1432-40 S '19

Sugar cane paper for fighting weeds. *Il Sci Am* 118:358 Ap 20 '18

**Sugar industry and trade**

Beet sugar in Utah and Idaho. *Chem & Met Eng* 20:560-1 Je 1 '19

Cuba's sugar cane railways a large market. J. P. Risque. *Il Ry Age* 67:787-90, 829-32, 871-3 O 17-31 '19

Exportation of refined sugar from U.S. *Chem & Met Eng* 21:363 S 15 '19

Sugar accounting. W. T. Woodbridge. *J Account* 25:255-8 Ap '18

**Sugar industry and trade—Continued**

**Sugar industry in India.** Sci Am S 85:64 Ja 26 '18

See also Holly sugar corporation

**Sugar machinery**

Automatic speed control for sugar centrals. II

Elec R 72:487-8 Mr 16 '18

Heavy machinery necessary for sugar making.

F. A. Stanley. II diags Am Mach 50:97-9 Ja 16 '19

See also Sugar—Manufacture

**Sugars**

American sources of supply for the various sugars. C. S. Hudson. J Ind & Eng Chem 10:176-8 Mr '18

Crystallography and optical properties of three aldopentoses. E. T. Wherry. diags Am Chem Soc J 40:1852-8 D '18

Cuprous chloride-iodine method for reducing sugars simplified. F. M. Scales. J Ind & Eng Chem 11:747-50 Ag '19

Retardation by sugars of diffusion of acids in gels. E. A. Graham and H. T. Graham. Am Chem Soc J 40:1900-17 D '18

Volumetric determination of reducing sugars. W. B. Clark. Am Chem Soc J 40:1759-72 D '18

See also Fructose; Glucose; Maltose; Sugar

**Suggestion systems**

Getting employees to make suggestions; Denver tramway suggestion campaign. Elec Ry J 50:1156-8 D 29 '17

Getting our men to give us their ideas. E. A. Hunger. II Factory 20:625-8 Ap '18

How to keep suggestions coming. G. S. Small. II Factory 22:1178-80 Je '19

Keeping alive the suggestion system. Factory 21:326+, 560+, 684+, 1148+; 22:1218+; 23:370+, 1156+ Ag-O, D '18, Je, Ag, N '19

Solving the labor problem. K. H. Condit. Am Mach 51:301-4 Ag 14 '19

Why the shop suggestion system. H. W. Kimball. Ind Management 57:415-16 My '19

Sulfate process. See Paper making and trade

**Sulfides**

Oxidation of sulfides with potassium iodate. R. S. Dean. Am Chem Soc J 40:619-20 Ap '18

Relation of sphalerite to other sulphides in ores. L. P. Teas. II Am Inst Min E Bul 131:1917-31 N '17; Discussion. 136:843-5 Ap '18

Relation of sulphides to water level in Mexico. P. K. Lucke. diags Am Inst Min E Bul 138:1105-8 Je '18

**Sulfidizing**

Flotation of oxidized ores of lead. G. L. Allen. flow sheet Chem & Met Eng 20:169-75 F 15 '19

**Sulfite acid liquor**

Production of sulphite acid liquor; patent. diags Met & Chem Eng 18:154-5 F 1 '18

Sulfite process. See Paper making and trade

Sulfite turpentine. See Spruce turpentine

**Sulfo-calcic solution**

Sulpho-calcic solution for grapevine parasites. Sci Am S 86:171 S 14 '18

**Sulfonation**

Sulphonation of aromatic hydrocarbons; patents. Chem & Met Eng 20:596 Je 1 '19

**Sulfur**

American sulphur industry expanding. II Chem & Met Eng 20:186-8 F 15 '19

Condition of Bordeaux market for sulphur. Eng & Min J 107:909 My 24 '19

Decision on Frasch patents on sulphur mining. H. Mock and A. Blum. Chem & Met Eng 20:637-8 Je 15 '19

Effect of sulfur in coal used in ceramic industries. C. W. Parmelee. Am Inst Min Bul 153:1845-50 S '19

Emergency grouting with sulphur. C. E. Holley. Eng & Min J 107:279 F 8 '19

Equilibrium between carbon monoxide, carbon dioxide, sulfur dioxide and free sulfur. J. B. Ferguson. diags Am Chem Soc J 40:1626-44 N '18

Equilibrium in the reaction between water and sulfur at high temperatures; the dissociation of hydrogen sulfide. M. Randall and F. R. v. Bichowsky. diags Am Chem Soc J 40:368-75 F '18

Equilibrium in the reaction between water and sulfur at the boiling point of sulfur. G. N. Lewis and M. Randall. diags Am Chem Soc J 40:362-7 F '18

Feld process for recovery of sulphur. diags Gas Age 42:198-9 S 2 '18

Flotation and retorting of sulphur. P. F. Junehomme. diags Eng & Min J 107:1124 Je 28 '19

Forms in which sulfur occurs in coal. A. R. Powell and S. W. Parr. diags Am Inst Min Bul 153:2041-9 S '19

Frasch sulfur mining process decision. J Ind & Eng Chem 11:374-5 Ap '19

Geographic distribution of sulfur in West Virginia coal beds. I. C. White. maps Am Inst Min Bul 153:2197-2206 S '19

Given process for sulphur removal restores oxide. Am Gas Eng J 107:519 D 8 '17

Gulf Coast domes in relation to the sulphur supply. K. Thomas. Eng & Min J 106:7 J 6 '18

High sulphur is not so bad as it is painted. T. Mauland. Foundry 46:84 F '18

Novel method for treating sulphur ore. K. Thomas. Chem & Met Eng 20:261 Mr 15 '19

Occurrence and origin of finely disseminated sulfur compounds in coal. R. Thiessen. II Am Inst Min Bul 153:sup2431-44 S '19; Same. Coal Age 16:668-73 O 23 '19

Operations and properties of the Texas gulf sulphur company. II Eng & Min J 107:555-7 Mr 29 '19

Our sulphur supply. Eng & Min J 106:422-3 Ag 31 '18

Preliminary study of reversible reactions of sulfur compounds. G. N. Lewis, M. Randall and F. R. v. Bichowsky. Am Chem Soc J 40:356-62 F '18

Pyrites, sulphur, and sulphuric acid. Eng & Min J 107:130-1 Ja 11 '19

Reclaim the sulphur. Coal Age 14:230-1 Ag 1 '18

Relation of sulfur to American independence. Sci Am 118:462 My 18 '18

Relation of sulphur to the overpoling of copper. S. Skowronski. II Am Inst Min E Bul 135:651-6 Mr '18; Discussion. 140:1156-8; 143:1637-8 Ag, N '18

Removal of sulphur from illuminating gas. W. W. Odell and W. A. Dunkley. Am Gas Eng J 111:362 O 18 '19

Review of the exploration at Belle Isle, Louisiana. A. F. Lucas. diags map Am Inst Min E Bul 129:1435-47 S '17; Discussion. 133:88-92 Ja '18

Sanni sulphur mine. G. de P. Cotter. Engineer 128:358 O 10 '19

Situation in regard to manganese, sulphur, pyrite, and some other war minerals; with discussion. J. E. Johnson, Jr. Eng Soc W Pa 33:452-5 Ja '18

Standardization of the sulfur boiling point. U S Bur Stand Sci Pa 339:163-84 '19; Same. Am Chem Soc J 41:745-63 My '19

Studies on the bacterial metabolism of sulfur; formation of hydrogen sulfide from certain sulfur compounds by yeast-like fungi. F. W. Tanner. Am Chem Soc J 40:663-9 Ap '18

Sulphur controversy. Eng & Min J 106:421 Ag 31 '18

Sulphur deposits in Culberson county, Texas. W. B. Phillips. diags Am Inst Min E Bul 129:1449-66 S '17; Abstract. Eng & Min J 104:644-5 O 13 '17; Discussion. Am Inst Min E Bul 133:70-1 Ja '18

Sulphur deposits of the Trans-Pecos region, in Texas. K. Thomas. II map Eng & Min J 106:979-81 D 7 '18

Sulphur dyestuffs. J. F. Springer. Color Tr J 4:54-7, 123-6 Mr, My '19

Sulfur in coal, geological aspects. G. H. Ashley. Am Inst Min Bul 153:2073-9 S '19

Sulphur in James canyon, New Mexico. P. S. Smith. Eng & Min J 106:449 S 7 '18

Sulfur in producer gas. F. Crabtree and A. R. Powell. Am Inst Min Bul 153:sup2657-92 S '19

**Sulfur—Continued**

- Sulphur in steel castings. Iron Age 101:757-8 Mr 21 '18; Discussion. G. Muntz. 101:918 Ap 4 '18
- Sulfur in the coking process. S. W. Parr. Am Inst Min Bul 153:1807-9 S '19
- Sulphur mining in Mexico. T. Paredes. Eng & Min J 106:253 Ag 10 '18
- Sulphur monopoly and sulphuric acid in Georgia. Chem & Met Eng 19:173 Ag 15 '18
- Sulphur, pyrite and sulphuric acid in 1917. Eng & Min J 105:973-4 My 25 '18
- Sulphur trade of Norway. Eng & Min J 108:366 Ag 30 '19
- Where shall we get sulfur? H. Howard. Sci Am 118:70 Ja 19 '18
- Analysis**
- Determination of sulphur in alloy steels. C. P. Laister. Iron Age 101:1093 Ap 25 '18
- Determination of sulphur in coal. E. M. Chance. Coal Age 13:920-1 My 18 '18
- Estimation of sulfates in a concentrated electrolyte and the determination of sulfur in foods. V. K. Kriebel and A. W. Mangum. Am Chem Soc J 41:1317-28 S '19
- Improved method of sulphur analysis. F. G. Hawley. Eng & Min J 105:385-6 F 23 '18
- Method for bringing elementary sulfur into solution for analysis. A. P. Ejerregaard. J Ind & Eng Chem 11:1055 N '19
- Modified Benedict method for the estimation of sulfur in feeds, feces and foods. J. O. Halverson. Am Chem Soc J 41:1494-1503 O '19
- Phillips neutroscope or apparatus for simplifying sulphur analyses. diag Iron Age 103:957 Ap 10 '19
- Results of further coöperative work on the determination of sulfur in pyrite check sample no. 4. H. C. Moore. J Ind & Eng Chem 11:45-9 Ja '19
- Standard apparatus for the determination of sulfur in iron and steel by the evolution method. H. B. Pulsifer. II diag J Ind & Eng Chem 10:545-50 Jl '18
- Sulphur and copper oxide determination. C. G. Maier. Eng & Min J 105:372-3 F 23 '18
- Volumetric determination of free sulfur in soft rubber compounds. H. S. Upton. J Ind & Eng Chem 10:518-20 Jl '18
- Sulfur burner**
- Down-draft sulphur burner; patent. diag Chem & Met Eng 20:647-8 Je 15 '19
- Sulfur dioxide**
- American smelting & refining company's smoke investigations. Met & Chem Eng 17:682-3 D 15 '17
- Analysis of sulphur burner gases; abstract. F. M. Williams. Met & Chem Eng 18:314 Mr 15 '18
- Depolarization by sulphur dioxide. M. D. Thompson and A. P. Sullivan. Met & Chem Eng 18:178-9 F 15 '18
- Depolarization by sulphur dioxide; patent. Chem & Met Eng 19:338 S 15 '18
- Determination of sulphur dioxide. O. R. Sweeney, H. E. Outcault and J. R. Withrow. J Ind & Eng Chem 9:949-50 O '17; Same cond. Eng & Min J 105:162-3 Ja 19 '18
- Direct determination of sulphur dioxide in burner gases. F. N. Williams. II Chem & Met Eng 19:390 S 25 '18
- Equilibrium between carbon monoxide, carbon dioxide, sulfur dioxide and free sulfur. J. B. Ferguson. diags Am Chem Soc J 40:1626-44 N '18
- Solubility of paraffins, aromatics, naphthenes and olefins in liquid sulphur dioxide. R. J. Moore, J. C. Morrell and G. Egloff. diag Met & Chem Eng 18:396-402 Ap 15 '18
- Sulphur dioxide method for determining copper minerals in partly oxidized ores. C. E. van Barneveld and E. S. Leaver. diag U S Bur Mines Tech Pa 198:1-12 '18; Same abr. Met & Chem Eng 18:203-6 F 15 '18
- Thermal dissociation of sulfur dioxide. J. B. Ferguson. Am Chem Soc J 41:69-72 Ja '19
- Use of army gas masks in atmospheres containing sulphur dioxide. A. C. Fieldner and S. H. Katz. II Chem & Met Eng 20:582-6 Je 1 '19; Excerpts. Eng & Min J 107:693-5 Ap 19 '19

**Sulfuric acid**

- Action of concentrated sulfuric acid on olefins, with particular reference to the refining of petroleum distillates. B. T. Brooks and I. Humphrey. Am Chem Soc J 40:822-56 My '18
- Avoidable waste in the production of sulfuric acid by the chamber process. A. E. Marshall. J Ind & Eng Chem 10:156 F '18
- Concentration of sulphuric acid; note. Sci Am S 86:239 O 12 '18
- Cottrell processes in the sulphuric acid industry. A. A. Heimrod and H. D. Egbert. II diags plan Chem & Met Eng 19:309-14 S 15 '18
- Denitration of sulphuric acid; patent. diag Chem & Met Eng 19:43 Jl 1 '18
- Erection of huge sulphuric, nitric, mixed acid and denitrating plant under wa pressure. H. E. Hollister and C. E. Hollister. II plan Chem & Met Eng 20:406-12 Ap 15 '19
- Free energy of dilution of sulfuric acid. M. Randall and O. E. Cushman. Am Chem Soc J 40:393-7 F '18
- Graphic method for fortification of the spent acids used in making nitrating mixed acids. D. Lopez and A. A. Swanson. charts Chem & Met Eng 19:816-21 D 15 '18
- How to conserve sulphuric acid and why. H. J. Broughton. Metal Ind 16:263-4 Je '18
- Increasing capacity of sulphuric acid plants; patent. Met & Chem Eng 18:316 Mr 15 '18
- Large-scale sulphuric acid manufacture. A. M. Fairlie. II Chem & Met Eng 19:404-8 S 25 '18
- Making the universal reagent. T. R. Horney. Sci Am S 87:370-1 Je 14 '19
- Our sulphur supply. Eng & Min J 106:422-3 Ag 31 '18
- Purification of sulphuric acid for storage batteries; abstract. Elec W 72:311 Ag 17 '18
- Pyrite deposits of Leadville, Colo. H. S. Lea. Am Inst Min E Bul 140:1223-8 Ag '18; Excerpts. Eng & Min J 106:384-5 Ag 31 '18
- Pyrites, sulphur, and sulphuric acid. Eng & Min J 107:130-1 Ja 11 '19
- Sulphur, pyrite and sulphuric acid in 1917. Eng & Min J 105:973-4 My 25 '18
- Sulphuric acid a martial indicator. Chem & Met Eng 19:388 S 25 '18
- Sulphuric acid in 1917. Eng & Min J 105:471 Mr 9 '18; Same cond. Met & Chem Eng 18:255 Mr 1 '18
- Sulfuric acid industry. C. J. Goodwin. J Ind & Eng Chem 10:751-2 S '18
- Sulfuric acid prices. Eng & Min J 105:59 Ja 12 '18
- Sulphuric acid situation in the United States. L. B. Skinner. Met & Chem Eng 18:82-5 Ja 15 '18
- Sulfuryl chlorides**
- Action of thionyl and sulfuryl chlorides on sulfur and phosphorus. H. B. North and J. C. Thomson. Am Chem Soc J 40:774-7 My '18
- Sulphur.** See Sulfur
- Sumac**
- American sumac: a valuable tanning material and dyestuff. F. P. Veltch and J. S. Rogers. II U S Agric Bul 706:1-12 '18
- Indian sumach. Sci Am S 85:135 Mr 2 '18
- Study of the oil from sumac (rhus glabra). H. W. Brubaker. J Ind & Eng Chem 11:950 O '19
- Sun**
- Chart for estimating change in declination of sun; explanation of chart used with meridiograph. Coal Age 13:943 My 18 '18
- Is the sun due to explode? B. O. Baxter. Sci Am S 85:137 Mr 2 '18
- Our sun and other sky-furnaces. C. N. Holmes. diag Sci Am S 85:133 Mr 2 '18
- See also Solar radiation
- Rotation**
- Sun's equatorial rotation. N. Johannsen. diags Sci Am S 86:44-5 Jl 20 '18
- Sun's position and rotation. F. R. Honey. Sci Am S 85:412-13 Je 29 '18

**Sun spots**

Changes in oceanic and atmospheric temperatures and their relation to changes in the sun's activity. F. Nansen. *Sci Am S* 86:42 JI 20 '18

Nature of sun-spots and studies of their life history. A. L. Cortie. *Il Sci Am S* 85:20-2 Ja 12 '18

Permanent periodicity in sun-spots. *Sci Am S* 85:288 My 4 '18

Solar surface. H. F. Newall. *Sci Am S* 86:95 Ag 10 '18

**Sundials**

Granite ball as a sun-dial. R. H. Moulton. *Il Arch Rec* 43:96 Ja '18

Sun dial and its significance. *Am Arch* 114:115 JI 24 '18

Sundial designs for products men. H. V. Walsh. *Il diag Concrete* 14:64-6 F '19

Tradesman makes sun dial for his lawn. *Il Metal Work* 92:223-4 Ag 23 '19

**Sunflowers**

Red sunflower. T. D. A. Cockerell. *Il Sci Am S* 86:72-3 Ag 3 '18

Sunflower. C. D. Mell. *Sci Am S* 85:411 Je 29 '18

**Sunken gardens**

Sunken garden in Brackenridge park, San Antonio, Texas. I. T. Frary. *Il Arch Rec* 45:185-7 F '19

**Sunlight**

Daylight vs. sunlight in sawtooth-roof construction. W. S. Brown. *diags Am Arch* 115:33-40 Ja 1 '19; Same cond. *Am Soc M E J* 40:1025-9 D '18; Same cond. *Eng & Contr* 51:82-5 Ja 22 '19

Effect of sunlight on air. W. J. Maurer. *Il Heat & Ven* 16:27-32 Mr '19

Planning sunlight cities. H. S. Swan and G. W. Tuttle. *diags Am Arch* 115:427-41 Mr 19 '19

Relation of sunlight to town planning. H. L. Seymour. *Eng & Contr* 51:483-4 My 7 '19; Excerpt. *Am Arch* 116:14 JI 2 '19

*See also Daylight*

**Sunset**

What is the time? J. A. Macdonald. *Sci Am* 119:31 JI 13 '18

**Superchargers. See Moss superchargers****Superheated steam**

Advantages of high pressure and superheat as affecting steam plant efficiency; abstracts. E. Berg. *diag Gen Elec R* 21:216-21 Mr '18; *Elec W* 72:56-8 JI 13 '18; *Am Soc M E J* 40:742-5 S '18; *Elec R* 73:444-7 S 21 '18; *Power* 48:832-5 D 10 '18; *W Soc E J* 23:408-17 Je '18

Alignment chart for finding the properties of saturated and superheated steam. C. E. Pearce. *chart Power* 50:224-7 Ag 5 '19

High pressure steam. E. C. Bowden-Smith. *Engineer* 125:96 F 1 '18; Discussion. 125:171, 193; 126:135, 166, 178, 217 F 22-Mr 1, Ag 16-30, S 13 '18

High pressure steam and high powers. *Engineer* 125:454-5 My 24 '18

Higher steam pressure and superheat. *Elec R* 73:452 S 21 '18

Properties of steam. A. J. Nicholson. *Engineer* 126:8 JI 5 '18; Discussion. F. B. Aspinall. 126:60 JI 19 '18

Superheated steam—why not? *Power* 50:23-4, 440, 475 JI 1, S 9-16 '19

Superheated v. saturated steam. E. W. Sergeant. *Engineer* 125:531 Je 21 '18

Temperature control for superheated steam; abstract. H. Huebner. *Am Soc M E J* 40:510-11 Je '18

Use of high-pressure and high-temperature steam in large power stations; discussion. *Inst E E J* 57:267-76 Mr '19

Uses of superheated steam. A. Bradley. *Power* 50:402-4 S 2 '19

When is steam superheated? *Engineer* 126:413 N 15 '18

**Superheaters**

Determination of superheater surface. C. H. Baker. *chart Power* 49:86-9 Ja 21 '19

Dravo superheater. *Il Power* 49:733 My 13 '19

Handling superheaters during the starting-up period. *Power* 50:592 N 22 '19

Superheater for stationary boilers. *Il diags Ry Mech Eng* 92:554-5 S '19

Superheater that can be applied to existing boilers. *Il diags Elec Ry J* 53:696 Ap 5 '19; *Power* 49:809-10 My 27 '19

Superheaters at British collieries. M. Meredith. *Coal Age* 16:267-8 Ag 14 '19

Superheaters on railway snow plows. *diags Ry R* 63:186-7 Ag 3 '18

*See also Locomotives—Superheaters; Superheated steam*

**Surface tension**

Determination of surface-tension. T. W. Richards and L. B. Coombs. *diag Sci Am S* 85:293 My 11 '18

Determination of surface tension (free surface energy), and the weight of falling drops: the surface tension of water and benzene by the capillary height method. W. D. Harkins and F. E. Brown. *Il Am Chem Soc J* 41:499-524 Ap '19

Some formulas concerning surface tension. A. C. Lunn. *Am Chem Soc J* 41:620-1 Ap '19

*See also Capillarity*

**Surfaces**

Surface having only a single side. C. Hering. *Il diags J Fr Inst* 186:233-41, 627-30 Ag, N '18; Same. *Sci Am S* 86:396-8 D 21 '18

**Surgery, Military**

Operating room that flies to the battlefield. F. Honoré. *Il Sci Am* 120:313 Mr 29 '19

Remarkable progress in war surgery. *Sci Am S* 86:3 JI 6 '18

Surgery by mathematical formula. R. G. Skerrett. *Il Sci Am* 118:545+ Je 15 '18

*See also Artificial limbs; Foreign bodies (surgery); Surgical dressings*

**Surgical dressings**

Are you collecting sphagnum? G. E. Nichols. *Il diags Sci Am S* 86:308-11 N 16 '18

Drafting-room junk for the Red cross. *Sci Am* 118:121 F 2 '18

**Surgical instruments**

Further advance in mechanical surgery. F. Honoré. *Il Sci Am* 119:85 JI 13 '18

Metal aids for the wounded. F. J. Koch. *Il Metal Ind* 15:344-6 Ag '17

Our growing trade in dental and surgical instruments. *Sci Am* 119:34 JI 13 '18

Re-nickelling of surgical instruments. J. Haas, Jr. *Metal Ind* 17:364-5 Ag '19

*See also Splints (surgery)*

**Survey markers**

Charcoal evidence of corners as set by U.S. surveyors. A. S. Doty. *Eng & Contr* 50:565 D 18 '18

Government monuments and their recovery. R. Harvey. *Eng & Contr* 51:693-4 Je 25 '19

**Surveying**

Angles to the right a useful surveying method. H. H. Armsby. *Eng N* 80:626-7 Mr 28 '18

Chart for laying out curves by tangent offset. P. R. Keller. *Eng & Contr* 49:341 Ap 3 '18

Common surveying and engineers' unrest. C. T. Johnston. *Eng N* 83:94-5 JI 10 '19

Field methods on rapid stadia surveys at Columbus. H. K. Kistler. *diags Eng N* 82:776-7 Ap 17 '19

Good way to make a rough survey. J. H. Sawkins. *diag Coal Age* 16:529 S 25 '19

Laying out grades for steam return lines, water piping and drainage. C. L. Hubbard. *Il diags Dom Eng* 89:5-8+ O 4 '19

Lines and grades in tunnels of small diameter. H. B. Pratt. *Il Boston Soc C E J* 4:385-8 N '17; Same. *Eng & Contr* 48:508 D 19 '17

Plane-table surveys advocated for drainage work. L. H. Williams. *Eng N* 80:416-17 F 28 '18

Reference maps more accessible with new numbering. O. E. Stanley. *map Eng N* 82:911 My 8 '19

Special stadia methods used in Florida. A. D. Cunningham. *Eng N* 82:1177 Je 12 '19

Special targets facilitate survey of flood works. R. C. Chaney. *Il Eng N* 83:768 O 23 '19

**Surveying—Continued**

Survey methods used on the Wilson avenue tunnel, Chicago, Ill. H. W. Clausen. *Il diags maps W Soc E J 22:491-503 S '17*; Excerpt (Methods of underground survey). *Eng & Contr 48:513-14 D 19 '17*  
 Traversing by a thirty-five minute angle method. J. H. Sawkins. *diag Eng N 83: 373 Ag 21 '19*; Discussion. *83:580-1, 772, 828-9 S 18, O 23, 30 '19*

*See also* Levelling; Mine surveying; Photographic surveying; Railroad surveying; Roads—Location; Topographical surveying

**Cost**

Cost of surveys for federal aid roads project in Kansas. E. L. Hageman. *Eng & Contr 52: 265-6 S 3 '19*

**Records**

Land-survey indexing plan for county surveyors. K. Q. Volk. *Eng N 83:283 Ag 7 '19*  
**Surveying, Magnetic.** *See* Magnetic surveying  
**Surveying, Photographic.** *See* Photographic surveying  
**Surveying, Topographical.** *See* Topographical surveying

**Surveying instruments**

*See* Plane tables; Steel tape; Transit, Surveyors'

**Surveyors****Licenses**

License surveyors in Texas. J. T. Robinson. *Eng N 83:315 Ag 14 '19*

**Surveyors' transit.** *See* Transit, Surveyors'

**Surveys**

Regional surveys—their aim and importance in war and in peace. C. G. La Farge. *Am Inst Arch J 6:402-4 Ag '18*

**Suspension bridges.** *See* Bridges, Suspension

**Suspensions**

Relation between intensity of Tyndall beam and size of particles. R. C. Tolman and others. *Il Am Chem Soc J 41:575-87 Ap '19*

**Swampscott, Massachusetts**

Voice of the sea. L. Jeffers. *Il Sci Am 120: 70-1+ Ja 25 '19*

**Sweaters**

New slip-over sweater. *Il Textile World 56: 361+ J1 19 '19*  
 Popular knitted sweater. *diag Textile World 55:2211+ Ap 12 '19*  
 Sweater changes; knit goods men hear government suggestions. *Textile World 54: 563+ Ag 3 '18*  
 Sweater conservation; tentative program places restrictions on production. *Textile World 54:1722 O 12 '18*  
 Sweaters have spasmodic year. *Textile World 55:457 Ja 11 '19*  
 Sweaters well sold during year. *Textile World 53:3156+ Ja 12 '18*

**Sweden****Commerce**

Exports to Sweden; procedure to be followed by exporters of textiles. *Textile World 54: 1639 O 5 '18*

**Industries and resources**

Utilization of manganese ores. J. Harden. *Met & Chem Eng 17:701-4 D 15 '17*; Same abr. *Iron Age 101:938-40 Ap 11 '18*

**Railroads**

*See* Railroads—Sweden

**Sweepers**

New broomless sweeper. *Il Textile World 54: 949 Ag 31 '18*

**Sweepers, Motor.** *See* Street cleaning apparatus, Motor

**Sweepings**

Definition of sweepings as related to the metal trade. *Metal Ind 15:71 F '17*

**Sweet potatoes**

Sweet potatoes the year round. *Sci Am 121: 272 S 13 '19*

**Swimming pools**

Chlorination of swimming pool water. C. G. Gillespie. *Munic Eng 56:231-2 Je '19*

**Expansion joints in concrete swimming pools.** *Am Arch 113:694 My 22 '18*

How to heat a swimming pool. *diag plan Dom Eng 87:428 Je 7 '19*

How to heat the water in a swimming pool. *diags Dom Eng 85:167-8 N 2 '18*

Keeping swimming pools pure and wholesome. *Metal Work 90:553-5, 656-8, 709-11; 91:86-7 N 15, D 13, 27 '18, Ja 17 '19*

**Large outdoor swimming pool built in circular form.** C. E. Bliss. *Il diag Eng N 80: 997-8 My 23 '18*

**Large rustic swimming pools constructed at small cost.** *Il diags Munic Eng 53:132-3 O '17*; Same. *Bldg Age 40:38-9 Ja '18*

**Largest swimming and skating pool in the United States.** *Munic Eng 57:207-9 N '19*

**New outdoor swimming pool at Cincinnati will accommodate 4,000 bathers at one time.** *Il Eng & Contr 51:506 My 14 '19*

**Outdoor swimming pools in Chicago parks.** *Il Metal Work 91:458 Ap 11 '19*

**Reinforced-concrete swimming tank was carefully designed.** E. M. Beanfield. *Il diags Eng N 82:195-6 Ja 23 '19*

**Sanitary control of swimming pools.** S. D. Gage. *diags Boston Soc C E J 5:229-62*; Discussion. *262-98 Je '18*

**Swimming pool.** *Am Arch 114:351-5, 410-14 S 18, O 2 '18*

**Swimming pools for public schools.** C. E. Dobbin. *Il diags plans Am Arch 115:319-28 F 26 '19*

**Swimming tank on third floor of concrete building.** L. R. Viterbo. *diag plan Eng N 83:135-6 J1 17 '19*; Discussion. *83:436-7 Ag 28 '19*

**Unique experience in swimming pools.** *diag Am Inst Arch J 7:463 O '19*

**Unusual outdoor swimming pool, Wheeling, W. Va.** *Il Dom Eng 82:89+ Ja 19 '18*

**Bibliography**

**Swimming pool sanitation and construction.** R. Canavan. *Boston Soc C E J 5:298-306 Je '18*

**Swine**

Aids to economical pork production. W. J. Carmichael. *Il Am Lumberman 2246:58 Je 1 '18*

**Baltimore adopts feeding for disposal of garbage.** W. E. Lee. *Munic Eng 56:96-8 Mr '19*; Same cond. *Eng N 82:287-9 F 6 '19*; Same cond. *Eng & Contr 51:253-9 Mr 12 '19*; Abstract. *Munic J 46:220-1 Mr 22 '19*

**Feeding city garbage to hogs; information and instructions furnished by the U.S. Department of agriculture.** *diags plans Munic J 44:206-8 Mr 9 '18*

**Feeding garbage to hogs; discussion by federal officials, meat packers and others.** Chicago, Dec. 7, 1917; abstracts. *Eng N 79: 1222 D 27 '17*; *Munic J 44:163-4 F 23 '18*

**Garbage disposal by feeding successfully practiced at Lansing, Michigan.** E. C. W. Schubel. *Il Munic Eng 57:23-5 J1 '19*

**Garbage disposal by feeding to hogs.** *Eng & Contr 50:550 D 11 '18*

**Hog feeding in Worcester, Mass.** *Munic J 44:164-5 F 23 '18*

**Hogs and the war.** *Il Sci Am 118:428+ My 11 '18*

**Turning garbage into dollars; advantages of hog raising.** *Munic J 44:394-5 My 11 '18*

**Wichita, Kansas, shares profits from feeding garbage to hogs.** *Eng N 80:1180-2 Je 20 '18*

**Swine houses**

**Building a modern hog house with six pens.** J. Upton. *plan Bldg Age 40:161 Mr '18*

**Portable hog house.** *diags Am Lumberman 2235:34 Mr 16 '18*

**Practical winter hog house.** *diag plan Am Lumberman 2262:44 S 21 '18*

**Winter hog house.** *Il diag plan Am Lumberman 2242:50 My 4 '18*

**Swing bridges.** *See* Drawbridges

- Swings**  
Scrap lumber can be used to build a swing. W. S. Wilkin. *diags Bldg Age* 40:220 Ap '18
- Switchboards**  
Actual installation cost of inexpensive switchboard. *il Elec W* 72:557 S 21 '18  
Compressed air for cleaning switchboards. *Elec R* 72:847 My 18 '18  
Controlling the propulsion of the New Mexico. H. F. Harvey, Jr. *il diags Gen Elec R* 22:272-92 Ap '19  
Emergency lighting switchboard. F. W. Schneider. *diag Power* 50:348 Ag 26 '19  
Essential features of economical distribution switchboard design. B. J. Dillon. *Elec R* 73:782, 828-30 N 16-23 '18  
Improvements in benchboard design. *diags Elec R* 73:388 S 7 '18  
Layout of modern switch house. C. A. Corney. *il diags Elec W* 74:286-90 Ag 9 '19  
New design of safety panelboards and cabinets. *il Elec R* 75:716 O 25 '19  
Reducing the cost of industrial switchboards. *il Elec W* 72:400 Ag 31 '18  
Remodeling a poorly designed switchboard. J. J. Nolan. *diags plan Coal Age* 15:783 My 1 '19  
Remote control for theater lighting. *il diag Elec W* 74:747-9 O 4 '19  
Remote-control wiring plan for switchboards. K. B. Ayres. *diag Elec W* 73:180 Ja 25 '19  
Removable truck-type, safety-first switchboard unit for use in electric power plants. *Elec R* 73:786-7 N 16 '18; *Iron Tr R* 63:1070 N 7 '18; *Coal Age* 14:1166 D 26 '18; *Foundry* 46:592 D '18; *Power* 49:96-7 Ja 21 '19  
Simple design of three-phase plug board for laboratories. *diag Elec R* 71:987-8 D 8 '17  
Standardized flexible distributing systems in industrial plants. B. Jones. *il diags plans Gen Elec R* 21:285-99 Ap '18  
Switching panels of the skeleton design. *il Elec W* 73:132 Ja 18 '19  
Three different types of switchboard. J. J. Nolan. *diags Coal Age* 15:982-3 My 29 '19  
Using safety switches to add flexibility to switchboards. *il Elec R* 74:762-3 My 10 '19  
Westinghouse ready-to-wear switchboards for small installations. *il Coal Age* 15:323 F 13 '19
- Switches, Electric.** See Electric switches
- Switches, Railroad.** See Railroads—Switches, frogs, etc.
- Switching.** See Railroads—Switching
- Switzerland**  
Freedom of the Rhine. *Engineer* 126:154-5 Ag 23 '18; *Same. Sci Am S* 86:215 O 5 '18  
See also Railroads—Switzerland
- Commerce**
- Commercial laws of Switzerland. A. J. Wolfe. *bibliog U S Bur For & Dom Com* 150:1-52 '17  
Machine-tool market in Switzerland. S. Lam-bercier. *Am Mach* 48:584 Ap 4 '18  
Trade with Switzerland resumed. *Sci Am* 118:482 My 25 '18
- Industries and resources**
- Coal and electricity question in Switzerland. *Engineer* 125:24-5 Ja 11 '18  
Manufacture of machine tools. C. E. Carpenter. *Am Mach* 48:485-6 Mr 21 '18  
Swiss toolmakers becoming rich. D. J. O'Byone. *Am Mach* 48:832 My 16 '18  
See also Water power—Switzerland
- Sydney, Australia**
- Rapid transit**
- Taking care of downtown traffic. C. F. Dewey. *il diag Elec Ry J* 52:998-9 D 7 '18
- Syenite**  
Copper sulphides in syenite and pegmatite dikes; with discussion. D. H. McLaughlin. *Econ Geol* 14:403-10 Ag '19
- Symbiosis**  
Animal luminescence and symbiotic microbes. U. Pierantoni. *Sci Am S* 87:286-7 My 3 '19
- Review of mycology. P. Vuillemin. *Sci Am S* 86:223-4 O 5 '18
- Symbols**  
Factory nicknames that save time. H. H. Farquhar. *Factory* 23:50-3, 280-3 Jl-Ag '19  
Identification of bar steel. *Mach* 26:36-8 S '19  
Revised code of Bureau of yards and docks for design of reinforced concrete structures. *Eng & Contr* 49:499 My 23 '18  
Standard symbols in mechanics. J. T. Faig. *Am Soc M E J* 40:856 O '18  
Standard symbols prepared by Committee on technical nomenclature of the Society for the promotion of engineering education. C. W. Hunt. *Eng N* 79:1113-14 D 13 '17; *Same. Mach* 24:608 Mr '18
- Synagogues**  
B'nai Jeshurun synagogue, 88th street and West End avenue, New York city; views. *Arch & Bldg* 50:pl 123-4 Jl '18
- Synchronizing**  
Rotary synchronizers. *il Elec W* 71:1064 My 18 '18
- Synchroscope.** See Synchroscope
- Synchronous converters.** See Rotary converters
- Synchronous horsepower**  
Limitations in the use of term synchronous horsepower. F. Jeffrey. *Elec W* 74:521 S 6 '19
- Synchronous motors.** See Electric motors, Synchronous
- Synchroscope**  
Arc lamp used as a synchroscope. W. H. Moore. *diags Power* 49:940 Je 17 '19  
Checking synchrosopes for use in phasing out. C. O. von Dannenberg. *diag Elec W* 71:205 Ja 26 '18  
Don't take chances with the synchroscope. *Power* 49:650; 50:113, 234 Ap 29, Jl 15, Ag 5 '19  
Methods of synchronizing alternating-current machines. F. Gillooly. *diags Power* 50:456-9 S 16 '19  
Portable synchroscope for testing and phasing. *il diag Elec W* 70:1105 D 8 '17  
Synchroscope needle stuck. E. W. Miller. *Power* 47:271 F 19 '18
- Syndicalism**  
Conditions at Pittsburgh—the syndicalist. G. Smart. *Iron Age* 104:782-7 S 18 '19  
Your country and mine—the danger facing it. W. R. Moss. *Am Lumberman* 2318:46-7+ O 18 '19
- Syneresis**  
Vibration and syneresis of silicic acid gels. H. N. Holmes, W. E. Kaufmann and H. O. Nicholas. *Am Chem Soc J* 41:1329-36 S '19
- Syngentite.** See Potassium mono-calcium sulfate
- Synura**  
Microscopic organisms in drinking water. J. J. Schoonoven. *il Sci Am* 120:623 Je 14 '19
- Syracuse, New York**
- Sewerage**
- Syracuse tests two methods of sewage treatment. *Eng N* 79:1201-2 D 27 '17
- Syria**
- Antiquities**
- Syrian remains discovered in Rome; the sanctuary of Glonas on the Janiculum. N. Pascasio. *il Sci Am S* 85:212-13 Ap 6 '18
- Commerce**
- Machinery markets of Syria. *Engineer* 126:429-30 N 22 '18
- Syringic acid**  
Synthesis of certain substituted pyrogallol ethers, including a new acetophenetide derived from the ethyl ether of syringic acid. M. T. Bogert and J. Ehrlich. *Am Chem Soc J* 41:798-810 My '19
- Syrups.** See Sirups



## T

**Tabanuco.** See Gums and resins

**Tabernacles**

Framing details of Billy Sunday tabernacle built in Chicago. *Il diags plans Bldg Age* 40:329-31 *Jl* '18

**Tables.** See subdivision Tables, calculations, etc. under various subjects, e.g. Heating—Tables, calculations, etc.; Lighting—Tables, calculations, etc.

**Tabulating machines.** See Calculating machines

**Tachometers**

Centrifugal tachometers of the rotating pendulum type; abstract. *W. Wilkes. Elec W* 73:1177 *My* 31 '19

Centrifugal tachometers on the principle of the conical pendulum; abstract. *Il Mech Eng* 41:282-3 *Mr* '19

Electric speed indicators. *V: H. Todd. Il Power* 50:421-2 *S* 9 '19

Home-made tachometer. *D. James. diags Power* 49:326 *Mr* 4 '19

Portable hand tachometer with uniform scale. *Il Iron Age* 103:755 *Mr* 20 '19

Van Sicklen chronometric tachometer. *F. J. Feely. Il Aviation* 7:187-8 *S* 1 '19

Van Sicklen chronometric temperature-corrected tachometer. *Automotive Ind* 40:1221 *Je* 5 '19

**Tacoma, Washington**

**Rapid transit**

Decision in Tacoma franchise test case. *Elec Ry J* 51:936-7 *My* 11 '18

Franchise relief refused. *Elec Ry J* 51:587 *Mr* 23 '18

Safety cars lighten Tacoma's burden. *Il Elec Ry J* 52:553 *S* 28 '18

Status of franchises. *Elec Ry J* 51:629 *Mr* 30 '18

**Tactics**

From the trenches to open warfare; how the Von Hutler method of attack broke the deadlock on the western front. *Il Sci Am* 118:68-9+ *Jl* 27 '18

See also Military art and science

**Taft-Peirce company**

Training the woman war worker. *E: K. Hammond. Il Mach* 25:15-17 *S* '18

**Tailings**

Air lift for handling tailings. *H. A. Campbell. diag Eng & Min J* 106:1177 *Je* 29 '18

Defining tailings and residues. *A. W. Allen. Eng & Min J* 107:317 *F* 15 '19

Filter adjustments at Packard mill at Rochester, Nevada. *F. D. Bradley. diags Eng & Min J* 106:207-9 *Ag* 3 '18

Legal aspect of tailings disposal. *C. C. Sherlock. Eng & Min J* 107:1080-1 *Je* 21 '19

Recovery of Comstock tailings from Carson river. *L: H. Eddy. Il diag Eng & Min J* 104:1124-5 *D* 29 '17

Re-treating zinc tailings in Wisconsin. *W. F. Boericke. diags plans Eng & Min J* 107:524-7 *Mr* 22 '19

Tailing excavator at the plant of the New Cornelia copper co., Ajo, Ariz. *F. Moeller. Il Am Inst Min E Bul* 140:1229-34 *Ag* '18; Discussion. 143:1670-2 *N* '18

Utah copper tailings pond. map *Chem & Met Eng* 21:223 *S* 1 '19

Wind protection for sand dumps. *Eng & Min J* 106:914 *My* 18 '18

**Talbot, Arthur N., 1857-**

Elected president of the American society of civil engineers. *por Eng N* 80:138 *Ja* 17 '18

**Talc**

Talc and soapstone in 1918. *Eng & Min J* 107:126 *Ja* 11 '19

Talc mining in Vermont. *R. B. Ladoo. flow sheet U S Bur Mines* 15p *S* '19 (Typew)

Vermont talc. *Sci Am* 121:406+ *O* 18 '19

**Talcott, Andrew, 1796-1882**

United States engineer officer who located the Mexican railway. *E. Low. Eng N* 81:552 *S* 19 '18

Talking pictures. See Moving and talking pictures

**Tamarind**

*Tamarindus indica* L. *C. D. Mell. Il Sci Am S* 86:117 *Ag* 24 '18

**Tamil language**

Antiquity of the Tamil speech. *J. Lazarus. Sci Am S* 87:238 *Ap* 12 '19

**Tampa, Florida**

**Rapid transit**

Less fuel, less personnel, more business since the coming of the safety car. *Il Elec Ry J* 52:561-3 *S* 28 '18

**Tamping machines**

Compacting concrete by tamping plums with pneumatic hammers. *Il Eng N* 81:731-2 *O* 17 '18

Comparative costs and results of hand and machine tamping of ties. *G. W. Vaughan. Eng & Contr* 50:359-60 *O* 16 '18

Hand tamps preferred for field work. *A. S. Bent. Concrete* 14:197 *My* '19

Mechanical tampers in mine track work. *H. L. Hicks. Il Eng & Min J* 105:1048-9 *Je* 8 '18

Pneumatic tamping in pipe manufacture. *Il diags Concrete* 14:69-70 *F* '19

Various uses of the tamping outfits. *W. P. Burn. Eng & Contr* 52:219-20 *Ag* 20 '19

**Tank cars**

Advantages of tank car shipments of asphalt. *C: E. Murphy. Il Eng & Contr* 52:160-1 *Ag* 6 '19

Report of the committee of the American railroad association on tank cars. *Ry R* 64:984-5 *Je* 28 '19

Report of the M. C. B. tank car committee. *diags Ry Age* 64:1505-8 *Je* 21 '18

Specifications for plates for forge-welding in tank car construction. *diags Ry Mech Eng* 93:477-8 *Ag* '19

Tank car. *E. S. Way. Ry R* 61:801-3 *D* 29 '17; Same cond. *Ry Mech Eng* 92:97-9 *F* '18

Tank car maintenance problem. *P. Bateman. diags Mech Eng* 41:817-19 *O* '19; Same. *Ry R* 65:677-9 *N* 8 '19

**Tank ships**

Modified design of standard tanker. *diags Int Marine Eng* 23:412-15 *Jl* '18

Oil tank steamer of 10,100 tons d.w. *diag plans Int Marine Eng* 24:196-8 *Ap* '19

Oil tanker of 10,000 tons deadweight adopted as standard by shipping board. *Il diags plans Int Marine Eng* 23:107-13 *Mr* '18

Precaution against fire on a Diesel-engined ship. *Z. W. Wickes. Int Marine Eng* 23:137 *Mr* '18; Discussion. *T. O. Lisle. 23:309 My* '18

Salvage of the German tanker Gut Heil. *R. G. Skerrett. Il Int Marine Eng* 23:345-7 *Je* '18

Shallow draft motorships for use on the Volga river designed by American naval architect for Russian owners. *diags plans (supp) Int Marine Eng* 23:9-11 *Ja* '18

Standard 7,500-ton oil tanker. *diag (supp) plans Int Marine Eng* 24:198 *Ap* '19

Successful handling of a difficult salvage task; how the tanker Gut Heil was rolled over and refloated. *Il Sci Am* 118:128-9 *F* 9 '18

Tank steamer construction. *R. W. Morrell. Int Marine Eng* 23:78-83 *F* '18

**Tanks**

Capacity of cylindrical tanks. *Motor Age* 35:51 *Je* 12 '19

Charts give contents of cylindrical tanks. *E. E. Glass. Eng N* 81:642 *O* 3 '18

Designation of bumped heads. *diags Locomotive* 32:14-16 *Ja* '18

Figuring tank capacity. *Motor Age* 34:32 *N* 21; 34 *D* 19 '18

Finding contents of cylindrical tanks. *diag chart Mach* 24:644, 900, 1027 *Mr, Je-Jl* '18

Finding the contents of a horizontal cylindrical tank. *F. Szabo. chart Power* 48:266-7 *Ag* 20 '18

Government examination questions for sheet metal workers. *W. S. Grove. diags Metal Work* 90:247-8 *Ag* 30 '18

**Tanks—Continued**

- High tanks loaded on scow and moved across Lake Michigan. E. Dauenhauer. *Il Eng N* 80:50-1 Ja 3 '18
- Making sheet metal tank lining. *diags Metal Work* 91:269 F 28 '19
- Smothering a fire beneath a combustible blanket. *diag Sci Am* 121:38-1 JI 12 '19
- Volumes of cylindrical tanks. M. W. Ward. *Power* 48:159-60 JI 30 '18
- War tank from sheet metal shop. *diags Metal Work* 92:362 S 26 '19
- See also* Dipping vats; Gas holders; Gas tanks; Imhoff tanks; Septic tanks; Sewage tanks; Tank cars; Tank ships; Water tanks

**Tanks, Concrete**

- Acid proofing concrete tanks. *Concrete* 12:147-8 Ap '18
- Concrete fuel-oil tank design and construction. H. B. Andrews. *Eng N* 83:322-3 Ag 14 '19; Same. *Eng & Contr* 52:254-5 Ag 27 '19
- Concrete in bleach houses. *diags Textile World* 54:1439-4 S 28 '18
- Concrete oil storage tanks for industrial plants. J. E. Freeman. *Il diags plans Concrete* 13:141-3 N '18
- Concrete storage structures for oil. *Concrete* 15:170-1 O '19
- Concrete tanks and reservoirs for oils. W. T. Straus. *Concrete* 14:154 Ap '19
- Concrete tanks for oil storage. T. Moore; M. O. Straus. *Concrete* 14:235-6 Je '19
- Design and construction features of concrete oil storage tanks. C. W. Van Dyke. *Il diag Eng & Contr* 51:304-5 Mr 26 '19
- Fire hazards met in storage of fuel oil. J. W. Lord. *Eng N* 83:415-16 Ag 28 '19
- How to build a double wall cooling tank. *Concrete* 13:65-6 Ag '18
- Oil storage tanks. *Concrete* 15:44-5 JI '19
- Storage tanks made of reinforced concrete. F. W. Frerichs. *Il diags plan Chem & Met Eng* 20:234-6 Mr 1 '19
- Storage tanks of reinforced concrete for ammoniacal liquors. F. W. Frerichs. *diags plan Concrete* 14:151-4 Ap '19
- Tests of concrete tanks for oil storage. J. C. Pearson and G. A. Smith. *Eng N* 83:16 JI 3 '19

*See also* Water towers, Concrete

**Tanks (military). See Tractors, Military****Tanks, Sewage. See Imhoff tanks; Septic tanks; Sewage tanks****Tanks, Steel**

- Moving three large steel tanks 150 miles by water. A. J. Taylor. *Il Eng N* 83:226-7 JI 31 '19
- Rapid forming of steel tank noses. *diags Iron Tr R* 65:286-7 JI 31 '19; *Iron Age* 104:508 Ag 21 '19
- Steel tanks transported by water. *Il Sci Am* 121:445 N 1 '19

**Failures**

- Details of the failure of a 90-foot molasses tank. B. S. Brown. *Il diags plan Eng N* 82:974-6 My 15 '19
- Disastrous explosion of a tank of molasses. *Il Sci Am* 120:99 F 1 '19
- Reporters' chemistry. *Sci Am* 120:252 Mr 15 '19

**Tanks (tractors). See Tractors, Military****Tannin**

- Color changes of sugar-cane juice and the nature of cane tannin. F. W. Zerban. *J Ind & Eng Chem* 11:1034-6 N '19
- Tannin content of redwood. C. C. Scallone and D. R. Merrill. *J Ind & Eng Chem* 11:643-4 JI '19

**Tanning**

- American sumac: a valuable tanning material and dyestuff. F. P. Veitch and J. S. Rogers. *Il U S Agric Bul* 706:1-12 '18
- Chrome tanning. *J Ind & Eng Chem* 10:746 S '18
- Dyeing and tanning of leather. J. Helfrich. *Il Color Tr J* 5:134-7 N '19
- How leather is prepared from hides. *Il Sci Am S* 88:56-7 JI 26 '19

- Leather dyeing. L. G. Hayes. *Color Tr J* 5:108-15 O '19
- Rapid and ultra-rapid tanning. N. Flamel. *Sci Am S* 86:410-11 D 28 '18
- Tanning and coloring of leather. J. Helfrich. *Color Tr J* 5:72-4 S '19
- Tanning by means of chromium salts. *Automotive Ind* 39:331 Ag 23 '18
- Tanning compound; patent. *Met & Chem Eng* 18:317 Mr 15 '18
- Tanning materials of Latin America. T. H. Norton. *Il map U S Bur For & Dom Com* 165:1-32 '18
- Waste paper mill bark as a source of tanning. *Sci Am* 120:680 Je 28 '19

*See also* Leather

**Tantiron**

- Acid-resisting iron. *Sci Am S* 87:340-1 My 31 '19

**Tape, Steel. See Steel tape****Tape measures**

- Dies for tape-measure winder. *Il diag Mach* 25:46-8 S '18

**Tapers**

- Intersection of tapers. V. E. Ayre. *diag Mach* 26:267 N '19
- Special taper attachment for engine lathe. O. F. Warhus. *diags Am Mach* 51:131-2 JI 17 '19
- Standards for large taper shanks and sockets. L. D. Burlingame. *diag Am Soc M E J* 40:1014-16 D '18; Same. *Iron Age* 103:297-9 Ja 30 '19; Same. *Am Mach* 50:537-40 Mr 20 '19
- Taper-boring tool for a turret lathe. W. H. Addis. *diags Am Mach* 51:383 Ag 21 '19

**Tapestry**

- Architecture in tapestry. P. Ackerman. *Il Arch Rec* 44:477-9 N '18
- Tapestry. *Am Arch* 116:416 S 24 '19
- Tapestry and architecture. E. S. Parker. *Am Arch* 114:168-4 Ag 7 '18

**Tapping machines**

- Automatic tapping machine for pipe fittings. J. H. Vincent. *Il diag Am Mach* 50:797-8 Ap 24 '19
- Bicknell-Thomas tapping machine. *Il Am Mach* 50:912 My 8 '19
- Fosdick upright drilling and tapping machine. *Il Iron Age* 104:564 Ag 28 '19
- Obtaining good results in tapping. H. E. Harris. *Mach* 24:1103 Ag '18
- Power water main tapping machine successfully employed in Chicago. *Il Munic Eng* 55:179 N '18
- Small motor-driven drilling machine used for tapping. F. S. Kingston. *Am Mach* 48:958 Je 6 '18
- Tapping and assembling operations in a drilling machine. D. A. Hampson. *diags Mach* 25:315-16 D '18
- Universal tapping machine. *Il Mach* 24:959-60 Je '18; *Am Mach* 48:934 My 30 '18

**Taps**

- Drill sizes for taps. *Motor Age* 34:29 Ag 15 '18
- Experience with U. S. S. and Whitworth taps and dies. C. K. Chapin. *Am Mach* 48:242 F 7 '18
- Hand tapping device. H. Jaynes. *diag Am Mach* 48:163 Ja 24 '18
- Inspection limits for taps and drills. *Mach* 24:551 F '18
- Making a set of roughing taps for Acme thread. A. Lindner. *diags Am Mach* 51:456 S 4 '19
- Salvaging spoiled work. P. F. O'Shea. *Il Am Mach* 50:804-5 Ap 24 '19
- Special-purpose tap. A. Kirby. *diag Am Mach* 50:450 Mr 6 '19
- Special tools for facing and tapping. C. H. Dengler. *diags Mach* 25:1080-1 JI '19
- Tapping fixture for pipe fittings. H. J. Ventner. *Il Am Mach* 50:171 Ja 23 '19
- Taps and dies for production work. G. Doorakkers. *diags Engineer* 126:151-2, 186-7 Ag 23-30 '18
- Victor adjustable and collapsible hand sizing taps. *Il Mach* 25:77 S '18

*See also* Screw machines

**Tar**

- Asphalts and tars in surface treatment. R. G. Tyler. *Texas U Bul* 1735:22-34 Je 20 '17

**Tar—Continued**

- Determining water content in tar. diags Gas Age 41:519-20 Je 1 '18  
 Development in maintenance and repair by tar products. J: S. Crandell. Eng N 82:132-3 Ja 16 '19  
 English and American practice in the construction of tar surfaces and pavements. A. H. Blanchard. Il Munic J 44:448-6, 466-7 Je 1-8 '18; Same. Good Roads n s 15:281-3-4 Je 8 '18; Excerpt. Eng & Contr 50:142-4 Ag 7 '18  
 Heavy oil burning arrangement for motor cars. diags Engineer 126:227-8 S 13 '18  
 Road tar. Gas Age 44:207 S 1 '19  
 Stills for light oil recovery can be used in part as dehydrators for crude tar. H: C. Adams. Am Gas Eng J 111:6-7 Jl 5 '19  
 Tar oils for use in internal-combustion engines. A. V. Clark. Power 47:856 Je 11 '18  
 Treatment of tar in a mobile state. diag Gas Age 41:127 F 1 '18  
 Use of raw tars as fuel for Diesel engines. H. Moore. Sci Am S 38:270-1 N 8 '19  
*See also* Coal tar

**Tariff**

- Effect of changes in foreign tariffs on the American machine-tool industry. L. W. Schmidt. Am Mach 48:1047-9 Je 20 '18  
 English views on tariff; application to textile industry in after-the-war competition outlined. Textile World 54:48 Jl 6 '18  
 Foreign tariff. U S Bur For & Dom Com foreign tariff notes 27:67-124 '18  
 Import duties on American automotive products. Automotive Ind 41:328-9 Ag 14 '19  
 Tariff protection after the war. R. W. Austin. Textile World 53:5715-16 My 25 '18  
*See also* Drawbacks; Free harbors

**Australia**

- Customs tariff of Australia. L. Domeratsky. U S Bur For & Dom Com Tariff ser 37:1-90 '18

**Germany**

- Tariff relations between Germany and Russia (1890-1914). L. Domeratsky. bibliog U S Bur For & Dom Com Tariff ser 38:1-23 '18

**Russia**

- Tariff relations between Germany and Russia (1890-1914). L. Domeratsky. bibliog U S Bur For & Dom Com Tariff ser 38:1-23 '18

**United States**

- American chemical industries and the tariff commission. W: S. Culbertson. J Ind & Eng Chem 11:400-3 My '19  
 Dyes and other coal-tar chemicals. U S Tariff Comm 83p '18; Excerpt. Chem & Met Eng 20:70-2 Ja 15 '19  
 Dyes and tariff board. G. Jones. Textile World 53:3512a Ja 26 '18  
 Dyestuffs and the tariff. F. W. Taussig. Color Tr J 4:1-4 Ja '19  
 Government tariff aid. J. M. Matthews. Textile World 53:3453 Ja 26 '18  
 Hearings on dyestuff industry; opinions expressed on tariff and proposed licensing plan. Textile World 55:3829-30+ Je 21 '19  
 Magnesite tariff bill. P. Wooton. Eng & Min J 108:658 O 18 '19  
 New potash bill considered. P. Wooton. Eng & Min J 107:1093 Je 21 '19  
 Recommendations of the tariff commission regarding dyestuffs. G. Jones. Color Tr J 4:27-30 F '19  
 Tariff hearings on tungsten. Chem & Met Eng 21:62 Jl 15 '19  
 Tariff on tungsten sought. P. Wooton. Eng & Min J 107:1094 Je 21 '19  
 United States tariff commission and the metal industries. Eng & Min J 105:828 My 4 '18  
 Ways and means committee acts on tariff bills. Chem & Met Eng 21:120-1 Ag 1 '19  
 Zinc ores and the tariff. Chem & Met Eng 21:62-3 Jl 15 '19  
**Tartar emetic, Substitutes for**  
 Another bond broken. Sci Am 119:102 Ag 10 '18

**Tartaric acid**

- Optical method for the determination of malic and tartaric acids in the same solutions. J. J. Willaman. Am Chem Soc J 40:698-704 Ap '18

**Tartrates**

- Study of the test for tartrates depending upon the formation of the copper-tartrate complex. L. J. Curtman, A. Lewis and B. R. Harris. Am Chem Soc J 39:2623-80 D '17

**Task system. See Bonus system****Taste**

- Chemistry of flavoring matters. F. Barral and A. Ranc. Sci Am S 87:114-15, 134-5 F 22-Mr 1 '19  
 New theory relating constitution to taste. E. Oertly and R. G. Myers. Am Chem Soc J 41:855-67 Je '19  
 Palate of civilized man, and its influence on agriculture. D. Fairchild. Il Sci Am S 87:68-71 F 1 '19; Same. J Fr Inst 185:299-316 Mr '18  
 Taste as a chemical reaction. Sci Am 120:173 F 22 '19

**Taxation**

- Government ownership and war taxation. O. H. Kahn. Ry Age 65:882-6 N 15 sec 2 '18  
 Increasing municipal revenue. Munic J 46:127-30 F 15 '19  
 Principles of taxation. E. R. A. Seligman. Eng & Min J 107:574-5 Mr 29 '19  
*See also* Automobiles—Taxation; Excess profits tax; Forest taxation; Income tax; Mine taxation; Municipal finance; Single tax; Tariff; War revenue act, 1918; also subdivision Taxation under various subjects, e.g. Motor vehicles—Taxation, Public utilities—Taxation

**United States**

- Another tax law suggestion. L. J. Monahan. Iron Age 102:611 S 5 '18  
 Argument for changing common method of financing pavement construction and renewals. C: A. Mullen. Munic Eng 54:226-7 Je '18  
 Federal tax on timber stumpage. I. Skeels. Am Lumberman 2303:42-3 Jl 5 '19  
 Intangible values and war tax. C: W. McKay. Ind Management 55:129-33 F '18  
 Mr Kitchin's tax bill. Eng & Min J 106:506 S 14 '18  
 No abnormal tax increase from rapid transit in Philadelphia. map Elec Ry J 51:1196 Je 22 '18  
 Outgo, not an income tax; bill before the Ways and means committee of the House. Chem & Met Eng 19:541 O 1 '18  
 Proposed tapestries tax. Textile World 54:1591 O 5 '18  
 War problems of the steel trade; tax on sales. W: B. Dickson. Iron Age 102:1015-16 O 24 '18  
 War taxes and bond issues. W: B. Dickson. Iron Age 101:1610-11 Je 20 '18  
 What about your federal taxes? Factory 22:738+ Ap '19  
 Wheel taxes for road funds. Munic J 44:471-2 Je 8 '18

**Taxation of bonds, mortgages, etc.**

- Exempt interest on Liberty bonds. J: B. Niven. J Account 26:455-9 D '18

**Taylor, Bayard, 1825-**

- Sketch. H: L. Bullen. por Inland Ptr 62:285-6 D '18

**Taylor, Frederick W.**

- Supplement to Frederick W. Taylor's. On the art of cutting metals. C. G. Barth. diag Ind Management 58:169-75, 282-7 S-O '19 (to be cont)

**Taylor, Horace Frederick, 1871-**

- Buffalo lumberman. por Am Lumberman 2238:1 Ap 6 '18

**Taylor, Joseph W., 1862-1918**

- In memoriam—secretary of the Railway mechanical associations and the Western railway club. por Ry Mech Eng 92:245-6 My '18

**Taylor system. See Industrial management**

**Tea chests**

Tea-chest manufacture in India. Sci Am 118:396 Ap 27 '18

**Teaching**

Experiment in teaching. F. G. Higbee. Eng & Contr 50:326-7 O 2 '18

**Tebeldi**

Water tree of the Sudan. H. J. Shepstone. II Sci Am 121:260+ S 13 '19

**Technical association of the pulp and paper industry**

Paper associations joint convention. New York, Feb. 3-6. Chem & Met Eng 20:184-5 F 15 '19

**Technical chemistry. See Chemistry, Technical****Technical education**

Better co-operation between railways and technical schools is desirable. D. D. Ewing. Elec Ry J 51:423-4 Mr 2 '18

Courses to train technicians and mechanics for army service begun. Eng N 80:882-3 My 2 '18

Emergency technical education. Engineer 127:37-8 Ja 10 '19

Examinations in machine shop practice. B. A. Lanfest. Mach 24:844 My '18

Loughborough technical college. Engineer 127:183 F 21 '19

Teaching of natural science in Great Britain; excerpts from the report of a committee. Engineer 125:334-5 Ap 19 '18

Teaching pyrometry in our technical schools. G. V. Wendell. Am Inst Min Bul 153:2097-2106 S '19

Teaching pyrometry in technical schools. C. E. Mendenhall. Am Inst Min Bul 153:2143-5 S '19

Technical training. M. L. Requa. Eng & Min J 108:63-4 Ji 12 '19

War department committee appointed to systematize technical schooling. Eng & Contr 49:202 F 20 '18

*See also* Apprentices; Corporation schools; Correspondence schools and courses; Engineering education; Industrial education; Machine shop practice—Study and teaching; Mining schools and education; Plumbing—Study and teaching; Trade schools; Vocational education

**Technical literature**

International technical information service. K. C. Walker. Eng N 80:966-7 My 16 '18; Same. Met & Chem Eng 18:564 Je 1 '18

System of classification for aeronautical information. F. L. Faurote. II Automotive Ind 38:1223-7 Je 20 '18

*See also* Engineering literature; also subdivision Bibliography under technical subjects

**Bibliography**

Technical books for small and medium sized libraries. D. Hendry. Wis Lib Bul 15:46-52 F '19

**Technical periodicals**

Marine technical publications. Int Marine Eng 23:601 O '18

*See also* Chemistry—Periodicals; Engineering periodicals; Foundry (periodical); Trade papers

**Technical reading**

Technical reading and its advantages to ambitious employees. Iron Age 104:110 Ji 10 '19

Technical study and reading. J Elec 43:421-2 N 1 '19

**Technical terms**

Gentle art of terminizing. Sci Am 119:84 Ag 3 '18

**Technical writing**

Don'ts for would-be writers of scientific articles for the public press. E. E. Slosson. J Ind & Eng Chem 11:71-2 Ja '19

Engineer finds both direct and indirect advantages in technical writing. Eng N 83:527 S 11 '19

Preparation of technical papers. B. G. Lamme. Elec J 16:383-4 S '19

Writing for publication. J. M. Goodell. Am Water Works Assn J 5:398-400 D '18

**Technocracy—national industrial management.**

W: H: Smyth. Ind Management 57:208-12 Mr '19

Technocracy—ways and means to gain industrial democracy. W: H: Smyth. Ind Management 57:385-9 My '19

**Technology**

*See also* Building; Chemistry, Technical; Electric engineering; Engineering; Industrial arts; Industrial education; Inventions; Machinery; Manufactures; Metallurgy; Railroad engineering; Technical education; Technical terms; also names of specific industries, trades, etc., e.g. Paper making and trade, Plumbing trade, Printing trade

**Bibliography**

One thousand technical books; a selected list with annotations emphasizing especially elementary practical books. H. L. Cowing, comp. 123p '19 A. L. A. Publications of the Bureau of standards. U S Bur Stand Circ 24:1-149 '19

**Telaotograph**

Close control of steel processes. II Iron Age 103:1569-71 Je 12 '19

**Teleferica. See Cableways****Telegraph**

Annual report of the Telegraphy and telephony committee. Am Inst E E Pro 38:927-34 Ji '19

Census returns on the telegraph systems. Elec W 74:206 Ji 26 '19

Getting more messages over our wires. II Sci Am 120:50 Ja 18 '19

Ground telegraphy in the world war. W. L. Winter. diags J Elec 42:210-11 Mr 1 '19

Improvements in multiple telegraphy; abstract. Elec W 73:957 My 10 '19

Modus operandi of multiplex telephony and telegraphy. II diags Elec R 74:49-51 Ja 11 '19

Multiplex telephony successfully accomplished in long-distance service. T. N. Vail. Elec R 73:971-2 D 21 '18

Simultaneous telegraph and telephone communication; abstract. W: Maver, Jr. Elec W 71:941 My 4 '18

Telegraph and telephone systems taken over; President's proclamation and Postmaster General's statement. Ry R 63:143-4 Ji 27 '18; Same cond. Elec W 72:175 Ji 27 '18

Telegraph systems in the United States. S. L. Rogers. Elec R 75:143 Ji 26 '19

Telegraphs and telephones in the first year of war. J: V. L. Hogan. Elec W 71:352-3 F 16 '18

Telegraphy through the ground; abstracts. C: Nordmann. Elec W 71:628 Mr 23 '18; Sci Am 118:305 Ap 6 '18

*See also* Fullerphone; Wireless telegraph; also American telephone and telegraph company

**Government ownership**

Should the government own the telegraphs? C. H. Mackay. Eng & Min J 107:155-6 Ja 18 '19

**Telegraph, Wireless. See Wireless telegraph****Telegraph companies**

Comply with these stipulations and save money; attention to details will hold public service companies to account when loss is suffered through their negligence. E. J. Buckley. Metal Work 90:222-3 Ag 23 '18

**Telegraph lines**

Convention of the telegraph superintendents consider mailgram service, wire crossings and pole line construction. Ry Age 66:1542-4 Je 20 '19

**Telephone**

Annual report of the Telegraphy and telephony committee. Am Inst E E Pro 38:927-34 Ji '19

Applicability of automatic switching to all classes of telephone service. A. B. Smith. II diags Am Inst E E Pro 38:1335-68 D '19

**Telephone—Continued**

- Bell telephone engineers announce great invention the same day that Daniels and Burleson ask government ownership. Eng & Contr 50:582-3 D 25 '18
- Census bureau report shows gains made by telephone industry. Elec R 74:422 Mr 15 '19
- Circuits tested with telephone receivers. H. S. Rich. diag Elec W 74:530 S 6 '19
- Combination telephone system. F. Huskinson. II diag Coal Age 13:659 Ap 13 '18
- Crystals for sound amplification demonstrated. A. M. Nicholson; E. B. Craft. Elec R 74:954 Je 7 '19
- Determination of the electrical and acoustic characteristics of telephone receivers. L. V. King. biblog diags J Fr Inst 187:611-25 My '19
- Effects of changes in diaphragm on the characteristics of the telephone receiver; abstract. Elec W 70:1203 D 22 '17
- Electric heating in the telephone industry. II Elec R 73:666-7 O 26 '18
- Electromagnetic theory of the telephone receiver. A. E. Kennelly and H. Nukiyama. diags Am Inst E E Pro 38:491-538; Biblography. 538-9 Ap '19
- Getting more messages over our wires. II Sci Am 120:50 Ja 18 '19
- High frequency currents on wires; adapting radiotelephone and telegraph apparatus to multiplex operation. J. O. Mauborgne. J Fr Inst 188:91-3 Jl '19
- Improving telephone service. Am Arch 114:753 D 18 '18
- Improving telephone service. A. V. Shaw. Ind Management 56:509-10 D '18
- Magnavox anti-noise telephone. A. N. Clark. II J Elec 42:403-5 Ap 15 '19
- Modus operandi of multiplex telephony and telegraphy. II diags Elec R 74:49-51 Ja 11 '19
- Multiplex telephony successfully accomplished in long-distance service. T. N. Vail. Elec R 73:971-2 D 21 '18; Excerpt. Elec W 72:1186 D 21 '18
- New multiplex system of telephony. II Elec W 73:11-13 Ja 4 '19
- Power-house signal for telephone calls. J. W. Truesdell. diag Elec W 73:1392 Je 28 '19
- Principle of multiplex telephony. B. Gherardi. II J Elec 42:175 F 15 '19
- Progress of automatic telephony. Engineer 125:451-2 My 24 '18
- Romance of invention. C. H. Claudy. Sci Am 121:56 Jl 19 '19
- Simultaneous telegraph and telephone communications; abstract. W. Maver, jr. Elec W 71:941 My 4 '18
- Successful type of anti-noise transmitter and loud-speaking telephone. II Sci Am 120:579-4 My 31 '19
- Swinging telephone bracket made from pipe fittings. A. L. Renard. diag Coal Age 13:1185 Je 29 '18
- Telephone exchange by parcel post. II J Elec 43:261 S 15 '19
- Telephone exchange transfers and their organization. F. G. C. Baldwin. diags Inst E E J 56:390-410 Je '18; Abstract. Elec W 71:471 Mr 2 '18; Discussion. Inst E E J 56:410-35 Je '18
- Telephone repeaters. B. Gherardi and F. B. Jewett. II diags Am Inst E E Pro 38:1255-1313 N '19
- Telephone system of credit checks. C. Grunsky. II J Elec 42:152-3 F 15 '19
- Telephone that registers calls in one's absence. S. Hess. Sci Am 121:261+ S 13 '19
- Unification of the manual and automatic telephone systems. D. E. Wiseman. diags plan map Am Inst E E Pro 38:1011-26 Ag '19; Excerpts. J Elec 42:198-201 Mr 1 '19
- Use of the telephone for finding shorts in electric wiring. S. F. Walker. diags Int Marine Eng 23:85-6 F '18

See also Amplifiers; Mine telephones; Street railroads—Telephone service; Wireless telephone

**Government operation**

- Compensation by government for Bell telephone system. T. N. Vail. Elec W 72:882 N 9 '18

- Government adopts plan for compensating telephone companies. Elec R 73:578 O 12 '18
- Telegraph and telephone systems taken over; President's proclamation and Postmaster General's statement. Ry R 63:143-4 Jl 27 '18; Same cond. Elec W 72:175 Jl 27 '18
- Telegraphs and telephones in the first year of war. J. V. L. Hogan. Elec W 71:352-3 F 16 '18
- Telephone development during federal control. T. N. Vail. Elec W 74:187 Jl 26 '19

**Government ownership**

- Government-owned telephones in Tokyo ten years behind demands. Ry Age 64:917 Ap 5 sec 1 '18
- Position of the telephone during and after the war. T. N. Vail. Elec W 73:544 Mr 15 '19
- Should our government own the telephone and telegraph systems? A. S. Burleson. Eng & Contr 51:25-6 Ja 8 '19
- Some mistakes of Mr. Burleson in recommending government ownership of the wires. Eng & Contr 51:49-50 Ja 15 '19
- Telephone, Military. See Military telephone
- Telephone, Wireless. See Wireless telephone
- Telephone companies
- Pennsylvania supreme court makes important ruling on competitive utility service. Elec R 75:28 Jl 5 '19

**Accounting**

- Depreciation in telephone utilities. W. Kurtz. J Account 27:81-95 F '19

**Rates**

See Telephone rates

**War service**

- Bell telephone system. J. J. Carty. Elec R 72:874-5 My 25 '18
- Special telephone service extended to the government. Elec R 72:69-70 Ja 12 '18

**Telephone conduits**

- Conduit construction in telephone cable tunnels. II Elec R 75:301-3 Ag 23 '19
- Construction methods and equipment employed in construction of suburban telephone conduits. II Munic Eng 54:218-20 My 18
- Design and construction of the telephone and telegraph tunnel under the Chicago river at Harrison street. W. Artingstall. Munic Eng 57:58-9 Ag '19

**Telephone interference factor**

- Collection of data on telephone interference factor. Am Inst E E Pro 38:59-61 F '19 [sec 1]
- Review of work of sub-committee on wave shape standard of the standards committee. H. S. Osborne. II diags Am Inst E E Pro 38:1-28 Ja '19; Abstract. Elec W 73:425-6 Mr 1 '19

**Telephone lines**

- Design of transpositions for parallel power and telephone circuits. H. S. Osborne. diags Am Inst E E Pro 37:739-78 Jl '18; Abstract. Elec W 71:1373 Je 29 '18
- Interesting method of moving large number of poles. Elec R 75:838 N 15 '19
- New Haven installs lead-covered cable for dispatching circuits. Elec Ry J 52:626 O 5 '18
- Standardization of joint-pole practices. Elec W 72:400-1 Ag 31 '18
- Telephone circuits with zero mutual induction. W. W. Crawford. diags Am Inst E E Pro 38:377-405 Mr '19
- Telephone lines equipped to overcome interference. Elec W 73:794 Ap 19 '19
- Telephone tangles; some of the things that happen to the cables in a big city. II Sci Am 119:87+ Ag 3 '18
- Trolley spans for carrying telephone line. diag Elec R 73:703-4 N 2 '18
- Yoke to facilitate transposition when installing telephone lines. diags Elec R 73:141 Jl 27 '18

See also Telephone conduits

**Telephone rates**

- Fight in Massachusetts on new telephone rates. Elec W 73:285 F 8 '19  
Storm of protests against new telephone rates. Elec W 73:186-7 Ja 25 '19

**Telescope**

- Great Canadian reflecting telescope. Am Soc M E J 40:478 Je '18  
Home-made telescope. V. M. Gushee. Sci Am S 86:54-5 Jl 27 '18  
New form of mounting for large reflectors. R. W. Porter. Il diags plan Sci Am S 86:77 Ag 3 '18  
Single-lens telescope. J Fr Inst 185:705 My '18  
Telescopic eyepieces. Sci Am S 87:107 F 15 '19

*See also* Periscope

**Tellurium**

- Recovery of selenium and tellurium in copper refining. M. H. Merriss and H. T. Binder. Eng & Min J 106:443-5 S 7 '18  
Semi-rare metals; selenium and tellurium. Eng & Min J 105:194 Ja 26 '18  
Study of the preparation of certain organic salts of tellurium. A. M. Hageman. Am Chem Soc J 41:242-6 Mr '19

**Tellurium sulfide**

- Contribution to the chemistry of tellurium sulfide. A. M. Hageman. diag Am Chem Soc J 41:329-41 Mr '19

**Temperature**

- Concept of temperature. J. S. Ames. Am Inst Min Bul 153:sup2475-83 S '19  
Electric, open-hearth, and Bessemer steel temperatures. F. E. Bash. Am Inst Min Bul 153:1739-50 S '19  
Emissive powers and temperatures of non-black bodies. A. G. Worthing. Il diags Am Inst Min Bul 153:1895-1927 S '19  
Method for the determination of the relation between vapor pressures and their corresponding temperatures at pressures of less than five millimetres. W. R. Ham, J. C. Churchill and H. M. Ryder. Il diag J Fr Inst 186:15-28 Jl '18  
Proper temperatures for various rooms. Heat & Ven 16:68 Ja '19  
Slag viscosity tables for blast-furnace work. A. L. Felld and P. H. Royster. U S Bur Mines Tech Pa 187:1-35 '18; Abstracts. Am Inst Min E Bul 132:2029-36 D '17; Met & Chem Eng 18:652-3 Je 15 '18; Iron Tr R 64:271-2 Ja 23 '19; Discussion. Am Inst Min E Bul 136:791-4 Ap '18  
Temperature of steel and colors exposed to the sun. Eng & Contr 50:224-5 Ag 28 '18  
Temperature-viscosity relations in the ternary system CaO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>. A. L. Felld and P. H. Royster. diags U S Bur Mines Tech Pa 189:1-33 '18; Abstract. Am Inst Min E Bul 132:2037-43 D '17; Abstract. Met & Chem Eng 18:652-3 Je 15 '18  
Variation of Young's modulus with temperatures. H. L. Dodge. Chem & Met Eng 19:151 Ag 1 '18  
Viscosity of blast-furnace slag. A. L. Felld. Il diags Am Inst Min E Bul 122:307-32 F '17; Same cond. Iron Tr R 62:979-85 Ap 18 '18; Discussion. Am Inst Min E Bul 123:390-6; 124:473-9 Mr-Apr '17  
*See also* Atmospheric temperature; Boiling points; Concrete—Temperature; Earth temperature; Freezing points; Heat; Melting points; Ocean temperature; Thermostats

**Measurement**

- Automatic control and measurement of high temperatures. R. P. Brown. J Ind & Eng Chem 10:133-5 F '18; Same abr. Met & Chem Eng 17:691-2 D 15 '17; Same cond. Am Mach 48:157-9 Ja 24 '18; Same cond. Mach 24:512-14 F '18; Excerpts. Iron Age 100:1478-9 D 20 '17  
Brown temperature measuring instruments. Il Ind Management 55:153-4 F '18  
Checking stored-coal temperatures electrically. T. W. Poppe. diag plan Elec W 72:740 O 19 '18; Same. Power 48:674 N 5 '18  
Comparison of road subgrade and air temperatures. C. C. Wiley. Il Eng N 83:128-9 Jl 17 '19

- Determining the heat given off by engines and power piping. E. V. Hill and W. J. Mauer. Il diag plan Heat & Ven 15:18-24 Jl '18

- Devices and methods for measuring high and low temperatures with special reference to engineering problems. H. H. Albers. bibliog Il diags Stevens Ind 36:67-103 Ap '19  
Electric temperature indicator. V. H. Todd. Il diags Power 50:180-1 Jl 29 '19  
Measuring temperature in textile processes; possible to control, scientifically, process of pressing fabrics. W. Harrison. Textile World 53:6349+ Je 29 '18  
Measuring the temperature of gases in boiler settings. H. Kreislinger and J. F. Barkley. diags U S Bur Mines Bul 145:1-66 '18  
Power operated electrical instruments for measuring and controlling temperatures. Il Metal Ind 16:377 Ag '18; Ind Management 56:351-2 S '18  
Production of high temperature and its measurement. E. F. Northrup. Il diags Met & Chem Eng 17:685-9 D 15 '17; Abstract. Sci Am S 84:405 D 29 '17  
Pure normal temperature or normal temperature and standard temperature; abstract. F. Plato. Am Soc M E J 40:1054 D '18  
Standard scale of temperature. C. W. Waldner, E. F. Mueller and P. D. Fouts. Am Inst Min Bul 153:2051-63 S '19; Discussion. 156:3144-6 D '19  
Tables and curves for use in measuring temperatures with thermocouples. L. H. Adams. Am Inst Min Bul 153:2111-24 S '19  
Temperature determinations by eutectic alloys. C. P. Steinmetz. Am Chem Soc J 40:96-100 Ja '18; Excerpts. Met & Chem Eng 18:207-8 F 15 '18  
Temperature indicators for alternators. S. L. Henderson. Il diags Elec J 16:193-6 My '19  
Temperature of evaporation. W. H. Carrier. Am Soc Heat & V E 24:25-46; Discussion. 46-50 '18  
Testing of atmospheric conditions; description of apparatus. D. D. Kimball, J. I. Lyle and A. K. Ohmes. Il diags Am Soc Heat & V E 23:453-81 '17  
*See also* Calorimeters and calorimetry; Freezing points; Pyrometers and pyrometry; Radiometer; Thermocouples; Thermometers and thermometry

**Regulation**

- Apparatus for controlling furnace temperatures. diag Elec W 72:426 Ag 31 '18  
Automatic control and measurement of high temperatures. R. P. Brown. J Ind & Eng Chem 10:133-5 F '18; Same abr. Met & Chem Eng 17:691-2 D 15 '17; Same cond. Am Mach 48:157-9 Ja 24 '18; Same cond. Mach 24:512-14 F '18; Excerpts. Iron Age 100:1478-9 D 20 '17  
Automatic draft and temperature regulation a cure for fuel waste. Il Heat & Ven 15:70 S '18  
Automatic temperature control developed by Brown instrument co. Il diag Automotive Ind 41:118-19 Jl 17 '19  
Automatic temperature regulation as a fuel conservation measure. Heat & Ven 15:40-3 N '18; Same. Dom Eng 85:40-2 O 12 '18; Same. Metal Work 90:437-40 O 18 '18; Same cond. Power 48:610-11 O 22 '18; Excerpt. Ind Management 56:366 N '18  
Automatic temperature regulation for the individual duct system. diag Heat & Ven 16:47 Ag '19  
Battery-operated heat regulator for furnaces. Il Elec W 71:283 F 2 '18; Elec R 72:306-7 F 16 '18  
Care of pneumatic temperature regulation systems. K. Duff. Power 48:331-2 S 3 '18  
Constant temperature and humidity room for the testing of paper, textiles, etc. F. P. Veitch and E. O. Reed. Il diag J Ind & Eng Chem 10:38-44 Ja '18; Excerpt. Textile World 53:4237+ Mr 16 '18

**Temperature—Regulation—Continued**

- Contact-couple method of temperature control. F. F. Beall. *Mach* 24:614 Mr '18
- Electric room-heat regulator. *diag Elec R* 72:389 Mr 2 '18
- Fuel conservation by means of automatic temperature regulation. F. A. De Boos. *Heat & Ven* 16:48-9 F '19
- Fuel saving heating systems. A. G. King. *Dom Eng* 85:320-2 N 30 '18
- High-temperature control. C. O. Fairchild and P. D. Foote. *il diags Am Inst Min Bul* 153:1701-15 S '19
- Installation of automatic heat controlling devices. *Dom Eng* 85:2-4 O 5 '18
- New automatic temperature regulator for individual radiator control. *diags Heat & Ven* 16:57-8 My '19
- Operation of diaphragm radiator valves thermostatically controlled. F. A. De Boos. *charts diag plan Am Soc Heat & V E* 23:649-58 '17
- Power operated electrical instruments for measuring and controlling temperatures. *il Metal Ind* 16:377 Ag '18; *Ind Management* 56:251-2 S '18
- Pressure and temperature control in an office building supplied with steam from a central station. *diag Heat & Ven* 15:63-5 Je '18
- Temperature control in modern heating systems. C. L. Hubbard. *il diags Dom Eng* 84:40-2, 78-81 J1 13-20 '18
- Temperature indicating and controlling systems. F. D. Jones. *il diag Mach* 25:1015-23, 1138-45; 26:12-17 J1-S '19
- Thermostatic heat regulator for cars. *il Elec Ry J* 52:518 S 21 '18
- See also Thermostats*

**Temperature, Atmospheric. See Atmospheric temperature****Temperature, High**

- Comparison of high-temperature scales; abstract. E. P. Hyde and W. E. Forsythe. *Met & Chem Eng* 18:481 My 1 '18
- High temperature in engineering. *Sci Am S* 87:232-3 Ap 12 '19
- High temperature processes and products. C. R. Darling. *Engineer* 125:80, 118 Ja 25, F 8 '18
- Production of high temperature and its measurement. E. F. Northrup. *il diags Met & Chem Eng* 17:685-9 D 15 '17; *Abstract. Sci Am S* 84:405 D 29 '17

*See also Temperature—Regulation***Tempering**

- Effect of tempering on water-quenched gages; abstract. *Mech Eng* 41:280-1 Mr '19

**Templets**

- Details of anchor bolt templet for footings of columns. *diag plan Eng N* 82:589 Mr 20 '19
- Parrish templet or strikeoff. *il Eng & Contr* 49:102 Ja 30 '18
- Single templet for many curves. R. T. Brown. *diag Eng N* 80:278 F 7 '18
- Suspended templets and their application. T. Croft. *diags plan Power* 47:78-80 Ja 15 '18
- Templet used in clearing sand from irrigation canals. *Eng N* 83:800-1 O 30 '19
- Templet with adjustable edges strikes variable crown pavements. S. H. Lea. *diags Eng N* 81:465 S 5 '18
- Templet with saw teeth cuts off and finishes concrete surface. *il Eng N* 83:833-4 O 30 '19

**Tenants. See Landlord and tenant****Tenders, Locomotive. See Locomotive tenders****Tenement houses**

- Apartments for the workingman. *plans Metal Ind* 15:176 Ap '17
- Tenement house provisions for United States housing. *Am Arch* 114:572-3 N 13 '18
- Workingmen's houses in Italy. A. Melani. *il plans Arch Rec* 46:243-50 S '19
- See also Apartment houses; Housing problem*

**Tennessee****Industries and resources**

- Electrochemical industries. L. C. Glenn. *Met & Chem Eng* 18:455-6 My 1 '18
- See also Coal mines and mining—Tennessee; Mines and mineral resources—Tennessee*
- Tennessee (United States battleship)**
- Electric propelling machinery of the battleship Tennessee. W. H. Easton. *il diag Int Marine Eng* 24:490-3 J1 '19
- Tennessee copper and chemical corporation
- Report for 1917. *Eng & Min J* 106:104 J1 20 '18
- Tennis**
- Science of tennis. W. T. Tilden. *il Sci Am* 121:258-9 S 13 '19
- Tension devices (textile machinery)**
- Houghton yarn tension. *il Textile World* 53:2705 D 29 '17
- Tents**
- First aid to the circus. *il Sci Am* 118:136 F 9 '18
- Teredo. See Shipworms**
- Terminals**
- Analysis of freight movements at terminals. H. M. Harding. *plan Int Marine Eng* 24:88-9 F '19
- Army supply bases useful adjuncts to railroads. *il diags plan Ry Age* 66:1809-12 Je 27 '19
- Boston army supply base will be valuable permanent port terminal. *il diags Eng N* 81:522-6 S 19 '18
- Brooklyn army base is largest port terminal. *il diags plans Eng N* 82:317-23 F 13 '19
- Chicago terminal situation. E. J. Noonan. *map plans W Soc E J* 24:282-99 My '19; *Same abr. Ry R* 64:716-18, 774-6 My 17-24 '19; *Discussion. W Soc E J* 24:299-306 My '19
- Coming mechanical devices that will make ship-loading economical. *il Int Marine Eng* 24:415-18 Je '19
- Concrete in marine terminals. H. C. Campbell. *il Int Marine Eng* 23:220-4 Ap '18
- Freight handling at the Brooklyn army base. *il plan Eng N* 83:556-60 S 18 '19
- Handling freight on inland waterways. H. M. Harding. *il Int Marine Eng* 23:667-70 D '18
- Handling vegetable oils at Pacific coast port terminals. *il plan Eng N* 83:204-7 J1 31 '19
- Harbor facilities and development at Houston, Texas. *il diags plan Eng N* 83:156-9 J1 24 '19
- Marine terminal engineering. H. M. Harding. *Int Marine Eng* 23:225-8 Ap '18
- Marine terminal railway. H. M. Harding. *Int Marine Eng* 24:741-2 N '19
- Marine terminals and foreign commerce. H. M. Harding. *il Int Marine Eng* 24:149-51 Mr '19
- Marine terminals as municipal investments. H. M. Harding. *Int Marine Eng* 24:480-2 J1 '19
- Marine terminals for inland river cities located on high ground. H. M. Harding. *il Int Marine Eng* 23:479-81+ Ag '18
- Modern industrial plants; the great army supply bases and quartermasters' terminals of the U.S. government constructed along the eastern coast for war purposes. G. C. Nimmons. *il diags Arch Rec* 45:262-82 Mr '19
- Modern terminal. *il Sci Am* 121:390-1 O 18 '19
- Montauk terminal folly. *Sci Am* 121:276 S 20 '19
- Motor trucks and the problem of efficient marine freight terminal operation. M. C. Horine. *il Int Marine Eng* 24:518-24, 632-7, 696-703 Ag-O '19
- New ocean freight terminal started on Staten Island. *diags Eng N* 80:120-3 Ja 17 '18; *Discussion. F. E. Pratt.* 80:426-7 F 23 '18
- New York barge canal terminals. *Int Marine Eng* 23:305 My '18
- Norfolk & Western builds terminal piers at Norfolk. F. P. Turner. *il diags Eng N* 80:940-6 My 16 '18
- Port terminals for war transportation being built. *diags plans Eng N* 80:462-4 Mr 7 '18

**Terminals—Continued**

- Ports and terminal facilities. R. S. MacElwee. Sci Am S 86:82-3, 110-12 Ag 10-17 '18
- Revival of Mississippi river traffic. M. von Fagenhardt. II diag Int Marine Eng 24: 295-7 Ap '19
- Richborough transportation depot and train ferry terminus. II (supp) diag map plans Engineer 127:31-4, 36, 49-54, 76-9, 82, 102-4, 106 Ja 10-31 '19
- Seattle plans large extension to port facilities. Eng N 81:626-7 O 3 '18
- Shall we build our marine terminals for the future or for the past? J. A. Shepard. Int Marine Eng 24:622-4 S '19
- Terminal and warehouse facilities for the army. II Ry R 63:299-301 Ag 31 '18
- War emergency yard improvements; abstracts of report of committee on yards and terminals of the American railway engineering association. Ry R 62:372-9 Mr 16 '18; Eng N 80:561-2 Mr 21 '18
- Water terminals subject of federal report. Eng N 81:406-7 Ag 29 '18
- Yard tracks for Brooklyn army supply base. plan Ry R 64:609-11 Ap 26 '19
- See also Electric railroads—Terminals; Freight handling; Locomotive terminals; Ports; Railroads—Terminals
- Terminals, Locomotive. See Locomotive terminals
- Terminals, Railroad. See Railroads—Terminals
- Terne plate**  
Reduction of grades of terne plate. Metal Work 91:765-6 Je 13 '19
- See also Tin plate
- Terpenes**  
Synthesis of some homologs of the terpenes, derivatives of 1,4-diisopropyl cyclohexane. M. T. Bogert and C. P. Harris. diag Am Chem Soc J 41:1676-90 O '19
- Terra cotta**  
Bibliography  
Structural service department; brick, hollow tile, and architectural terra cotta. Am Inst Arch J 6:150-3 Mr '18
- Terraces (agriculture)**  
Masterpieces of primitive engineering. II Sci Am 118:225+ Mr 16 '18
- Terrazzo floors.** See Floors, Terrazzo
- Testing**  
Altitude engine test laboratory. P. M. Heldt. II diag plan Automotive Ind 40:535-9 Mr 6 '19
- Armour's special testing equipment. II diag Power 49:670-4 My 6 '19
- Car equipment service tests determine fitness of apparatus. C. W. Squier. II chart diag Elec Ry J 53:128-33 Ja '19
- Constant temperature and humidity room for the testing of paper, textiles, etc. F. P. Veltch and E. O. Reed. II diag J Ind & Eng Chem 10:38-44 Ja '18; Excerpt. Textile World 53:4237+ Mr 16 '18
- Industrial tests by Bureau of standards. II Automotive Ind 40:478-9 F 27 '19
- Laboratory testing as applied to the automotive industry. R. M. Anderson. Automobile 37:722-3+ O 25 '17
- Meeting of American society for testing materials, Atlantic City, N.J. Eng N 83:9-14 Jl 3 '19
- National proving house and standardising laboratory. R. Glazebrook. Engineer 125:202-3 Mr 8 '18
- Specifications and tests for materials; report of Master mechanics' association committee. II diag Ry Age 64:1489-92, 1519-22 Je 21 '18
- Structural service department; testing laboratories and inspection services. Am Inst Arch J 6:40-1 Ja '18
- Test without destruction as achieved by the permeameter. Sci Am 119:328 O 19 '18
- Testing organization of electric railways. H. L. Smith. II Elec Ry J 51:511-17 Mr 16 '18
- See also Automobile engines—Testing; Boilers—Testing; Bricks—Testing; Brinell hardness test; Cement—Testing; Coal testing; Concrete—Testing; Electric testing; Engineering laboratories; Extensometers;

Fuel—Testing; Gas and oil engines—Testing; Gas testing; Laboratories; Metals—Testing; Rails—Testing; Road materials—Testing; Sand—Testing; Searchlights—Testing; Steel—Testing; Strains and stresses; Strength of materials; Testing machines; United States—Standards, Bureau of

Testing, Electric. See Electric testing

**Testing machines**

- Coats lead testing machine. II Mach 24:1150 Ag '18
- Cylinder testing machine manufactured by the Federal products corporation. II Mach 26:282 N '19
- Determining the proportional limit. H. F. Moore. II Iron Tr R 62:327-8 Ja 31 '18
- Device for testing hardness of materials commercially. J. G. Ayers, jr. diag Mach 25: 292 D '18
- Eisler C. E. testall. II Am Mach 49:917-18 N 14 '18
- Elastic limit recorder. J. L. Jones and C. H. Marshall. Iron Age 102:391-2 Ag 15 '18; Same. Automotive Ind 39:287 Ag 15 '18; Abstract. Iron Tr R 62:842 O 10 '18
- Fatigue testing machine. F. M. Farmer. II diag plan Am Mach 51:271-3 Ag 7 '19
- Impact testing machine. H. S. Primrose and J. S. G. Primrose. II Engineer 125:485 My 17 '18
- Improved Brinell machine. II Iron Tr R 61: 500 S 6 '17; Ind Management 55:77-8 Ja '18
- Metal testing machines. II diag Metal Ind 15: 359 Ag '17
- Sheffield lead-testing machine. II Mach 24: 1155-6 Ag '18
- Testing machine for truck axles. L. L. Lee. II Am Mach 48:975 Je 6 '18
- Testing machines for grading abrasive wheels. J. H. Vincent. II Am Mach 51:177-9 Jl 24 '19
- Testing screw threads. diag Sci Am S 85: 380+ Je 15 '18
- Tests for steel rails; Pennsylvania railroad. Engineer 125:542-3 Je 21 '18
- Tracey tool-room specialties. II diag Mach 25:163-5 O '18
- Tetrabromoeosin**  
Phthalic acid derivatives; constitution and color; tetrabromo-fluorescein, tetrabromoeosin and some of their derivatives. D: S. Pratt, G. F. Hutchinson and A. W. Harvey. Am Chem Soc J 41:1293-7 Ag '19
- Tetrabromo-fluorescein**  
Phthalic acid derivatives; constitution and color; tetrabromo-fluorescein, tetrabromoeosin and some of their derivatives. D: S. Pratt, G. F. Hutchinson and A. W. Harvey. Am Chem Soc J 41:1293-7 Ag '19
- Tetrachlorophthaloxime**  
Phthalic acid derivatives; constitution and color; tetrachlorophthaloxime and some of its derivatives. D: S. Pratt and C. H. Miller. Am Chem Soc J 40:407-12 F '18
- Tetralodoeosin**  
Phthalic acid derivatives; constitution and color, tetralodoeosin and some of its derivatives. D: S. Pratt and A. B. Coleman. Am Chem Soc J 40:245-9 Ja '18
- Tetralodoerythrosin**  
Phthalic acid derivatives; constitution and color, tetralodoerythrosin (octolodo fluorescein) and some of its derivatives. D: S. Pratt and A. B. Coleman. Am Chem Soc J 40:249-54 Ja '18
- Tetralodofluorescein**  
Phthalic acid derivatives; constitution and color, tetralodofluorescein and some of its derivatives. D: S. Pratt and A. B. Coleman. Am Chem Soc J 40:236-45 Ja '18
- Tetralodophenolphthalein**  
Tetralodophenolphthalein and tetralodophenoltetrachlorophthalein and some of their derivatives. W. R. Orndorff and S. A. Mahood. Am Chem Soc J 40:937-55 Je '18
- Tetralodophenoltetrachlorophthalein**  
Tetralodophenolphthalein and tetralodophenoltetrachlorophthalein and some of their derivatives. W. R. Orndorff and S. A. Mahood. Am Chem Soc J 40:937-55 Je '18



**Tetralodophthaloxime**

Phthalic acid derivatives: constitution and color; tetralodophthaloxime and some of its derivatives. D: S. Pratt and T: B. Downey. *Am Chem Soc J* 40:412-15 F '18

**Tetramethylammonium trinitride**

Preparation of tetramethylammonium trinitride. F. V. Friedlander. *Am Chem Soc J* 40: 1945-7 D '18

**Tetranitromethane**

Vapor pressure of tetranitro-methane. A.W.C. Menzies. *Am Chem Soc J* 41:1336-7 S '19

**Tetrazodi-o-tolylmethane chloride**

Upon the action of tetrazodi-o-tolylmethane chloride upon naphthol and naphthylamine sulfo acids. J. H. Stebbins, Jr. *J Ind & Eng Chem* 10:445-8 Je '18

**Texas**

*See* Mines and mineral resources—Texas; Roads—Texas

**Texas Midland railroad**

Commerce commission makes first final valuation report in Texas Midland case. *Eng N* 81:476-7, 488-90 S 12 '18

I. C. C. report on valuation. *Ry Age* 65:377-82 Ag 30 '18

Interstate commerce report on Texas Midland valuation. *diags Ry R* 63:343-7 S 7 '18

**Textile alliance**

Textile alliance is American. *Textile World* 53:3715+ F 9 '18

**Textile association, Southern. See Southern textile association****Textile design**

Ancient Egyptian textile designs. H. H. Manchester. *il Textile World* 53:4696+ Ap 13 '18

Artificial silk and cotton mixed fabrics. *il Textile World* 54:2979+ D 14 '18

Color tendencies in modern textile designs. F. L. Kaplan. *Color Tr J* 5:14-15 Jl '19

Development of American designers. E. W. France. *Textile World* 54:936 Ag 31 '18

Modern designs from ancient fabrics. *il Sci Am* 118:148-9 F 16 '18

Silk and cotton mixed fabrics. *il Textile World* 54:2347+ N 9 '18

*See also* Tapestry

**Textile exhibitors' association**

Annual meeting, Boston, June 10. *Textile World* 53:6101 Je 15 '18

**Textile fabrics**

Chemical properties of textile materials; work of chemistry division of Bureau of standards. E. R. Clark. *Textile World* 53:3463 Ja 26 '18

Conditioning cloth after dry finishing. *Textile World* 54:1967 O 26 '18

Designing and manufacturing iridescent cloth. *il Textile World* 55:3691+ Je 14 '19

Effect of moisture content on the permeability of fabrics to mustard gas. G: H. Clowes and others. *diag J Ind & Eng Chem* 11:1016-19 N '19

How war strategy affected textiles. J. A. Hunter. *Textile World* 53:2957+ Ja 12 '18

Ladies' coating made with cotton warp. *il Textile World* 53:4139+ Mr 9 '18

Land of the ersatz; textilit. *Sci Am* 119:368 N 2 '18

Larger field developed for narrow fabrics. S: Brown. *il Textile World* 55:259+ Ja 11 '19

Manufacture of men's fancy vestings. *il Textile World* 53:4703 Ap 13 '18

Manufacture of popular priced trouserings. *il Textile World* 54:1597+ O 5 '18

Materials for the household. *U S Bur Stand Circ* 70:151-63 '17

Measuring temperature in textile processes; possible to control, scientifically, process of pressing fabrics. W. Harrison. *Textile World* 53:6349+ Je 29 '18

Men's and boys' suiting fabric. E. Tompkins. *il Textile World* 54:1077+ S 7 '18

New and unusual war textiles. *il Textile World* 53:2952-3+ Ja 12 '18

New German textile substitutes; abstract. *Am Soc M E J* 40:955 N '18

Novelty shoddy and cotton fabric. *il Textile World* 53:6017+ Je 8 '18

Past and present men's wear styles. *il Textile World* 54:637 Ag 10 '18

Standardization of clothing fabrics. *Textile World* 54:635 Ag 10 '18

Sufficient cloth and clothing. H. E. Peabody. *Textile World* 54:734 Ag 17 '18

Use of cotton as a wool substitute. *il Textile World* 53:1841+, 2361+, 3575 N 3, D 8 '17, F 2 '18

Use of feathers in textiles. *Textile World* 53: 3819 F 16 '18

What do we wear? *Sci Am* 119:52 Jl 20 '18

Where substitutes save the day; textiles made of yarn spun from feathers. *Sci Am* 118:146 F 16 '18

Working wool and cotton combinations. O. Fiske. *il Textile World* 53:5589+, 6353 My 18, Je 29 '18

*See also* Airplane fabric; Army cloths; Balloon fabric; Bedford cord; Bleaching; Broadcloth; Burlap; Cartridge cloth; Cotton fabrics; Coverlets; Fulling; Knit goods; Linen; Paper textiles; Plush; Rugs; Shirt-making; Shoddy; Silk; Textile printing; Tire fabrics; Trimming novelties; Underwear; Woile; Woolen and worsted manufacture; Worsted

**Bibliography**

Bibliography on textile conservation; prepared for the A. L. A. committee on food information. A. Noll. *St Louis Public Library Bul n s* 16:130-2 Ap '18

**Inspection**

Inspection of white cloth. *Textile World* 53:4811 Ap 20 '18

**Testing**

Finishing and tensile strength. *Textile World* 55:1235 F 22 '19

How moisture affects the strength of aircraft fabrics. G. B. Haven. *Automotive Ind* 39:100-2+ Jl 18 '18

Measuring wearing value of cloth. *diag Textile World* 54:943+ Ag 31 '18

Simple textile tests for adulteration. *Am Ind* 18:37 My '18

War testing of textiles by Bureau of standards. E. D. Walen. *il Textile World* 53: 2957+ Ja 12 '18

**Textile factories. See Textile mills**

**Textile fibers**

Electrification of textile fibers. S. A. Shorter. *il Textile World* 53:6019; 54:55 Je 8, Jl 6 '18

Fiber recovery machine; small type built especially for wool scouring equipment. *il diag Textile World* 54:407 Jl 27 '18

Hun in wood. *Textile World* 54:836 Ag 24 '18

Moisture content of textiles and some of its effects; abstracts. W: D. Hartshorne. *diag Am Soc M E J* 39:905-12 N '17; *Textile World* 53:3107+ Ja 12 '18; Discussion. *Am Soc M E J* 40:155-6 F '18

New German textile substitute, cellulon; abstract. *Am Soc M E J* 40:pt 1, 531 Jl '18

Use of reject-cotton with wool; properties that cause rejection in cotton manufacturing are of value in use with wool. S. Wakefield. *Textile World* 53:6015+ Je 8 '18

Use of textile fibers in microscopic qualitative chemical analysis. E. M. Chamot and H. I. Cole. *J Ind & Eng Chem* 9:969-71; 10:48-50 O '17, Ja '18

What do we wear? *Sci Am* 119:52 Jl 20 '18

*See also* Cotton; Flax; Hemp; Nettles; Silk; Wool

**Textile finishing**

Corn starch in the textile industry. W. R. Cathcart. *Textile World* 54:401+ Jl 27 '18

Duplexing and sueding. *Textile World* 54:1445 S 28 '18

Finishing and tensile strength. *Textile World* 55:1235 F 22 '19

Finishing of brocades. *Color Tr J* 4:139 Je '19

Finishing of corset cloths. A. Field. *Color Tr J* 4:112-13 My '19

Viscosity and sticking strength of binders. A. Abrams. *charts Textile World* 55:3957+ Je 28 '19

*See also* Cotton finishing; Waterproofing of textiles; Wool finishing

**Textile Industry**

- Army as a great textile purchaser. Textile World 55:232+ Ja 11 '19
- British textile industries as affected by the war. H. Bannerman-Phillips. Sci Am 120: 684+ Je 28 '19
- Conference of the National association of cotton manufacturers on war problems in the textile industry. Boston, Jan. 18. Textile World 53:3449-50+ Ja 26 '18
- Dress goods reach unheard of prices. Textile World 53:3100+ Ja 12 '18
- Dyeing and finishing census; advance report of status for year 1914. Textile World 53: 2693 D 29 '17
- England's substitute trade good. Textile World 55:433+ Ja 11 '19
- English views on tariff; application to textile industry in after-the-war competition outlined. Textile World 54:48 JI 6 '18
- Enormous needs of French industries. Textile World 54:1121 S 7 '18
- Extent of army textile contracts. Textile World 55:2988+, 3104+ My 17-24 '19
- Further regulations. Textile World 53:5880 Je 1 '18
- Future of foreign trade in textiles. E. B. Filsinger. Textile World 53:2974+ Ja 12 '18
- Growth of Canadian textile trade. W. L. Edmonds. Textile World 53:3753+ F 9 '18
- Jobbers confer on price fixing; hear government's side and present their own problems. Textile World 54:293 JI 20 '18
- Many surprises in men's wear year of 1918. Textile World 55:387-8 Ja 11 '19
- Plea for standardizing conditions in textile industry in settling disputes. C. S. Andrews. Textile World 55:3489+ Je 7 '19
- Price movements of textiles during the war. Textile World 55:1980-1 O 4 '19
- Rehabilitation of French textile industry. H. G. Lord. Textile World 55:758-9 Ja 25 '19
- Russian market. S. Nuorteva. Textile World 55:3501+ Je 7 '19
- Supplying the navy with textiles. Textile World 55:231 Ja 11 '19
- Textile industry and disabled soldiers. E. Szepesi. Textile World 53:2959 Ja 12 '18
- Textile industry in China in 1917. Sih-Zung Yang. II Textile World 53:3696 F 9 '18
- Textile industry in northern France. H. Lagache. Textile World 56:801+ Ag 9 '19
- Textile industry in relation to the war. J. E. Rousnanliere. Am Soc M E J 40:pt 1, 538-9 JI '18
- Textile man's observations in South America. C. H. Fish. II Textile World 53:2961+ Ja 12 '18
- Textile market of Chile. W. A. Tucker. U S Bur For & Dom Com 164:1-52 '18
- Textile markets of Bolivia, Ecuador, and Peru. W. A. Tucker. II U S Bur For & Dom Com 158:1-106 '18
- Textile war work of the Bureau of standards. E. D. Walen. Textile World 55:220+ Ja 11 '19
- Textiles and tariff changes. Textile World 54: 3094a-3094b D 21 '18
- Textiles in Greece. Textile World 53:4364b Mr 23 '18
- Trade with Far East; relations of textile trade with China and Japan. Textile World 54:2553 N 23 '18
- War-time exports and imports. Textile World 55:1553 Mr 8 '19
- Work of the British textile institute. G. D. Athey. Textile World 55:1679+ Mr 15 '19
- World's textile trade during 1919. L. W. Alwyn-Schmidt. Textile World 55:245+ Ja 11 '19
- See also* Bleaching; Carpets; Clothing; Cotton; Cotton manufacture; Cotton trade; Drying apparatus (for textiles); Dye industry; Dyes and dyeing; Fireproofing of textiles; Flax; Gas mantles; Hosiery; Knit goods; Lace; Linen; Paper textiles; Rugs; Shirting; Shoddy; Silk; Sizing (textiles); Spinning; Tapestry; Textile design; Textile fibers; Textile finishing; Textile machinery; Textile mills; Textile printing; Thread; Underwear; Velle; Weaving; Wool; Woolen and worsted manufacture; Worsted; Yarn

**Bibliography**

- Economics of textiles and clothing. Washington State College Home Econ Ser 3:1-44 '18
- List of references on textile industry. E. L. Little. Special Libraries 8:174-6+; 9:24-5 D '17-Ja '18

**Exhibitions**

- Second exhibit of Southern textile exposition at Greenville, S.C. II Textile World 53:2503-13+ D 15 '17
- 6th National textile exhibition, New York, April 29-May 11, 1918; convention exhibits and exhibitors. plans Textile World 53:4916-20, 5132-3, 5422-5+ Ap 27-May 11 '18
- Textile exhibition proves a big success. Textile World 53:5421 My 11 '18
- 3d textile show at Greenville, S. C. II Textile World 55:2853+ My 10 '19

**Tables, calculations, etc.**

- Jute yarn calculations. Textile World 56: 1367+ S 6 '19
- Yarn and cloth calculations. A. F. Ferguson. Textile World 56:229+ JI 12 '19

**Textile machinery**

- Backwasher and dryer. II Textile World 54: 2463 N 16 '18
- Cotton goods and textile machinery. Sci Am 118:482 My 25 '18
- Flock catcher collects fly and loose fiber brushed or sheared off cloth. diags Textile World 55:1803 Mr 22 '19
- Foxwell pneumatic gulder. II Textile World 53:3467 Ja 26 '18
- Gimp machine. II Textile World 53:3821 F 16 '18
- Importance of uniform machine speeds. G. F. Charnock. diag Textile World 53:2519 D 15 '17
- Improved thread cutter. II Textile World 53:4813 Ap 20 '18
- Machines for making feathered fabric. diags Textile World 53:4705 Ap 13 '18
- Merrill heating process; meprolene circulated through machines. diag Textile World 53: 4581 Ap 6 '18
- Our textile machinery export trade. II Textile World 53:2956+ Ja 12 '18
- Power requirements of hydro-extractors. T. A. Bryson. diags Textile World 53:5893+ Je 1 '18
- Power tests on cone winder. II Textile World 55:937+ F 1 '19
- Slow starting motion mechanism. F. R. Daniels. diags Mach 25:250-1 N '18
- Squeezer for removing moisture from cloth. II Textile World 54:1977 O 26 '18
- Trade with Far East; relations of textile trade with China and Japan. Textile World 54:2553 N 23 '18
- Uniform expansion. F. R. Daniels. diags Mach 25:122 O '18
- Winding a filling yarn bobbin. diags Mach 25: 415 Ja '19

*See also* Braiding machines; Carding machinery; Cotton machinery; Dyeing machines; Hosiery machines; Knitting machines; Looms; Spinning machinery; Tension devices (textile machinery); Waste puller; Woolen and worsted machinery

**Exhibitions**

- Description of exhibits at textile exposition. II Textile World 53:5422-5+ My 11 '18
- Second exhibit of Southern textile exposition at Greenville, S.C. II Textile World 53:2503-13+ D 15 '17

**Repair**

- Welding in cotton finishing plant. II Textile World 53:4039 Mr 2 '18

**Safety devices and measures**

- Accident prevention in the textile industry. D. S. Beyer. II Am Soc M E J 39:915-18 N '17; Abstract. Am Mach 47:1102-3 D 20 '17; Discussion. Am Soc M E J 40:154-5 F '18
- Safety devices for cards. diag Textile World 53:5477+ My 11 '18

*See also* Textile mills—Safety devices and measures

Textile manufacturers' association, Middle states. See Middle states textile manufacturers' association

#### Textile mills

Alien property custodian appoints directors for New Jersey mills. Textile World 53: 4567 Ap 6 '18  
 Application of motors to the textile industry. C. E. Clewell. II Elec W 71:354-7 F 16 '18  
 Cleaning practice in textile mills. II diag Textile World 54:2983+ D 14 '18  
 Coal or oil fuel? A. Walton. II diag Textile World 56:2007+ O 4 '19  
 Conservation of coal by saving exhaust steam in the textile industries. W. B. Hoyt. Metal Work 91:837-8 Je 27 '19; Same. Dom Eng 88:105-6 J1 19 '19  
 Coosa manufacturing co., Piedmont, Ala. now operated entirely by electric power. II Textile World 54:79+ J1 6 '18  
 Electrical operation of a small textile mill. H. C. N. Ripley. II Elec W 74:363-9 O 25 '19  
 Electrically operated Canadian mill. V. K. Stalford. II Textile World 56:1381, 1383 S 6 '19  
 Fall River mills show increased earnings and better financial status. II Textile World 53: 3009+ Ja 12 '18  
 Finishing building at Botany worsted mills. Textile World 53:3255 Ja 12 '18  
 Hot water supply of textile mills. W. C. Beekley. Textile World 56:661+, 2003+ Ag 2, O 4 '19  
 Layout of dressing room. A. W. Anderson. Textile World 54:1599 O 5 '18  
 Making uniforms by electricity. II Elec R 73: 344 Ag 31 '18  
 Mill-village laundry. II Textile World 55:263-4 Ja 11 '19  
 Modern tendencies in mill construction. S. B. Lincoln. II Textile World 55:513+ Ja 11 '19  
 Modern worsted spinning mill of Kinney worsted yarn co. II Textile World 53:3263 Ja 12 '18  
 New mills of Black Cat textiles company. II Textile World 53:3227+ Ja 12 '18  
 New projects, enlargements and improvements; a statistical review. Textile World 53:3205+ Ja 12 '18  
 New projects, enlargements and improvements; statistical review for 1918. Textile World 55:407+, 521+, 545+ Ja 11 '19  
 Plant of S. B. & B. W. Fleisher, inc., Philadelphia. II Textile World 53:3223+ Ja 12 '18  
 Power floor scrubbing. II Textile World 56: 1371 S 6 '19  
 Providing the power for increased production in a textile mill. W. L. H. Doyle. II Elec W 70:1194-5 D 22 '17; Same. Textile World 53:3593+ F 2 '18  
 Reconstruction at Appleton mills, Lowell, Mass. II plans Textile World 53:3235+ Ja 12 '18  
 Slab computations in textile mill design. Concrete 13:148 N '18  
 Systems of wiring in textile mills. diag Textile World 53:3591 F 2 '18  
 Textile mill repair shop. Textile World 53:5479 My 11 '18  
 Welding outfit designed to handle requirements of mill repair shops made by G. H. Dyer co., Cambridge, Mass. II Textile World 55:3699 Je 14 '19  
 See also Cotton mills; Knitting mills; Silk mills; Textile industry; Woolen and worsted mills

#### Accounting

Calculation of card room costs. S. P. Munroe. Textile World 55:2539+ Ap 26 '19  
 Textile mill organization and costs. E. Szepesi. Textile World 52:1403+, 1490, 1697, 1872+, 2071, 2274+, 2569, 3009, 3109, 3531; 53:421+, 836+, 1738+, 2787+, 3369+, 3809+; 54:53 F 17-24, Mr 10, 24, Ap 7, 21, My 5, 26-Je 2, 30, Ag 4, S 1, O 27 '17, Ja 5, 19, F 16, J1 6 '18

#### Lighting

Better lighting of textile mills. F. H. Bernhard. II Elec R 72:1070-7 Je 29 '18

Effective lighting in textile mills. C. C. Schoen. diag Textile World 55:933+, 1451+ F 1, Mr 1 '19  
 Electrically operated Canadian mill. V. K. Stalford. II Textile World 56:1381, 1383 S 6 '19  
 Indirect lighting at Republic cotton mills. G. Wrigley. II Textile World 53:3199+ Ja 12 '18; Same. Illum Eng Soc 13:213-15 no 3 '18  
 Lighting for production in fine weaving plant. E. Du B. Stryker. II Elec W 74:641-2 S 20 '19  
 Lighting textile mills in Wisconsin. J. A. Hoeveler. II diag Textile World 54:1091+ S 7 '18  
 Modern textile mill lighting practice. C. E. Clewell. II Textile World 53:5889+; 54:66, 527+ Je 1, J1 6, Ag 3 '18  
 Progress in mill lighting practice. H. H. Magdsick. II Textile World 55:497+ Ja 11 '19  
 Tendencies in textile mill illumination. A. L. Powell. II Gen Elec R 21:681-4 O '18  
 Uses of mill whites. J. E. Heckel. II diag Textile World 56:2083+ Ap 5 '19  
 Woolen and worsted mill lighting. R. E. Harrington. II Textile World 56:101+, 659+ J1 5, Ag 2 '19

#### Management

Efficiency man's views on reduced hours. M. C. Dearing. Textile World 56:927+ Ag 16 '19  
 Important part played by motor trucks. S. Sayward. II Textile World 55:488-9+ Ja 11 '19  
 Motor trucks for textile mill service. W. W. Scott. II Textile World 53:4027+, 4591+, 5229+ Mr 2, Ap 6, My 4 '18  
 Motor trucks in the textile industry. S. Sayward. II Textile World 53:3193-5+ Ja 12 '18  
 Personal management of a mill. Textile World 56:1619 S 13 '19  
 Suggestions for increasing production in bleaching and finishing. E. R. Darling. Textile World 55:1283+ F 22 '19  
 Textile mill adopts new labor plan. Textile World 56:1979 O 4 '19  
 Textile mill organization and costs. E. Szepesi. Textile World 52:1403+, 1490, 1697, 1872+, 2071, 2274+, 2569, 3009, 3109, 3531; 53:421+, 836+, 1738+, 1963+, 2358, 2611, 2787+, 3369+, 3809+; 54:53 F 17-24, Mr 10, 24, Ap 7, 21, My 5, 26-Je 2, 30, Ag 4, S 1, O 27, N 10, D 8, 22 '17, Ja 5, 19, F 16, J1 6 '18  
 Timely economy of self-propelled trucks. S. P. Munroe. II Textile World 54:65-6, 531+ J1 6, Ag 3 '18

See also Textile workers

#### Safety devices

Home-made cabinet built for starting apparatus. L. E. Wood. diag Elec W 74:473 Ag 30 '19  
 Safety education in textile industry. W. S. Ide. Textile World 56:2201-2 O 11 '19

See also Textile machinery—Safety devices and measures

#### Textile printing

Colored silk effects on cloth. J Fr Inst 185: 849-50 Je '18  
 Printing on cloth. M. L. Kissell. II Color Tr J 5:61-7 S '19  
 Printing on cotton goods. Textile World 53: 2792 Ja 5 '18  
 Printing silk goods. diag Textile World 54: 1441 S 28 '18  
 Printing silks. II diag Sci Am S 88:168-9 S 13 '19  
 Printing with metallic powder. Textile World 53:3583 F 2 '18

#### Textile research

Definition of textile research. J. H. Lester. Textile World 55:3509+ Je 7 '19

#### Textile schools

French textile school reopens. Textile World 56:927 Ag 16 '19  
 Leeds (Eng.) university offers course for the training of merchants in the woolen and worsted industry. Textile World 54:1607 O 5 '18

**Textile schools—Continued**

- Lowell textile in supporting trenches. C: H. Eames. *Il Textile World* 55:235+ Ja 11 '19  
 Textile engineers of tomorrow; Lowell textile school. *Il Sci Am* 119:232-3 S 21 '18  
 Textile school work in wartime. J. A. Hunter. *Textile World* 53:2960+ Ja 12 '18  
*See also* Spartanburg textile industrial school, Spartanburg, South Carolina

**Textile workers**

- 48-hour week in woolen mills. *Textile World* 55:2073+ Ap 5 '19  
 48-hour week muddle. *Textile World* 55:2335+ Ap 19 '19  
 Italian textile industry. *Textile World* 55:3657 Je 14 '19

**Textile world journal**

- First textile paper's golden anniversary. *Textile World* 54:520+ Ag 3 '18

**Thallium**

- Concentrated thallium amalgams: their electrochemical and thermochemical behavior, densities and freezing points. T. W. Richards and F. Daniels. *diags Am Chem Soc J* 41:1732-68 N '19

**Thawing**

- Aerol thawing outfit. *Il Power* 49:278 F 25 '19  
 Best way to thaw a down spout. *Metal Work* 89:44-5, 242-3, 426-7 Ja 4, F 15, Mr 29 '18  
 Breaking frozen ground. *Gas Age* 43:261-2 Mr 1 '19  
 Coal car thawing plant built of precast concrete units. S. W. Linn. *Il diags plans Eng N* 80:213-16 Ja 31 '18; Same cond. *Coal Age* 13:368-9 F 23 '18  
 Electric thawing of frozen water pipe; report of committee of N. E. water-works association. *Eng N* 81:530-1 S 19 '18; Same. *Power* 48:580 O 15 '18  
 Experience in thawing frozen water services hydrant branches and hydrants at Syracuse, New York. C: A. Windholz. *Am Water Works Assn J* 6:20-1 Mr '19  
 Frozen water services in the Borough of Queens. J: T. Metcalf. *Am Water Works Assn J* 6:22-5 Mr '19  
 Handling zero weather rush business. E. Stern. *diag Metal Work* 89:193-5 F 8 '18  
 Kerosene thawing devices serve a number of useful purposes. *Il Coal Age* 15:280 F 6 '19  
 Method of thawing frozen water mains and sewers. *Eng & Contr* 50:551 D 11 '18  
 Method of thawing service pipes with electric current. *Il diags Eng & Contr* 49:363 Ap 10 '18  
 Methods of Baltimore county water & electric co. for thawing water services. *Eng & Contr* 49:458-9 My 8 '18  
 Modern plant for thawing coal in cars. S. W. Linn. *Il diags Ry Age* 64:805-6 Mr 29 '18  
 New method for thawing switches. *diags Ry R* 62:451 Mr 23 '18  
 New system of thawing ground. *Eng & Min J* 107:527 Mr 22 '19  
 Profit to a water department from thawing frozen service pipes. *Eng & Contr* 49:353 Ap 10 '18  
 St Paul water bureau thaws frozen services. *Eng N* 80:901 My 9 '18  
 Sandusky gas & electric contracts to thaw water pipes. *Munic J* 44:210 Mr 9 '18  
 Steam pipes in tunnel under frozen pavement aid excavation. C. H. Cotten. *diag Eng N* 81:1001 N 28 '18  
 Thawing at Middletown, Conn. E. T. McDowell. *Il Munic J* 44:446-7 Je 1 '18  
 Thawing concealed stacks and supply pipes. *diags Metal Work* 89:294-5 Mr 1 '18  
 Thawing frozen ground by hot water. H: M. Payne. *Il diags Eng & Min J* 105:20-1 Ja 5 '18; Same. *Eng & Contr* 49:387 Ap 17 '18  
 Thawing frozen pipes. *Metal Work* 91:211 F 14 '19  
 Thawing frozen pipes with hot water. *diag Metal Work* 89:323 Mr 8 '18  
 Thawing frozen service pipes. A. W. Cuddeback. *Il diag Am Water Works Assn J* 6:15-19 Mr '19  
 Thawing frozen water mains and service pipes by electricity; with discussion. W. I. McMane. *Am Water Works Assn J* 4:544-52 D '17

- Thawing frozen water mains; method of using electricity at North Attleboro. W: Plattner. *Il Munic J* 44:188-9 Mr 2 '18; Same. *Gas Age* 41:262-3 Mr 15 '18; Same. *Munic Eng* 54:157-8 Ap '18

- Thawing frozen water pipes by electricity. M. King; W: R. Bryans. *diag plan Power* 47:449-50 Mr 26 '18

- Thawing ground for trench work and the cost. *Eng & Contr* 48:477 D 12 '17

- Thawing hydrants with exhaust from fire truck. *Eng & Contr* 50:169 Ag 14 '18

- Thawing out cables electrically. M. S. Montgomery. *Elec R* 71:1068-9 D 22 '17

- Thawing outfit made from old auto engine and generator. *Il diags Eng & Contr* 49:277 Mr 13 '18

- Thawing service connections by means of electric current; with discussion. H: B. Machen. *Il diags Munic J* 42:684-7 My 17 '17; Same. *Am Water Works Assn J* 4:538-43 D '17

- Thawing services and hydrants at Windsor, Conn. H. R. Turner. *diags Munic J* 44:512 Je 22 '18

- Thawing services at Lawrence, Kansas. *Munic J* 44:257 Mr 30 '18; Same. *Eng & Contr* 49:359 Ap 10 '18

- Thawing services with hot water and electric outfit. *Eng & Contr* 50:164 Ag 14 '18

- Thawing water mains with home made electric outfit. A. G. C. McKalip. *Eng & Contr* 49:603 Je 12 '18

- Thawing water pipes with electrical outfits. *diag Elec W* 74:883 O 25 '19

- Waterworks operation. *Il Munic J* 45:425-6, 445-7 N 30-D 7 '18

**Cost**

- Cost of thawing services with electricity. A. E. Walden. *Eng & Contr* 50:45 JI 10 '18

- Cost of thawing water mains. *Eng & Min J* 107:604 Ap 5 '19

- Cost of thawing water services with electricity. *Eng & Contr* 50:32 JI 10 '18

- Methods and costs of thawing water mains and service. *Elec R* 74:93 Ja 18 '19; Same. *Eng & Contr* 51:29 Ja 8 '19

- Theater buildings. *See* Theaters

**Theaters**

- Concrete in theatre construction. E. E. Seeley. *diags plans Arch & Bldg* 50:5-6, pl 22, 27 Ja '18

- Engineering features of the modern theater. *Il diags plans Am Arch* 116:91-8, 123-9 JI 16-23 '19

- Grand theatre, Pittsburgh, Pa.; views. *Arch & Bldg* 50:pl 109-12 Je '18

- Henry Miller theatre, New York city. C: O. Cornelius. *Il Arch Rec* 44:112-24 Ag '18

- One-hundred-foot concrete arch carries theater balcony. C. W. Driver. *Il diags plans Eng N* 80:244-6 F 7 '18

- Orpheum theatre, St Louis, Mo.; views and plan. *Arch Rec* 43:560-7 Je '18

- Steel and concrete framing combined for economy in the 12-story State-Lake building in Chicago. *diags plans Eng N* 83:178-82 JI 24 '19

- Theatre des Champs Elysees a notable example of reinforced concrete construction. *Il Eng & Contr* 50:128 JI 31 '18

- Theatres and moving picture houses. *Arch & Bldg* 50:pl 1-30 Ja '18

- See also* Moving picture theaters; Stage mechanism

**Electric equipment**

- Description of modern wiring installation in new theater. *Il diag Elec R* 74:371-5 Mr 8 '19

**Heating and ventilation**

- Details of electrical installation in new Pantages theater, Salt Lake City, Utah. *diag Elec R* 74:37-8 Ja 4 '19

- Remodeling the ventilation of a theatre. S: R. Lewis. *diag Am Soc Heat & V E* 23:305-14 '17

- Theatre ventilation from a health and business standpoint. E. V. Hill. *Il Dom Eng* 87:237-9+ My 10 '19

**Theaters—Heating and ventilation—Continued**

Use of air from Chicago's freight tunnel as a refrigerating agent and fuel conserver. T. R. Wilson. charts map Heat & Ven 15:30-5 N '18

See also Moving picture theaters—Heating and ventilation

**Lighting**

Details of electrical installation in new Pantages theater, Salt Lake City, Utah. diag Elec R 74:37-8 Ja 4 '19

Remote control for theater lighting. II diag Elec W 74:747-9 O 4 '19

Theatre illumination. M. J. Levy. Arch & Bldg 50:3-5 Ja '18

See also Moving picture theaters—Lighting; Stage lighting; Theaters—Electric equipment

**Stage scenery**

Double staircase; Les frères Karamazov. Am Inst Arch J 6:109-10 Mr '18

Scenery and stage decorations. J. M. Hewlett. II Am Arch 118:425-30 Ap 10 '18

**Theobromine**

Studies in synthetic drug analysis; estimation of theobromine. W. O. Emery and G. C. Spencer. J Ind & Eng Chem 10:605-6 Ag '18

**Therapeutics**

See Anesthetics; Antitoxins; Electrotherapeutics; Radium—Therapeutic use

**Thermal analysis**

Simplification of inverse-rate method for thermal analysis. P. D. Merica. Am Inst Min Bul 151:1021-3 Jl '19; Same. U S Bur Stand Sci Pa 336:101-4 '19; Same cond. Iron Tr R 65:235-6 Jl 24 '19

Use of modified Rosenhahn furnace for thermal analysis. H. Scott and J. R. Freeman, Jr. II diags Am Inst Min Bul 152:1429-35 Ag '19

Thermal expansion. See Expansion (heat)

Thermal testing plant. See Pennsylvania state college—Thermal testing plant

**Thermalene**

Modern welding and cutting; low-pressure acetylene and thermalene generators. E. Viall. II diags Am Mach 50:879-83 My 8 '19

**Thermionic valve**

Evolution of the thermionic valve. R. L. Smith-Rose. diags Inst E E J 56:253-66 Ap '18

Thermit welding. See Welding

**Thermochemistry**

Heat of reaction of ammonia oxidation. G. B. Taylor. J Ind & Eng Chem 11:1121-3 D '19

Heats of dilution and their variations with temperature. F. R. Pratt. II diags J Fr Inst 185:663-96 My '18

Pressure-temperature curves in univariant systems. G. W. Morey and E. D. Williamson. Am Chem Soc J 40:59-84 Ja '18

Standard unit in the thermochemistry of organic compounds. W. Swietoslawski. Am Chem Soc J 39:2595-600 D '17

Starting and stability phenomena of ammonia-oxidation and similar reactions. F. G. Lilenroth. Chem & Met Eng 19:287-93 S 15 '18; Same. Gen Elec R 21:807-15 N '18

Thermal decomposition of certain inorganic trinitrides. A. R. Hitch. diag Am Chem Soc J 40:1195-1204 Ag '18

See also Boiling points; Combustion; Decomposition points; Dissociation; Evaporation. Latent heat of; Melting points; Specific heat; Temperature, High; Vapor density

**Thermocouple wire**

Manufacture and electrical properties of constantan. F. E. Bash. II Am Inst Min Bul 153:sup2409-30 S '19; Abstract. Chem & Met Eng 21:554-5 O 29 '19

**Thermocouples**

Alloys suitable for thermocouples and base-metal thermoelectric practice. J. M. Lohr. diags Am Inst Min Bul 153:1837-43 S '19

**Calibration of base-metal thermocouples.**

C. S. Crouse. II Eng & Min J 107:442-4 Mr 8 '19

Calorized iron as an element for thermocouples. O. L. Kowalke. J Fr Inst 185:57-8 Ja '18

Checking calibration of thermocouples and pyrometers. diags Elec R 74:56-9 Ja 11 '19

Heat treatment and temperature measuring for shells. J. R. Van Wyck. diags Am Mach 47:1089-90 D 20 '17

Hot-wire anemometer with thermocouple. T. S. Taylor. diag Am Inst Min Bul 153:1605-8 S '19

How to test pyrometer efficiency; Brown automatic signaling pyrometer. II diags Iron Tr R 64:158-9 Ja 9 '19; Am Gas Eng J 110:36-7 Ja 11 '19

Measurement of low temperatures with thermocouples; abstract. T. Spooner. J Fr Inst 187:509-11 Ap '19

Potentiometers for thermoelement work. W. P. White. diags Am Inst Min Bul 153:1763-72 S '19; Discussion. 156:3187-8 D '19

Protecting tubes for thermocouples. R. B. Lincoln. Am Inst Min Bul 153:2147-50 S '19

Radiation error in measuring temperature of gases; abstracts. H. Kreislinger and J. F. Barkley. diag Am Soc M E J 39:418-20 My '17; Power 46:30 Jl 3 '17; Iron Tr R 62:1249-51 My 16 '18; Discussion. Am Soc M E J 39:598-600 Jl '17

Recording thermocouple pyrometers. L. Behr. II diags Am Inst Min Bul 153:1655-60 S '19

Reference standard for base-metal thermocouples. N. E. Bonn. Am Inst Min Bul 153:2135-7 S '19

Simple method of measuring emfs. accurately. F. Wenner. P. D. Foote and E. E. Weibel. diags Elec W 71:559-60 Mr 16 '18

Some factors affecting the usefulness of base-metal thermocouples. O. L. Kowalke. II Am Inst Min Bul 153:1751-61 S '19; Discussion. 156:3163 D '19

Standardization of base-metal thermocouples. P. D. Foote, T. R. Harrison and C. O. Fairchild. II Met & Chem Eng 18:403-9 Ap 15 '18

Standardization of rare-metal thermocouples. P. D. Foote, T. R. Harrison and C. O. Fairchild. II diags Met & Chem Eng 18:343-8 Ap 1 '18

Tables and curves for use in measuring temperatures with thermocouples. L. H. Adams. Am Inst Min Bul 153:2111-24 S '19

Temperature indicators for alternators. S. L. Henderson. II diags Elec J 16:193-6 My '19

Thermocouple installation in annealing kilns for optical glass. E. D. Williamson and H. S. Roberts. diags Am Inst Min Bul 152:1445-53 Ag '19

Thermo-electric pyrometers for plant use. A. O. Aseman. II diags Chem & Met Eng 21:85-7 Jl 15 '19

Thermoelectric pyrometry. P. D. Foote, T. R. Harrison and C. O. Fairchild. II diags Am Inst Min Bul 153:sup2631-86 S '19; Discussion. 155:3032-3; 156:3124-30 N-D '19

**Thermodynamics**

Dependence of the Thomson-Joule effect for air on pressure and temperature for pressures up to 150 atmospheres and temperatures from -55 deg. to +250 deg. cent.; abstract. F. Noell. Am Soc M E J 40:728-9 Ag '18

Entropy of the elements and the third law of thermodynamics. G. N. Lewis and G. E. Gibson. Am Chem Soc J 39:2554-81 D '17

Joule-Thomson effect and the equation of state for gases at small pressures; abstract. M. Jakob. Am Soc M E J 40:1054-5 D '18

Nature of heat as directly deducible from the postulate of Carnot. II Sci Am S 85:341 Je 1 '18

Second law of thermodynamics. P. Okey. diag Am Soc M E J 40:467-8 Je '18; Discussion. 40:693-4 Ag '18

See also Adiabatic compression; Entropy; Heat; Heat engines; Latent heat; Steam; Vapor pressure

**Thermoelectricity**

Some peculiar thermoelectric effects. P. D. Foote and T. R. Harrison. Sci Am S 87:43 Ja 18 '19

**Thermoelectricity—Continued**

Thermoelectric measurement of critical ranges of pure iron. G. K. Burgess and H. Scott. *diag U S Bur Stand Bul* 14:15-21 Ap 6 '18  
Thermo-electric properties of fused metals; abstract. C. R. Darling and A. W. Grace. *Elec W* 72:20 J1 6 '18

See also Pyrometers and pyrometry; Thermocouples

**Thermometers and thermometry**

Concept of temperature. J. S. Ames. *Am Inst Min Bul* 153:sup2475-83 S '19

Devices and methods for measuring high and low temperatures with special reference to engineering problems. H. H. Albers. *biblog ii diag Stevens Ind* 36:67-103 Ap '19

Ebullioscopic determinations with a common thermometer. C. C. Kiplinger. *diag Am Chem Soc J* 40:1020-3 J1 '18

Fahrenheit thermometer. *Metal Work* 90:575 N 22 '18

High-temperature thermometers. R. M. Wilhelm. *diag Am Inst Min Bul* 153:1687-1700 S '19; Discussion. 156:3188-9 D '19

Maintaining the accuracy of thermometers. M. A. Saller. *Power* 48:601-2 O 22 '18

Measurement of temperature at great depths. *Sci Am S* 86:409 D 28 '18

Recording thermometer; abstract. C. V. Boys. *Elec W* 71:575 Mr 16 '18

Resistance thermometry. F. W. Robinson. *diag Am Inst Min Bul* 153:1829-36 S '19

Resistance thermometry for industrial use. C. F. Frey. *diag Am Inst Min Bul* 152:1437-41 Ag '19; Discussion. 156:3132-3 D '19

Solubility of sodium sulfate as a means of determining temperatures. T. W. Richards and V. Yngve. *Am Chem Soc J* 40:164-74 Ja '18

Thermometer guard. R. Matthews. *diag Power* 47:303 F 26 '18

Transition temperatures of strontium chloride and strontium bromide as fixed points in thermometry. T. W. Richards and V. Yngve. *Am Chem Soc J* 40:89-95 Ja '18

See also Calorimeters and calorimetry; Pyrometers and pyrometry; Temperature—Measurement

**Thermometers for the blind**

Weighing the temperature for blind folk. J. Boyer. *ii Sci Am* 120:80 Ja 25 '19

**Thermo-regulators. See Thermostats****Thermostatic metal**

Thermostatic metal developed by General electric company to control appliances by heat or cold. *Int Marine Eng* 23:17-18 Ja '18; Same. *Automotive Ind* 37:970-1 N 29 '17

**Thermostats**

Improved form of thermo-regulator. J. B. Ferguson. *diag Am Chem Soc J* 40:929-30 Je '18

Jarvis flash action thermostat. *ii Am Gas Eng J* 110:sup16 Ja 25 '19

Notes on a high temperature thermostat. J. L. Haughton and D. Hanson. *ii diag Sci Am S* 85:221 Ap 6 '18

Remy thermostat control on generators. *diag Motor Age* 34:40 Ag 15 '18

Tempering coil thermostat set wrong. J. Lewis. *diag Power* 49:218 F 11 '19

Thermostatic control considerations; shortening of warming-up period reduces crank-case dilution. J. E. Schipper. *ii diag Automotive Ind* 38:837-9 Mr 28 '18

Thermostatic generator control now proved success; compensation for atmospheric temperature found by Remy to result in saving of battery life. *diag Automotive Ind* 39:460 S 12 '18

Thermostats; various types and methods of application. W. N. Rae and J. Reilly. *Sci Am S* 86:198-9 S 28 '18

**Thickeners**

Thickeners in western practice; photographs. *Eng & Min J* 106:618-19 O 5 '18

See also Dorr thickener

**Thimbles**

Die for forming thimble. *diag Mach* 25:71 S '18

**Thiocyanates**

Research on thiocyanates and isothiocyanates; the polyketide isothiocyanate—ethyl isothiocyanopropionate. T. E. Johnson and A. A. Ticknor. *Am Chem Soc J* 40:636-46 Ap '18

**Thionyl chlorides**

Action of thionyl and sulfuryl chlorides on sulfur and phosphorus. H. B. North and J. C. Thomson. *Am Chem Soc J* 40:774-7 My '18

**Third rails**

Methods used in third-rail bonding. G. H. McKelway. *ii diag Elec Ry J* 53:1154-6 Je 14 '19

Special light third-rail installed where clearance for standard construction was unobtainable. *ii Elec Ry J* 52:338 Ag 24 '18

Types of third-rail used in railway electrification. *ii diag Elec Ry J* 53:1143-8 Je 14 '19

Voltage rises in third-rail circuits. D. D. Ewing. *diag Elec Ry J* 50:1072-5 D 15 '17

**Thomas, Eben Briggs, 1839-1919**

Sketch. *por Ry Age* 67:507-8 S 12 '19

**Thomson, Sir William. See Kelvin, William Thomson, 1st baron****Thoria**

Physical study of the Welsbach mantle. H. E. Ives, E. F. Kingsbury and E. Karrer. *diag J Fr Inst* 186:585-94 N '18

**Thorium**

Gamma ray activity of thorium D. H. N. McCoy and G. H. Cartledge. *Am Chem Soc J* 41:50-3 Ja '19

Ratio of mesothorium to thorium. H. N. McCoy and L. M. Henderson. *Am Chem Soc J* 40:1316-26 S '18

Study of the emanation method of determining thorium. G. H. Cartledge. *diag Am Chem Soc J* 41:42-50 Ja '19

**Thorium nitrate**

Electrolysis of neutral solutions of the nitrates of the rare earths and thorium nitrate. L. M. Dennis and A. B. Ray. *Am Chem Soc J* 40:178-81 Ja '18

**Thornton, William**

Portrait. *Am Inst Arch J* 7:2 Ja '19

**Thread**

Strength of 3-ply sewing threads. *Textile World* 54:639 Ag 10 '18

**Thread cutting**

Calculating change-gears for 4.5-millimeter pitch. *diag Mach* 24:448 Ja '18

Cutting a worm of rapid lead. C. T. Brunson. *diag Am Mach* 48:858 My 23 '18

Cutting double threads in one operation. C. Elsler. *diag Am Mach* 48:803-4 My 9 '18

Cutting threads of unusual pitches. M. C. Smith. *diag Am Mach* 50:451-2 Mr 6 '19

General thread cutting practice in the lathe. F. D. Jones. *ii diag Mach* 24:634-9 Mr '18

Graphical solution for clearance angle of form-ground thread tools. S. C. Bliss. *diag Am Mach* 50:450-1 Mr 6 '19

Hall thread-milling fixture. *ii Am Mach* 48:638 Ap 11 '18

Indicator used for cutting internal threads. A. E. Carter. *Mach* 24:790 My '18

Lathe attachment for cutting a six-inch lead thread. E. J. Bachman. *diag Mach* 25:973 Je '19

Lathe gears for cutting metric screws. E. J. Rantsch. *Am Mach* 48:442 Mr 14 '18

Microscope in the tool-room. J. Scott. *ii diag Mach* 25:799-802 My '19

Milling threads in malleable fittings. *ii diag Mach* 25:685 Mr '19

Milling threads on columns of hydraulic press. *diag Mach* 25:245 N '18

Rethreading fixture for fuses. L. M. Thorn. *diag Am Mach* 48:119 Ja 17 '18

Thread-cutting attachments. F. D. Jones. *ii diag Mach* 24:524-31 F '18

Thread cutting in a boring mill. M. E. Hoag. *ii Am Mach* 51:702 O 9 '19

Thread-cutting mechanism of a Norwegian lathe. *Mach* 26:59 S '19; Abstract. *Mech Eng* 41:839-40 O '19

**Thread cutting—Continued**

- Thread milling. F. D. Jones. *Il diags Mach* 24:413-28 Ja '18  
 Using taper wedges in cutting square threads. C. Anderson. *diags Mach* 24:644-5 Mr '18  
 Utilizing discarded geometric chasers. W. F. Hirschmann. *diags Am Mach* 47:1065 D 13 '17

*See also* Screw threads; Thread rolling

**Thread cutting machines**

- Biggs-Watterson thread miller. *Il Mach* 24:965-6 Je '18  
 British thread milling machines. *Il diags Engineer* 128:249-52, 274-7, 302-4, 324-6 S 12-O 3 '19  
 Continuous thread milling machine of unusual design. E. K. Hammond. *diags plan Mach* 25:727-9 Ap '19  
 Cycloid thread-milling cutter. *Il Engineer* 127:159 F 14 '19  
 Greenfield receding pipe threaders. *Il Am Mach* 50:960-1 My 15 '19; *Iron Age* 103:1170 My 1 '19  
 Lees-Bradner 155-millimeter shell threading machine. *Il diags Mach* 25:75 S '18  
 Machine for milling accurate threads. *Il Iron Tr R* 64:772 Mr 20 '19  
 Pipe flange thread milling machine. *Il Iron Age* 104:563 Ag 28 '19  
 Precision screw-cutting lathe. *Il diags Engineer* 126:558-60 D 27 '18; *Same cond. Mech Eng* 41:281-2 Mr '19  
 Smalley general co.'s no. 2 thread milling machine. *Il Iron Age* 103:1235 My 8 '19  
 Thread milling. F. D. Jones. *Il diags Mach* 24:413-28 Ja '18  
 Tracey angle fixture, thread-milling attachment and lead-screw tester. *Il Am Mach* 49:638-9 O 3 '18  
 Trundle automatic thread milling machine. F. H. Colvin. *Il Am Mach* 51:813-16 N 6 '19  
 Woods thread-milling machine. *Il Am Mach* 49:89 Jl 11 '18

**Thread gages.** *See* Gages

**Thread rolling**

- Forming screw threads by rolling. F. D. Jones. *Il diags plans Mach* 24:690-6, 803-9 Ap-May '18

**Threshing**

- Saving grain in threshing. *Sci Am* 118:599 Je 29 '18

*See also* Threshing machines

**Threshing machines**

- Care and repair of farm implements; grain separators. E. Johnson. *diags U S Agric Farmers' Bul* 1036:1-20 '19  
 Rastrick's threshing machine. A. Lee. *diags Engineer* 125:214, 249 Mr 8, 22 '18

**Thrift.** *See* Saving

**Thrift stamps.** *See* War savings and thrift stamps

**Throop college of technology**

- Teaching fellowships in chemistry. *J Ind & Eng Chem* 11:378-9 Ap '19

**Thum, William, 1863-1919**

- Sketch. *por Eng & Min J* 108:108 Jl 19 '19

**Thunder storms**

- Physics of the air. W. J. Humphreys. *maps J Fr Inst* 185:785-824; 186:57-75, 211-32, 341-70 Je-S '18

**Thymol-chloroform**

- Study of the action of 10 per cent thymol-chloroform preservative on the chlorine content of urine. J. O. Halverson and J. A. Schulz. *Am Chem Soc J* 41:440-2 Mr '19

**Thymolsulfophthalein**

- Use of thymolsulfophthalein as an indicator in acidimetric titrations. A. B. Clark and H. A. Lubs. *Am Chem Soc J* 40:1443-8 S '18

**Thymoquinone**

- Reduction of dihydroxy-thymoquinone by means of palladium-hydrogen. N. A. Wakeman. *Am Chem Soc J* 41:1873-5 N '19

**Ticket agents.** *See* Railroads—Ticket agents

**Ticket offices.** *See* Railroads—Ticket offices

**Tickets.** *See* Electric railroads—Tickets; Railroads—Tickets; Street railroads—Tickets

**Ticks**

- Ticks as carriers of animal disease. W. H. Ballou. *Il Sci Am* 120:254-5+ Mr 15 '19

**Tide power**

- Blue coal; utilizing the energy of waves and tides. *diags plans Sci Am S* 87:156-7+ Mr 8 '19

Power from the tides. *Sci Am* 121:179 Ag 23 '19

- Power from tidal waters. *diags Engineer* 127:590 Je 13 '19; *Same. Eng & Contr* 52:139 Jl 30 '19; *Same. Sci Am S* 88:201 S 27 '19

**Tides**

- Electric waves from ocean tides. *Sci Am* 120:68 Ja 25 '19

**Ties, Mine.** *See* Mine ties

**Ties, Railroad.** *See* Railroad ties

**Ties, Steel.** *See* Railroad ties, Steel

**Tile**

- Clay tile makes a picturesque roof. E. I. Freese. *diags Bldg Age* 41:187-8 Je '19  
 New floor surface for slopes. *Il Ry Age* 65:780-1 N 1 '18  
 Safety in tile making. *diags Am Ind* 18:sup1-4 Ap '18

*See also* Drain tile

**Tile, Concrete.** *See* Concrete tile

**Tile, Hollow.** *See* Hollow tile

**Timber**

- California timber badly infested by insects. T. Friant. *Am Lumberman* 2245:67 My 25 '18

Effect of moisture reabsorption on compressive strength of air-dried timber. I. H. Cowdrey. *Am Soc M E J* 40:363-7 My '18

- Formula for oblique bearing on timber questioned. J. Fee; H. S. Jacoby. *diags Eng N* 80:48-9 Ja 3 '18; *Discussion. E. R. T. Berggren. 80:231 Ja 31 '18*

How big timber is cut up. *Il Sci Am S* 85:408 Je 29 '18

Pressure on inclined cuts of timber by simple diagram. C. A. Melick. *diags Eng N* 80:180 Ja 24 '18

Round trestle timbers sawed in big miter box on car. *diag Eng N* 81:97-8 Jl 11 '18

Sawing frozen timber. R. C. Leibe. *Am Lumberman* 2230:41 F 9 '18

Timber sizes for balloon and mill type frames. *Bldg Age* 40:389 Ag '18

Use of treated timber in car construction. *Ry Age* 66:295-8 Ja 31 '19

*See also* Dry rot; Forests and forestry; Hard woods; Lumber; Lumbering; Pine; Trees; Wood; Woodlots

**Bibliography**

Structural service department; timber, lumber, wood construction, and finish. *Am Inst Arch J* 6:201-9 Ap '18

**Taxation**

Revenue law in relation to timber. *Am Lumberman* 2304:59 Jl 12 '19

Single taxers' distinction between land and standing timber explained. *Am Lumberman* 2308:58-60 Ag 9 '19

*See also* Forest taxation

**Testing**

*See* Wood—Testing

**Timber preservation.** *See* Wood preservation

**Timber stumpage**

**Taxation**

Federal tax on timber stumpage. I. Skeels. *Am Lumberman* 2303:42-3 Jl 5 '19

**Timber testing.** *See* Wood—Testing

**Timbering**

Bracing eliminated in sheeting octagonal excavation. W. K. Knauff. *diag plan Eng N* 82:541-2 Mr 13 '19

**Timbering, Mine.** *See* Mine timbering

**Time**

Commencement of the astronomical day. *Sci Am S* 86:204 S 28 '18

**Time—Continued**

- Proposed new boundaries for standard time zones. E. W. Judd. map Ry Age 65:299-11 Ag 2 '18
- Reforms in time-keeping. Sci Am 118:338 Ap 13 '18
- Simple plan for unifying time in the United States. J. G. Porter. Sci Am 8 86:263 O 26 '18
- Standard time zones defined by the commission. Ry R 63:755-6 N 23 '18; map Ry Age 65:917-18 N 22 '18
- Time service in Switzerland by telephone; abstract. Elec W 70:1250 D 29 '17
- Time zones at sea. Sci Am S 85:6 Ja 5 '18
- Timely adjustment; with map showing new time zones. Sci Am 119:522 D 28 '18
- What is the time? J. A. Macdonald. Sci Am 119:31 Jl 13 '18
- See also Daylight saving
- Time, Geological.** See Geological time
- Time clocks**
- Automatic helpers for the management. C. E. Clewell. II Factory 22:939-43 My '19
- Time keeping**
- Checking workers into the plant. J. Treat. II Factory 21:38-9 Jl '18
- Cost keeping and construction accounting. G. E. Ross. Eng & Contr 49:197-200 F 20 '18
- Costimeter. II Ind Management 55:158 F '18
- Improved cost keeping system. II Automotive Ind 39:56 Jl 11 '18
- Labour administration. E: T. Elbourne. diag plan Engineer 126:365-7 N 1 '18
- Mechanical time clerk for each truck driver. Factory 20:272+ F '18
- Pass-time card prevents disputes over time shortage. J. T. Sullivan. Eng N 81:244 Ag 1 '18
- Periodograph; a decimal time-keeping machine. J. V. Hunter. II Am Mach 51:49-54, 161-4 Jl 10, 24 '19
- Providing a double check on timekeeping. E. A. Hunger. Factory 22:48-50 Ja '19
- Signograph time recorder. II Am Mach 49:544 S 19 '18
- Time card as complete check on workmen. Eng N 82:837 Ap 24 '19
- Timekeeping classifies labor cost. Iron Tr R 64:1556-7 Je 12 '19
- Time keeping system on \$28,000,000 Boston army supply base contract. Eng & Contr 51:579-80 My 28 '19
- Turning time cards into costs. II Factory 23:1048-50 N '19
- Using a self-checking time card. Factory 22:598+ Mr '19
- See also Time clocks
- Time measurement**
- Evolution of time-marking devices. P. Collins. II Sci Am S 85:136-7 Mr 2 '18
- See also Timing devices
- Time signals**
- New clock relay for telegraphic transmission of time signals. II Sci Am 119:484 D 14 '18
- Time study**
- Eliminating the stop watch from industry. C. E. Knoepfel. Iron Age 104:766-7 S 18 '19; Same. Sci Am 121:308 S 27 '19
- Establishing basic rates saves time study work. C. M. Bigelow. II chart Ind Management 57:17-22 Ja '19
- Factory management in garment trades. M. Gordon. Ind Management 58:140-5 Ag '19
- Improvements in time study methods. A. H. Cubberley. II charts Ind Management 58:118-20 Ag '19
- Labor saving devices in railroad offices. Ry R 64:245-8 F 15 '19
- Managing for maximum production. L. V. Estes. Ind Management 58:54-61 Jl '19
- Managing non-repetitive work; how to set times on lathe work in tool making. N. Howard. diag Ind Management 56:94-6 Ag '18
- Six fundamentals of time study. S: R. Gerber. Ind Management 57:308-11 Ap '19
- Systematizing time study. Factory 22:538+ Mr '19

- Time studies for rate setting on Gisholt boring mills. D. V. Merrick. Ind Management 56:34-41, 129-33, 181-4, 289-99, 409-11 Jl-N '18
- Time studies for rate setting on machine tools. D. V. Merrick. Ind Management 55:441-6 Je '18
- Time studies in screw-machine practice. R. A. Hinkel. Am Mach 48:507-8 Mr 21 '18
- Time studies on automatic screw-machine products. F. A. MacGowan. diags Am Mach 48:676 Ap 18 '18
- Time studies on grey iron molding. C. A. Marston. II Ind Management 57:198-202+ Mr '19
- Time studies on short unit operations. C. A. Riley. Ind Management 58:123 Ag '19
- Time study and rate setting in a machine tool plant. E. Oberg. Mach 25:1051-5 Jl '19
- Time-study man or rate-setter. G. G. Thompson; W. N. Allen. Am Mach 50:939-40; 51:66 My 15, Jl 10 '19
- Time study of aircraft operations. Automotive Ind 38:1036 My 30 '18
- Time study of variable operations in piling lumber; production increased 85, labor cost dropped 28, wages increased 32 per cent. C. M. Bigelow. II diag Ind Management 56:109-12 Ag '18
- Timetables.** See Railroads—Time tables
- Timing devices**
- Accurate timing in electrical tests. F. A. Kartak. II diags Elec W 73:872-5 Ap 5 '19
- Calibrating standard watt-hour meters. F. A. Kartak. II diags Elec W 74:740-2 O 4 '19
- New timing device for simplifying the thermometric reading of calorimetric determinations. C. A. Myers, Jr. II diag J Ind & Eng Chem 10:1015-16 D '18
- Simplified signal device for thermometric readings—coal calorimeters. H. S. Vassar. II diag J Ind & Eng Chem 11:467-8 My '19
- Utilizing the time characteristics of alternating current. H: E. Warren. II Am Inst E E Pro 38:629-43 My '19
- Tin**
- American imports and consumption of tin and tin plate. Iron Age 101:1666 Je 27 '18
- Britain developing scrap recovery. J. Horton. Iron Tr R 64:1018-19 Ap 17 '19
- Conservation of tin in bearing metals, bronzes, and solders. G. K. Burgess and R. W. Woodward. U S Bur Stand Tech Pa 109:1-9 '19
- Conservation of tin in bronze bearing metals. G. H. Clamer. Am Inst Min E Bul 144:1729-33 D '18; Same. Am Mach 49:773-5 O 24 '18; Same. Metal Ind 16:452-3 O '18; Same. Chem & Met Eng 19:656-7 N 1 '18; Same cond. Foundry 46:532-3 N '18; Same cond. Sci Am S 86:406 D 28 '18; Excerpt. Iron Age 102:964 O 17 '18
- Conservation of tin requested by the General war service committee of the Electrical manufacturing industry. Power 48:108 Jl 16 '18; Same cond. Metal Work 89:857 Je 28 '18
- Conservation of tin; symposium. Am Inst Min E Bul 144:1729-64 D '18; Metal Ind 16:451-6 O '18; Chem & Met Eng 19:656-62 N 1 '18; Foundry 46:530-3 N '18
- Consumption and conservation of tin. II Chem & Met Eng 19:175-6 Ag 15 '18; Metal Work 90:2 Jl 5 '18
- Control of imported-tin sales; American iron and steel institute consignee of all importations of pig tin, chloride of tin and tin ore from foreign countries. Eng & Min J 104:998-9 D 8 '17
- Economies in use of tin. Iron Age 101:1672-3 Je 27 '18; Same. Metal Ind 16:307-8 Jl '18
- Formation of international monopoly to control the price and distribution of pig tin. B. M. Baruch. Eng & Min J 106:541-2 S 21 '18
- Help movement to salvage tin. Metal Work 90:443-4 O 18 '18
- Java's trade in Billiton tin. Eng & Min J 107:1148 Je 28 '19
- Marketing Bolivian tin ore. Eng & Min J 105:1014-15 Je 1 '18



**Tin—Continued**

- Need for tin in the manufacture of silk. Sci Am 119:405 N 23 '18
- New impetus for tin roofing industry. Metal Work 92:62-3 JI 18 '19
- Photographs of tin roofs wanted. W. F. Dushkin. II Metal Work 91:27 Ja 3 '19
- Plan to conserve country's tin supply. Iron Age 101:1078-9 Ap 25 '18
- Prepare now for tin roofing after the war. II Metal Work 90:608-9 N 29 '18
- Production of aluminum and tin from 1900 to 1917. Eng. & Min J 105:567 Mr 23 '18
- Recovery of tin from tin-plate scrap. Sci Am 120:240 Mr 8 '19
- Shortage compels regulation of uses. Iron Age 101:1420-1 My 30 '18
- Shortage of tin. Ry Mech Eng 92:464 Ag '18
- Situation in tin. Eng. & Min J 105:846-7, 1017-18 My 4, Je 1 '18
- Solder, its use and abuse. M. L. Lissberger. Am Inst Min E Bul 144:1759-64 D '18; Same cond., Foundry 46:579-80 D '18; Abstracts. Metal Ind 16:507-8 N '18; Chem & Met Eng 19:658-9 N 1 '18; Metal Work 90:496 N 1 '18
- Statistical summary of tin. E. M. Miller. II Chem & Met Eng 19:526-32 S 28 '18
- Suggestions for the conservation of tin. Am Soc M E J 40:854 O '18
- Tin among the precious metals. Eng. & Min J 106:360 Ag 24 '18
- Tin: an ideal pyrometric substance. E. F. Northrup. Am Inst Min Bul 152:1443-4 Ag '19
- Tin at Hongkong in 1917. Eng. & Min J 105:658 Ap 6 '18
- Tin consumption in 1917. Eng. & Min J 105:956 My 25 '18
- Tin fusible boiler-plug manufacture and testing. L. J. Gurevich and J. S. Hromatko. II Am Inst Min Bul 152:1351-60 Ag '19; Discussion. 155:3035 N '19
- Tin imports increasing. Eng. & Min J 106:668 O 12 '18
- Tin in Nigeria. O. Wethered. Eng. & Min J 106:841 N 9 '18
- Tin in 1917. Eng. & Min J 105:59-60 Ja 12 '18
- Tin in the Siamese Malaya. Eng. & Min J 105:917 My 18 '18
- Tin industry in the federated Malay states. Engineer 127:454 My 9 '19
- Tin market in 1917. J. H. Lang. Eng. & Min J 105:60 Ja 12 '18
- Tin market in 1918. J. H. Lang. Eng. & Min J 107:65-6 Ja 11 '19
- Tin needed in silk manufacture. C. L. Auger. Eng. & Min J 105:930 My 18 '18
- Tin popular as roofing for southern mills. Metal Work 92:310 S 12 '19
- Tin scarcity and recovery from scrap. Sci Am 118:79 Ja 19 '18
- Tin shortage at serious stage. Iron Tr R 62:956 Ap 18 '18
- Tin situation. Eng. & Min J 106:926-7 N 23 '18
- War industries board plans conservation of tin. Chem & Met Eng 19:68-9 JI 15 '18; Same cond. Dom Eng 84:165 Ag 3 '18
- Working to protect tin roofing interests. S. H. Taylor. II Metal Work 91:521-4 Ap 25 '19
- See also Bronze; Metals; Tin metallurgy; Tin mines and mining; Tin plate; Tinsmithing
- Analysis**
- American tin-slag analysis. M. G. F. Söhnlein. Eng. & Min J 107:576-7 Mr 29 '19
- Analysis of alloys of tin. A. Craig. J Ind & Eng Chem 11:750-3 Ag '19
- Determination of tin in concentrates. A. M. Smoot. diag Eng. & Min J 106:25-6 JI 6 '18
- Determination of tin in high-grade wolfram ores. A. R. Powell. Eng. & Min J 106:964-6 N 30 '18
- Estimation of tin in high-grade wolframite and the use of lead as a reducing agent in Pearce's assay. A. R. Powell. Chem & Met Eng 19:213 Ag 15 '18
- Tin, Substitutes for**
- Conservation of tin. H. P. White. II Metal Ind 16:522-3 N '18
- Magnesium as a substitute for tin. Eng. & Min J 106:733 O 26 '18

Metallic phosphoro. Metal Ind 16:476-7 O '18

Substitutes for tin. Metal Ind 16:272-3 Je '18

Substitutes for tin in bearing metals and solders. Mach 25:634 Mr '19

Tin substitutes. H. P. White. Metal Ind 17:40 Ja '19

**Tin alloys**

Analysis of alloys of tin. A. Craig. J Ind & Eng Chem 11:750-3 Ag '19

**Tin cans. See Cans****Tin dredging**

Dredging tin ore. Engineer 127:69 Ja 17 '19

Neill jig tests for tin dredging. L. H. Eddy. Eng. & Min J 106:78-9 JI 13 '18

Statistics of operation of Tongkah harbour tin dredging co. in 1917-1918. Eng. & Min J 107:328-9 F 15 '19

Tin dredging in Burma. Eng. & Min J 106:922 N 23 '18

Tin dredging in Portugal. F. W. Foote and R. S. Ransom, Jr. II Eng. & Min J 104:1109-10 D 29 '17

**Tin foil**

Manufacture of tin and lead foil. L. J. Krom. II Metal Ind 16:352-4 Ag '18

**Tin metallurgy**

Electrolytic tin. E. F. Kern. Met. & Chem Eng 18:508+ My 15 '18

Smelting tin ore in Mexico. B. R. Bates. II Eng. & Min J 107:264 F 8 '19

**Tin mines and mining**

See also Tin dredging

**Bolivia**

Llallagua mine of Bolivia. Eng. & Min J 106:666-7 O 12 '18

Tin in Bolivia. J. M. Reyes. Chem & Met Eng 21:60-1 JI 15 '19

**China**

Export of Yunnan tin from Hongkong. Eng. & Min J 107:445 Mr 8 '19

**Great Britain**

Future of Cornish tin mining. Eng. & Min J 107:577 Mr 29 '19

**South Africa**

Ancient tin mining in South Africa. M. Bauman. Eng. & Min J 108:92-4 JI 19 '19

**Virginia**

Tin deposits of Irish Creek. H. G. Ferguson. maps Eng. & Min J 105:5-7 Ja 5 '18

Tin in Virginia. J Fr Inst 185:583 Ap '18

**Tin plate**

American and British war exports of tin plate. Iron Age 103:1090 Ap 24 '19

American imports and consumption of tin and tin plate. Iron Age 101:1666 Je 27 '18

Design of rolls for making ship and boiler plates. S. W. Standiford. II diags Mach 25:398-400 Ja '19

Manufacture of tin plate. T. L. Bailey. Sci Am S 85:410-11 Je 29 '18

Manufacture of tin plate. C. F. Poppleton. II plan Iron Age 101:30-5, 127-8 Ja 3 '18; Same abr. Metal Work 90:150-3, 214-16 Ag 9, 23 '18

Manufacture of tin plate for roofing. E. C. Folkner. Metal Work 89:577-80 My 3 '18

Metal, tin-plate and sheet prices for twenty years, 1898-1917. chart (supp) Iron Age 101:76 Ja 3 '18

Metal, tin-plate and sheet prices for twenty-one years, 1898-1918. supp Iron Age 103:26 Ja 2 '19

Planning to conserve tin plate supply. Iron Age 102:150-1 JI 18 '18

Price review of rolling mill products and other material in war time. Metal Work 89:57-60 Ja 4 '18

Regulation of the tin-plate industry. Iron Age 101:909 Ap 4 '18

Regulations governing the exportation of tin andterne plate. Metal Work 89:464; 90:386-7 Ap 5, O 4 '18

Relation of the tin to the iron on tin plate. L. Mayer. Iron Age 108:688 Mr 13 '19

Sheet and tin plate trades in 1917. B. E. V. Luty. Iron Age 101:63-6 Ja 3 '18

**Tin plate—Continued**

Sheet and tin plate trades in 1918. B. E. V. Luty. Iron Age 103:14-16 Ja 2 '19  
Tin plate and war. Metal Work 90:249 Ag 30 '18

Tin-plate exports and their destination. Metal Work 89:201 F 8 '18

Tin-plate industry. D. M. Buck. Am Inst Min E Bul 144:1735-8 D '18; Same. Metal Ind 16:464 O '18; Same. Chem & Met Eng 19: 659-60 N 1 '18

Tin plate makers rise to all demands. Iron Tr R 64:101 Ja 2 '19

Tin plate mills meet war demands. Iron Tr R 62:27 Ja 3 '18

*See also* Tinning

**Tinning**

Advantage of gas as a fuel for tin plating. W. J. Harris, Jr. Il Am Gas Eng J 107:513-14 D 8 '17

Equipment and methods of tinning. E. P. Later. Foundry 47:817-20 N 15 '19

French method of tinning cast-iron vessels. Metal Ind 16:10 Ja '18; Same. Am Soc M E J 40:26 Mr '18

Hot tinning of iron and steel. M. Meredith. Mach 25:345-6 D '18

Industrial processes and appliances using gas. E. F. Davis. Il Gas Age 40:560-3; 41:21-2 D 15 '17; Ja 1 '18

Mechanical tinning of metals. L. J. Krom. diag Metal Ind 16:261-2 Je '18

Novel tin plate machine. Il diag Iron Tr R 65:1054-5 O 16 '19

Tin cast iron vessels. Iron Tr R 62:665 Mr 14 '18

Tin plating with coke oven gas. W. J. Harris, Jr. Il Iron Age 100:1418-19 D 13 '17

Tinning cast iron. Metal Ind 16:68 F '18; Same. Metal Work 90:153 Ag 9 '18; Discussion. Metal Ind 16:125, 137 Mr '18

Tinning the inside of brass cartridge cases and other articles. C. H. Proctor. diag Metal Ind 16:74 F '18

Use of gas in lithographing and tin plating. G. C. Shadwell. Il Am Gas Eng J 110:403-4 My 10 '19

*See also* Tin plate

**Tinsel**

Machine for making tinsel. Textile World 53: 2369 D 8 '17

Tinsel and metal thread products. Il Textile World 56:1647+ S 20 '19

**Tinsmithing**

What a tinsmith can do in a machine shop. P. F. O'Shea. Il Am Mach 50:1067-76 Je 5 '19

*See also* Sheet metal work

**Tipping**

"Cure that tipping evil," says Bill Strong. Motor Age 35:20-1 Ap 10 '19

**Tipplies, Mine. See Mine tipplies****Tire cutting machines**

Tire cutting machine. Il Automotive Ind 41: 221 Jl 31 '19

**Tire fabrics**

Heavy tire fabric automatic loom. Il Textile World 53:3273 Ja 12 '18

How moisture affects the strength of aircraft fabrics, tire fabrics, etc. G. B. Haven. Automotive Ind 39:100-2+ Jl 18 '18

Profitable year for tire fabrics. W. I. Bullard. Textile World 53:3009 Ja 12 '18

Textile mill organization and costs; method of preparing statement of production and cost in a tire fabric mill. E. Szepesi. Textile World 53:2787+ Ja 5 '18

**Tire pumps**

Official test of Cassco tire pumps. Automotive Ind 39:243 Ag 8 '18

Two-stage power-driven tire pump. diags Automotive Ind 41:426 Ag 28 '19

**Tires**

Microscopic study of welded tires. S. W. Miller. Il diags Ry Mech Eng 92:104-10 F '18

Resilient tires for road vehicles. Engineer 127:405-6 Ap 25 '19

Solid rubber tires. A. H. King. Il diags Chem & Met Eng 20:352-9 Ap 1 '19

Wear of tramway car tires. A. Norton. Il diag Engineer 126:292-3 O 4 '18

**Testing**

Falling-weight test on railway tires; abstract. J. H. G. Monypenny. Am Soc M E J 41:167-8 F '19

**Tires, Automobile**

British solid band tire sizes. Automotive Ind 41:320 Ag 14 '19

Care of pneumatic truck tires. Motor Age 36:78 N 6 '19

Care of tires in winter. Il diags Motor Age 34:20-2 O 24 '18

Development of the pneumatic tire. Sci Am 118:10+ Ja 5 '18; Abstract. J Fr Inst 186: 109-10 Jl '18

Electricity in the manufacture of automobile tires. B. B. Jackson. Il plan Elec R 73:121-4, 166-9 Jl 27-Ag 3 '18

European and U. S. A. tire practice. W. F. Bradley. Il Motor Age 33:32-3 Je 6 '18

Exports of pneumatic tires for eight years; tabulation. Automotive Ind 40:156 Ja 16 '19

Factors which will govern future road-surface design. E. L. Viets. Il Eng N 81:970-5 N 28 '18

Fitting oversize tires to motor cars. Motor Age 34:21 Ag 22 '18

French experiments with single and dual pneumatic tires for trucks. W. F. Bradley. Il Automotive Ind 41:582-4 S 18 '19

Growing rubber for tires. Il Motor Age 34: 26-7 N 14 '18

How pneumatic tires serve lumbermen. Il Am Lumberman 2317:64 O 11 '19

Improved equipment permits employment of additional women workers at Morgan & Wright plant. Il Automotive Ind 39:92-4 Jl 18 '18

Load characteristics of automobile tire factory. Il Elec W 71:157 Ja 19 '18

Maintenance of truck tires. A. F. Masury. Il Mach 26:42-4 S '19

Methods used by Germany in overcoming tire shortage. H. M. Kistler. Il Eng N 83: 701 O 9 '19

Mileage, speed, and oil and gasoline consumptions on Goodyear trucks using giant pneumatic tires. Eng & Contr 49:sup34-5 Je 19 '18

No more punctures for Sweden's cyclists. Sci Am 119:227 S 21 '18

Pinching fuel pennies and wasting truck tire dollars. A. F. Masury. Il Munic Eng 56:sup26+ Je '19; Same. Eng N 82:1262-4 Je 26 '19; Same. Am Lumberman 2306:64-5 Jl 26 '19; Same cond. Concrete 15:29-31 Jl '19

Pneumatic tires for trucks. B. B. Bachman. Automotive Ind 40:350-1 F 13 '19

Pneumatic truck movement in France. W. F. Bradley. Il Motor Age 36:24-5 S 11 '19

Pressed-on truck tires best. A. L. Putnam. Automotive 37:638-9 O 11 '17

Substitutional tiring for passenger automobiles; abstract. A. Heller. Am Soc M E J 40:509 Je '18

Suit of armor for the tire. Il Sci Am 120: 552 My 24 '19

Tire and rim sizes; 1913 and 1914 cars. Motor Age 36:46 O 16; 49 O 23; 49 O 30; 79 N 6; 51 N 13; 53 N 20; 54 N 27 '19

Tire substitutes for passenger automobiles. Sci Am S 85:403 Je 29 '18

Tires from the viewpoint of riding qualities. Automotive Ind 37:957, 973 N 29 '17

Visualizing the future truck. Automotive Ind 40:1432-5+ Je 26 '19

What to do to tires in winter. diags Motor Age 36:65 N 6 '19

When to remove solid tires from motor trucks. G. H. Pride. Eng & Contr 52:286 S 3 '19

*See also* Automobiles—Wheels; Tire fabrics; Tire pumps

**Repair**

Exploring the inside of a tire. Il Sci Am 118: 316 Ap 6 '18

What you should know about vulcanizing. B. M. Ikert. Il Motor Age 36:7-10 Jl 3 '19

**Standards**

14 solid tire sizes now standard. Automotive Ind 39:603 O 3 '18

**Tires, Automobile—Standards—Continued**

- New standard list of pneumatic tire sizes. diags Automotive Ind 40:172-4 Ja 16 '19  
 S.A.E. standard report by Tire and rim division. diags Automotive Ind 40:310-11 F 6 '19  
 Tire and wheel standard data. Motor Age 36:53 Jl 17 '19  
 War board to standardize tire sizes. Motor Age 34:9 Jl 4 '18

**Tires, Locomotive**

- Making ingots for rolled wheels. L. H. Fry. Iron Tr R 65:1186-7 O 30 '19  
 Proper maintenance of driving tires. T. E. Grace. Ry R 65:50-1 Jl 12 '19

**Tires, Steel**

- Forged tires and axles. L. Genze. Iron Age 103:240 Ja 23 '19  
 Producing multiple ingots for tires. G. Aertsen. II Iron Tr R 65:1249 N 6 '19  
 Standard specifications for steel tires; English and Spanish. diag U S Bur For & Dom Com Ind Stand 16:1-15 '19  
 Steel-tired wheels and axles. H. Vernon. II diags Elec Ry J 53:961-3 My 17 '19  
 Steel tires vs. chilled-iron wheels. W. H. Noone. Coal Age 14:833-4 O 31 '18

**Tissues**

- Method of tissue analysis: applied to the posterior and anterior lobes of cattle pituitaries. C. G. MacArthur. Am Chem Soc J 41:1225-40 Ag '19

**Titanium**

- Determination of titanium in ferro-titanium. G. Roehl. Met & Chem Eng 18:38-9 Ja 1 '18  
 Development of the metallurgy of titanium. A. J. Rossi. Met & Chem Eng 18:117-20 F 1 '18; Same. J Ind & Eng Chem 10:141-5 F '18  
 On the microstructure of certain titanite iron ores. C. H. Warren. II Econ Geol 13:419-46 S '18  
 Titanium. Sci Am S 85:7 Ja 5 '18  
 Titanium and rutile. Sci Am S 87:119 F 22 '19

**Titanium compounds**

- Properties and uses of some titanium compounds. J. Barnes. Color Tr J 5:41-2 Ag '19

**Titration. See Volumetric analysis****TNT. See Trinitrotoluene****Tobacco**

- How do the Germans get their smokes? Sci Am 118:102 F 2 '18  
 Humidity machine an interesting use of gas in the tobacco factory. Am Gas Eng J 109:123-4 Ag 10 '18  
 Tobacco; notes on its production and manufacture. II Sci Am S 86:408-9 D 28 '18  
 Tobacco stems. Sci Am 121:162+ Ag 16 '19

**Tobacco pipes**

- Making of a smoker's pipe. J. V. Hunter. II Am Mach 49:93-8, 293-7 Jl 18, Ag 15 '18

**Todd shipyards corporation**

- Activities of Todd shipyards corporation during the war. Int Marine Eng 24:625-6 S '19

**Toilet rooms**

- Fly-by-night plumbing work; local venting of plumbing fixtures. II diags Dom Eng 84:320-1 Ag 31 '18  
 Layout of a toilet room in a one-story building. diags Dom Eng 85:46-7 O 12 '18  
 Sanitation for government munition plants. Metal Work 91:681-2 My 30 '19  
 Something about back-venting plumbing fixtures in large toilet rooms. R. J. Gordon. diags plans Dom Eng 87:50-2+, 240-2, 271 Ap 12, My 10 '19  
 Standards for factory washroom facilities. L. A. Coolidge. Dom Eng 88:253-4 Ag 9 '19  
 Weistee compartments. II Textile World 56:677 Ag 2 '19

*See also* Bathrooms; Lavatories; Public comfort stations; Schoolhouses—Toilet rooms

**Tolane chlorides**

- Tolane chlorides from calcium carbide, chlorine and benzene. C. Davidson. Am Chem Soc J 40:397-400 F '18

**Toledo, Ohio****Fire service**

- Design, construction and operation of Toledo's new high pressure fire protection system. W. J. Sherman. II Munic Eng 53:221-2 N '17; Excerpts. Elec R 72:72-3 Ja 12 '18

**Rapid transit**

- Skip-stop results. A. Swartz. charts Elec Ry J 53:690-1 Ap 5 '19

**Tolerance**

- Accuracy vs. precision, and the gage problem. E. Buckingham and G. F. Matteson. Am Soc M E J 40:158-60 F '18  
 Bureau of standards' work on tolerances. Mach 26:154 O '19  
 Component drawings for interchangeable manufacture. E. Buckingham. diags Mach 26:259-63 N '19  
 Developing a gaging system for small arms and heavy ordnance. E. Oberg. II diags Mach 25:93-107 O '18  
 Interchangeability, tolerances and finish. J. P. Brophy. Am Mach 48:156-7 Ja 24 '18  
 Johansson system of tolerances. diag Mach 25:556-7 F '19  
 Method of expressing tolerances. Mach 25:85, 247, 254 S, N '18  
 Practical tolerances of machine parts. Am. Mach 51:626 S 25 '19  
 Report of the A. S. M. E. committee on limits and tolerance in screw thread fits. charts diags Am Mach 48:913-26 My 30 '18; Same. Am Soc M E J 40:661-75 Ag '18; Excerpts. Mach 24:1061-2 Jl '18  
 Task for the Bureau of standards. Mach 25:1033 Jl '19  
 Theory of tolerances. J. Airey. diag Mech Eng 41:832-3 O '19  
 Tolerances in mechanical construction; abstract. diags Mech Eng 41:621-3 Jl '19  
 War department tolerances for screw threads. diags Mach 24:457-8 Ja '18  
 Work of the British engineering standards association on screw threads and limit gages. R. Glazebrook. Am Soc M E J 40:1007-9 D '18

**Toluene**

- Chlorine derivatives of toluol; patent. Met & Chem Eng 18:100 Ja 15 '18  
 Extraction of benzol and toluol from gas. Gas Age 41:371-2 Ap 15 '18  
 Extraction of toluol; investigation by California railroad commission. biblog Gas Age 41:421 My 1 '18  
 Fixed price for toluol. Met & Chem Eng 18:572 Je 1 '18  
 How gas companies cooperated during the war. H. C. Porter. II Gas Age 43:522-6 My 15 '19  
 Intensive toluol production. F. E. Lichtenhaeler. II Gas Age 41:55-62, 103-10 Ja 15-F 1 '18; Same. Met & Chem Eng 18:144-52, 195-202 F 1-15 '18; Discussion. B. Duglinson. 18:620-1 Je 15 '18  
 Method for the rapid analysis of mixtures of chlorinated toluene. H. A. Lubs and A. B. Clark. Am Chem Soc J 40:1449-53 S '18  
 Nitro derivatives of benzene and toluene. E. Noelting. Color Tr J 4:120-2 My '19  
 Notes on the recovery of toluol from gas. F. W. Sperr, jr. II diags Gas Age 41:393-7 My 1 '18  
 Our great need for toluol and a new way to make it. Sci Am 117:487 D 22 '17  
 Preservation of plant juices for analysis of sugar content. D. O. Spriestersbach. Am Chem Soc J 40:431-6 F '18  
 Production of toluene and propane from spruce turpentine; patent. Met & Chem Eng 17:716 D 15 '17  
 Recovery of light oils and refining of toluol; report by Bureau of standards. plan J Ind & Eng Chem 10:51-60 Ja '18  
 Seventy per cent of all toluol made in government works came from New York city's gas. II Am Gas Eng J 110:41-6 Ja 18 '19; Excerpts. Gas Age 43:97 Ja 15 '19  
 Spruce turpentine. J Ind & Eng Chem 10:4 Ja '18

**Toluene—Continued**

- To double toluol production without materially inconveniencing gas consumers. F. E. Dodge. *diag Am Gas Eng J* 108:319-20+ Ap 6 '18
- Toluol and benzol recovery results at Cambridge, Mass. I. T. Haddock. *Gas Age* 41: 257-9 Mr 15 '18; Same. *Am Gas Eng J* 108: 173-5 F 23 '18
- Toluol and the gas industries. *Sci Am* 120: 240+ Mr 8 '19
- Toluol by cracking solvent naphtha in the presence of blue gas. G. Egloff. *J Ind & Eng Chem* 10:8-9 Ja '18
- Toluol from spruce turpentine. *Met & Chem Eng* 18:311, 338 Mr 15-Apr 1 '18
- Toluol from spruce turpentine. A. S. Wheeler. *J Ind & Eng Chem* 10:359-60 My '18
- Toluol recovery. R. S. McBride. C. E. Reinicker and W. A. Dunkley. *U S Bur Stand Tech Pa* 117:1-60 '18
- Toluol recovery and standards for gas quality. R. S. McBride. *Gas Age* 41:63-6 Ja 15 '18; Same. *Am Gas Eng J* 108:31-4 Ja 12 '18; Same. *J Ind & Eng Chem* 10:111-14 F '18
- Toluol recovery operations in Greater New York. W. J. McGurty. *Il diag Gas Age* 43:176-80 F 15 '19
- Use old tubular boiler for light oil still at Des Moines works. H. C. Adams. *Am Gas Eng J* 108:536-8 Je 8 '18
- Washing light oil fractions from coke oven gas. F. D. Schreiber. *Il Gas Age* 43:22-4 Ja 1 '19

See also **Trinitrotoluene**

**Toluic acid**

- Studies in esterification; the esterification of benzoic and the toluic acids by methyl, ethyl and propyl alcohols. R. Freas and E. E. Reid. *Am Chem Soc J* 40:569-78 Mr '18

Toluol. See **Toluene**

**Toluquinidine**

- Intermediates used in the preparation of photosensitizing dyes; quinoline bases. L. A. Mikeska, J. K. Stewart and L. E. Wise. *J Ind & Eng Chem* 11:456-8 My '19

**Tomato products****Analysis**

- Microscopical studies on tomato products. B. J. Howard and C. H. Stephenson. *diag U S Agric Bul* 581:1-24 '17

**Tomato seed oil**

- American tomato seed oil. G. S. Jamieson and H. S. Bailey. *J Ind & Eng Chem* 11: 350-2 S '19

- Possibility of commercial utilization of tomato seed and grape seed. J. H. Shrader. *J Ind & Eng Chem* 11:1134-5 D '19

**Tonawanda, New York****Railroads**

- New York Central relocates lines to cross barge canal at the Tonawandas. B. S. Voorhees. *maps Eng N* 81:893-6 N 14 '18

**Tongs**

- Special tongs for the hardening room. P. F. O'Shea. *Il Am Mach* 51:450 S 4 '19

**Tonka trees**

- Tonka beans of commerce. *Sci Am S* 87:78 F 1 '19

**Tonnage**

- Explanation of the several methods of expressing the tonnage of vessels. Sibley J 32:170-1 Ag '18

- Gross and deadweight tonnage. *Int Marine Eng* 23:1-2 Ja '18

- Rule for tonnage of ship. *Int Marine Eng* 23:600-1 O '18

- Ship tonnage. *Mach* 24:1026 Jl '18

- Tonnage of vessels. *Int Marine Eng* 23:367 Je '18

- Why is tonnage? *diag Int Marine Eng* 23:244-5 Ap '18; Excerpts. *Sci Am S* 85:329 My 25 '18

**Tonnage, Train. See Railroads—Train load**

- Tonopah Belmont development company**  
Annual report for the fiscal year ended Feb. 28, 1918. *Eng & Min J* 105:1135 Je 22 '18

**Tool holders**

- Cleveland spring-head toolholder. *Il Am Mach* 49:498 S 12 '18; *Iron Age* 102:688 S 19 '18; *Iron Tr R* 63:561 S 5 '18
- Convertible toolholder. R. M. Hayes. *diag Am Mach* 51:283 Ag 7 '19
- Floating reamer holder. H. E. McCray. *diags Am Mach* 48:186 Ja 31 '18
- Holder for grinding accurate thread-cutting tools. *Il diags Mach* 24:925 Je '18
- Investigating the tool holder. *Il Sci Am* 121: 16 Jl 5 '19
- Making of a toolholder. R. Mawson. *Il Am Mach* 50:126-7 Ja 16 '19
- Screw machine tool equipment. D. T. Hamilton. *Il diags Mach* 24:119-22, 331-4, 436-8 O, D '17-Ja '18
- Shaper toolholder for internal work. A. Hanschild. *diag Am Mach* 48:120 Ja 17 '18
- Small boring-tool holder. H. F. Pusep. *diag Am Mach* 48:586 My 23 '18
- Threading toolholder. V. J. Jacob. *diag Am Mach* 49:338 Ag 22 '18

**Tool steel**

- Analysis of high speed steel. *Iron Age* 103: 193 Ja 16 '19
- Anneals tool steel by special packing. *Il Iron Tr R* 65:166-7 Jl 17 '19
- Arc-welding high-speed tool tips. *Il Am Mach* 49:756 O 24 '18
- Cast instead of forged high speed steel tools. *Sci Am* 118:512+ Je 1 '18
- Casting tools from an air-hardening steel. *Il Foundry* 47:66-7 F '19
- Cobalt-chrom—high-speed steel for milling cutters, taps, and reamers. *Mach* 25:39 S '18; Same. *Sci Am S* 86:256 O 19 '18
- Cobalt high speed steel not a German discovery. *Iron Age* 101:321 Ja 31 '18
- Composition of high-speed steel. *Mach* 24:824 My '18
- Davidson process of casting formed tools. J. E. Johnson, jr. *Il Am Inst Min E Bul* 146: 353-69 F '19; Same cond. *Iron Tr R* 64:435-7 F 13 '19; Same cond. *Iron Age* 103:481-3 F 20 '19; Same cond. *Foundry* 47:162-4 Ap 1 '19; Abstract. *Mech Eng* 41:395-6 Ap '19; Discussion. *Am Inst Min Bul* 149:805-7 My '19
- Drill bits and drill steel for metal mining. G. H. Gilman. *Il diags Eng & Min J* 103: 823-32; 104:156-8 My 12, Jl 28 '17; Same. *Eng & Contr* 49:58-62, 288-90; 50:189-92 Ja 16, Mr 20, Ag 21 '18
- Durability of high speed steels. R. Pollakoff. *Il diags Iron Age* 103:295-6 Ja 30 '19
- Duration of shop tests on tool steels. A. L. Jenkins. *Am Mach* 47:1036 D 13 '17
- Electric welding of high-speed steel and stainless steel in tool manufacture. P. T. Van Bibber. *Il diags Am Mach* 50:425-32 Mr 6 '19
- German high-speed steel process released. *Iron Tr R* 63:220 Jl 25 '18
- Greater tool-steel capacity; mills adding furnaces to keep pace with demand. *Iron Age* 102:577 S 5 '18
- High-speed tool-steel efficiencies. J. O. Arnold and F. Ibbotson. *Il Iron Tr R* 64: 1419-21 My 29 '19
- How to treat high-speed steel. J. L. Thorne. *Iron Age* 102:314 Ag 1 '18
- Kinite steel for casting tools. *Iron Age* 103: 870 Ap 3 '19
- Making high-grade tool steel. J. D. Knox. *Il Iron Tr R* 65:153-7 Jl 17 '19
- Making tool steel in war times. F. B. Lounsberry. *Iron Tr R* 62:1377 My 30 '18
- Manufacture of electric tool steel. E. A. Suverkrop. *Il Am Mach* 48:351-8 F 28 '18
- Manufacture of high-speed steel. J. H. Andrew and G. W. Green. *Il Iron Age* 104: 703-7 S 11 '19; Same cond. *Engineer* 127: 553-4 Je 6 '19; Abstract. *Chem & Met Eng* 21:42-3 Jl 1 '19
- Manufacture of modern high speed steel. J. A. Mathews. *Iron Age* 104:17-20 Jl 3 '19; Same. *Ry Mech Eng* 93:489-92 Ag '18; Excerpts. *Iron Tr R* 64:1683-4 Je 26 '19; Abstract. *Eng N* 83:120 Jl 17 '19; Discussion. *Iron Age* 104:20-3 Jl 3 '19
- Methods and cost of sharpening and distributing drill steel. H. Crouch. *Eng & Contr* 49:297 Mr 20 '18

**Tool steel—Continued**

- New tool steel developed by research. *Il* Iron Tr R 64:576-7 F 27 '19
- Properties of high speed steel. G. J. Horvitz. *Il* Iron Age 103:1711-14 Je 26 '19
- Pyrometry in the tool-manufacturing industry. J. V. Emmons. *Am Inst Min Bul* 153: 2155-8 S '19
- Reclaiming high speed steel; Onondaga steel company. *Il* Ry Mech Eng 92:225-7 Ap '18
- Reclaiming high-speed steel scrap by the Onondaga steel co. E. F. Cone. *Il* Iron Age 103:805-8 Mr 27 '19
- Salvage of high-speed steel tools. J. H. Vincent. *Il* Am Mach 50:169-70 Ja 23 '19
- Salvaging of high-speed steel. *Il* diags Iron Tr R 62:845-8 Ap 4 '18
- Saving tool material in Winchester shop. W. E. Freeland. *Il* Iron Age 102:1574-5 D 26 '18
- Selecting high-speed steel scrap for conversion. S. S. Buckley. *Am Mach* 51:262 Ag 7 '19
- Seminole alloy chisel steel. *Il* Mach 25:894-5 My '19; *Ry Mech Eng* 93:274 My '19; *Iron Age* 103:1174 My 1 '19; *Sci Am* 121:113 Ag 2 '19
- Specifications for high speed steels. R. Pollakoff. *Iron Age* 103:827-9 Mr 27 '19
- Stellite and high speed steel compared. L. Gullet and H. Godfroid. *Iron Age* 102:1584-5 D 26 '18
- Tipping carbon steel tools. W. H. Halsey. *diag Ry Mech Eng* 92:530 S '18
- Tool steel gears for mill service. E. S. Sawtelle. *Iron Tr R* 62:600-2 Mr 7 '18

*See also* Machine tools; Steel metallurgy

**Toolmakers' school**

- Successful apprentice toolmakers' school of the Savage arms corporation, Utica, N.Y. F. L. Glynn. *Am Mach* 50:347-9 F 20 '19

**Tools**

- Alarm signals for tool waste. H. L. Wittstein. *Il* Factory 20:1066-8 Je '18
- Combined tool receipt and inventory. *Factory* 20:148+ Ja '18
- Convenient tool cabinet may be carried by traveling crane. *Il* Elec W 72:354 Ag 24 '18
- Efficient tool-room system. *Il* Iron Age 101:996-7 Ap 18 '18
- Engineers' combat wagon. *Il* Eng & Min J 105:7-8 Ja 5 '18
- Evolution of the workshop. H. H. Manchester. *Il* Am Mach 51:781-4 O 30 '19
- From an engineer's notebook; drawings. M. P. Bertrande. *Power* 47:361 Mr 12 '18
- Hand tools for steam hammer work. A. S. Hesse. *diags Am Mach* 51:247-50 Ag 7 '19
- Handy home-made apparatus; drawings. *Power* 47:190 F 5 '18
- History in tools. W. M. F. Petrie. *diags Sci Am S* 85:300-2 My 11 '18
- How to make a stud setter. W. D. Forbes. *Int Marine Eng* 23:170 Ap '18
- How to select steel for small tools. *Iron Tr R* 62:1423-4 Je 6 '18
- Law relating to the use of tools. C. C. Sherlock. *Iron Age* 103:427-8 F 13 '19; *Same. Am Gas Eng J* 110:142-3 F 15 '19
- Making aircraft fittings with temporary tools. S. A. Hand. *Il* diags *Am Mach* 51: 221-5 Jl 31 '19
- Rack for hammers, cutters and sledges. *Il* diag *Iron Age* 100:1413 D 13 '17
- Selecting and caring for hand tools used by way department. R. C. Cram. *Il* diags *Elec Ry J* 51:959-65 My 18 '18
- Shortage of farm and garden tools in England. *Sci Am* 118:421 My 4 '18
- Simple tool system. B. L. Van Schalak. *Ind Management* 57:32 Ja '19
- Special reclaiming tang for drills. *Il* Iron Age 101:585 Mr 14 '18
- Standard devices for locomotive. E. J. McKernan. *diags Ry Mech Eng* 93:613-15 O '19; *Excerpt. Ry Age* 67:471-2 S 5 '19
- Tools for the automobile repair shop. D. A. Hampson. *diags Horseless Age* 40:36-7 Ap 1; 26-7 Ap 15; 40-1+ My 1; 44-5+ My 15; 36-7+ Je 1; 32-3 Je 15; 41:40-1+ Jl 1; 32-3+ Jl 15; 34-5+ Ag 1; 30-1+ Ag 15; 34-5+ S 1; 36-7+ S 15; 42:36-7+ O 1; 34-5+ O 15; 40-1+ N 1; 44-5+ N 15; 36-7+ D 1; 34-5+ D 15 '17; 43:54-5+ Ja 1; 32-3+ Ja 15; 38-9 F 1;

- 42-3+ F 15; 38-9+ Mr 1; 36-7+ Mr 15; 45-6+ Ap 1; 44:40-1 Ap 15; 36-7+ My 1; 36-7+ My 15 '18

Tools have given man his supremacy. H. S. Ashmun. *Metal Work* 90:358-9 S 27 '18

Tools used in electrical work-shops. M. M. Clement. *diags Mach* 25:215-16 N '18

Useful type of pick and adze made from old axes. *Il* Eng & Contr 50:284-5 S 18 '18

Why small tools do not last. *Am Mach* 48: 439; 49:108 Mr 14, Jl 18 '18

*See also* Chisels; Diamond tools; Electric railroads—Tools; Files and rasps; Machine tools; Machinery; Pliers; Pneumatic tools; Railroads—Tools; Saws; Scrapers; Shovels; Stone implements and weapons; Tool steel; Wrenches

**Marking**

- Marking tools. *Int Marine Eng* 23:134 Mr '18
- Preventing loss of tools. E. J. Higgins. *Mach* 24:741 Ap '18
- Robinson electric engraving machine for tool work. *Il* Am Mach 48:215 Ja 31 '18; *Mach* 24:561 F '18

*See also* Etchograph

**Tools, Machine.** *See* Machine tools

**Tools, Pneumatic.** *See* Pneumatic tools

**Topographic maps**

- Quick method of reconnaissance mapping. M. L. Fuller. *Econ Geol* 14:411-23 Ag '19

**Topographical surveying**

- Interpolation of contours. I. M. Sutherland. *diags Eng N* 81:703-4 O 17 '18
- Railway surveys and government maps. Eng & Contr 51:643 Je 18 '19
- Sextant and stadia-rod method for measuring distance. B. A. Baird. *Eng N* 83:647-8 O 2 '19
- Specifications for topographical surveys of drainage districts. *Eng N* 79:1117-18 D 13 '17
- Topographical surveying on Atacama desert in Chile. B. L. G. Rees. *diags Eng N* 83: 224-6 Jl 31 '19
- Topographical surveys in connection with rural planning. W. H. Norrish. Eng & Contr 51:20-1 Ja 1 '19

*See also* Photographic surveying

**Torch, Gas.** *See* Gas torch

**Torches**

- Naab gaselectric torch. *Il* Am Mach 47:1147 D 27 '17
- Self-contained one-man kerosene furnace. *Il* Elec Ry J 52:882 N 16 '18

**Toronto, Ontario****Rapid transit**

- Toronto fare increase lost. *Elec Ry J* 51:878 My 4 '18

**Sanitary affairs**

- Capacity of Toronto refuse destructor exceeds contract provision. I. S. Osborn. *Il* Eng N 80: 257-61 F 7 '18

**Water supply**

- Toronto drifting sand filters; abstracts. N. J. Howard. *Il* diags *Munic J* 47:220-2 O 11 '19; Eng & Contr 52:402-4 O 8 '19; Eng N 83:822-3 O 30 '19
- Toronto's drifting sand filter. *Munic J* 45:390-2 N 16 '18

**Toronto, University**

- Making anti-toxins for war use at the laboratories of the University of Toronto. *Il* Sci Am S 85:104-5 F 16 '18

**Torpedo boat destroyers**

- American destroyer; the new type, the depth-bomb and other accessories which have contributed to strafing the U-boats. *Il* Sci Am 119:515 D 28 '18
- Apotheosis of the destroyer. *Engineer* 124:499 D 7 '17
- Developing the high speed destroyer. *Il* Sci Am 120:679 Je 28 '19
- Evolution of the destroyer. S. M. Robinson. *Il* diags *plans Int Marine Eng* 24:577-84 S '19
- Making two destroyers into one. *Il* Sci Am 120:175 F 22 '19

**Torpedo boat destroyers—Continued**

- Manufacturing U.S. destroyers. *Am Mach* 49:548a S 19 '18  
 New Yarrow destroyers. *Il diags (supp) Engineer* 128:3-4 JI 4 '19  
 Our destroyers in the war zone. *Il Sci Am* 117:476 D 22 '17  
 Torpedo-boat destroyers in the making. *J. Reed. Il Mech Eng* 41:739-43+ S '19  
 Turbine gear drive for torpedo boat destroyers. *W. S. Flanders. Il diags Elec J* 16:474-6 N '19  
 Victory destroyer plant at Squantum. *Il plan Int Marine Eng* 24:446-55 JI '19  
*See also Submarine chasers*

**Torpedo boats**

- Coastal motor boats for the navy. *Il diags Engineer* 127:369-71, 380 Ap 18 '19  
 Italian sea tank. *Il Sci Am* 119:405 N 23 '18  
 One-man torpedo boat. *Il Sci Am* 121:455+ N 8 '19  
 Revival of the torpedo boat. *Il diag plan Sci Am* 121:27+ JI 12 '19  
*See also Submarine boats; Torpedo boat destroyers; Torpedoes*

**Torpedo mines. See Mines, Submarine****Torpedoes**

- Bliss-Leavitt torpedo. *F. M. Leavitt. Stevens Ind* 35:225-44 O '18  
 Early history of the marine torpedo. *H. H. Manchester. Il diags Am Mach* 49:435-8 S 6 '18  
 Electrically-controlled motor boats used on the Belgian coast. *Engineer* 124:425 N 16 '17;  
 Same. *Elec W* 70:1157 D 15 '17  
 Moving targets and torpedo attack. *diags Engineer* 125:561-3; 126:2-3, 23-4 Je 28-JI 12 '18  
 Torpedoes as fog signals on Belgian state railways. *L. Weissenbruch. diags Ry Age* 64:1087-8 Ap 26 '18  
*See also Explosives, Military; Mines, Submarine; Torpedo boats*

**Torpedoplanes**

- Torpedoplane of reality. *Il Sci Am* 120:95 F 1 '19  
 Torpedoplane—the new weapon which promises to revolutionize naval tactics. *H. Woodhouse. Il diags Flying* 8:597-602 Ag '19

**Torque**

- Methods of finding starting torque. *L. L. Loomer. diags Power* 48:157-8 JI 30 '18

- Torrance, Francis J., 1859-1919  
 Sketch. *por Metal Work* 91:97-8 Ja 17 '19

**Torsion**

- New method of solving torsion problems. *M. Meredith. Mach* 24:996 JI '18  
 Simplified stiffness calculations for shafts. *J. S. Carpenter. Am Mach* 49:558 S 26 '18  
 Torsional resistance of rolled joists. *A. Föppl. Am Soc M E J* 40:199 F '18  
 Torsional stresses. *F. W. Salmon. diags Mach* 25:108 O '18  
 Use of soap films in solving torsion problems. *A. A. Griffith and G. I. Taylor. Il diag Engineer* 124:546-7 D 21 '17; Same. *Sci Am S* 86:140-1 Ag 31 '18; Same cond. *Am Soc M E J* 40:276-7 Mr '18; Discussion. *Engineer* 124:536 D 21 '17

**Toughness**

- Static, dynamic, and notch toughness. *S. L. Hoyt. Il Am Inst Min E Bul* 146:339-51 F '19; Excerpts. *Iron Age* 103:545-7 F 27 '19; Abstract. *Mech Eng* 41:389-90 Ap '19; Discussion. *Am Inst Min Bul* 148:760-6; 149:804-5; 150:987-8 Ap-Je '19

**Towboats**

- Design of tugboat. *H. A. Everett. Int Marine Eng* 23:253 Ap '18  
 Dravo contracting company launches the towboat Elsey practically complete. *Int Marine Eng* 24:359-60 My '19  
 French concrete tugs launched by swinging from cranes. *Il Eng N* 81:621-2 O 3 '18  
 Large programme of river and canal vessel construction now under way. *diags Int Marine Eng* 24:670-8 O '19; Same cond. *Marine R* 49:460-3 O '19

Ocean-going tugs built at the Moore plant of the Bethlehem shipbuilding corporation. *Il diags plans Int Marine Eng* 24:587-91 S '19

100-foot wooden harbor tug boats building at the plant of Consolidated shipbuilding corporation. *Il Int Marine Eng* 24:473 JI '19

Plans and specifications of new wood tow boats. (supp) *plan Int Marine Eng* 23:673-4 D '18

Revival of Mississippi river traffic. *M. von Pagenhardt. Il Int Marine Eng* 24:80-2, 160-5 F-Mr '19

Sea-going tug Basswood. *diag Int Marine Eng* 24:663-5 O '19

Tug built for transatlantic service. *diags plans Marine R* 49:182-5 Ap '19

Tugboat Artisan—a product of the yard of M. M. Davis & son, inc. *Il Int Marine Eng* 24:363 My '19

Twin-screw steam towboat—the Peace. *Il Int Marine Eng* 24:93 F '19

**Tower wagon**

Electric tower wagon for trimming street lamps. *Il Sci Am* 120:516 My 17 '19

**Towers**

Construction problems; rebuilding the Custom house at Boston, Mass. *N. A. Richards. Il diags plan Arch Forum* 30:87-9 Mr '19

Restored tower of the New York City hall. *Il Arch & Bldg* 51:6+, pl 26-7 Ja '19

Spanish tower. *Am Arch* 116:236+ Ag 20 '19

Tower of the Travelers' insurance co., Hartford, Conn. *Il Am Arch* 114:front, 256+, pl 69-73 Ag 28 '18

Wind pressures and wind stresses in tower design. *R. Fleming. diags Eng N* 83:660-4 O 2 '19

*See also Gazeboes; Spires; Water towers*

**Towers, Portable**

Air-operated tower for line cars. *Il Elec Ry J* 54:794 O 25 '19

Auto-tower truck with engine-raised tower. *S. L. Foster. Il Elec Ry J* 51:281-2 F 9 '18

Auto tower versus horse-drawn tower. *S. L. Foster. Elec Ry J* 51:143-4 Ja 19 '18

Line truck on Ford chassis gives efficient service. *Il diags Elec Ry J* 52:469 S 14 '18

Overhead department economies. *C. R. Harte. Il Elec Ry J* 51:494 Mr 16 '18

Pole painters' tower wagon with three platforms. *S. L. Foster. Il Elec Ry J* 51:815-16 Ap 27 '18

Power truck for general utility line work. *Il Elec R* 72:338 F 23 '18

Special features of San Francisco tower car. *S. L. Foster. diags Elec Ry J* 51:1129-30 Je 15 '18

Tower trucks and cars at Minneapolis. *Il diags Elec Ry J* 54:121-3 JI 19 '19

**Towers, Steel**

Contractor builds own steel tower. *Il diags plan Concrete* 14:243-4 Je '19

Practical points in pole and tower erection and support. *C. R. Harte. Il Elec Ry J* 52:490-4 S 21 '18

Virtues and limitations of steel supports in overhead construction. *C. R. Harte. Il Elec Ry J* 51:948-52 My 18 '18

*See also Electric lines*

**Townley, Calvert, 1864-**

Calvert Townley. *L. B. Stillwell. por Elec J* 16:276-8 JI '19

Elected president of A. I. E. E. *por Elec R* 74:862-3 My 24 '19

**Toxins. See Antitoxins**

Trace curve. *See Earthwork—Tables, calculations, etc.*

**Tracing cloth**

Drafting-room junk for the Red cross. *Sci Am* 118:121 F 2 '18

**Track. See Railroads—Track; Rails; Street railroads—Track**

Track depression. *See Railroads—Track depression*

Track elevation. *See Railroads—Track elevation*

**Track scales**

Arrangement of track scales. E. C. Dodge. Coal Age 15:158 Ja 16 '19  
 Baltimore & Ohio weighing bureau. L. D. Davis. Ry Age 64:541-2 Mr 15 '18  
 Care of scales and correct weights. E. C. Dodge. Coal Age 16:103 Jl 17 '19  
 Minnesota track scale specifications and tolerances. diags plan Ry Age 64:1113-15 My 3 '18

New scale test car. A. Christopher. II Ry Age 64:371-2 F 15 '18  
 Tapered-floor track scales, Canadian Pacific railway. II diags plans Ry R 65:336 S 6 '19  
 Track scales save their cost in very short time. E. S. Hight. Elec W 72:602 S 28 '18  
 War time standardization of track scales. C. A. Briggs. Ry R 63:719-21 N 16 '18; Excerpts. Ry Age 65:770 N 1 '18

**Track spirals.** See Electric railroads—Track

**Tracks, Mine.** See Mine tracks

**Tracks, Railroad.** See Railroads—Track; Street railroads—Track

**Traction engines.** See Tractors

**Tractive resistance**

Soil resistance and the tractor. F. M. Loomis. Motor Age 34:20 Jl 18 '18  
 Tractive resistance of industrial trucks with small wheels. Eng & Contr 50:139 Ag 7 '18  
 See also Roads—Tractive resistance

**Tractor industry**

Argentine market for motor vehicles. D: Beecroft. II U S Bur For & Dom Com misc ser 62:1-27 '17

Automotive dealer as tractor agent. Motor Age 34:29 Jl 11 '18  
 Buyers' guide to 1918 tractors. Automotive Ind 37:795 N 1 '17

Buyer's guide to tractors. Motor Age 35:58 Ja 23 '19

Dealer must choose tractor to suit his territory. F. M. Loomis. Motor Age 36:27-8 N 27 '19

Dealer should know his tractor. G. J. Gardner. Motor Age 34:24-5 S 26 '18

826 farm tractors in France. W. F. Bradley. Automotive Ind 40:271+ Ja 30 '19

England wants more tractors. Automotive Ind 37:920-1 N 22 '17

Enter tractoritis: a state of mind that dealers should be able to diagnose. F. M. Loomis. diags Motor Age 34:24-5 D 12 '18

Getting into real tractor territory where gas engine is king. F. M. Loomis. II Motor Age 36:18-21 Ag 14 '19

Good tractor prospects in Peru. A. C. Shumway. Automotive Ind 40:1218-19 Je 5 '19

Growing importance of dealer in tractor trade. Motor Age 34:31 D 26 '18

Help solve the labor problem by selling tractors. II Horseless Age 43:34-5 F 15 '18

How not to sell tractors. F. M. Loomis. Motor Age 35:13 Mr 27 '19

How to sell farm tractors. J. M. Oppen. Motor Age 34:22 D 5 '18

How to sell trucks and farm tractors; prize essays. II Horseless Age 44:26-8+ My 1 '18

How you should handle the farm tractor business. G. A. Dechant. II Horseless Age 44:34-5+ My 15 '18

Location to determine popular tractor in South Dakota. F. M. Loomis. II Motor Age 35:20-2 Je 19 '19

Motor car men and tractor in great Northwest. F. M. Loomis. II Motor Age 35:26-7 F 27 '19

On the firing line in Kansas. F. M. Loomis. II Motor Age 36:20-4 Ag 7 '19

Owners' conception of tractor instruction book. Automotive Ind 39:430-1 S 5 '18

Plan for distributing Fordson tractors. Automotive Ind 38:667-8 Ap 4 '18

Prospects for tractor sales in Australia. Automotive Ind 39:415 S 5 '18

Provision of adequate housing facilities big tractor problem. D: Beecroft. Automotive Ind 39:217-21 Ag 8 '18

Small tractor increases potential market from 2 per cent to 60 per cent of farms. Automotive Ind 40:182 Ja 16 '19

Specialization helps tractor industry. D: Beecroft. II Automotive Ind 38:393-6 F 21 '18

Stage set for farm tractors. F. M. Loomis. II Motor Age 35:7-11 F 20 '19

Survey your territory for farm tractor prospects. II Horseless Age 43:38-7+ Mr 1 '18

Time, place and man important in tractor business. F. M. Loomis. Motor Age 36:11-13 O 23; 9-10 O 30; 86-7+ N 6; 23-5 N 13 '19

Tractor activities in Illinois. P. M. Heldt. II Automotive Ind 39:869-72 N 21 '18

Tractor activities in northern Ohio. P. M. Heldt. II diags Automotive Ind 39:619-21 O 10 '18

Tractor activities in the Twin Cities. P. M. Heldt. II Automotive Ind 39:702-5 O 24 '18

Tractor industry growing. Iron Age 101:754 Mr 21 '18

Tractor maker and the dealer. F. R. Pettit. Motor Age 35:21+ Ja 16 '19

Tractor makers protest curtailment; 30 manufacturers form American tractor association. Automotive Ind 39:657-9+ O 17 '18

Tractor problems discussed at Chicago S. A. E. meeting. Automotive Ind 38:303-4 F 7 '18

Tractor production past and present. Automotive Ind 40:175 Ja 16 '19

Tractor prospects in Siberia and Central Asia. N. A. Stephanoff. map Automotive Ind 39:947-53 D 5 '18

Tractor sales. T. P. Bowman. Motor Age 35:30-1 F 20 '19

Tractor selling opportunities for the automobile dealer. II Horseless Age 43:54-5+ Mr 15 '18

Trading in old tractors. Motor Age 34:25 N 14 '18

Turning the world's wheels. Sci Am 121:40 Jl 12 '19

Value of friendly criticism in the tractor business. F. M. Loomis. Motor Age 36:46-7 N 20 '19

Wrong and right way to sell tractors. F. M. Loomis. Motor Age 35:25 Mr 20 '19

**Service**

Automotive service and the farmer. F. M. Loomis. II Motor Age 35:7-10 Ap 10 '19

Beating tractor trouble to it. Motor Age 36:24-5 O 9 '19

Carrying service to the farm. B. M. Ikert. II diags Motor Age 35:7-9 Ap 3 '19

Free tractor service—no gain. F. M. Loomis. Motor Age 35:20-1 Ja 16 '19

Making idle days work; winter the proper time for tractor service. F. M. Loomis. Motor Age 36:82-5 N 6 '19

Modern tractor dealer methods are recognized. Motor Age 36:17 O 23 '19

Service and hard work sell tractors. F. M. Loomis. Motor Age 36:24-5 Jl 3 '19

Service behind the tractor. D: Beecroft. Motor Age 35:15 Mr 6 '19

Service dominates new Samson tractor plan. II Motor Age 36:18-19 Jl 31 '19

Service on the farm tractor. Motor Age 34:18 Ag 29 '18

Some free tractor service necessary. F. M. Loomis. Motor Age 34:18-19 N 28 '18

Stairsteps to service. K. H. Lansing. II Motor Age 34:20-1 Ag 1 '18

Tractor dealers in Vincennes, Ind., give real service. II Motor Age 34:21-2 Jl 18 '18

Tractor makers are demanding service. D: Beecroft. II Motor Age 34:5-7 Ag 8 '18

Tractor service from the dealers in motor cars. Motor Age 34:19 Ag 29 '18

Tractor service on Pacific coast. R. W. Compton. II Motor Age 34:20-1 D 5 '18

Tractor service will win. F. M. Loomis. Motor Age 34:24-5 O 24 '18

Unusual service ideas. D: Beecroft. II Motor Age 34:5-7 Ag 15 '18

Where service cost is not first. Motor Age 34:24+ D 19 '18

**Tractors**

Accessibility marks the Yankee. II Motor Age 34:40-1 Ag 29 '18

Agricultural tractors. H: G. Read. Engineer 125:193 Mr 1 '18

Altitude effects on tractor engines. Automobile 37:724-5 O 25 '17

**Tractors—Continued**

- Austin farm tractor. *Il Automotive Ind 40:484 F 27 '19*
- Auto engines in home-made dinkeys saved money on a rush job. *Il Eng N 79:1120 D 13 '17*
- Autohose tractor for general hauling. *Il Good Roads n s 16:6 J1 6 '18*
- Automotive manufacturers developing French tractors. W. F. Bradley. *Il Automotive Ind 41:526-9 S 11 '19*
- Avery 5-10 orchard and farm tractor. P. M. Heldt. *Il Automotive Ind 39:720-1 O 24 '18*
- Avery has standardized design. *Il Motor Age 34:38-40 Ag 22 '18*
- Back to nature via tractors; government schools train soldiers to operate and maintain farm machines. *Il Motor Age 35:24-5 F 20 '19*
- Baker electric trucks and tractors. *Il Ind Management 55:510 Je '18*
- Bean track pull invades eastern territory. *Il Motor Age 36:34 O 30 '19*
- Beaver kerosene tractor engines. *diags Automotive Ind 39:838-9+ N 14 '18*
- Beaver tractor engine comes in two sizes. *diags Motor Age 34:34 N 28 '18*
- Beeman garden tractor. *Il Motor Age 34:36 Ag 22 '18*
- Belt-rail creeper tractor. *Il diags Automotive Ind 39:587-9 O 3 '18*
- Bethlehem four plow tractor. *Il Automotive Ind 40:526 Mr 6 '19*
- Boring tractor carries implements. *Il Motor Age 34:42 D 12 '18*
- British agricultural tractors and haulers. Engineer 124:512-13, 533-5, 553-6, 562; 125:4-6, 10, 45-6, 65-7, 93-6, 98, 116-18 D 14 '17-Ja 4, 18-F 8 '18
- British gasoline cable tractor. *diags Automotive Ind 38:645-6 Mr 28 '18*
- Buda tractor engine. *Il Motor Age 34:39+ N 14 '18*
- Case adds 15-27 tractor to line. *Il Motor Age 34:40+ D 26 '18*
- Case 15-27 hp. tractor. P. M. Heldt. *Il diags plan Automotive Ind 40:256-61 Ja 30 '19*
- Case 9-18 tractor of simpler design. *Il diags Automotive Ind 38:767-8 Ap 18 '18*
- Case two plow tractor. *Il diags plan Automobile 37:708-11 O 25 '17*
- Caterpillars and their construction. K. H. Condit. *Il Am Mach 51:601-4 S 25 '19*
- Champion tractor an assembled product. *Il diags Automotive Ind 40:999-1000 My 8 '19*
- Cleveland tractor eliminates the switch engine. *Il Iron Age 100:1475 D 20 '17*
- Climax new tractor engine. *Il diags Automotive Ind 37:1097-9 D 20 '17*
- Comment on some tractor problems. *Il Automotive Ind 39:312-14 Ag 22 '18*
- Couple-gear 3-wheel tractor. *Il Munic Eng 54:212 My '18*
- Craig tractor built for efficiency. *Il Motor Age 34:38-9 O 3 '18*
- Creeper tractor ancient invention. *Il diags Automotive Ind 37:824-6, 876-8, 962-5 N 8-15, 29 '17*
- Dart tractor—internal and worm reduction. *Il diags Automotive Ind 39:666-8 O 17 '18*
- Debated points in tractor practice. Automobile 37:450-1 S 13 '17
- Depue is four-wheel-drive tractor design. *Il Automobile 37:451 S 13 '17*
- Desert haulage problem solved by caterpillar tractors. Eng & Min J 104:999 D 8 '17
- Details of the Cleveland tractor. *Il diags Automobile 37:502-3 S 20 '17*
- Doman tractor engines. *Il diags Automotive Ind 39:194-5 Ag 1 '18*
- Effect of soil on tractor performance. *Il map Motor Age 34:22-3 O 10 '18*
- Elwell Parker storage battery tractor. *Il Iron Age 101:325 Ja 31 '18; Am Mach 48:721 Ap 25 '18*
- Emerson-Brantingham model AA tractor. P. M. Heldt. *Il diags Automotive Ind 38:1128-33 Je 13 '18; Motor Age 33:40-3 Je 27 '18*
- England trying to evolve suitable tractors. *Automotive Ind 38:564-5 Mr 14 '18*
- Experience with tractor grading outfits in Miller county, Mo. S. C. Knight. *Munic Eng 54:74-5 F '18*
- Farm tractor in France. W. F. Bradley. *Il Motor Age 34:26-7 N 21 '18*
- Farm tractor in the Dakotas. A. P. Yerkes and L. M. Church. *U S Agric Farmers' Bul 1035:1-32 '19*
- Farm tractor instruction book. H. L. Thomson. *Automotive Ind 38:419, 466 F 21-28 '18*
- Farm tractors—a national necessity. *Il Horseless Age 43:42-3 Ap 1 '18*
- Features of some of the new tractors. *Il Automotive Ind 38:397-9 F 21 '18*
- Flat develops post-war tractor. W. F. Bradley. *Il Motor Age 34:40-1 N 14 '18*
- Flat develops worm-drive tractor. W. F. Bradley. *Il Automotive Ind 39:772-3 O 31 '18*
- Flat tractor design changed. W. F. Bradley. *Il Automotive Ind 40:525-6 Mr 6 '19*
- Fitting the tractor to the job. F. M. Loomis. *Il diags Motor Age 34:5-9, 24-5 J1 4-11 '18*
- Four-wheel drive tractor for general purposes. *Il Good Roads n s 15:278 Je 1 '18*
- French agricultural tractors. Engineer 128:401 O 24 '19
- French light agricultural tractor. *Il diags plan Engineer 125:300-1 Ap 5 '18*
- French road tractors. *Automotive Ind 41:483 S 4 '19*
- French vineyard tractor. W. F. Bradley. *diags plan Automotive Ind 38:589-91 Mr 21 '18*
- Gasoline horse in the West. E. C. Crossman. *Il Sci Am 118:17+ Ja 5 '18; Discussion. 118:343 Ap 13 '18*
- Gasoline locomotive of the highways. H. W. Perry. *Il diags Sci Am 121:514-15+ N 22 '19*
- Gasoline tractor for cable plowing. *Il diags plan Sci Am 119:318 O 19 '18*
- Gasoline tractor of the home-made variety. *Il Sci Am 121:424 O 25 '19*
- Heavy hauling with a tractor. *Il Met & Chem Eng 18:320 Mr 15 '18*
- Heider friction drive tractor. *Il Automotive Ind 39:831-2 N 14 '18*
- Heider tractor in two sizes. *Il Motor Age 34:38-9 N 21 '18*
- Heinze tractor has novel drive. *Il diags Automotive Ind 40:1114-16 My 22 '19*
- Hession is field-road work tractor. *Il Motor Age 34:38 N 7 '18*
- High ideals pursued in Craig tractor. P. M. Heldt. *Il diags Automotive Ind 39:630-3 O 10 '18*
- Hoosier farm tractor. *Il Automotive Ind 38:132-3 Ja 10 '18*
- How long will a tractor last; International and Parrett types. *Il Motor Age 34:37 Ag 22 '18*
- Improved chain track for tractors. *diags Automotive Ind 39:280 Ag 15 '18*
- Increased speed the need of the future tractor. E. A. White; J. L. Mowry. *Automotive Ind 41:21-3 J1 3 '19*
- Industrial trackless train. *Il Sci Am 118:15 Ja 5 '18*
- International harvester co. vertical-engine tractor. *Il Motor Age 34:40-1 O 10 '18*
- Italian agricultural tractor. *Il Engineer 126:488, 497-8 D 6 '18*
- Kardell utility tractor. *Il diags Automotive Ind 40:1162-3 My 29 '19*
- La Crosse adds tractor model. *Il diags Motor Age 34:38-9+ J1 4 '18*
- Larger engine in Happy farmer tractor. *Il diags Automotive Ind 39:106-8 J1 18 '18*
- Laughlin husky tracklayer type tractor. *Il Automotive Ind 40:708-9 Mr 27 '19*
- Lauson full jeweled tractor. *Il Automotive Ind 38:874-5 My 2 '18*
- Linking up isolated mineral districts by the loco-tractor transport system. F. Dutton. *Il Eng & Min J 107:313-14 F 15 '19*
- Looking far ahead with the tractor engine. *Automotive Ind 41:15-19 J1 3 '19*
- Maxwell develops 3-plow, inclosed transmission farm tractor. *Il Automotive Ind 38:336-7 F 7 '18*
- Mechanical details of the \$650 Samson tractor. *Il Automotive Ind 41:772-3 O 16 '19*
- Mercury trackless train effective in government warehouse. *Il Iron Age 101:931 Ap 11 '18*
- Mercury tractor. *Il Ind Management 56:250-1 S '18*



**Tractors—Continued**

- Mid-west section of S. A. E. discusses tractors. *Automotive Ind* 37:956 N 29 '17
- Moline universal model D tractor. P. M. Heldt. *Il* *diag* plan *Automotive Ind* 38:1090-4 Je 6 '18
- Moline—universal tractor attachor. *Il* *Motor Age* 34:36-7 Ag 15 '18
- Motor cultivators at Kansas City. P. M. Heldt. *Il* *Automotive Ind* 40:580-2 Mr 13 '19
- Motorizing the farm. *Il* *Sci Am* 119:92 Ag 3 '18
- Motors do all except plant corn. F. M. Loomis. *Il* *Motor Age* 35:22-3 Je 5 '19
- National demonstration opens with few new tractors. B. M. Ikert. *Motor Age* 36:17+ JI 17 '19
- New farm tractor burning kerosene. *diag Sci Am* 118:76 Ja 19 '18
- New French tractor hauls heavy load on pneumatics. *Il* *Automotive Ind* 41:709 O 9 '19
- New system of transport; loco-tractor. *Il* *diag* *Engineer* 125:650-2 Je 28 '18
- New track-laying tractor. *Il* *Sci Am* 120:662 Je 21 '19
- Novel frame in S. W. H. tractor. *Il* *Motor Age* 35:46-7 F 20 '19
- Novel French agricultural tractor. *diag Sci Am* 119:54+ JI 20 '18
- Novel tread for the tractor. *Il* *Sci Am* 118:260 Mr 23 '18
- Official list of farm tractors. *Sci Am* 120:232+ Mr 8 '19
- Oil burning tractor engine. H. T. Sward. *Automotive Ind* 38:913 My 9 '18
- One-horse gasoline horse. *Il* *Sci Am* 120:30 Ja 11 '19
- Out-of-the-way jobs for the tractor. A. L. Dahl. *Il* *Sci Am* 119:290+ O 12 '18
- Peoria kerosene tractor. *Il* *Automotive Ind* 39:366-7 Ag 29 '18; *Motor Age* 34:36 Ag 22 '18
- Plowing deeper and deeper; the gasoline tractor and the science of sub-soiling. H. A. Crafts. *Il* *Sci Am* 121:516+ N 22 '19
- Port Huron friction drive tractor. *Il* *Automotive Ind* 39:928+ N 28 '18
- Power farming and the war. F. P. Mount. *Motor Age* 34:26-7+ O 24 '18
- Prairie dog tractor has motor car traits. *Il* *Motor Age* 34:38 Ag 15 '18
- Putting creeper-drive on trucks. E. Salisbury. *diag* *Automotive Ind* 37:879-80 N 15 '17
- R. & P. tractor has enclosed drive. *Il* *diag* *Automotive Ind* 38:1034-6 My 30 '18
- Relation of tractor to implement. E. A. White. *Motor Age* 36:21 JI 3 '19
- Remy system combines governor with generator. *Il* *Automotive Ind* 38:862-3 My 2 '18
- Roadtractor. (3: T. Strite. *Automotive Ind* 38:215-16 Ja 24 '18
- Rubber-tired tractor. *Il* *Sci Am* 120:122 F 8 '19
- Rumely adds smaller tractor model. *Il* *Automotive Ind* 38:208-10 Ja 24 '18
- S. W. H. tractor a new Cleveland product. *Il* *Automotive Ind* 39:1085-8 D 26 '18
- Samson tractor is dirtproof. *Il* *Automotive Ind* 37:1000 D 6 '17
- Scotland favors light farm tractors. *Automotive Ind* 38:26-8+ Ja 3 '18
- Several new tractors to make debut at Wichita. *Il* *Motor Age* 36:18-19 JI 10 '19
- Simplicity marks Mogul tractor. *Il* *diag* *Motor Age* 34:36-7 O 31 '18
- Soil resistance and the tractor. F. M. Loomis. *Motor Age* 34:20 JI 18 '18
- Southern tractor requirements. B. M. Ikert. *Il* *Motor Age* 35:26-7 Mr 27 '19
- Square turn and Nilson tractors depart from ordinary practice. *Il* *Motor Age* 34:37 Ag 15 '18
- Steel mule that drives like a horse. J. M. Bird. *Il* *Sci Am* 118:109+ F 2 '18
- Steering creeper and two-wheeled tractors. A. C. Woodbury. *diag* *Automotive Ind* 39:269-70 Ag 15 '18
- Sterling tractor engine. *Il* *Motor Age* 35:49 Je 19 '19
- Three tractors for Northwest; John Deere, Dakota and Wetmore. *Il* *Motor Age* 35:48-9 My 1 '19
- Titan tractor—simplicity of design. *Il* *Motor Age* 35:38-9 Ja 9 '19
- Topp-Stewart four-wheel drive tractor. *Il* *Automotive Ind* 39:427 S 5 '18
- Traction on bad roads or land. L. A. Legros. *Automotive Ind* 38:556-7, 681-6, 680-2, 724-6+ Mr 14, 28-Apr 11 '18; *Abstract. Engineer* 125:86-7 Ja 25 '18; *Discussion. Engineer* 125:160-1 F 22 '18
- Tractor and trailer for road work. *Il* *Sci Am* 117:479 D 22 '17
- Tractor attachment that makes a Ford car a tractor. *Il* *Eng & Contr* 49:443 My 1 '18
- Tractor comes to Dixie. B. M. Ikert. *Il* *Motor Age* 35:18-19 Mr 20 '19
- Tractor designed for power economy. *Il* *Sci Am* 121:90+ JI 26 '19
- Tractor development in France. W. F. Bradley. *Il* *diag* *Automotive Ind* 39:786-9 N 7 '18
- Tractor development in Iowa. P. M. Heldt. *Il* *diag* *Automotive Ind* 39:663-5+ O 17 '18
- Tractor experience in Illinois; a study of the farm tractor under corn-belt conditions. A. P. Yerkes and L. M. Church. *U S Agric Farmers' Bul* 963:1-29 '18
- Tractor for railway work. *Il* *Ry R* 62:404-6 Mr 16 '18
- Tractor helps solve labor problem on North Dakota farm. F. M. Loomis. *Motor Age* 35:24-5 My 29 '19
- Tractor of good design and construction. *Il* *Sci Am* 119:482 D 14 '18
- Tractor power plant improvements; air washer and thermostat. *diag* *Sci Am* 119:396 N 16 '18
- Tractor problems that are awaiting solution. D: Beecroft. *Automotive Ind* 40:583+ Mr 13 '19
- Tractor proves cheapest road builder. *Motor Age* 33:21+ Je 20 '18
- Tractor spark plugs. O. C. Rohde. *Automotive Ind* 41:177 JI 24 '19; *Same. Motor Age* 36:36-7 JI 31 '19
- Tractor speed in plowing. F. M. Loomis. *Il* *Motor Age* 34:5-8 Ag 29 '18
- Tractor to skid, load and haul. *Il* *Am Lumberman* 2304:61 JI 12 '19
- Tractor versatility. F. M. Loomis. *Il* *Motor Age* 34:5-8, 28-30 JI 25-Ag 1 '18
- Tractor versus farm horse. F. M. Loomis. *Motor Age* 35:21 Ap 3 '19
- Tractor with interchangeable parts. *Il* *Iron Age* 101:1415 My 30 '18
- Tractors easier to run and sell. D. S. Hatch. *Il* *Motor Age* 35:7-11 Mr 6 '19
- Tractors show mechanical refinement. *Automotive Ind* 38:396-7 F 21 '18
- Trend of tractor development. H. Warren. *Sci Am* 119:516+ D 28 '18
- Truktor—a new type of tractor. *Il* *diag* *Automotive Ind* 37:958-60 N 29 '17
- Trundaar—a new farm tractor. *Il* *diag* *Horseless Age* 42:32-3 D 15 '17
- Trundaar tractor of the creeper type. *Il* *Automotive Ind* 37:1050-1 D 13 '17
- Twin City 16 oil tractor. P. M. Heldt. *Il* *diag* plan *Automotive Ind* 38:360-3 F 14 '18
- Twin City 12-20 kerosene tractor. P. M. Heldt. *Il* *diag* plan *Automotive Ind* 40:836-9+ Ap 17 '19
- Two tractor models from Columbus. *Il* *Automobile* 37:636-7 O 11 '17
- Uncle Sam a three-plow tractor model. *Il* *Motor Age* 36:50-1 JI 17 '19
- Using the Liberty motor. P. G. Tismer. *Sci Am* 121:9 JI 5 '19
- Utility of motor tractors for tillage purposes. A. Amos. *Engineer* 125:180-1 F 8 '18
- Velle Biltwell tractor. P. M. Heldt. *Il* *diag* *Automotive Ind* 40:799-804 Ap 10 '19
- Versatile tractor. H. A. Morrison. *Il* *Eng & Min J* 105:1004 Je 1 '18
- Wheeled farm tractors. E: R. Hewitt. *Mach* 25:850 My '19
- Where is the fulcrum of a rearing tractor? P. M. Heldt. *diag* *Automotive Ind* 41:220-1 JI 31 '19
- Whitney tractor a two-plow machine. *Il* *Automotive Ind* 38:959-60 My 16 '18

**Tractors—Continued**

Wide drum drive on Gray tractor. *Il diag*  
Motor Age 34:42-3 S 6 '18  
*See also* Electric tractors; Tractor industry

**Axles**

Turret lathe practice. E. Oberg. *Il diag*  
Mach 26:227-34 N '19

**Clutches**

Twin disk clutch and clutch pulley. *diags*  
Automotive Ind 39:760+ O 31 '18

**Control**

General utility tractor controlled with reins.  
*Il Sci Am* 119:132+ Ag 17 '18  
Line control of tractors. A. H. Wyatt. Motor  
Age 35:24-5 Ja 16 '19  
Steering and controlling devices for the four-  
wheeled tractor. *Il Sci Am* 119:358 N 2 '18

**Cooling**

Principles of tractor-engine cooling; abstract.  
A. B. Modine. *Am Soc M E J* 40:349-50 Ap  
'18

**Cost of operation**

Cost of plowing with tractor outfits. G. A.  
Benjamin. *Eng & Contr* 49:816-17 Je 19 '18  
Government operation of tractors successful.  
Automotive Ind 40:429 F 20 '19  
Graphs show cost of plowing. E. Goldberger.  
Automotive Ind 37:1004-6 D 6 '17  
Haul gravel with caterpillar tractor in Min-  
nesota. *Il Eng N* 83:227 J1 31 '19  
Location to determine popular tractor in  
South Dakota. F. M. Loomis. *Il Motor*  
Age 35:20-2 Je 19 '19  
Methods and costs of land leveling with trac-  
tors. F. N. Cronholm. *Eng & Contr* 49:590-1  
Je 12 '18; Same cond. *Eng N* 81:438-9 S 5  
'18  
Most economical size of tractor. E. Gold-  
berger. Automotive Ind 38:500-2 Mr 7 '18  
New York state investigates its tractors. Au-  
tomotive Ind 39:942-3 N 28 '18  
Preparing six hundred acres of land for irri-  
gation. F. W. Herron. *Il Eng N* 82:337-9 F  
13 '19  
Principles of the wheeled farm tractor. E. R.  
Hewitt. *diag* Automotive Ind 40:312-15 F 6  
'19  
Results of Ohio tractor demonstration. *Sci*  
*Am* 119:358 N 2 '18  
Sixty tractor records show ten farmers re-  
duced hired help and sixteen replaced  
horses; depreciation estimated as largest  
cost item. Motor Age 34:23 J1 25 '18  
Tractor operating cost in the corn belt. Au-  
tomotive Ind 39:197-9 Ag 1 '18  
Tractor operation data. *Sci Am* 119:358 N 2  
'18

**Design**

Agricultural power unit. A. E. L. Chorlton.  
*diags* Automotive Ind 38:211-14, 279-81+ Ja  
24-31 '18  
Design of a small agricultural tractor. A. E.  
L. Chorlton. *Engineer* 124:545 D 21 '17  
Distinctive agricultural tractor design. *diag*  
*Sci Am* 118:468 My 18 '18  
Farm tractor design. J. Jandasek. *diags* Au-  
tomotive Ind 40:1265-73, 1406-7 Je 12-19  
'19  
French tractor design shows lack of uniform-  
ity. W. F. Bradley. *Il Automotive Ind*  
40:1045-9+ My 15 '19  
Fundamentals of tractor design. G. T. Strite.  
Automotive Ind 38:354-6 F 14 '18  
Influence of hitches and drawbar location on  
tractor design. A. W. Scarratt. *diags* Au-  
tomotive Ind 40:1334-5+ Je 12 '19  
Originality in design shown in new British  
tractors. *Il Automotive Ind* 41:253-5 Ag 7  
'19  
Probable effects of war motor apparatus on  
commercial design. Automotive Ind 39:905-  
6+ N 28 '18  
Problems of tractor design discussed at  
Kansas City S. A. E. meeting. Automotive  
Ind 40:546+ Mr 6 '19  
Tractor design from the operator's viewpoint.  
A. B. Domonoske. Automotive Ind 40:1309-  
11+ Je 12 '19

**Tractor design problems. Automotive Ind 40:**

1357-8 Je 12 '19  
Tractor radiators, their calculation and de-  
sign. A. B. Modine. *diags* Automotive Ind  
38:179-81+ Ja 17 '18  
Tractor transmission design. N. B. Nelson.  
Automotive Ind 38:1205+ Je 20 '18

**Electric equipment**

Tractor men discuss electrical equipment.  
Automotive Ind 37:1042-3 D 13 '17  
Willard tractor battery. *diags* Automotive Ind  
39:837 N 14 '18

**Exhibitions**

4th annual national tractor show, Kansas  
City. *Il Motor Age* 35:10-11+ F 27 '19  
New models and strong representation of  
parts makers at Kansas City tractor show.  
Automotive Ind 40:494+ F 27 '19  
Northwestern automotive and industrial ex-  
position at Minneapolis. *Il Motor Age* 35:  
22-3+ F 20 '19  
Regulations that will govern exhibits and  
tests at National tractor event, July 14-19.  
Motor Age 35:17 Je 12 '19  
Tractors exhibited at Omaha meeting. F. M.  
Loomis. *Il Motor Age* 34:16-17 N 21 '18  
Tractors first at Indianapolis. F. M. Loomis.  
*Il Motor Age* 34:20-1+ S 12 '18  
Tractors in mile-long parade. *Il Motor Age*  
34:22-3 S 19 '18  
U. S. tractors at French exhibit. W. F.  
Bradley. *Il Motor Age* 35:30-1 My 8; 36-  
7 My 15 '19  
Worthy merchandising features at Kansas  
City tractor show. D. Beecroft. *Il Auto-*  
*motive Ind* 40:519-21 Mr 6 '19

**Fuel**

Fuel limitations of tractor engines. H. L.  
Hornung. Automotive Ind 40:1001-3+ My  
8 '19  
Kerosene burning problem discussed by Min-  
neapolis section of the S. A. E. Automotive  
Ind 38:380 F 14 '18  
Kerosene carburetion. Automotive Ind 38:377  
F 14 '18  
Operating the farm tractor with coal gas. *Il*  
*Sci Am* 118:436 My 11 '18  
Results of Ohio tractor demonstration. *Sci*  
*Am* 119:358 N 2 '18

**Gearing**

Demmler worm drive transmission for farm  
tractors. *Il Automotive Ind* 38:1127 Je 13 '18  
Gears for tractor construction. E. J. Frost.  
Automotive Ind 40:891-2 Ap 24 '19; Same.  
*Am Mach* 50:902 My 8 '19  
Port Huron has friction drive. *Il Motor Age*  
35:43 Ja 2 '19  
Tractor gear ratio chart. Automotive Ind 39:  
372 Ag 29 '18  
Tractor gear teeth and materials. A. W. Scar-  
ratt. Automotive Ind 38:587-8 Mr 21 '18

**Hitching**

Attaching plow to tractor. F. M. Loomis.  
*diags* Motor Age 34:20-2 O 3; 28-9 O 17 '18  
Incorrect hitching neutralizes the work of the  
tractor. F. N. G. Kranich. Automotive Ind  
39:1024 D 12 '18  
Tractor hitch merits serious consideration.  
J. E. Schipper. *diags* Automotive Ind 38:  
1257-61 Je 27 '18  
Tractor hitch problem fundamentally math-  
ematical. *diags* Automotive Ind 40:1069-  
70 My 15 '19  
Vertical hitch on tractor plows. F. M.  
Loomis. *diags* Motor Age 34:20-1 N 7 '18

**Ignition devices**

Magneto ignition for farm tractors. J. G. Zim-  
merman. *Il diags* Automotive Ind 38:1006-9  
My 23 '18

**Lubrication**

Lubricating the farm tractor. *diags* plan Mo-  
tor Age 35:28-9 F 20 '19  
Proper lubrication. Motor Age 34:39+ O 10  
'18  
Service on farm tractors. Motor Age 34:27  
N 7 '18

**Tractors—Lubrication—Continued**

Tractor engine lubrication and lubricating oils. W. G. Clark. *Automotive Ind* 38:776-8 Ap 18 '18

**Manufacture**

Assembling tractors in a new plant. E. Kreutzberg. *Il plan Iron Tr R* 63:89-92 Ji 11 '18  
Building a 30-hp. tractor. B. Caldwell. *Il Am Mach* 50:853-5 My 1 '19  
Ford is pushing tractor industry. *Il Iron Tr R* 62:792-4 Mr 28 '18  
Ford tractor production plant unchanged in growth. J. E. Schipper. *Il map plan Automotive Ind* 38:621-4+ Mr 28 '18  
Fordson tractor assembly wholly on progressive plan. J. E. Schipper. *Il diags Automotive Ind* 40:895-901+, 960-6 Ap 24-May 1 '19  
Grinding operations on caterpillar tractor parts. F. A. Stanley. *Il diags Am Mach* 50:1-4 Ja 2 '19  
Handling parts in the shop and on the assembly floor. J. E. Schipper. *Il Automotive Ind* 40:1008-12 My 8 '19  
How gear cases for tractors are molded. *Il diags Foundry* 47:2-5 Ja '19  
Machining operations on the backbone of the Fordson tractor. J. E. Schipper. *Il Automotive Ind* 38:717-22 Ap 11 '18  
Manufacture of worm gear and assembly methods factors in Fordson tractor success. *Il Automotive Ind* 38:810-14 Ap 25 '18  
Manufacturing a farm tractor. M. E. Hoag. *Il Am Mach* 49:1135-7 D 19 '18  
Manufacturing the caterpillar tractor. F. A. Stanley. *Il diags Am Mach* 49:745-7, 801-4, 897-901, 977-80, 1040-2; 50:299-302 O 24-31, N 14, 28-D 5 '18, F 13 '19  
Molding shoes for caterpillar tractors. *Il Iron Age* 103:119-20 Ja 9 '19  
Production features of the Moline plow tractor works. P. M. Heldt. *Il plan Automotive Ind* 40:1384-8 Je 19 '19  
Putting the human element into a tractor assembly plan. P. M. Heldt. *Il Automotive Ind* 40:1444-8 Je 26 '19  
Turning out 100 tractors per day; International harvester co. P. M. Heldt. *Il plan Automotive Ind* 40:788-92, 852-7 Ap 10-17 '19

**Performance**

Labor-saving machinery used in building houses. S. H. Lea. *Il diags plan Eng N* 82:753-5 Ap 17 '19  
Tractor saves town from darkness; used to drive generator. J. H. Wiley. *Il Elec R* 72:757-8 My 4 '18

**Radiators**

Principles of tractor radiator design. E. Goldberger. *diags Automotive Ind* 39:1000-3 D 12 '18

**Rating**

New basis for tractor engine ratings. *Automotive Ind* 40:1138 My 22 '19  
Proposed tractor rating. *Automotive Ind* 41:29 Ji 3 '19  
Tractor brake and drawbar horsepower rating. R. O. Hendrickson. *Automotive Ind* 40:1383+ Je 19 '19  
Tractor rating chart prepared by the S. A. E. *Automotive Ind* 40:1436 Je 26 '19; Same. *Motor Age* 36:47 Ji 10 '19

**Seats**

Provisions that make for comfort and discomfort on various tractors. *Il Motor Age* 36:24-5 Ag 21 '19  
Tractor seats. *Motor Age* 35:17 Mr 27 '19

**Specifications**

Analysis of tractor specifications. P. M. Heldt. *charts Automotive Ind* 40:522-4 Mr 6 '19  
Detailed technical specifications of gasoline farm tractors for 1919. *Automotive Ind* 40:176-9 Ja 16 '19  
Farm tractors are dealer opportunities; condensed specifications. *Horseless Age* 44:46-8 My 1 '18  
Motor age monthly guide to tractors and their technical specifications. *Motor Age* 36:50-3 N 27 '19

Specifications of stock engines for passenger cars, trucks and tractors. *Automotive Ind* 40:1300-3 Je 12 '19

**Springs**

Mechanics of tractor spring-mounting. E. Goldberger. *diags Automotive Ind* 38:542-5 Mr 14 '18  
Spring suspension of tractors. P. M. Heldt. *diags Automotive Ind* 40:793-4 Ap 10 '19

**Standards**

Possibilities for standardization in tractor front axles. *Il Automotive Ind* 39:264-6 Ag 15 '18  
S. A. E. standardization work in 1918. *diags Automotive Ind* 40:163-4 Ja 16 '19  
S. A. E. Standards committee in busy session. *Automotive Ind* 38:141 Ja 10 '18  
S. A. E. Standards recommendations. *Automotive Ind* 38:1178 Je 20 '18  
Standardize many tractor details. *diags Automotive Ind* 37:1040-1+ D 13 '17  
Tractor standardization progress. *Automobile* 37:729 O 25 '17

**Starting devices**

Impulse starters for tractors. *diags Automotive Ind* 38:23-4 Ja 3 '18  
Tests of Christensen tractor starter. *Il Motor Age* 34:25 D 19 '18

**Testing**

Agricultural tractor trials. *Engineer* 128:308, 338-40, 356-7, 378-80 S 26-O 17 '19  
All tractors do well in Scotch trials. *Il Automotive Ind* 37:1001-3 D 6 '17  
British tractor trials get grip on farmers. M. W. Bourdon. *Il Automotive Ind* 41:801-3 O 23 '19  
Class B rules for tractor tests. *Automotive Ind* 40:1236-7+ Je 5 '19  
Constructive plan for 25 years of tractor demonstrations. D. Beecroft. *Automotive Ind* 41:149-54 Ji 24 '19  
Demonstration of tractors and ploughs in Scotland. *Engineer* 125:223-4 Mr 15 '18  
Denver plowing shows farmers. B. M. Ikert. *Il Motor Age* 35:18-19+ Je 19 '19  
Few reach rating in Ohio tests. *Motor Age* 36:18-19 Ag 28 '19  
Fifty tractors in national demonstration at Salina, Kansas. D. Beecroft. *Il Automotive Ind* 39:175-8+ Ag 1 '18  
Honest to man tractor demonstration suggested. *Motor Age* 33:35 Je 13 '18  
May use tanks for Alpine farming. *Il Motor Age* 36:38-9 O 23 '19  
Need of test demonstrations is Wichita lesson. D. Beecroft. *Il Automotive Ind* 41:99-101 Ji 17 '19  
Ohio adds to tractor data. B. M. Ikert. *Il Motor Age* 36:18-19 Ag 7 '19  
Ohio tests example of what tractor demonstration should be. B. M. Ikert. *Motor Age* 36:13 Ji 31 '19  
100-hr. non-engine stop Parrett demonstration. *Il Motor Age* 34:17 Ag 8 '18  
Parrett puts on closely checked harvesting and plowing test on 127-acre field. D. Beecroft. *Il Automotive Ind* 41:101-4 Ji 17 '19; Same. *Motor Age* 36:18-21 Ji 17 '19  
Performances on heavy land. *Il Automotive Ind* 41:804-7 O 23 '19  
Pertinent comment on the Ohio tractor tests. P. M. Heldt. *Automotive Ind* 41:482-3 S 4 '19  
Plowing in the light land. *Il Automotive Ind* 41:808-10 O 23 '19  
Principles of the wheeled farm tractor. E. R. Hewitt. *diag Automotive Ind* 40:312-15 F 6 '19  
Rules for tractor demonstration at Salina, Kansas. *map Motor Age* 34:18-19 Ji 11 '18  
Rules of California tractor demonstration. April 17, 18 and 19. *Automotive Ind* 38:658 Mr 28 '18  
Season's work in thirty days; Fordson tractor test at Wichita. *Il Motor Age* 36:21 Ji 17 '19  
Severe tractor test at Toronto. P. M. Heldt. *Automobile* 37:532-3 S 27 '17  
Staging tractor trials at Missouri state fair. *Il Motor Age* 36:22-4 Ag 28 '19

**Tractors—Testing—Continued**

- Standardized 5-ton tractor demonstrated. *Il* Automotive Ind 38:1102-3 Je 6 '18  
 Tests for side drafts held. *Il* Motor Age 34:28-9 S 12 '18  
 Tractor demonstrations great success. *Il* Motor Age 34:18-19+ Ag 8 '18  
 Tractor tests at Salina (Kansas) begin. *D:* Beecroft. *Il* Motor Age 34:5-9 Ag 1 '18  
 Tractors are seriously tested in Ohio. Automotive Ind 41:413, 414 Ag 28 '19  
 Tractors fall below scheduled plowing performances in Pennsylvania. Automotive Ind 39:644-5 O 10 '18  
 Useful data from Harrisburg tests. Automotive Ind 39:530-1 S 26 '18

**Transmission**

- Cotta adds tractor transmission; gears are always in mesh. *Il* Motor Age 36:46 Ag 7 '19  
 Foote-Strite tractor transmissions. *diags* Automotive Ind 39:795-7 N 7 '18  
 Fuller & sons tractor transmission. *Il* Automotive Ind 39:1014 D 12 '18  
 Non-clashing type of tractor transmission. *Il* Automotive Ind 41:531 S 11 '19  
 Nuttall tractor transmission; gives two forward speeds and reverse. *Il* *diags* Automotive Ind 39:506-7 S 19 '18  
 Traction transmissions. E. R. Greer. *Il* *diags* plan Automotive Ind 38:305-9 F 7 '18  
 Tractor transmission design. N. B. Nelson. Automotive Ind 38:1205+ Je 20 '18

**Wheels**

- Adjustable grip tractor wheel. *diag* Automobile 37:705 O 25 '17  
 Big auto tractor attachment. *Il* *diags* Automotive Ind 40:528-9 Mr 6 '19  
 Design of tractor wheels. P. M. Heldt. *diags* Automotive Ind 40:1107-8 My 22 '19  
 Mastodon is model for tractor wheel. *Il* Motor Age 35:44-5 F 6 '19  
 Mastodon tractor wheels. *Il* Automobile 37:718 O 25 '17  
 P-T tractor wheel has novel tread. *Il* *diags* Automotive Ind 37:822-3 N 17 '17  
 Principles of the wheeled farm tractor. E. R. Hewitt. *diag* Automotive Ind 40:312-15 F 6 '19  
 Resistance to rolling of tractor wheels in soft ground. A. F. Moyer. *diags* Automotive Ind 38:949-53 My 16 '18; Discussion. E. F. Norelins. 39:25 J1 4 '18  
 Turret lathe practice. E. Oberg. *Il* *diags* Mach 26:227-34 N '19  
 Types of treads on the tractor. F. M. Loomis. *Il* *diags* Motor Age 34:22-4 S 5 '18  
**Tractors, Electric.** See Electric tractors  
**Tractors, Military**  
 American artillery tractor. *Il* Iron Age 101:1486c Je 6 '18  
 Artillery tractor production well started when the war ended. Automotive Ind 39:1096 D 26 '18  
 British and French tanks. *Il* Sci Am 118:68 Ja 19 '18  
 British whippets—the destroyer type of tank. *Il* Sci Am 19:35 J1 13 '18  
 Creeper tractor ancient invention. *Il* *diags* Automotive Ind 37:962-5 N 29 '17  
 Crewe tractor for military light railways. *Il* Engineer 126:339 O 18 '18  
 Everybody went to the spirited exhibit of motor war equipment. *Il* Automotive Ind 41:6-7+ J1 3 '19  
 Evolution of tank armor. Iron Age 103:1004 Ap 17 '19  
 Flat tractor for hauling field guns. *Il* Automotive Ind 38:357 F 14 '18  
 First description of the Ford baby tank. *Il* *diags* Automotive Ind 40:43-6 Ja 9 '19  
 Ford tractors for British armies. F. C. Coleman. *Il* Ry R 64:194-5 F 1 '19  
 Ford two-man tank appears. *Il* Automotive Ind 38:746 Ap 11 '18  
 Forerunner of the tank. H. H. Manchester. *Il* *diags* Am Mach 49:651-4 O 10 '18  
 French baby Renault tank. W. F. Bradley. *Il* *diags* Automotive Ind 40:464-70+ F 27 '19  
 Heavy-gun tractor proves worth. *Il* Motor Age 33:27 Je 6 '18

- Heavy trallers for War department. *Il* Automotive Ind 39:138-9 J1 25 '18  
 How the German meets the tank attack. Sci Am 118:204 Mr 2 '18  
 Invention that won the war. *Il* Sci Am 120:458-9+ My 3 '19  
 Mark VIII land cruiser. J. E. Schipper. *Il* Automotive Ind 40:6-9 Ja 2 '19; Same. Motor Age 35:18-21 Ja 2 '19  
 Mechanical cavalry. *Il* Sci Am S 86:312-13 N 16 '18  
 Overcoming barbed wire with the wire-cutting tank. *Il* Sci Am 119:169 Ag 31 '18  
 Panzerkraftwagen: a German version of the tank. *Il* Sci Am 118:569 Je 22 '18  
 Remarkable developments of engines of war. *Il* Iron Age 108:124-6 Ja 9 '19  
 Renault builds light, speedy tanks for French army. *Il* Automotive Ind 39:410-11 S 5 '18; Sci Am 119:297+ O 12 '18  
 Special tractors for big guns. W. F. Bradley. *Il* Motor Age 33:30-1 Je 27 '18  
 Steam-driven forty-five ton tank for our army. *Il* Sci Am 118:411 My 4 '18  
 Tactics and tanks; how Generalissimo Foch has met and bested the Von Hutier battering ram. *Il* Sci Am 119:148-9 Ag 24 '18  
 Tank man's story. *Il* Sci Am 120:482+ My 10 '19  
 Tank's development hastened war's end. D. M. Avey. *Il* Iron Tr R 64:70-7 Ja 2 '19  
 Tanks; papers presented at British association, engineering section, Sept. 10. Engineer 128:282-3 S 19 '19  
 Tractor displaces horse for hauling heavy artillery. W. F. Bradley. Automobile 37:444-6+ S 13 '17  
 Types of ordnance vehicles. *Il* Automotive Ind 38:1249-50+ Je 27 '18  
 U.S.A. two-man tank fitted with motor car engines. *Il* *diag* Motor Age 35:16-18 Ja 9 '19  
 U.S. tank and tractor details. *Il* Motor Age 34:20-1 D 26 '18  
 Wheel and track-laying tractors needed for war. W. F. Bradley. *Il* Automotive Ind 38:849-51 My 2 '18  
 Will tanks win the war? Sci Am 119:268 O 5 '18

**Manufacture**

- Machine tool adaptations for the manufacture of tank lines. *Il* *diags* Engineer 127:120-3, 130 F 7 '19  
 Paving the way for the guns; making tractor track links. *Il* Foundry 47:104-9 Mr '19  
**Tractors, Steam**  
 Steam agricultural tractors; abstract. Mech Eng 41:284 Mr '19  
 Steam-driven forty-five ton tank for our army. *Il* Sci Am 118:411 My 4 '18  
 Tractor of the future will be steam. C. A. Obermaier. Automobile 37:510-11 S 20 '17  
**Tractors in lumbering**  
 Enter the logging tractor and pole trailer. *Il* Am Lumberman 2249:50 Je 22 '18  
 New method of snaking logs. *Il* Am Lumberman 2318:81 O 18 '19  
 Where caterpillar tractors serve the lumbermen. Am Lumberman 2303:60 J1 5 '19  
**Tractors in mountain climbing**  
 Mountain climbing—a peacetime use for tanks. *Il* Sci Am 121:513 N 22 '19  
 War tanks make mountain touring cars. W. F. Bradley. *Il* Automotive Ind 41:732-3 O 9 '19  
**Trade acceptances.** See Acceptances  
**Trade agreements**  
 Collective bargaining outside or inside? H. Tipper. Automotive Ind 39:712-13+ O 24 '18  
 Collective bargaining rules. Iron Age 103:244 Ja 23 '19  
 Midvale plan of employee representation. Iron Age 102:763, 834-5 S 26-O 3 '18  
 Wage questions must be handled from inside the industrial unit. H. Tipper. Automotive Ind 40:62-3 Ja 9 '19  
 See also Arbitration, Industrial  
**Trade associations**  
 Industries from the front and rear. Metal Work 91:3-4 Ja 3 '19

**Trade associations—Continued**

Legitimate functions of trade organizations. R. S. Kellogg. Am Lumberman 2303:56 J1 5 '19

Liability of a trade association which publishes list of delinquent debtors for use of its members. Dom Eng 88:351-2 Ag 23 '19

Trade association activities in relation to the law. W. Compton. Am Lumberman 2305:52-3; 2306:51-2 J1 19-26 '19

See also Lumber associations; Plumbers' associations

**Bibliography**

List of references on the organization and work of trade associations; comp. under direction of H. H. B. Meyer. Special Libraries 9:97-8 Ap '18

**Trade catalogs. See Catalogs****Trade extension bureau**

Launching the trade extension campaign. Metal Work 91:543-7 My 2 '19

Trip to the Trade extension bureau. C: Rosemont. Il plan Dom Eng 89:2-4 O 4 '19

**Trade extension committee (now Trade extension bureau)**

Special meeting, Chicago, Feb. 20. Dom Eng 86:394-5 Mr 1 '19

Trade extension. W: J. Woolley. Dom Eng 86:23-4+ Ja 4 '19

Trade extension committee meets in Chicago. Metal Work 90:313-15 S 13 '18

**Trade journals**

Editorial conference of business papers in Washington on Dec. 13. Elec Ry J 50:1162-3 D 29 '17

Enemy technical periodicals available. Chem & Met Eng 19:517 S 28 '18; Same. Eng & Min J 106:525 S 21 '18

Getting the most out of the trade journal. J. G. Holman. Inland Ptr 63:400 J1 '19

How the business press serves industry. A. C. Pearson. Am Mach 51:77 J1 10 '19

Trade journal's service to the steel industry. B. S. Stephenson. Iron Age 101:1478-80 Je 6 '18; Same. Iron Tr R 62:1485-7 Je 13 '18;

Discussion. Iron Age 101:1480-1 Je 6 '18

See also House organs

**Trade marks**

Advantages obtained by having a national trade-mark. Mach 25:8 S '18

American business men in London oppose U. S. trademark. Eng & Min J 105:1091 Je 15 '18

Creating business by original designs and trade-marks. F. H. Eno. Inland Ptr 61:453-4 J1 '18

Establishment of International trademark bureau in Havana. Mach 24:663 Mr '18; Elec W 71:1035 My 18 '18

Extensions in patent and trade mark cases. E. B. Marshall. Sci Am 118:592+ Je 29 '18

Farm trademarks that bring business. Sci Am 120:19 Ja 4 '19

German piracy of American trademarks. A. E. Parker. Automotive Ind 39:966-7+ D 5 '18

Imitating advertising or symbols used by competitor. Dom Eng 81:552 D 29 '17

International trademark registrations. Sci Am 120:504 My 17 '19

International trademarks: the present and the future. L. Langner. Am Mach 49:994-8 N 28 '18

Methods of trademarking your product. E. K. Hammond. Il Mach 24:1123-30 Ag '18

Modern trade-mark practice from the standpoint of the printer. W. Fawcett. Inland Ptr 61:465-6 J1 '18

National trademark for our manufacturers. Sci Am 119:34 J1 13 '18

National trademarks. Gas Age 41:407 My 1 '18

Pan-American trade mark convention. Sci Am 118:110 F 2 '18

Patent and trade mark laws of the Argentine. R. W. Huntington. Automotive Ind 39:192-3 Ag 1 '18

Registration of patents and trade marks in Japan. Am Ind 19:43 Ag '18

Trade-mark Liberty registered by the United States. W: L. Symons. Sci Am 121:116 Ag 2 '19

Trade-mark piracy. Sci Am 118:442+ My 11 '18

Trade-marks and the manufacturer. G. B. Harris. Am Mach 48:195-7 Ja 31 '18

Trade-marks in South America. Sci Am 119:246 S 28 '18

Unfair competition in trademarks. C. C. Sherlock. Mach 26:242 N '19

Use of trade-marks. C. C. Sherlock. Am Mach 51:651-3 O 2 '19

What are my rights regarding the use of family name in title of corporation? Dom Eng 85:329-30 N 30 '18

See also Patents

Trade names. See Trade marks

**Trade routes**

Between the Tigris and the Indus; a region of great future commercial importance. T: H. Holdich. Sci Am S 84:394-5 D 22 '17

**Trade schools**

Industrial experience of trade-school girls in Massachusetts. U S Bur Labor Statistics Bul 215:1-269 '17

Instructing future foremen and superintendents. F. H. Korff. Mach 25:338-41 D '18

Kind of work for a trade-school shop. Am Mach 46:10-11, 475-6, 907-8; 47:1052-3; 48:334, 608 Ja 4, Mr 15, My 24, D 13 '17, F 21, Ap 11 '18

Making expert machinists of our boys. B. K. Price. Il Iron Tr R 63:552-4 S 5 '18

Military trade schools at Washington (D.C.) barracks. Am Mach 48:779 My 9 '18

Missionary machinery: an appeal. F. A. Foster. Il Am Mach 51:754-6 O 23 '19

New Arsenal technical schools at Indianapolis, Ind. Il plans Arch Forum 30:55-61 F '19

Value of trade and vocational training demonstrated in Baron de Hirsch trade school. Il diag Metal Work 89:110-12 Ja 18 '18

See also Corporation schools; Industrial education; also Dunwoody industrial institute

**Trade secrets**

Secrecy versus coöperation. R. Mawson. Ind Management 56:235-6 S '18

**Trade unions**

Agreements with labor unions. Dom Eng 82:483-4 Mr 30 '18

Brooklyn unionists fight discharge. Elec Ry J 52:516-17 S 21 '18

Case of the Chicago photoengravers. Inland Ptr 61:322 Je '18

Claims coercive measures were adopted by the structural iron workers' union to force the close-shop policy. W. Drew. Iron Tr R 63:463 Ag 22 '18

Co-operation in labor matters imperative. W. G. Merritt. Iron Age 103:1705-9 Je 26 '19

Economic betterment of the engineer. L. Fisher. Eng N 82:883-4 My 1 '19

Engineers' unions. J. C. Hawkins. Power 47:670 My 7 '18

Guild reappears in industry. J: A. Fitch. Inland Ptr 62:412 Ja '19

How to win the support of labor unions for programs of increased productivity. Eng & Contr 51:206 F 26 '19

Labor and the shop committee. W: L. Stoddard. Ind Management 58:217-20 S '19

Labor board decides Brooklyn case. Elec Ry J 52:805-6 N 2 '18

Labor seeks union domination. E. H. Gary. Iron Tr R 65:1192-3 O 30 '19

Labor union restriction of workmen's output in shipbuilding. Eng & Contr 49:485 My 22 '18

Members of labor union liable in damages to firm whose business they have injured without justifiable cause. Dom Eng 85:286-7 N 23 '18

Militant labor unions viewed as national danger. W: H. Barr. Ry R 65:771 N 22 '19

Mill workers and the war. F: B. Gordon. Textile World 54:2561+ N 23 '18

Opposition of certain labor unions to women workers; how can it be overcome? Eng & Contr 50:335-6 O 9 '18

**Trade unions—Continued**

- Organization in the settlement of industrial disputes. V. E. Macy. *Il Eng & Min J* 107:825-8 My 10 '19
- Organizing to cause strike is illegal; decision by the Supreme court of United States in Hitchman case. *Iron Age* 100:1436-7 D 13 '17; *Coal Age* 12:1020-1 D 15 '17; *Elec Ry J* 50:1087 D 15 '17; *Eng N* 79:1133 D 13 '17
- Position of the Amalgamated association of Street & electric railway employees of America on the question of employment of women as conductors. *Elec Ry J* 52:470 S 14 '18
- Radical element is destroying labor organizations. H. Tipper. *Automotive Ind* 40:480-1 F 20 '19
- Railroad brotherhoods and labor slackers. *Am Mach* 49:119-20 J1 18 '18
- Refinement of unionism. D. H. Cuyler. *Dom Eng* 89:123-4 O 18 '19
- Shall engineering be a profession or a trade? *Ry Age* 66:1081-2 My 2 '19
- Shop stewards and the Coventry strike. *Engineer* 125:8 Ja 4 '18
- Socialism, unionism and the engineer. J. P. Channing. *Eng & Contr* 49:640-2 Je 28 '18
- Structural service department; American federation of labor (building trades department)—list of associations. *Am Inst Arch J* 5:658 D 17
- Union labor promises and performance. L. P. Thompson. *Iron Age* 102:98 J1 11 '18
- Union membership should mean special ability. J. A. Beeler. *Elec Ry J* 51:803-4 Ap 27 '18
- Unionism as foe of labor. C. C. Allom. *Am Ind* 19:42-5 Mr '19
- Unionizing industry as a war measure; dangers of policy pointed out. W. Drew. *Iron Age* 101:142-3 Ja 10 '18
- Unity versus trade unionism. L. L. Warren. *Ind Management* 56:191-2 S '18
- Wage questions must be handled from inside the industrial unit. H. Tipper. *Automotive Ind* 40:62-3 Ja 9 '19
- Washington society of draftsmen joins the American federation of labor. *Eng & Contr* 50:227-8 S 4 '18
- Which side are you on? H. Tipper. *Automotive Ind* 39:669-71 O 17 '18
- See also* Arbitration, Industrial; Guild socialism; Labor and laboring classes; Open and closed shops; Strikes; Trade agreements; United mine workers of America
- Trade waste**
- Alcohol from sulphite waste liquors. *Chem & Met Eng* 19:97 J1 15 '18
- Conservation applied to brass plant wastes. *Iron Age* 103:1233-4 My 3 '19
- Disposal of industrial wastes. J. L. Crane, Jr. *Am Ind* 19:22-4 J1 '19
- Industrial waste problems with reference to the smaller cities. L. Pearse. *Munic Eng* 54:18-21 Ja '18
- Operating experiences with activated sludge process for factory wastes. G. W. Fuller. *Munic Eng* 57:123-5 S '19
- Purifying dye house waste water. *Textile World* 53:4707 Ap 13 '18
- Trade-waste treatment studies in Wisconsin. E. J. Tully. *Eng N* 82:1167-8 Je 12 '19
- Treatment of gas works waste. L. R. Dutton. *diag plan Gas Age* 43:420 Ap 15 '19
- See also* Creamery waste; Refuse, Utilization of; Waste; Waste products
- Trading with the enemy**
- Enemy property. *Sci Am* 118:184 Mr 2 '18
- Restriction of imports into the United States. *Sci Am* 118:346+ Ap 13 '18
- Trading with the enemy; the reason for the new act. W. C. Redfield. *Automobile* 37:719-21 O 25 '17; *Excerpts. Ry Age* 63:813 N 2 '17
- See also* United States—War trade board
- Traffic.** *See* River traffic; Road traffic; Street railroads—Traffic; Street traffic
- Traffic census.** *See* Road traffic
- Traffic policemen**
- Traffic police in the spotlight in St Louis. *Il Munic J* 44:12 Ja 5 '18

**Traffic regulations**

- Regulate traffic by zone systems. *Eng N* 81:475-6 S 12 '18
- Report on London transport. *Engineer* 128:106-7, 129-30 Ag 1-8 '19
- Road design and regulation of traffic. H. J. Fixmer. *diags Eng & Contr* 51:328-31 Ap 2 '19
- Segregating traffic; regulations adopted for New York city and modifications recommended. *Munic J* 46:72 Ja 25 '19
- Standard highway traffic regulations. *Munic J* 47:150-1 S 6 '19; *Same. Good Roads n* 18:122-3 S 3 '19
- Standardized traffic regulations. *Motor Age* 35:7-10 Ja 16 '19
- Traffic regulations and their value. W. P. Eno. *Good Roads n* 17:72+ F 22 '19
- See also* Street traffic
- Traffic signs**
- Automatic signaling on the highway. *Il Sci Am* 119:277 O 5 '18
- Crow's nest traffic signal. *Il Munic J* 44:4-5 Ja 5 '18
- Illuminated white lamp posts make safety islands conspicuous. *diags Eng N* 80:662 Ap 4 '18
- Propose less dangerous traffic guide. O. H. Mohr. *diag Eng N* 81:890 N 14 '18
- Uniform highway crossing signs in Connecticut. *Il Ry Age* 65:1164 D 27 '18
- See also* Signs, Danger
- Traffic surveys.** *See* Road traffic; Street railroads—Traffic; Street traffic
- Trailer manufacturers' association of America**
- Trailer manufacturers want uniform laws. *Automotive Ind* 40:1137 My 22 '19
- Trailers.** *See* Motor truck trailers
- Trails**
- Trails constructed by National forest service. *Il Eng N* 81:539-40 S 19 '18
- Train dispatching**
- Controlling the freight traffic, North-Eastern railway. *Il map Engineer* 126:305-6 O 11 '18
- Increased efficiency by use of train-order form nineteen. T. H. Meeks. *Ry Age* 64:280-1 F 1 '18
- New Haven installs lead-covered cable for dispatching circuits. *Elec Ry J* 52:626 O 5 '18
- Train dispatcher and his work. S. F. Spurbeck. *Ry Age* 64:248 F 1 '18
- Train-order technicalities. W. E. Watts. *Ry Age* 64:135-6 Ja 11 '18
- Who wastes the fuel? *Ry Age* 64:305-6 F 8 '18; *Discussion. 64:442, 696 Mr 1, 22 '18*
- Train ferries**
- Canadian train ferry. *Il diag Engineer* 127:184 F 21 '19
- Construction of concrete car floats for the government. *Il diags Concrete* 14:180-3 My '19
- English Channel train ferry bridge of 120-foot span. P. J. Risdon. *Il diags Eng N* 83:666-8 O 2 '19
- Hudson river shipyard layout to build concrete car floats. H. W. Eldridge. *Il diags Eng N* 82:732-4 Ap 10 '19
- Plans for English channel train ferries. *Int Marine Eng* 24:513 Ag '19
- Proposed Anglo-Swedish train ferry service. *Engineer* 128:248-9 S 12 '19
- Railroad ferry service between England and France. *Il Sci Am* 120:21 Ja 11 '19; *Ry Age* 66:509-10 F 28 '19
- Richborough transportation denot and train ferry terminus. *Il (supp) diags map plans Engineer* 127:31-4, 36, 49-54, 76-9, 82, 102-4, 106, 147-50, 154, 169-72, 219-20, 226 Ja 10-31, F 14-21, Mr 7 '19
- Train ferries for the Irish channel. *Engineer* 127:60 Ja 17 '19
- Transport report. *Engineer* 127:85-6 Ja 24 '19
- Train heating.** *See* Car heating
- Train indicators**
- Hutchinson train indicators. E. W. Rice, Jr. *Il Ry R* 63:259 Ag 17 '18
- Train lighting.** *See* Car lighting
- Train load.** *See* Railroads—Train load

**Train resistance**

- Causes of railway curve resistance. J. G. Sullivan. *Eng & Contr* 51:532 My 21 '19
- Effect of anti-friction bearings on the haulage of a coal mine. P. B. Liebermann. *Am Inst Min E Bul* 127:1051-62 Jl '17; Discussion. 133:14-15 Ja '18
- Mechanics of curved resistance. J. G. Sullivan. *diags Ry R* 63:527-31 O 12 '18
- Passenger train resistance. E. C. Schmidt and H. H. Dunn. *diags Ill U Eng Exp Sta Bul* 110:1-39 '18
- Tonnage rating of the standard locomotives. H. S. Vincent. *charts Ry Age* 65:627-31 O 4 '18
- Train resistance and tonnage rating; report of Master mechanics' association committee. *Ry Age* 64:1525-7 Je 21 '18
- Wind resistance on a train. C. F. D. Marshall. *diags Engineer* 127:473-4 My 16 '19; Same. *Sci Am S* 88:105-6 Ag 16 '19; Excerpt. *Eng & Contr* 52:136 Jl 30 '19; Abstract. *Mech Eng* 41:701-2 Ag '19
- Winter temperatures and locomotive capacity. W. L. Bean. *Ry Age* 64:539-41 Mr 15 '18

**Train sheds.** See Railroads—Train sheds

**Train stops.** See Railroads—Automatic stop

**Traingrams**

- Elimination of unnecessary telegraph messages. J. H. Brennan. *Ry Age* 66:500-1 F 28 '19

**Training wall.** See Rivers—Regulation

**Trainmen.** See Railroads—Employees

**Trains.** See Railroads—Trains

**Trains, Hospital.** See Hospital trains

**Tramways.** See Street railroads

**Transatlantic flight.** See Aviation—Transatlantic flight

**Transfer railroads.** See Railroads, Transfer

**Transformers, Electric.** See Electric transformers

**Transit, Surveyors'**

- Home-made transit built mostly of wood. W. G. Peters. *Il Eng N* 81:283 Ag 8 '18

**Translocation**

- Translocation of the mineral constituents of the jack bean. G. D. Buckner. *Am Chem Soc J* 41:282-7 F '19

**Transmission of power.** See Electric transmission; Power transmission

**Transparency**

- Mystery of the transparent rat. *Sci Am S* 84:391 D 22 '17
- Transparency effects on cotton. *Textile World* 54:1205-7, 1443 S 14, 28 '18

**Transportation**

- Business papers advise shippers. *Ry Age* 64:363-4 F 15 '18
- Concrete suggestions to shippers by the national organization of business papers. *Elec R* 72:484-5 Mr 16 '18
- Co-ordinating production and transportation. H. L. Gantt. *Met & Chem Eng* 18:278-9 Mr 15 '18; Same. *Am Mach* 48:503-4 Mr 21 '18; Excerpt. *Eng & Min J* 105:478 Mr 9 '18
- Co-ordination of all transportation facilities. J. R. Hall. *Ry Age* 64:943-6 Ap 5 sec 2 '18
- Correlation of highway and waterway transport. P. G. Ten Eyck. *Good Roads n s* 17:124-5 Mr 15 '19; Excerpt. *Ry R* 64:553 Ap 12 '19
- Economic highway transportation. R. C. Barnett. *diags Good Roads n s* 15:241-5 My 11 '18
- Economics of transportation in the Mississippi valley. J. R. Bibbins. *map Eng N* 82:971-3 My 15 '19; Same. *Sci Am S* 87:466-7 Je 28 '19
- Future of road transport. *Engineer* 128:385-6 O 17 '19
- Highway development as important as railroad and waterway development. W. C. Redfield. *Munic Eng* 55:170-2 N '18; Excerpts. *Eng & Contr* 50:527 D 4 '18
- Highway engineering; relation between highway and railway engineering. W. G. Thompson. *Il Good Roads n s* 18:161-2 O 1 '19

- Highway transport engineering. A. H. Blanchard. *Good Roads n s* 17:268-9 Je 21 '19; Same. *Munic Eng* 57:sup27-8 Jl '19; Same abr. *Eng N* 82:1153 Je 12 '19; Same cond. *Eng & Contr* 51:590 Je 4 '19
- How Lake fleet will meet ore needs. R. V. Sawhill. *Iron Tr R* 62:1138-42 My 2 '18
- Interrelationship of highways, railways and waterways. G. H. Pride. *Good Roads n s* 17:127-8 Mr 22 '19; Same abr. *Eng & Contr* 51:253 Mr 5 '19
- Locomotive of the seas. *Sci Am* 120:628-4 Je 14 '19
- Need of inland water transportation. W. E. Joyce. *plan Coal Age* 16:437-9 S 11 '19
- New York city's transportation requirements. *Ry R* 62:402-3 Mr 16 '18
- Personnel and functions of organization directing 1918 Lake trade. *Iron Tr R* 62:1140 My 2 '18
- Railroad facilities and freight congestion. A. H. Smith. *Am Lumberman* 2240:47 Ap 20 '18

- Report of the select committee on transport. *Engineer* 126:458-9+ N 29 '18
- Report on London transport. *Engineer* 128:106-7, 129-30 Ag 1-8 '19
- Short chronology of locomotion. C. F. D. Marshall. *Engineer* 127:603, 624-5 Je 20-27 '19
- Some odd modes of travel. J. M. Treadwell. *Il Sci Am S* 88:264 N 8 '19
- Transport report. *Engineer* 127:60-1, 85-6 Ja 17-24 '19
- Transportation sections of the peace treaty. *Ry R* 64:699-700 My 10 '19

See also Aeronautics; Commercial; Automobiles; Barges; Canals; Carriers; Coal handling; Commerce; Demurrage; Electric railroads; Electric vehicles; Employees; Transportation of; Express companies; Express service; Freight; Freight car service; Freight handling; Harbors; Haulage; Jitney buses; Mechanical handling; Mine haulage; Motor trucks; Motor vehicles; Ore transportation; Packing for shipment; Ports; Rafts; Railroads; Rapid transit; River traffic; Roads; Shipping; Steamboats; Street railroads; Terminals; Trucks; Waterways; also subdivision Transportation under various subjects. e.g. Farm produce—Transportation, Petroleum—Transportation

**Cost**

- Cost of carriage of passengers in ships. *Sci Am S* 86:163 S 14 '18

**Laws and regulations**

- British control of highways. *Good Roads n s* 15:311+ Je 22 '18
- British transport bill becomes a law. R. E. Thayer. *Ry Age* 67:455-6 S 5 '19
- Transport bill passed by the House of Commons. R. E. Thayer. *Ry Age* 67:161-2 Jl 25 '19

See also Highway law; Interstate commerce law; Priority; Railroad law

**Transportation, Military**

- American-built docks in France completed by Pacific coast engineers. R. K. Tomlin, jr. *Il diags plan Eng N* 81:208-16 Ag 1 '18
- Carrying troops by rail; the Great Indian peninsula railway of India uses military cars, holding 66 soldiers each. F. C. Coleman. *Il Ry Age* 65:509-11 S 13 '18
- Inland traffic service of War department. *Ry R* 63:201-3 Ag 10 '18; Excerpt. *Ry Age* 65:263-5 Ag 9 '18
- Moving drafted men via electric. *Elec Ry J* 51:1195 Je 22 '18
- Passenger car distributor and his war job. J. W. Roberts. *Il Ry Age* 64:1127-8 My 3 '18
- Railways and the war cabinet report. *Engineer* 125:345-6 Ap 19 '18
- Travelling army auxiliary. *Il Sci Am* 120:575 My 31 '19

See also Automobiles in war and army service; Hospital trains; Motor trucks, Military; Motor trucks in war and army service; Railroads in war; United States—Army—Motor transport corps

- Transportation and traffic association, American electric railway.** See American electric railway transportation & traffic association
- Transportation board, Federal (proposed).** See United States—Federal transportation board (proposed)
- Transportation conference, National.** See National transportation conference
- Transports**  
How navy has built up huge fleet to bring back war veterans. V. G. Iden. *Il Marine* R 49:288-95 Je '19  
Twin-screw troopship of 13,000 tons d. w. diags plans *Int Marine Eng* 24:192-6 Ap '19
- Transvaal**  
Transvaal mining in 1918. H. F. Marriott. *Eng & Min J* 107:118-21 Ja 11 '19  
See also Gold mines and mining—Transvaal
- Traps.** See Plumbing—Traps; Steam traps
- Traveling engineers' association**  
26th annual convention, Chicago, Sept. 10. *Ry Age* 65:494-508 S 13 '18; *Ry R* 63:399-406, 429-32 S 14-21 '18; *Ry Mech Eng* 92:547-56 O '18  
27th annual meeting, Chicago, Sept. 16. *Ry R* 65:422-6, 450-1 S 20-27 '19; *Ry Age* 67:581-5, 638-43 S 19-26 '19; *Ry Mech Eng* 93:569-76 O '19
- Traverse tables**  
Guide for use with traverse tables. P. A. Arnold. diags *Coal Age* 13:361 F 23 '18  
Why not avoid traverse-table troubles? R. D. Hall. *Coal Age* 15:743 Ap 24 '19
- Trawlers.** See Fishing boats
- Treadmills**  
Links in the history of engineering. R. Jenkins. *Il Engineer* 126:534-6 D 20 '18
- Treasure chests.** See Coffers
- Tree felling**  
Hand power-saw felling machine. diags *Am Lumberman* 2235:27 Mr 16 '18  
Tree-felling machine. *Il Sci Am* 118:233 Mr 16 '18
- Tree planting**  
Cost of planting boulevard trees. H. R. Ferriss. diags *Eng & Contr* 49:148 F 6 '18  
Plant nut and timber trees. F. W. Buffum. *Am Lumberman* 2271:60 N 23 '18  
Planting trees as protection against drifting snow. *Il Ry Age* 64:706 Mr 22 '18  
Poplar shade trees choke house sewers. R. J. Gordon. diags *Dom Eng* 87:477-8 Je 14 '19  
Tree planting to control snow and wind. W. C. Palmer. *Il Sci Am* S 85:356-7 Je 8 '18  
Trees for the desert. A. L. Dahl. *Il Sci Am* S 87:188-9 Mr 22 '19  
Waterworks operation reservoir maintenance. *Munic J* 46:65-7 Ja 25 '19  
See also Forest planting
- Tree surgery.** See Trees, Care of
- Tree wasp**  
Tree wasp. *Sci Am* S 87:14 Ja 4 '19
- Trees**  
Indian medicines; numerous popular remedies obtained from forest trees. H. Maxwell. *Il Sci Am* S 86:100-3 Ag 17 '18  
Roadside trees in North Carolina. J. S. Holmes. *Good Roads* n s 15:190, 194-5 Ap 6 '18; Same. *Munic J* 45:364-6 N 9 '18; Excerpt. *Eng & Contr* 50:333-4 O 2 '18  
Tree telephony and telegraphy. G. O. Squier. *Il diags J Fr Inst* 187:657-87 Je '19; Excerpts. *J Elec* 43:256 S 15 '19  
Water tree of the Sudan. H. J. Shepstone. *Il Sci Am* 121:260+ S 13 '19  
With trees for ears; a wireless station within the reach of everybody. *Sci Am* 120:624 Je 14 '19  
See also Forest planting; Forests and forestry; Landscape gardening; Leaves; Lumber; Timber; Tree planting; Wood; also names of trees, e.g. Birch, Cedar, Eucalyptus, Oak, Pine, Spruce, Tebeldi
- Diseases and pests**  
Forest disease surveys. J. R. Weir and E. E. Hubert. *Il map U S Agric Bul* 658:1-23 '18  
What will happen to our white pine? P. S. Lovejoy. *Am Lumberman* 2250:59+ Je 29 '18
- Law**  
Shade trees in streets. J. Simpson. *Munic J* 46:422-3 Je 14 '19
- Trees, Care of**  
Grills for shade trees. W. Boecklin. *Il Munic J* 45:246-7 S 28 '18  
Guard and grating for trees on Albany business streets. diags plan *Eng & Contr* 49:17 Ja 2 '18  
Tree surgery. F. A. Bartlett. *Il Sci Am* S 87:200-1 Mr 29 '19
- Trees, Fossil**  
Replacement of wood by calcite. C. W. Greenland. *Il Econ Geol* 13:116-19 Mr '18
- Trematoda**  
Transmission of the trematode in Venezuela. *Sci Am* S 85:110 F 16 '18
- Trench fever**  
Infectivity of trench fever. *Sci Am* S 86:27 J1 13 '18  
Prevention and arrest of lice-borne diseases. W. Hunter. *Sci Am* S 86:219 O 5 '18  
Trench fever. *Sci Am* 118:587 Je 29 '18  
Trench fever traced to vermin. *Sci Am* 119:284 O 5 '18
- Trench newspapers.** See European war—Trench newspapers
- Trench warfare**  
Mining in No man's land. H. D. Trounce. *Eng & Min J* 106:187-8 J1 27 '18; Same abr. *Eng & Contr* 50:372 O 16 '18  
New warfare of the trenches; how grenades and automatic rifles have altered French infantry tactics. A. C. Lescarbourea. *Il Sci Am* 118:274+ Mr 30 '18  
Sanitation, heating & ventilation at the front. T. E. Powers. *Am Soc Heat & V E* 23:347-51; Discussion. 351-5 '17
- Trenches**  
Backfilling a large sewer trench. F. C. Perkins. *Il Munic J* 45:190 S 7 '18  
Ditching work at the cantonments. *Il Munic J* 45:75 J1 27 '18  
Lowering ground water levels. C. L. Kirk. *Am Water Works Assn J* 5:36-7; Discussion. 37-9 Mr '18  
See also Excavating machinery; Excavation
- Cost**  
City of Detroit offsets labor shortage by using machinery for all water main construction. *Il Munic Eng* 55:104-6 S '18  
Cost of machine trenching for water mains at Erie, Pa. *Il Eng & Contr* 49:460 My 8 '18  
Costs of trenching for gas mains. *Gas Age* 41:564 Je 15 '18
- Trenches, Military.** See Intrenchments; Trench warfare
- Trenching machinery**  
Backfilling machine of special design on heavy sewer work in Chicago. *Il Munic Eng* 54:196 My '18  
Bucket excavator does heavy trenching work. *Il Eng N* 80:342-3 Ap 25 '18  
Bucyrus trench excavator. *Il Eng & Contr* 49:395 Ap 17 '18  
Ditching and bank building attachment for Jordan spreader. *Il diags Eng & Contr* 51:121-2 Ja 29 '19; *Ry R* 64:415-17 Mr 15 '19  
How to build a logging railroad with a ditcher. *Il Am Lumberman* 2239:33 Ap 13 '18  
Improvements on Jordan spreader. *Il Ry Age* 67:945-6 N 7 '19  
Instruction for gas company fitters. G. Wehrle. *Il Gas Age* 42:382-4 N 1 '18  
Machine ditching on the Gulf Florida & Alabama Ry. *Il Ry R* 65:717-18 N 15 '19  
Machine trenches 220 feet an hour in shale. *Il Eng N* 80:310-11 F 14 '18  
Motor- and horse-drawn tile ditching machines. *Il Sci Am* 118:193+ Mr 2 '18



**Trenching machinery—Continued**

- Parsons trench backfiller. *il* Munic Eng 54:78 F '18
- P. & H. backfiller of dragline type. *il* Eng & Contr 50:471-2 N 13 '18; Munic Eng 55:155-6 O '18
- Reports indicate increasing use of trenching machinery by city water works departments. Munic Eng 55:154-5 O '18
- Right of way ditching on Southern railway. *il* Eng & Contr 49:293 Mr 20 '18
- Right of way ditching with electrically operated ditcher. *il* Eng & Contr 51:61 Ja 15 '19
- Template excavators have dug 100 miles of ditches. *il* Eng N 80:263 F 7 '18
- Trench excavator that will dig any desired width, using only one set of buckets. *il* Eng & Contr 49:124 Ja 30 '18
- Trenching machine work. W: W. Brush. Am Water Works Assn J 4:521-4; Discussion. 524-31 D '17
- Trenching machinery in laying water pipe. O. T. Smith. *il* Munic J 45:142-3 Ag 24 '18

**Trenton, New Jersey****Rapid transit**

- Report on Trenton. P: Witt. Elec Ry J 51:138 Ja 19 '18

**Water supply**

- Trenton filtration plant. F. W. Daggett. *il* Am Water Works Assn J 6:147-56 Je '19
- Trenton & Mercer county traction corporation Going at publicity whole-heartedly. Elec Ry J 50:1068-70 D 15 '17

**Trespass**

- Liability for trespass in street work. J: Simpson. Munic J 45:304-5 O 19 '18

**Trestles**

- Heavy double trestle for shipbuilding cranes over Newport News battle-cruiser berths. R. W. Burpee. *il* diags plan Eng N 83:723-8 O 16 '19
- Practical and economical way to build a trestle. diags plan Bldg Age 40:387-8 Ag '18
- See also Bridges

**Trestles, Concrete**

- Cantilever concrete trestle bents carry steel spans. *il* diags Eng N 79:1107-8 D 13 '17
- Reinforced concrete trestle. *il* Sci Am S 86:324 N 23 '18
- Reinforced concrete trestles at North Toronto. *il* diags Ry Age 65:239-91 Ag 16 '18
- Standard precast concrete frames make up flume trestles. *il* diags plan Eng N 82:977-8 My 15 '19
- Wooden trestle replaced piecemeal by concrete structure. *il* diags Eng N 80:369-70 My 2 '18

**Triacetylmethyl-d-xyloside**

- Triacetyl-d-xylose and alpha triacetylmethyl-d-xyloside. C. S. Hudson and J. K. Dale. Am Chem Soc J 40:997-1001 Je '18

**Triangulation. See Mine surveying; Surveying****Tribo-electricity. See Electrostatics****Tribolium confusum**

- Prolongation of life of tribolium confusum apparently due to small doses of X-rays. W. P. Davey. Gen Elec R 22:479-83 Je '19

**Triboluminescence. See Luminescence****Tricks**

- Scientific coin problem. T. L. De Land. Sci Am S 87:220 Ap 5 '19

**Trigonometry**

- Problem in trigonometry; driving three pinions by one gear. Mach 24:245 N '17; Discussion. 24:347, 547 D '17, F '18
- Relations between the sides of a right-angle triangle. diags Power 50:144-5 Jl 22 '19
- Simple solution of right-angle-triangle problems for mechanics. S. A. Hand. diags Am Mach 50:494-6 Mr 13 '19

See also Logarithms; Surveying

**Trikresol, Substitute for**

- Preparation of a preservative from cresol. M. Nevin and B. Mann. Am Chem Soc J 39:2752-6 D '17

**Trimming machines**

- Bliss flat-edge trimmer for sheet metal. *il* diags plan Am Mach 50:412-14 F 27 '19; Iron Age 103:553 F 27 '19; Mach 25:657-9 Mr '19

**Trimming novelties**

- Tinsel and metal thread products. *il* Textile World 56:1647+ S 20 '19

**Trinitrides**

- Thermal decomposition of certain inorganic trinitrides. A. R. Hitch. diags Am Chem Soc J 40:1195-1204 Ag '18

**Trinitrometoxylene**

- Studies on the nitrotoluenes; binary systems of a nitrotoluene and symmetrical trinitrometoxylene. J. M. Bell and J. P. Sawyer. diags J Ind & Eng Chem 11:1025-8 N '19

**Trinitrophenol**

- Trinitrotoluol and trinitrophenol. Mach 25:235 N '18

**Trinitrotoluene**

- Binary systems of the components p-nitrotoluene, 1,2,4-dinitrotoluene, 1,2,4,6-trinitrotoluene. J. M. Bell and C. H. Herty, jr. diags J Ind & Eng Chem 11:1124-8 D '19

- Blasting tests show TNT stronger than forty per cent dynamite. Eng N 83:145 Jl 17 '19

- Detection and estimation of small amounts of certain organic nitro compounds with special reference to the examination of the urine of TNT workers. E. Elvove. J Ind & Eng Chem 11:860-4 S '19

- Increasing TNT supplies. Sci Am S 85:36 Ja 19 '18

- Munitions of peace. C. H. Claudy. *il* Sci Am 121:366-7 O 11 '19

- Oxidation in the manufacture of TNT. A. S. Eastman. J Ind & Eng Chem 11:1124 D '19

- Safeguards against poisoning by TNT. Eng & Min J 105:432 Mr 2 '18

- Safety of TNT as an explosive. J. M. Weiss. J Ind & Eng Chem 10:1028 D '18

- Three component system: p-nitrotoluene, 1,2,4-dinitrotoluene, 1,2,4,6-trinitrotoluene. J. M. Bell and C. H. Herty, jr. diags J Ind & Eng Chem 11:1128-30 D '19

- TNT as a blasting explosive. C: E. Munroe and S. P. Howell. U S Bur Mines 14p Je '19; Abstract. Eng & Contr 52:225-6 Ag 20 '19

- TNT poisoning. Sci Am S 85:400 Je 22 '18

- Trinitrotoluol and trinitrophenol. Mach 25:235 N '18

- Trinitro-toluol to replace dynamite? Eng N 79:1056 D 6 '17

- Utilization of trinitrotoluene residues for dyestuff making. M. Copisarow. Color Tr J 4:128 My '19

**Triphenylmethyl**

- Triphenylmethyl; a study of the properties of diphenyl- $\alpha$ -naphthylmethyl. M. Gomberg and C. S. Schoepfle. Am Chem Soc J 41:1655-76 O '19

**Triplanes. See Airplanes****Tripp, Guy Eastman, 1865-**

- Chief of production division, Ordnance department. por Iron Tr R 62:1071 Ap 25 '18

**Trolley hangers**

- What makes a good trolley hanger? G. H. Bolus. diags Elec Ry J 53:595-6 Mr 22 '19

**Trolley poles**

- Collapsible trolley pole with automatic disconnecting attachment. Elec Ry J 52:468 S 14 '18

**Trolley shoes**

- Longer life with lower cost for pantograph shoes. *il* Elec Ry J 53:1212 Je 21 '19

**Trolley wheels. See Electric railroads—Equipment and supplies****Trolley wire**

- Hard spots in trolley wire result from hammering of trolley wheels. G. H. Bolus. *il* Elec Ry J 52:248 Ag 10 '18

**Trolley wire—Continued**

Standard specifications for hard-drawn copper wire; English and Spanish. diags U S Bur For & Dom Com Ind Stand 50:1-25 '19  
Trolley feeders. Elec R 73:709 N 2 '18

*See also* Electric railroads—Wiring

**Troopships. See Transports****Troughs**

Flow of water in wash water troughs for rapid sand filters. F. V. Fields. diag Eng & Contr 50:461-2 N 13 '18

**Trucks**

Baggage trucks with automatic brakes. diag Ry Age 67:429 Ag 29 '19  
Barrett multi-truck. II Textile World 54:1213 S 14 '18  
Economy of centralized trucking. J. M. Van Harlingen. II charts Ind Management 55:199-203 Mr '18  
Lewis-Shepard elevating truck. II Am Mach 48:79 Ja 10 '18  
Lifttrucks cut transportation costs at Terminal warehouse co., Cleveland. II Ry R 63:413 S 14 '18  
Lift trucks cut transportation costs in Modern foundry co.'s plant, Oakley, O. II diags Iron Age 101:1321-3 My 23 '18  
Stuebing model K lifting truck. II Mach 24:1166 Ag '18  
Trucking passenger car trimmings, Norfolk & Western Ry., Roanoke, Va. II Ry R 62:403-4 Mr 16 '18

*See also* Electric trucks; Motor trucks

**Trucks, Car. See Car trucks****Trucks, Electric. See Electric trucks****Trucks, Motor. See Motor trucks****Trusses**

Bridging the wide span. E. V. Laughlin. diags Bldg Age 40:141 Mr '18  
Designing a wooden roof truss for 36 ft. span. diags Bldg Age 41:160-1 My '19  
Details of a porch lintel that does not sag. E. V. Laughlin. diags Bldg Age 40:231 My '18  
Erecting long-span roof over steel mill by rolling trusses to place. II diags plans Eng N 82:898-902 My 8 '19  
Formula and table of weights for steel roof trusses. M. L. Murray. Eng & Contr 51:672 Je 25 '19; Abstract. Eng N 82:884 My 1 '19  
How to design a scissors truss. L. Goodman. diags Bldg Age 41:297-8 S '19  
Incase wood trusses in concrete to resist acid fumes and fire. Eng N 79:891-2 N 8 '17; Same. J Fr Inst 185:157-8 Ja '18  
Plank trusses carry streets over depressed tracks. diags plan Eng N 81:869-70 Ag 22 '18  
Rectangular engine house avoids use of turntable. II diags plan Eng N 81:593-4 S 26 '18  
Roof truss for eighty-five foot span. R. Shepherd. II diags Bldg Age 40:516-17 N '18  
Simple truss for concrete or brick arches. E. V. Laughlin. diag Bldg Age 40:353 Jl '18  
Steel cantilevers hold headframe over mine shaft. diag plan Eng N 80:1002-3 My 23 '18; Same. Eng & Min J 106:266-7 Ag 10 '18; Same. Coal Age 14:553 S 19 '18  
Steel construction characterizes Chicago church. II diags plans Eng N 81:860-3 N 7 '18  
Steel roof trusses are designed as elastic arches. W. S. Tait. II diags plan Eng N 80:761-4 Ap 18 '18  
Substructure replaced without the use of shores. A. A. Aegerter. II diags plan Am Arch 113:541-5 My 1 '18  
Timber-arch truss roof with steel gusset plates. H. W. Sheley. II diags plans Eng N 80:595-7 Mr 28 '18  
Use of wood lattice truss grows. C. E. Paul. II Am Lumberman 2255:87-8 Ag 3 '18  
Weights of steel roof trusses by empiric formulas. R. Fleming. Eng N 82:576-7 Mr 20 '19

*See also* Bridges; Building; Girders; Roofs; Strains and stresses

**Trusts, Industrial**

Legality of joint sales agencies. A. L. H. Street. Coal Age 15:404-5 F 27 '19  
Powerful foreign trade combinations of Europe. P. H. Middleton. Ry Age 64:884-7 Ap 5 sec 1 '18

**Tube mills**

Artificial pebbles for tube-milling. A. W. Allen. diags Eng & Min J 105:1033-41 Je 8 '18  
Effective tube-mill liners. A. W. Allen. diags Eng & Min J 106:867 N 16 '18  
Electric furnace replaces crucibles. II Iron Age 104:913-16 O 2 '19  
Tube-mill practice in Rhodesia. A. W. Allen. II Eng & Min J 103:452-3; 104:390 Mr 17, S 1 '17; Discussion. F. C. Brown. 104:177; 105:245 Jl 28 '17, F 2 '18

*See also* Crushing machinery; Gold milling

**Tuberculosis**

Problem of the discharged tuberculosis patients. Sci Am 121:304 S 27 '19

**Tuberculosis, Hospitals and sanitoriums for County tuberculosis hospital. W. H. Scopes and M. M. Feustmann. plans Arch Forum 30:165-8 Je '19**

Norfolk county tuberculosis hospital, Braintree, Mass. Arch Forum 30:165-6, pl 86-9 Je '19

**Tubes**

Bending and drilling tubes, angles and flat sections. F. A. Stanley. II diags plan Am Mach 48:697-701 Ap 25 '18  
Collapse of short thin tubes. A. P. Carman. bibliog II diags III U Eng Exp Sta Bul 99:1-38 '17  
How would you form this tube? diag Am Mach 48:294; 49:84 F 14, Jl 11 '18  
Inductance of tubular conductors. H. B. Dwight. diag Elec R 72:224-5 F 9 '18  
Manufacture of seamless tubes. L. J. Krom. II Metal Ind n s 15:1-3 Ja '17  
Metal hose without packing. II diags Automobile 37:686 O 18 '17  
Producing a bulge in tubing. diags Am Mach 47:860; 48:251-2, 463 N 15 '17, F 7, Mr 14 '18  
Shearing tool for cutting off tubing. F. A. Stoye. diag plan Mach 25:1121 Ag '19  
Tube forming dies. G. R. Smith. diags Mach 25:204-5 N '18

*See also* Chemical apparatus; Pipes

**Tubes, Boiler. See Boiler tubes****Tubes, Brass**

Bending and forming of brass rod and tubes. P. W. Blair. II diags Metal Ind 17:172-3 Ap '19  
Dies and plugs for drawing brass tubing. R. Schafer. diags Am Mach 50:1150-2 Je 12 '19  
Expanding brass tubes on a power press. E. A. Walters. diags plan Mach 25:643-4 Mr '19  
Interior surface defects on brass condenser tubes as a cause of corrosion. W. R. Webster. II Metal Ind 15:291-3 Jl '17; Same. Power 47:676 My 7 '18  
Manufacture of brass stuffing tubes. J. A. Shand. diags Mach 25:157-8 O '18

**Tubes, Canvas**

Canvas tubing for mine ventilation. L. D. Frink. II Am Inst Min E Bul 133:183-91 Ja '18; Same abr. Eng & Contr 49:54-7 Ja 16 '18; Same cond. Eng & Min J 105:325-7 F 16 '18

Securing proper mine ventilation by Flexoid tubing. II Eng & Min J 105:336-7 F 16 '18; Same. Coal Age 13:417-18 Mr 2 '18

**Tubes, Steel**

Making seamless tubes; plant of the Standard seamless tube co. II diags Iron Tr R 64:259-64 Ja 23 '19; Abstract. Mech Eng 41:283 Mr '19

Manufacture and properties of light-wall structural tubing. H. J. French. II diags Am Inst Min Bul 153:1855-74 S '19; Same abr. Iron Tr R 65:982-5 O 9 '19; Discussion. Am Inst Min Bul 156:3154 D '19

- Tufts college**  
Tufts college changes and their results. G. C. Anthony. Eng N 83:185-6 J1 24 '19
- Tugboats.** See Towboats
- Tumbleweed**  
Tumbleweed becomes a crop. Sci Am 120: 629 Je 14 '19
- Tumbling barrels**  
Cheap and efficient tumbling barrel. Il Am Mach 50:1170; 51:741 Je 19, O 16 '19  
Improvised tumbling barrel. M. E. Duggan. diag Am Mach 50:754 Ap 17 '19  
Improvised tumbling barrels. E. Amos. Il Am Mach 50:158 Ja 23 '19  
Polishing of cast iron by rumbling. R. P. MacPherson. Il Metal Ind 17:7-9 Ja '19  
Steel ball polishing and burnishing. T. C. Eichstaedt. Il Metal Ind 16:24-6 Ja '18
- Tungsten**  
Atomic heats of tungsten and of carbon at incandescent temperatures. A. G. Worthing. J Fr Inst 185:707-8 My '18  
Boulder county tungsten. Chem & Met Eng 21:275-6 S 15 '19  
Chinese tungsten and American markets. Iron Age 104:641 S 4 '19  
Colorimetric assay for tungsten. W. R. Schoeller and A. R. Powell. Eng & Min J 106:794 N 2 '18  
Consumption of tungsten in 1918. chart Chem & Met Eng 21:200-1 Ag 15 '19  
Determination of tin in concentrates. A. M. Smoot. diag Eng & Min J 106:25-6 J1 6 '18  
Determination of tin in high-grade wolfram ores. A. R. Powell. Eng & Min J 106:964-6 N 30 '18  
Determination of tungsten. A. H. Low. Eng & Min J 106:27 J1 6 '18  
Determination of tungstic acid in wolframite. L. Guglielmelli and U. Hordh. Eng & Min J 106:585 S 28 '18  
Emissivity of straight and helical filaments of tungsten. W. W. Coblenz. Il diags U S Bur Stand Bul 14:115-31 Ap 6 '18  
Experiments relating to the enrichment of tungsten ores. R. W. Gannett. Econ Geol 14:68-78 Ja '19  
Fusion of tungsten. Sci Am 121:420+ O 25 '19  
Homestake tungsten mill. flow sheet Eng & Min J 107:1159 Je 28 '19  
House committee continues hearing on potash and tungsten. P. Wooton. Eng & Min J 107:1168-9 Je 28 '19  
Import duty on wolfram. M. R. Lamb. Eng & Min J 106:182 J1 27 '18  
Improved test for tungsten. R. F. Heath. Eng & Min J 106:27 J1 6 '18  
Manufacture of tungsten and molybdenum. P. McJunkin. Am Mach 50:99-100 Ja 16 '19  
Metallography of tungsten. Z. Jeffries. bibliog Il Am Inst Min E Bul 138:1037-92 Je '18; Abstract. Chem & Met Eng 19:280-1 S 15 '18; Discussion. Am Inst Min E Bul 142: 1527-8; 143:1641-9; 144:1779-82 O-D '18  
New uses for tungsten cause big increase in demands. Elec R 73:55 J1 13 '18  
Occurrence of tungsten in manganese ore. W. S. Palmer. Eng & Min J 105:780 Ap 27 '18  
Production and import of tungsten ores. Automotive Ind 40:252 Ja 30 '19  
Rapid determination of tungsten. F. W. Foote and R. S. Ransom, Jr. Eng & Min J 105:836 My 4 '18  
Rarer key minerals. Engineer 124:457 N 23 '17  
Reflecting power of tungsten and stellite. W. W. Coblenz and W. B. Emerson. diags U S Bur Stand Bul 14:307-16 Je 17 '18  
Tariff hearings on tungsten. Chem & Met Eng 21:62 J1 15 '19  
Tariff on tungsten sought. P. Wooton. Eng & Min J 107:1094 Je 21 '19  
Thermal expansion of tungsten at incandescent temperatures; abstract. A. G. Worthing. Elec W 71:523 Mr 9 '18  
Tungsten and the steel industry. Sci Am 120: 158+ F 15 '19  
Tungsten deposits near Fairbanks, Alaska. A. M. Bateman. Econ Geol 13:112-15 Mr '18  
Tungsten deposits of southern Rhodesia. Sci Am S 85:10 Ja 5 '18  
Tungsten in England; abstract. J. L. F. Vogel. Chem & Met Eng 20:595 Je 1 '19  
Tungsten in manganese ore. W. R. Jones. Eng & Min J 106:779 N 2 '18  
Tungsten industry in 1917. F. W. Foote. Eng & Min J 105:90-1 Ja 12 '18  
Tungsten industry in 1918. G. J. Young. Eng & Min J 107:78-80 Ja 11 '19  
Tungsten manufacture at Widnes, England. Eng & Min J 105:502 Mr 16 '18  
Tungsten occurring in manganese oxide. W. J. Sharwood. Eng & Min J 105:1176 Je 29 '18  
Tungsten ore market. C. Hardy. Eng & Min J 105:91-2 Ja 12 '18  
Tungsten ore market, 1918. C. Hardy. Eng & Min J 107:80-1 Ja 11 '19  
Tungsten ore production in 1918. Eng & Min J 107:285 F 8 '19  
Tungsten producers' tariff board hearing. Eng & Min J 106:75-6 J1 13 '18  
Tungsten production, imports and requirements. J. H. Mackenzie. Chem & Met Eng 19:115 Ag 1 '18  
Tungsten sulphide ore. Automotive Ind 38:933 My 23 '18  
Tungsten, vanadium and manganese during war. H. R. Aldrich and J. Schmuckler. Iron Age 104:581-2 Ag 28 '19  
Ultra-violet spectrum of the tungsten arc. M. Luckiesh. Il J Fr Inst 185:552-3 Ap '18  
U.S. tariff commission holds hearings on tungsten at Denver. Chem & Met Eng 19: 11-12 J1 1 '18  
Wolfram mining in Bolivia. G. F. J. Preumont. Il Eng & Min J 107:597-600 Ap 5 '19  
Wolfram ore in Swatow district, China. M. S. Myers. Eng & Min J 106:445 S 7 '18  
Young's modulus of drawn tungsten; abstract. H. L. Dodge. Elec W 71:1095 My 25 '18  
See also Wolframite
- Tungsten lamps.** See Electric lamps, Tungsten
- Tungsten steel**  
Comparison of a cobalt-chrome with a tungsten steel. W. J. Baxter. Iron Age 104:23 J1 3 '19  
Hardening and tempering of steel. C. A. Edwards. Engineer 125:161-2 F 22 '18
- Tungstenite**  
Tungstenite, a sulphide of tungsten. Eng & Min J 105:441 Mr 2 '18
- Tungstic oxide**  
Reduction of tungstic oxide. C. W. Davis. J Ind & Eng Chem 11:201-4 Mr '19
- Tunnel air**  
Maximum temperature in large tunnels and deep wells with a trial empirical formula. F. Butavand. Eng & Contr 52:119-20 J1 30 '19  
Use of air from Chicago's freight tunnel as a refrigerating agent and fuel conserver. T. R. Willson. Il map Heat & Ven 15:42-5 O; 30-5 N '18
- Tunnel lighting**  
Twin Peaks tunnel completed in San Francisco. Il Elec R 73:728-9 N 9 '18
- Tunnel lining**  
Concrete tunnel lining by steam jet. Il Ry R 64:818-20 Je 7 '19; Excerpt. Eng & Contr 52:212 Ag 20 '19  
Concreting 2,000 ft. single track railway tunnel in service. Il Eng & Contr 51:294 Mr 19 '19  
Design and construction methods for copper lining for city tunnel of New York Catskill aqueduct. Eng & Contr 48:488-91 D 12 '17  
New pneumatic process of mixing and placing concrete. Il diag Munic Eng 54:39-41 Ja '18  
Pneumatic method of concreting. H. B. Kirkland. Il diags plans W Soc E J 23:319-49 My '18; Excerpt. Eng & Contr 49:482-4 My 15 '18; Discussion. W Soc E J 23:349-55 My '18  
Pneumatic mixer train on Mount Royal tunnel. F. C. K. Stuart. Il diags plan Eng N 80:155-9 Ja 24 '18  
Proposed type of concrete block for N.Y. tunnel. diags Concrete 15:18 J1 '19

**Tunnel lining—Continued**

- Special car plant with pneumatic mixer outfit for lining railroad tunnel. H. B. Kirkland. *diags plans Eng & Contr* 49:482-4 My 15 '18
- Tunnel lining on the Pittsburgh & Shawmut R. R. *il diag Ry R* 64:378-80 Mr 15 '19
- Water tears quarter-inch steel tunnel lining to pieces. T. W. Jaycox. *il Eng N* 80:172-3 Ja 24 '18
- Tunnel ventilation**
- New Jersey vehicular tunnel. *Sci Am* 121: 104 Ag 2 '19
- Proposed New Jersey-New York vehicular tunnel. *diags maps Heat & Ven* 15:25-33 Ap '18
- Proposed vehicular tunnel under the Hudson river. *il diags Sci Am* 120:222-3 Mr 8 '19
- Ventilation of highway tunnels. C. D. Hill. *Eng N* 80:878 My 2 '18
- Ventilation of subways and tunnels. M. Birtault. *Eng & Contr* 49:553-4 My 29 '18
- Ventilation of the vehicular tunnel. *Sci Am* 121:200 Ag 30 '19
- Ventilation of Woodhead tunnel, Great Central railway. J. B. Ball. *diags plan Eng & Contr* 50:124-5 Jl 31 '18
- Ventilation plant of the Simplon tunnel. *Eng & Contr* 52:122-3 Jl 30 '19
- Tunneling.** See Tunnels and tunneling
- Tunneling machines**
- Tunneling machines in sewer excavation. *il plan Eng & Contr* 52:440 O 15 '19
- Tunnels and tunneling**
- Capacity tests of a water tunnel. F. A. Smith. *Eng & Contr* 50:269 S 11 '18
- Chicago completes 8-mile tunnel under lake and land. *Eng N* 80:684 Ap 4 '18
- Compressed air tunnel driven around lock to check leak in wall. S. S. Hammel. *il diags plan Eng N* 80:699-701 Ap 11 '18
- Concrete packing stops settlement over tunnel. E. E. Adams. *diags Ry Age* 67:509-11 S 12 '19
- Confining Mill creek in a concrete tube. *il Concrete* 12:187 My '18
- Dam and tunnel construction by the Marin water district. *diags Eng & Contr* 52:302 S 10 '19
- Driving operations of the Spiro tunnel of the Silver King Consolidated. M. Schick. *il Eng & Min J* 104:1026-6 D 15 '17
- Electrification of the Montreal tunnel zone. W. G. Gordon. *il Am Inst E E Pro* 37:1285-96 D '18; *Abstract. Elec Ry J* 52:962-5 N 30 '18
- Gas troubles delay California tunnel. *Eng N* 81:262 Ag 8 '18
- Gibraltar tunnel. *Engineer* 125:338 Ap 19 '18; *Abstract. Sci Am S* 86:55 Jl 27 '18
- How one German military tunnel looks. D. I. Curtin. *diag Eng N* 82:488-9 Mr 6 '19
- Lines and grades in tunnels of small diameter. H. B. Pratt. *il Boston Soc C E J* 4: 385-8 N '17; *Same. Eng & Contr* 48:508 D 19 '17
- Mont d'Or tunnel. *Sci Am S* 85:220 Ap 6 '18
- Montreal terminal tunnel from an economic point of view. H. K. Wicksteed. *il plan Ry R* 65:145-51 Ag 2 '19
- Multiple-air-chamber shield for large tunnels. J. F. O'Rourke. *diags Eng N* 80:563-5 Mr 21 '18
- Passaic valley sewer contract suit settled by agreement. *Eng N* 81:191-2 Jl 25 '18
- Photographing a tunnel interior. J. C. K. Stuart. *il Elec Ry J* 50:1039-40 D 8 '17
- Piercing the mountain barrier between France and Spain. F. Honoré. *il maps Sci Am* 121:186-7 Ag 23 '19
- Pittsburgh South Hills tunnel and earlier projects. *map Eng N* 83:166-7 Jl 24 '19
- Place floor of tunnel first, use sliding form for walls and roof. F. A. Baxter. *diag Eng N* 80:137 Ja 17 '18
- Protection table used on shield for sewer tunnel. *il diags Eng N* 80:668-9 Ap 4 '18
- Rapid driving of a short tunnel in Black Hills limestone. H. L. Hicks. *il diag Eng N* 79:1167 D 20 '17
- Roosevelt deep drainage tunnel finished. C. B. Harpole. *il diag Sci Am* 120:331-+ Ap 5 '19

- Schoharie development of Catskill water supply system for New York city. J. W. Smith. *il diags map plans Am Water Works Assn J* 6:639-53 N '19; *Same cond. Eng & Contr* 52:406-10 O 8 '19; *Abstract. Eng N* 83:824-5 O 30 '19
- Sewer construction in tunnel at Hartford. Conn. W. S. Brewer. *il Eng & Contr* 49:266-7 Mr 13 '18
- Short open cut for starting tunnel better than shaft. *diag Eng N* 80:629-30 Mr 28 '18
- Soft ground requires tunnel instead of open cut for sewer. *il Eng N* 80:50 Ja 3 '18
- Survey methods used on the Wilson Avenue tunnel, Chicago, Ill. H. W. Clausen. *il diags maps W Soc E J* 22:491-503 S '17; *Excerpt (Methods of underground survey). Eng & Contr* 48:513-14 D 19 '17
- Tunnel driving at Copper Mountain, B.C. O. Lachmund. *diags Am Inst Min E Bul* 147: 579-83 Mr '19; *Same. Eng & Contr* 51:286-7 Mr 19 '19; *Same. Eng & Min J* 107:567-8 Mr 29 '19
- See also Blasting; Drilling and boring (earth and rocks); Excavation; Mining engineering; Rock drills; Subways; Tunnel air; Tunnel lining; Tunnel ventilation; also Twin Peaks tunnel

**Cost**

- Construction details on the Marin water and power project. H. M. Bowers. *il diags J Elec* 43:22-3 Jl 1 '19
- Methods and costs of constructing a small tunnel for irrigation canal. J. M. Gilles. *Eng & Contr* 51:368 Ap 9 '19
- Tunnels and tunneling, Subaqueous**
- Advance in subaqueous tunneling. *Eng N* 82:897 My 8 '19
- Backfilling tunnel through holes bored from surface. J. Armstrong. *diags Eng N* 83: 174-5 Jl 24 '19; *Same cond. Concrete* 15: 130-1 S '19
- Canal street Hudson river tunnel. C. E. Fowler. *Sci Am* 120:337-+ Ap 5 '19
- Chicago's tunnels for electric light and power cables. G. B. Springer. *il Elec R* 74:1019-23 Je 21 '19
- Compressed air tunnel worked under 47 lb. pressure. *Eng & Contr* 49:475 My 15 '18
- Conduit construction in telephone cable tunnels. *il Elec R* 75:301-3 Ag 23 '19
- Construction of tunnels for light and power cables. G. B. Springer. *plan Elec R* 74:273-4 F 15 '19
- Design and construction of the telephone and telegraph tunnel under the Chicago river at Harrison street. W. Artingstall. *Munic Eng* 57:58-9 Ag '19
- Features of New York city's new rapid transit system. R. Ridgway. *il diags Boston Soc C E J* 5:193-225 My '18
- Methods employed in the construction of a siphon tunnel under the Milwaukee river. A. L. Golinkin. *il diags Munic Eng* 53:225-8 D '17
- New Jersey vehicular tunnel. *Sci Am* 121: 104 Ag 2 '19
- Project for a vehicular tunnel under the Hudson. *diag Ry R* 64:262-3 F 15 '19
- Proposed New Jersey-New York vehicular tunnel. *diags maps Heat & Ven* 15:25-33 Ap '18
- Proposed types of vehicular tunnel under the Hudson river. *diags Eng N* 83:422-4 Ag 28 '19
- Proposed vehicular tunnel under the Hudson at New York. *diags plan Ry R* 64:929-38 Je 21 '19
- Proposed vehicular tunnel under the Hudson river. *il diags Sci Am* 120:222-3 Mr 8 '19
- Subaqueous tunnel heading under eight inches of rock cover. A. Lyle. *diag Eng N* 82:1082 My 29 '19
- Tunnels vs. bridges. *Sci Am S* 85:317 My 18 '18
- Vehicle tunnel under Hudson favored by commission. *Eng N* 79:1220; 80:584-5 D 27 '17. Mr 21 '18
- Vehicular tunnels under the Hudson river. M. Schreiber. *diags plans map J Fr Inst* 187: 273-88 Mr '19

See also English Channel tunnel

**Turbines**

- Bucket and waste-water turbines; abstracts. E. Reichel and W. Wagenbach. *Mech Eng* 41:698 Ag '19
- Comprehensive plotting of water turbine characteristics; abstract. K. R. Kennison. *Mech Eng* 41:837-8 O '19
- Draft tubes of turbine waterwheels. *diags Power* 48:673 N 5 '18
- Economical operation of hydraulic turbines. E. A. Gibbs. *Elec W* 73:25-6 Ja 4 '19
- Economical operation of water turbines. F. H. Rogers. *diags Elec W* 73:680-3 Ap 5 '19
- Hydraulic turbine selection. F. G. Switzer. *diags Sibley J* 32:107-9 Ap '18
- New high-speed hydraulic turbine; abstract. J. Reyval. *Elec W* 72:72 JI 13 '18
- New water turbine. *diag Elec W* 74:255 Ag 2 '19
- Pelton reaction turbines in paper mill power house. *II J Elec* 42:472 My 15 '19
- Pop's water-power course. J. S. Carpenter. *diags Power* 50:302-4 Ag 19 '19
- Principles of waterwheel design. D. R. Shearer. *diags Power* 48:732-4 N 19 '18; *Criticism. Power* 48:819 D 3 '18
- Reconstructing hydraulic units. C. H. Tal-lant. *II J Elec* 43:308-9 O 1 '19
- Seewer governor for high-head hydraulic turbines of the Pelton type; abstract. A. Strickler. *II diags Mech Eng* 41:893-4 N '19
- Single-wheel compound water turbines and multi-stage centrifugal pumps. H. Baudisch. *Mech Eng* 41:392 Ap '19
- Stresses in turbine wheels. W. Knight. *diag Mach* 24:516-19 F '18
- Tour in Italy and France. N. Davey. *II diags (supp) Engineer* 128:456-7, 506 N 7, 21 '19
- Vertical-shaft water-wheel alternator. H. D. Stephens. *II diags Power* 47:572-5 Ap 23 '18
- Waste-water turbines. H. Baudisch. *Elec W* 74:198 JI 26 '19
- Water turbine at the hydroelectric plant at Kubel, Switzerland; abstract. *diags Mech Eng* 41:278-9 Mr '19
- Waterwheel types and settings. D. R. Shearer. *diags Power* 48:670-2 N 5 '18; *Criticism. Power* 48:819 D 3 '18
- When doctors disagree. J. S. Carpenter. *Power* 49:274-5, 366-7 F 25, Mr 11 '19

See also Steam turbines; Water wheels

**Failures**

- Turbine break in Wachusett hydro-electric plant. *II Power* 49:468-9 Mr 25 '19

**Lubrication**

- Operation at Holtwood. C. H. Bromley. *II Power* 49:713-15 My 13 '19

**Testing**

- Hydraulic tests of a 715-hp. high-speed water turbine of Swiss construction. W. Schmid. *diags Am Soc M E J* 40:1045-7 D '18
- Standard testing code for hydraulic turbines. F. H. Rogers. *Elec W* 73:164-6 Ja 25 '19
- Test of world's largest turbine a success. *Power* 47:603 Ap 23 '18

**Turbines, Steam.** See Steam turbines

**Turbo-alternators.** See Electric generators, Alternating current

**Turbo-blowers.** See Blowers

**Turbo-generators.** See Electric generators

**Turkey****Commerce**

- Turkish markets for American hardware. G. B. Ravndal. *U S Sp Cons Rep* 77:1-48 '17

**Turkey in Asia**

- Gates of Asia; some of the problems of the campaigns in the East. T. M. Maguire. *Sci Am S* 85:226-7 Ap 13 '18

**Turnbuckles**

- Butterfly turnbuckle provides for straight pull. *II Elec Ry J* 53:577 Mr 22 '19

**Turner, William W.**

- Learned compositor. H. L. Bullen. *Inland Ptr* 63:45 Ap '19

**Turning**

- Airplane strut turning machine. *II Mach* 24:763 Ap '18
- Automatic turning tool. O. H. Karcher. *diags Mach* 26:133 O '19
- Chart for estimating turning time. J. B. Conway. *Mach* 26:268 N '19
- Chart for finding time required to turn work. R. Poliakoff. *chart Am Mach* 49:590 S 26 '18
- Crank-turning fixture. H. H. Esbenschade. *II diags Am Mach* 51:329 Ag 14 '19
- Necessity for accurate centers. H. Darbyshire. *diag Am Mach* 48:837-8 My 16 '18
- Pattern turning; equipment required and methods used. J. A. Shelly. *II diags Mach* 25:837-41, 938-43 My-Je '19
- Shell-turning tools. E. L. Robenolt. *diags Am Mach* 48:691 Ap 4 '18
- Spherical turning work. G. MacKean. *diags Am Mach* 48:31 Ja 3 '18
- Tool set-up for turning plungers. J. J. Ayrc. *diags Am Mach* 51:184 JI 24 '19
- Turning a marine engine crankshaft. *II Mach* 26:131-2 O '19
- Turning versus grinding. E. H. Fish. *Am Mach* 50:618-9 Ap 3 '19
- Turning versus grinding. J. H. Hollinger. *Am Mach* 50:1154 Je 12 '19
- Universal lathe and grinder chart. R. Poliakoff. *Am Mach* 50:230 Ja 30 '19
- Unusual turning operation. J. N. Germain. *diags Am Mach* 50:994 My 22 '19

See also Lathes

**Turnouts.** See Railroads—Curves and turnouts

**Turnover**

- Effects of turnover on profits. C. A. Gauss. *Elec R* 75:286-7 Ag 16 '19
- What a dollar will earn in a year. Horseless Age 44:20-1 Ap 15 '18

**Turnover, Labor.** See Labor turnover

**Turntables**

- Maintenance of railway turntables. G. C. Lightner. *Ry R* 62:219-4 F 16 '18
- New 110-ft. turntable built for the Pennsylvania. *II diags Ry Age* 66:1415-18 Je 13 '19; Same. *Ry R* 65:117-21 JI 26 '19
- New York Central turntable has unique features. *diags Ry Age* 66:1151-2 My 9 '19
- Portable turntable for motor trucks. M. D. Riker. *II Eng N* 82:1125-6 Je 5 '19
- 60-ft. locomotive turntable at Newhaven, England. (supp) *II diag Engineer* 125:104-5 F 1 '18
- Suggestion for turntable. *diag Motor Age* 36:40 JI 31 '19
- Trussed turntables. C. B. & Q. R. R. *II diags plan Ry R* 63:233-4 Ag 17 '18
- Turntable of unique design; Pennsylvania railroad. *II diags Ry Mech Eng* 93:329-32 Je '19
- Turntable saves time for motor trucks. *II Eng N* 80:1013-14 My 23 '18
- Use of bronzes in railroad turntables and movable bridges. O. E. Selby. *Metal Ind* 15: 439-41, 469-70 O-N '17; Same. *Foundry* 46: 368-71 Ag '18

**Turpentine**

- Cupping vs. boxing. C. H. Herty. *Sci Am S* 88:36-8, 54-5 JI 19-26 '19
- Increased yield of turpentine and rosin from double chipping. A. W. Schorger and R. L. Pettigrew. *II U S Agric Bul* 567:1-9 '17
- Standard specifications for turpentine; English and Spanish. *U S Bur For & Dom Com Ind Stand* 59:1-13 '19

See also Naval stores; Spruce turpentine

**Turtles**

- Turtles of the West Indies. T. de Booy. *II Sci Am S* 85:292-3 My 11 '18

**Tuscania (steamship)**

- Lumbermen-soldiers tell of Tuscania sinking. *Am Lumberman* 2235:43+; 2236:47 Mr 16-23 '18

**Twin Peaks tunnel**

- Open \$4,000,000 Twin Peaks transit tunnel. *Munic J* 44:154 F 16 '18
- Tunnel completed in San Francisco. *II Elec R* 73:728-9 N 9 '18

- Twine**  
Binder twine from the desert. J: L. Von Bion. *Il Sci Am* 121:82-3+ J1 26 '19
- Twisting**  
Twisting operation in the punch press. J. A. Ahlers. *diags Am Mach* 49:1003 N 28 '18
- Tympani.** See Kettledrums
- Tyndall beam**  
Relation between intensity of Tyndall beam and size of particles. R: C. Tolman and others. *Il Am Chem Soc J* 41:576-87 Ap '19  
Relation between the intensity of Tyndall beam and concentration of suspensions and smokes. R. C. Tolman and others. *diags Am Chem Soc J* 41:300-12 Mr '19  
Tyndallmeter for the examination of disperse systems. R: C. Tolman and E. B. Vliet. *diags Am Chem Soc J* 41:297-300 Mr '19
- Type**  
First movable metallic type. F. L. Martin. *Il Inland Ptr* 60:661-2 F '18  
Is there need for more protection for type-faces? W. Fawcett. *Inland Ptr* 60:798-800 Mr '18  
Old names of type-bodies and their equivalents in point system. *Inland Ptr* 61:745 S '18  
Styles of type in relation to display. J. L. Frazier. *Il Inland Ptr* 63:182-6 My '19  
See also Typesetting machines
- Type metals**  
Type metals—their care and treatment. L. D. Staplin. *Inland Ptr* 62:290-1, 436-7, 567-8 D '18-F '19
- Typesetting**  
Short cut to tabular composition. T. Facey. *Inland Ptr* 61:611 Ag '18  
See also Advertisements; Linotype; Printing; Typesetting machines
- Job work**  
Capitals, lower-case and italic. J. L. Frazier. *Inland Ptr* 63:657-61 S '19  
Contrast in type display. J. L. Frazier. *Inland Ptr* 63:297-300 Je '19  
Costs of job-printing. R. T. Porte. *Inland Ptr* 62:652-4; 63:51-4, 190-2, 292-4, 412-14, 531-3, 670-2; 64:46-8 Mr-O '19  
Fallacy of overornamentation. J. L. Frazier. *Inland Ptr* 62:657-9 Mr '19  
Job compositions. J. L. Frazier. See monthly numbers of *Inland printer*  
Making the type talk. J. L. Frazier. *Inland Ptr* 62:297-9 D '18  
Modern type display; examples of the work of B. W. Radcliffe, with the J. W. Burke co., Macon, Ga. *Inland Ptr* 63:416a-416f J1 '19  
Purposes of display: its fundamentals. J. L. Frazier. *Il Inland Ptr* 63:67-9 Ap '19  
Rules in type display. J. L. Frazier. *Inland Ptr* 64:193-8 N '19  
Shape harmony. J. L. Frazier. *Inland Ptr* 64:57-63 O '19  
Subordination and emphasis. J. L. Frazier. *Inland Ptr* 63:417-20 J1 '19
- Typesetting machines**  
Acetylene saves the day in printing a daily newspaper. *Il Sci Am* 121:92 J1 26 '19  
Machine and its overhead. A. E. McGowan. *Inland Ptr* 61:43-6 Ap '18  
See also Linotype
- Typewriters**  
**Manufacture**  
Electric heat in the typewriter industry. A. M. Clark. *Elec R* 75:620 O 11 '19  
Making typewriter parts. M. E. Hoag. *Il Am Mach* 48:133-5, 235-7, 284-6, 366-9 Ja 24, F 7-14, 28 '18  
Progress in metal finishing as practiced at the Corona typewriter company. P. S. Brown. *Il Metal Ind* 17:274-6 Je '19
- Typing**  
Cat tail plant in industry. *Sci Am S* 85:155 Mr 9 '18
- Typhoid fever**  
Administration in typhoid epidemics as carried out by Pennsylvania state health department. *Eng & Contr* 49:44-5 Ja 9 '18
- Advance in chlorination and its effect on typhoid fever. J: Kienle. *Eng N* 82:1194 Je 19 '19  
Great white train. *Il Ry R* 65:747-8 N 15 '19  
Our military camps show remarkable typhoid-fever record. *Eng N* 80:748 Ap 18 '18  
Protective treatment against typhoid in the French armies. *Sci Am S* 85:37 Ja 19 '18  
Sewers and typhoid fever; report of New York state board of health. *Munic J* 44:530 Je 29 '18  
Typhoid and water disinfection in Maryland. *Munic J* 47:37 J1 19 '19  
Typhoid fever at Moline, Illinois. M. C. Sjoblom. *Am Water Works Assn J* 6:230-5; Discussion. 235-7 Je '19  
Typhoid fever epidemic at Xenia, Ohio. F. H. Waring. *Am Water Works Assn J* 6:167-8 Je '19  
Typhoid fever mortality rates for 1917. *Eng N* 80:833 Ap 25 '18  
Typhoid in the expeditionary forces of the American army. G: A. Soper. *Eng N* 82:677-8 Ap 3 '19  
Typhoid in the large cities of the United States in 1918. *Eng N* 82:812-13 Ap 24 '19  
Water purification reduces typhoid in Ohio. *Munic J* 44:191 Mr 2 '18
- Typhus fever**  
New vaccine to increase efficiency of the army. *Sci Am* 118:122 F 2 '18
- Typists**  
Mental tests for typists and stenographers. M. P. Jaques. *Ind Management* 58:145-7 Ag '19
- Tyrone, New Mexico**  
Housing at Tyrone. C: F. Willis. *Il Chem & Met Eng* 19:626-9 O 15 '18  
Housing project construction costs. C: F. Willis. *Il plans Concrete* 14:185-90 My '19

## U

- U-boat chasers.** See Submarine chasers
- U-boats.** See Submarine boats
- Ukraine**  
Germany and the manganese and iron of the Ukraine. *Iron Age* 101:701 Mr 14 '18  
Religion of ancient Ukraine. F. Crath. *Sci Am S* 85:114-15 F 23 '18
- Ulco hard metal**  
Hard-lead alloy. F. C. Frary and S. N. Temple. *Il Chem & Met Eng* 19:523-4 S 28 '18  
Substitute for babbitt. *Eng & Min J* 106:133 J1 20 '18; Same. *Am Mach* 49:524 S 19 '18
- Ultramicroscope.** See Microscope and microscopy
- Ultra-violet rays**  
Action of ultra-violet rays on sugar-cane, pineapple and banana in Hawaii. T. Tsuji. *Sci Am S* 87:327 My 24 '19  
Decrease in ultra-violet and total radiation with usage of quartz mercury vapor lamps. W. W. Coblenz, M. B. Long and H. Kahler. *diags U S Bur Stand Sci Pa* 330:1-20 '18  
Deterioration in ultra-violet radiation of mercury lamps. *Sci Am* 120:64 Ja 18 '19  
Effect of ultra-violet rays upon bananas, sugar cane, etc. *Elec R* 75:532 S 27 '19  
Improved quartz mercury-vapor lamp for ultra-violet light. *diag Met & Chem Eng* 18:43-4 Ja 1 '18  
Leniency in requirements for olive drab; tests before and since war. E. W. Pierce. *Il Textile World* 53:3069+ Ja 12 '18  
Progress in manufacturing radio-protective glasses. W. W. Coblenz. *Sci Am S* 88:188 S 20 '19  
R. U. V. color testing and laboratory ultra violet ray outfit. *Il Textile World* 53:4439 Mr 30 '18  
Role of ultra-violet light in chemical reaction. *Sci Am S* 87:208 Mr 29 '19  
Separating visible from invisible light. W. S. Andrews. *diag Sci Am S* 88:126 Ag 23 '19

**Ultra-violet rays—Continued**

Ultra-violet and visible transmission of eye-protective glasses. K. S. Gibson and H. J. McNicholas. U S Bur Stand Tech Pa 119:1-47 '19

Ultraviolet energy. M. Luckiesh. Sci Am S 87:242-3 Ap 19 '19

Ultraviolet energy and its use. M. Luckiesh. Met & Chem Eng 18:232-6 Mr 1 '18

Ultra-violet light in field signalling. R. W. Wood. Sci Am S 88:187 S 20 '19

Ultra-violet spectrum of the tungsten arc. M. Luckiesh. II J Fr Inst 185:552-3 Ap '18

Ultraviolet transmission of clear and cobalt-blue glasses. M. Luckiesh. II J Fr Inst 186:111-13 J1 '18

**Unafow engines.** See Steam engines

**Underfeed stokers.** See Stokers, Mechanical

**Underground mains.** See Pipe lines

**Underground roads.** See Subways

**Underground water.** See Water, Underground

**Underpinning.** See Shoring and underpinning

**Underwear**

Changes in underwear trade. Textile World 53:3155-6 Ja 12 '18

Drawers for the British navy. II Textile World 54:1325+ S 21 '18

Economy in underwear manufacturing. Textile World 55:661+ Ja 18 '19

Finishing of knit underwear. Textile World 53:2613+ D 22 '17

Finishing wool underwear. Textile World 54:2578 N 23 '18

Knitted articles in war service equipment. W. Davis. Textile World 53:4335+ Mr 23 '18

Knitting and bleaching underwear. Textile World 53:3377 Ja 19 '18

Lightweight army underwear. Textile World 53:4022+ Mr 2 '18

Silk and wool underwear yarns. W. Davis. II Textile World 55:3507 Je 7 '19

See also Hosiery

**Underwriters' laboratories**

Fire tests of building columns. II Am Arch 113:74-5 Ja 16 '18; Munic Eng 54:154-5 Ap '18

Second report on the work of the underwriters' laboratories. II Am Arch 115:829-34 Je 11 '19

**Unemployment**

Experiences in seeking employment. Ind Management 57:417-20 My '19

Labor conditions still cause anxiety. Iron Age 103:485-6 F 20 '19

Many are added to the unemployed. chart Iron Age 103:560-2 F 27 '19

More men than jobs in many places. Iron Age 103:127 Ja 9 '19

Number of unemployed is steadily growing. Iron Age 103:246-7, 439-40, 620 Ja 23, F 13, Mr 6 '19; Am Gas Eng J 110:sup17-18 Mr 8 '19

Running away from work and jobs. D. Wolf. Ind Management 58:269-71 O '19

Unemployment after the war. H. Hart. Factory 21:245 Ag '18; Same cond. Am Arch 114:265 Ag 28 '18

Unemployment figures mere guess. Iron Tr R 64:580-4 F 27 '19

Unemployment pay in Great Britain. J. C. Kirkwood. Am Ind 20:28-9 S '19

Unemployment problem worries Washington. Iron Age 103:309-10 Ja 30 '19

View of unemployment from employers' side. Iron Age 103:747-8 Mr 20 '19

What a search for a job proves to-day. D. Wolf. Iron Age 104:423-5 Ag 14 '19

See also Labor supply

**Unicycle**

Speed and safety combined in a unicycle. II Sci Am 119:416 N 23 '18

**Uniflow engines.** See Steam engines

**Union Internationale de tramways et de chemins de fer d'intérêt local**

International association begins again. Elec Ry J 53:1055 My 31 '19

**Union Pacific railroad**

Completing the double track on the Union Pacific. II diag map Ry Age 64:1552-6 Je 28 '18

Concrete snow sheds on the Union Pacific.

II diag map Ry Age 63:1159-64 D 28 '17; Excerpts. Eng & Contr 49:294-5 Mr 20 '18

Financial statistics, 1917. map Ry Age 65:538-9 S 20 '18

Union Pacific adopts unit-member concrete snowsheds. W. R. Armstrong. II diag plans Eng N 80:80-2 Ja 10 '18; Abstract. Sci Am 118:59 Ja 12 '18

**Union warehouse corporation**

Organization. Textile World 55:2520+ Ap 26 '19

**Unit cost**

Most economical production lot. E. W. Taft. charts Iron Age 101:1410-12 My 30 '18

**Unit heaters.** See Steam heaters

**United brotherhood of maintenance of way employees**

National agreement for maintenance of way employees. Ry Age 67:835-8 O 24 '19

**United eastern mining company**

1st annual report, covering the operations for the year ended Dec. 31, 1917. Eng & Min J 106:617 O 5 '18

United eastern mining and milling plant. O. Wartenweiler. plans Am Inst Min E Bul 131:1995-2014 N '17; Same cond. Met & Chem Eng 17:656-9 D 1 '17; Excerpts. Eng & Min J 104:1046-7, 1089-90; 105:294 D 15-22 '17, F 9 '18

**United engineering society**

Extracts from president's annual report. C. F. Rand. Am Soc M E J 40:319-20 Ap '18; Excerpts. Am Inst E E Pro 37:sup69-70 Mr '18

**United engineering society library**

Recataloging the United engineering society library. H. W. Craver. Mech Eng 41:782-3+ S '19

**United mine workers of America**

Convention, Indianapolis, Jan. 15. Coal Age 13:153-4, 203-4, 247-9 Ja 19-F 2 '18

Membership has increased greatly since 1910. Coal Age 13:249 F 2 '18

**United shoe machinery company**

Shoe-machinery decision. Sci Am 118:563 Je 22 '18

**United States**

British and American friendship. R. Hadfield. Am Inst Min E Bul 140:sup49-51 Ag '18

Our constitution, the antidote for Bolshevism. H. F. Atwood. Textile World 55:2529+ Ap 26 '19

See also European war—United States; Irrigation—United States; Mines and mineral resources—United States; Railroads—United States; Railroads and state—United States; Roads—United States

**Aeronautics, Military**

Accomplishments of the Signal corps. G. O. Squier. Automotive Ind 39:1077-82 D 19 '18

Aeronautics in the United States, 1918. G. O. Squier. II Am Inst E E Pro 38:53-114 F '19; Excerpts. Elec R 74:131-3 Ja 25 '19; Excerpts. Elec W 73:130, 222 Ja 18, F 1 '19

Aircraft board purposely created without power. D. Beecroft. Automotive Ind 39:569-71 O 3 '18

Aircraft chaos works injury to the nation. A. Sinshelmer. Automotive Ind 38:937-9 My 16 '18

Aircraft report unfair to industry. D. Beecroft. Automotive Ind 39:377+ Ag 29 '18

Airplane accomplishments of navy. H. E. Coffin. Automotive Ind 38:1166-7 Je 20 '18

Airplane delays due to lack of co-operation and experience. D. Beecroft. Automotive Ind 39:349-54 Ag 29 '18

Airplane program mercilessly criticized in Senate report. Automotive Ind 39:334+ Ag 22 '18

Airplane supply system of the American army in France. W. F. Bradley. II map Automotive Ind 40:987-9, 1013-16, 1062-5 My 8-15 '19

America's air service. W. F. Durand. II J Fr Inst 185:1-27 Ja '18

Automobile industry unjustly censured in Senate report. J. E. Schipper. Automotive Ind 39:354-6+ Ag 29 '18

**United States—Aeronautics, Military—Continued**

- Complete text of Senate aircraft report. Automotive Ind 39:393-400 Ag 29 '18
- Delay in airplane production. Sci Am 118:404 My 4 '18
- Delay in bombing planes for war program. Automotive Ind 39:401-4 S 5 '18
- Extracts from Senate aircraft report testimony. Automotive Ind 39:699-701+ O 24 '18
- Further light on airplane production history. H. H. Emmons. Automotive Ind 39:1069 D 19 '18
- Liberty aircraft engine. J. G. Vincent. Automotive Ind 40:323-7 F 6 '19
- NC boats. J. C. Hunsaker. II Automotive Ind 41:68-72, 120-3, 172-6 JI 10-24 '19; Same (Progress in naval aircraft). Am Mach 51: 305-11, 611-16 Ag 14 S 25 '19; Same. Sci Am S 88:66-7+ 107-9+ Ag 2, 15 '19
- Offered aid of allies not accepted by aircraft authorities. A. Sinsheimer. Automotive Ind 39:443-5 S 12 '18
- Official history of aircraft production. Automotive Ind 39:968-9, 987-90 D 5 '18
- Opinions of aircraft experts from Senate investigation evidence. Automotive Ind 39: 357-8 Ag 29 '18
- Our achievements in aviation. Sci Am 120:68 Ja 25 '19
- Our sky army. C. G. Grey. Sci Am 118:479+ My 25 '18
- Our technical achievements in the great war. Sci Am 121:208-9 Ag 30 '19
- Present organization of Department of military aeronautics; chart. Automotive Ind 40: 237 Ja 23 '19
- Rumors exaggerate airplane delay. Automotive Ind 38:851+ Mr 28 '18
- Senate committee blames personnel of board and recommends creation of aeronautic ministry. Motor Age 34:16 Ag 29 '18
- Status of American aircraft production. H. E. Coffin. Am Mach 49:35-6 JI 4 '18
- 1300 U. S. airplanes in France. Motor Age 33:12-13 Je 6 '18
- Uncertainty still exists in aircraft program on planes. A. Sinsheimer. Automotive Ind 39:356-7 Ag 29 '18
- Wasters—and fair play; comments on the congressional investigation of the aircraft program. C. H. Claudy. II Sci Am 119:192+ S 7 '18
- Work of the automotive products section. C. C. Hanch. chart Automotive Ind 40:283-5 Ja 30 '19
- See also* Council of national defense—Aircraft production board; Naval aircraft factory; United States—Aircraft production, Bureau of; United States—Aircraft production investigation; United States—Army—Signal corps
- Aeronautics department (proposed)**
- American aviation mission recommends aeronautic department. Motor Age 36:13 Ag 14 '19
- Probable duties of a department of aviation. A. Sinsheimer. Automotive Ind 41:553-5 S 18 '19
- Report of aviation mission. Aviation 7:122 S 1 '19
- Senate bill for Department of aeronautics. Flying 8:690-2 S '19
- Single government department for all aeronautics urged by mission. A. Sinsheimer. Automotive Ind 41:297-303, 323-7 Ag 14 '19; Same abr. Flying 8:714-17, 788-90, 866-7+ S-N '19
- Suggestion for a federal aviation department. A. Sinsheimer. Automotive Ind 41:503-6 S 11 '19
- Three air service bills before Congress. A. Sinsheimer. Automotive Ind 41:351-3 Ag 21 '19

**Aircraft board**

- Aircraft board purposely created without power. D. Beecroft. Automotive Ind 39:569-71 O 3 '18
- Coffin protests to Congress; declares civilian men on Aircraft production board had no executive powers. chart Automotive Ind 39: 359-60+ Ag 29 '18

**Aircraft production, Bureau of**

- Accomplishments of the Aircraft production board; report. J. D. Ryan. Automotive Ind 39:1028-31 D 12 '18
- Aircraft board reorganization order. President Wilson. Automotive Ind 38:983-5 My 23 '18
- Aircraft production. Iron Age 101:1132 My 2 '18
- Aircraft program of 1917 proves successful. D. Beecroft. Automotive Ind 39:613-15 O 10 '18
- Filling the allies' rush order for airplane spruce. N. A. Bowers. II Eng N 81:1023-31 D 5 '18

**Aircraft production investigation**

- Complete text of Hughes aircraft report. Automotive Ind 39:745-750—40 O 31 '18
- Hughes aircraft report. Sci Am 119:386 N 16 '18
- Hughes aircraft report a vindication. A. Sinsheimer. Automotive Ind 39:741-4+ O 31 '18
- Hughes airplane report practically a clean bill of health. Motor Age 34:7-9+ N 7 '18
- Liberty engine profits not excessive. Automotive Ind 39:781-3 N 7 '18
- Official history of aircraft production. Automotive Ind 39:968-9, 987-90 D 5 '18

**American relief administration**

- Promotion of friendly relations with the new nations of Europe. E. Rickard. Eng & Min J 107:1047-8 Je 14 '19

**Army**

- Airplane mapping by the United States army. II Sci Am S 88:213 O 11 '19
- Army needs better psychology more than new organization, says correspondent. Eng N 83:481-2 S 4 '19
- Army topographical division co-ordinates work of map makers in air and on ground. R. K. Tomlin, jr. II Eng N 80:984-8 My 23 '18
- Comparison of army and navy efficiency. Sci Am 117:470 D 22 '17
- Difference between army and navy. Am Mach 49:440-1 S 5 '18
- Government supplies and the quartermaster's dept. Textile World 53:2784-5+ Ja 5 '18
- New army storage and traffic division. Ry Age 64:364 F 15 '18
- One year of war; some details of our military contribution to the allied cause. N. D. Baker. II Sci Am 118:296-7+ Ap 6 '18
- Our technical achievements in the great war. diag map Sci Am 121:112-13, 134-5, 160, 188-9+, 232-3+, 256+, 284+, 312+ Ag 2-S 27 '19
- Refrigerating plant, intermediate depot for American army in France. R. K. Tomlin, jr. II Power 48:596-8 O 22 '18
- Right man in the right place in the army. J. J. Swan. Mech Eng 41:423-8 My '19
- See also* United States—Aeronautics, Military; United States—Militia; United States—Navy

**Accounting**

- Accounting systems in army camps. E. J. Holmes. J Account 26:429-35 D '18
- Carrying on with the accountants in the American expeditionary forces. C. B. Holloway. J Account 26:412-16 D '18

**Artillery**

- Men behind the guns. C. H. Claudy. II Sci Am 119:376-7 N 9 '18

**Construction division**

- Activities of the Construction division, United States army, and the form of contract adopted. R. C. Marshall, jr. Boston Soc C E J 6:265-78; Discussion. 279-99 S '19; Excerpts. Eng & Contr 52:467-71 O 22 '19
- Army's biggest building job done at double quick. L. I. Smoyer. II Concrete 13:172-6 D '18
- Boston army supply base—general features of project. F. H. Fay. Boston Soc C E J 6: 67-76 Mr '19



**United States—Army—Construction div.—Cont.**  
 Boston army supply base will be valuable permanent port terminal. *Il diags Eng N 81:522-6 S 19 '18*  
 Brief biographies of engineers who handled war construction work in America. *Eng N 82:208-10 Ja 23 '19*  
 Brooklyn army base is largest port terminal. *Il diags plans Eng N 82:317-23 F 13 '19*  
 Construction division of our army. G: W. Fuller. *Eng N 82:416-19, 562-4 F 27, Mr 20 '19*  
 Construction division of the army. V. A. Matteson. *Am Inst Arch J 6:525-8 N '18*  
 Construction division of the United States army. W. A. Starrett. *Il Sci Am 119:252-3+ S 28 '18*  
 Cost accounting system of Construction division, U.S. army. C. W. Pinkerton. *Eng & Contr 51:548-61 My 21 '19*  
 Cost of camp utility operation by the Construction division of our army. G: W. Fuller. *diags plan Eng N 82:600-3 Mr 27 '19*  
 Expediting the engineering work of the Construction division of the army. A. B. McDaniel. *Eng & Contr 52:77-9 JI 16 '19*  
 Government's vast building program. W. A. Starrett. *Il Sci Am 119:186-7+ S 7 '18*  
 Military training and the army's construction work. W. C. Langfitt. *Eng N 82:1076-7 My 29 '19*  
 Modern industrial plants; the great army supply bases and quartermasters' terminals constructed along the eastern coast for war purposes. G: C. Nimmons. *Il diags Arch Rec 45:262-82 Mr '19*  
 New construction division. *Am Arch 113:346 Mr 20 '18*  
 New construction for the army. *Iron Age 102: 883 O 10 '18; Am Mach 49:562 S 26 '18*  
 Operation and maintenance of utilities at army camps and cantonments. G: A. Johnson. *Boston Soc C E J 6:181-224; Discussion. 224-33 My '19*  
 Sinking six cylinder foundations a day on Boston army supply base. *Il diags plan Eng N 81:584-8 S 26 '18*  
 Work of the Construction division. R. C. Marshall. *Eng & Contr 50:567 D 18 '18*

#### Education

A. E. F. university. *Il Coal Age 16:530-1 S 25 '19*  
 Books for bullets. *Sci Am 121:28 JI 12 '19*  
 Courses to train technicians and mechanics for army service begun. *Eng N 80:882-3 My 2 '18*  
 Department of architecture at the A. E. F. university of Beaune, Côte d'Or, France. J: Bakewell, Jr. *Il Am Inst Arch J 7:469-81 N '19*  
 Educational work of the United States army. *Ry R 64:652-3 My 3 '19*  
 Our army educational commission. J. N. Holden. *Am Arch 115:844-6 Je 18 '19*  
 Oxy-acetylene welding schools. Motor transport corps. U.S. army. C. K. Bryce. *Am Mach 51:678-9 O 2 '19*  
 The soldier, the sailor, and the chemist. L. T. Sutherland. *J Ind & Eng Chem 11:485-6 My '19*  
 Soldier's school of art. *Il Am Arch 116:293-7 S 3 '19*  
 Training mechanics for service in army field units. J. V. Hunter. *Il Am Mach 49:163-7 JI 25 '18*

#### Engineer depot

New department of the engineer depot. *Am Soc M E J 40:855 O '18*

#### Engineer troops

Address at the annual dinner of the Western society of engineers. J. J. Morrow. *W Soc E J 24:7-20 Ja '19; Abstract. Elec R 74:145-6 Ja 25 '19*  
 Army engineers praised by the secretary of war. N. D. Baker. *Eng N 79:1177 D 20 '17*  
 Doings of the eleventh (railway) engineers over there. R. W. Raymond. *Am Inst E E Pro 37:sup110-12 Ap '18*  
 Engineers' combat wagon. *Il Eng & Min J 105:7-8 Ja 5 '18*

Forest engineers tell of work in France. W. B. Greeley; R. Jarden. *Am Lumberman 2256:35 Ag 10 '18*  
 Getting 20 bags of cement in the S. O. S. zone. J: B. Woods. *Il Concrete 14:229-30 Je '19*  
 Graphic presentation of engineers' part in the war. J. J. Morrow. *Elec R 74:145-6 Ja 25 '19*  
 Railway engineering regiments return home. *Ry R 64:653-6 My 3 '19*  
 Recruiting and serving the 19th engineers. J. Milliken. *Ry R 65:493-5 O 4 '19*  
 Supply organization expands 2250 per cent to equip engineer troops. E. J. Mehren. *Eng N 80:25-9 Ja 3 '18*  
 13th engineers win honors. J. B. Wood. *Ry R 64:383-4 Mr 15 '19*  
 23rd engineers being held to repair French roads. W. Bathon. *Eng N 82:821-2 Ap 24 '19*  
 27th regiment of engineers United States army. R. H. Burrage. *Eng & Min J 107: 731-4 Ap 26 '19*  
 28th engineers—a quarrying regiment. H. W. Edmondson. *Il Eng & Min J 106:571-2 S 28 '18*  
 What the American army engineers did in the war. *Eng N 82:953-4 My 15 '19*  
 What the army engineers have done in one year. *Eng N 80:790 Ap 18 '18*  
 With American engineers in French forests. *Am Lumberman 2300:54-5 Je 14 '19*  
 With the divisional engineers in a great offensive. C: E. De Leuw. *Eng N 82:656-8 Ap 3 '19*  
 Work of 10th and 20th engineers (forest) in France. F. R. Barns. *Il Am Lumberman 2287:48-9; 2288:38-9 Mr 15-22 '19*  
 Work of the army engineers in France. *Ry R 64:651-2 My 3 '19*  
 Work of the railway engineers. *Ry Age 64: 282 F 1 '18*  
 Work of the sixteenth engineers; abstracts. O. F. C. Randolph. *Il Ry R 64:503-7 Ap 5 '19; Ry Age 66:889-90 Ap 4 '19*

*See also United States—Army—Expeditionary force*

#### Engineers, Corps of

Army electrical work in the advance areas in France. O. F. Allen. *Il map Gen Elec R 22:568-86 Ag '19*  
 Army engineers want control of public works. M. O. Leighton. *Il Am Lumberman 2301:52 Je 21 '19; Same. Eng N 82:1232+ Je 19 '19; Same cond. Ry Age 66:1806-7 Je 27 '19*  
 Engineer corps under the proposed army reorganization. *Mech Eng 41:853 O '19*  
 General staff's army bill strikes at corps of engineers. *Eng N 83:346, 358-60 Ag 21 '19; Discussion. G: D. Snyder. 83:435 Ag 28 '19*  
 How the war has increased the corps of engineers. *Eng N 81:85 JI 11 '18*  
 Motor equipment of the United States army engineer corps. *Il Eng N 82:1052-4 My 29 '19*  
 National public works department versus corps of engineers. I. Randolph. *Eng N 83: 561-2 S 18 '19; Same. Ry Age 67:608 S 26 '19; Same. Coal Age 16:718-19 O 30 '19*  
 Portable repair shops for the army. H. S. Lord. *Il Am Mach 51:317-22 Ag 14 '19*

#### Equipment

Ambulance train for the American army. *Il diags Engineer 126:260-3, 266 S 27 '18*  
 Ambulance train for the United States army. *Il Ry Age 64:1032-4 Ap 19 '18; Abstract. Engineer 125:181, 186 Mr 1 '18*  
 Army as a great textile purchaser. *Textile World 55:232+ Ja 11 '19*  
 Army leads in waste prevention and utilization. *Eng N 81:25-6 JI 4 '18*  
 Army's ambulance program. *Il Automotive Ind 39:578-81 O 3 '18*  
 Engineering achievements of the army. *Il Mech Eng 41:372-4 Ap '19*  
 Extent of army textile contracts. *Textile World 55:2988+. 3104+ My 17-24 '19*  
 Mobile searchlight power units for U.S. army. H: S. Baldwin. *Il diags maps Gen Elec R 22:694-9 S '19*

**United States—Army—Equipment—Continued**

Searchlight developments of the U.S. army. C. Lichtenberg. *Il diag Gen Elec R 22:700-3 S '19*  
 Searchlight tower units. R. S. Hood, Jr. *Il Gen Elec R 22:689-93 S '19*  
 Where nothing goes to waste; glimpses of the United States army's salvage. *Il Sci Am 120: 6+ Ja 4 '19*

**Expeditionary force**

Acres of shops to form ordnance base in France. *diags Eng N 80:23-4 Ja 3 '18*  
 Airplane supply system of the American army in France. W. F. Bradley. *Il map Automotive Ind 40:987-9, 1013-16, 1062-5 My 8-15 '19*  
 American-built military roads in France. *Il Sci Am 118:458 My 18 '18*  
 American forestry units are working fifty-three tracts of French timber land. R. K. Tomlin, Jr. *Il Eng N 81:566-70 S 26 '18*  
 American railway forces in the great war. S. O. Dunn. *Il map Ry Age 66:7-23 Ja 3 '19*  
 Excerpts. *Ry Mech Eng 93:19-22 Ja '19*  
 American railway yard and terminal development in France presents many new problems. R. K. Tomlin, Jr. *Eng N 80:348-9 F 21 '18*  
 American road-building work in French war zone organized. R. K. Tomlin, Jr. *Eng N 80:198-200 Ja 31 '18*  
 Another day with the railwaymen in France. *Il Ry Age 63:1069-71 D 14 '17*  
 Army intermediate depot in France; problem in getting labor and supplies. R. K. Tomlin, Jr. *Il diag plans Eng N 81:478-83 S 12 '18*  
 Army's foreign stock of machinery. J. B. Woods. *Il Am Mach 50:775-7 Ap 24 '19*  
 Building roads at the front; abstracts. W. G. MacKendrick. *Eng N 80:1078-9 Je 6 '18*  
 Eng & Contr 50:15-16 J1 3 '18  
 Carrying on with the accountants in the American expeditionary forces. C. B. Holloway. *J Account 26:412-16 D '18*  
 Efficient American war lumbering in France. R. H. Faulkner. *Am Lumberman 2249:54 Je 22 '18*  
 Electrical developments for American army. R. K. Tomlin, Jr. *Il Elec W 72:532-6 S 21 '18*  
 Same cond. *Power 48:448-50 S 24 '18*  
 Experiences of an American railroad engineer in France. J. N. McVey. *Ry Age 65:1168-9 D 27 '18*  
 Further light on work of railway men in the war. *diags Ry Age 66:385-7 F 14 '19*  
 How the foundry served overseas. *Il Foundry 47:792-5 N 1 '19*  
 Inspection of airplanes at Romorantin, France. E. E. Ives. *Mech Eng 41:819-20 O '19*  
 Keeping the first army supplied with water. F. W. Scheidenhelm. *Il chart plan Am Water Works Assn J 6:623-38 N '19*  
 Large mileage of light railways will serve American troops at the front. R. K. Tomlin, Jr. *Il Eng N 80:508-11 Mr 14 '18*  
 Largest A. E. F. power plant in France. H. C. Thiel. *Il Elec R 74:455 Mr 22 '19*  
 Letter from the front. W. G. Arn. *Ry R 62: 131-3 Ja 26 '18*  
 Message to A. F. A. members from the western front. R. A. Bull. *Metal Ind 16:446-7 O '18*  
 Same. *Foundry 46:510-11 N '18*  
 Over seventy thousand railway men join colors; names of officers and employees who have received commissions. *Il Ry Age 64:22-35 Ja 4 '18*  
 Railway construction and operation in the fighting zone in France. L. F. Van Hagan. *Eng & Contr 49:53-4 Ja 16 '18*  
 Railway regiment handles jobs of all kinds in France. R. K. Tomlin, Jr. *Il Eng N 80: 707-10 Ap 11 '18*  
 Railway work in France by American soldiers. I. A. Miller. *Ry R 62:842-3 Je 8 '18*  
 Road battalion builds army camp roads. *Il Good Roads n s 15:291-3 Je 15 '18*  
 Road builders at work close to front of American sector in France. R. K. Tomlin, Jr. *Il diag Eng N 80:953-6 My 16 '18*  
 Same. *Eng & Min J 105:949-52 My 25 '18*

Roads in base section of American forces require widening and resurfacing. R. K. Tomlin, Jr. *Il Eng N 81:348-52 Ag 22 '18*  
 Sawmilling under brush arbors and canvas. J. B. Woods. *Il Am Lumberman 2284:42 F 22 '19*  
 Transplanted sawmilling efficiency. J. B. Woods. *Il Am Lumberman 2259:39 Ag 31 '18*  
 Transportation and engineering in France. *Ry R 63:47 J1 13 '18*  
 Transportation facilities of the A.E.F. *Ry Age 66:66-7 Ja 3 '19*  
 Transporting 2,000,000 soldiers and 71,452,000 tons of supplies to France. *maps Sci Am 121:160 Ag 16 '19*  
 United States port in France. C. H. Claudy. *Il Sci Am 120:598-9+ Je 7 '19*  
 United States railways in France. *Ry R 62: 785 Je 1 '18*  
 Yankee railroading in France. J. A. McCrea. *Ry Age 66:1045-6 Ap 25 '19*  
 Same. *Ry R 64:614 Ap 26 '19*

*See also* United States—Army—Education;  
 United States—Army—Engineer troops

**Insignia**

New army insignia. A. A. Hopkins. *Il Sci Am 118:149 F 16 '18*

**Motor transport corps**

Army bill abolishes Motor transport corps. *Motor Age 35:21 F 20 '19*  
 55,000 motor vehicles are abroad. *Motor Age 34:14-15 D 19 '18*  
 How the M. T. C. kept the army truck line moving. A. J. Slade. *Automotive Ind 41:11 J1 3 '19*  
 Motor transport corps equipment floated to A. E. F. by ten day periods. *Automotive Ind 40:32-3 Ja 2 '19*  
 M. T. C. salvage park in France. W. F. Bradley. *Il Automotive Ind 40:860-3, 902-5 Ap 17-24 '19*  
 Motor transportation by the army. J. M. Ritchie. *Il Good Roads n s 18:33-5 J1 23 '19*  
 New corps under command of Brig.-Gen. Drake will have control of all motor apparatus except ambulances, tanks and tractors; text of President's order. *Automotive Ind 39:305-7+ Ag 22 '18*  
 Excerpt. *Motor Age 34:9 Ag 29 '18*  
 Organization and work of the Motor transport corps. W. F. Bradley. *Il chart Automotive Ind 40:52-6 Ja 9 '19*  
 Same. *Motor Age 35:7-8 Ja 9*  
 18-19 Ja 16 '19  
 Oxy-acetylene welding schools. *Motor transport corps, U.S. army. C. K. Bryce. Am Mach 51:678-9 O 2 '19*  
 Present organization of the motor transport corps. *Automotive Ind 39:868 N 21 '18*  
 War truck driver qualifications. W. F. Bradley. *Il Automotive Ind 38:674-5+ Ap 4 '18*

**Psychological examinations**

Engineer officers rank first in army mental tests. *Eng N 82:814 Ap 24 '19*  
 Mental tests in industry. R. M. Yerkes. *diags Am Inst Min E Bul 146:405-19 F '19*  
 Nerves of a soldier. A. Salsbury. *Il Sci Am 118:14+ Ja 5 '18*  
 Tests of men. *diag Chem & Met Eng 21: 185-6 Ag 15 '19*

**Russian railway service corps**

Russian railway service corps. *Ry R 65:575 O 13 '19*

**Sanitary affairs**

Health of our army. *Am Arch 114:407 O 2 '18*  
 Respiratory diseases in the army. *Sci Am S 86:320 N 16 '18*  
 Sewage and wastes disposal for the United States army. L. S. Doten. *diags plans Eng & Contr 52:193-5 Ag 13 '19*  
*See also* Camp sanitation

**Signal corps**

Accomplishments of the Signal corps. G. O. Squier. *Automotive Ind 39:1077-82 D 19 '18*  
 Activities of the Signal corps, United States army. L. D. Wildman. *Stevens Ind 35:245-53 C '18*  
 Aircraft board reorganization order. President Wilson. *Automotive Ind 38:983-5 My 23 '18*

United States—Army—Signal corps—*Continued*  
Aircraft work grossly mismanaged; report of  
investigating committee of Aeronautical so-  
ciety of America. Iron Tr R 62:932-3 Ap 11  
'18

Army development of charging sets. A. E.  
Flowers. Il diag Elec W 73:1312-16 Je 21 '19  
Photographing the war. C. H. Claudy. Il  
Sci Am 120:544-5 My 24 '19  
Radio development during the war. N. H.  
Slaughter. Il chart plan Elec W 73:311-15  
F 15 '19

Report of the Senate military affairs com-  
mittee. Automotive Ind 38:714-15 Ap 11 '18  
Signal corps' job to provide the nerve sys-  
tem for the A. E. F. Elec R 74:940-2 Je 7  
'19

Some aspects of the U. S. signal service in  
the world war. G. O. Squier. J Fr Inst 188:  
118-21 Jl '19

Work of the Science and research division of  
the Signal corps. G. O. Squier. Am Inst E  
E Pro 38:93-6 F '19

#### *Spruce production division*

Demobilizing equipment of spruce production  
division. Il Eng N 82:967-9 My 15 '19

#### *Students' army training corps*

Close-up view of the S. A. T. C. J. Ritchie, Jr.  
Elec W 73:17-19 Ja 4 '19

Engineering educators' opinions reflect past  
and predict future conditions. Eng N 82:41-4,  
138-43 Ja 2, 16 '19

Student training-corps plans. Am Mach 49:  
184a Jl 25 '18

Students' army training corps. Concrete 13:  
136 O '18

#### *Assay office*

United States assay office. Eng & Min J  
107:994-5 Je 7 '19

#### *Board of contract adjustment*

Organization. Iron Age 102:1217+ N 14 '18

#### *Capitol*

Competition for the Federal buildings, 1792-  
1793. F. Kimball and W. Bennett. Am Inst  
Arch J 7:8-12, 98-102, 202-10, 355-62 Ja, Mr,  
My, Ag '19

Plea for the recognition of Charles Fred-  
erick Anderson as the designer of the  
wings of the national capitol. G. Keller.  
Am Inst Arch J 7:329-30 Jl '19

#### *Chemical warfare service*

Chemical warfare research. W. D. Bancroft.  
J Ind & Eng Chem 10:785-6 O '18; Abstract.  
Chem & Met Eng 19:544 O 1 '18

Chemical warfare service, National army,  
with list of heads of divisions and sections.  
chart Chem & Met Eng 19:229-36 S 1 '18

Chemical warfare service; order creating the  
division, organization and personnel. J Ind  
& Eng Chem 10:675-84 S '18

Development division, Chemical warfare ser-  
vice, U. S. A. F. M. Dorsey. Il diags J Ind  
& Eng Chem 11:281-91 Ap '19

Excerpts from official documents relating to  
abolition of the Chemical warfare service.  
J Ind & Eng Chem 11:814-16h S '19

First gas regiment. J. C. Webster. Il J Ind  
& Eng Chem 11:621-2 Jl '19

Personnel section. F. E. Breithut. J Ind &  
Eng Chem 11:516-18 Je '19

Proving division, Chemical warfare service,  
U. S. A. W. S. Bacon. Il J Ind & Eng Chem  
11:513-16 Je '19

Research division, Chemical warfare service,  
U. S. A. G. A. Burrell. Il J Ind & Eng Chem  
11:93-104 F '19

United States Chemical warfare service. Il Sci  
Am 120:318-19+, 372-3 Mr 29, Ap 12 '19

Work of the Technical division, Chemical war-  
fare service, A. E. F. R. F. Bacon. J Ind &  
Eng Chem 11:13-15 Ja '19

#### *Chemistry, Bureau of*

Chemicals received by the Bureau of chemis-  
try during the war. H. E. Buc. J Ind &  
Eng Chem 11:1140-1 D '19

Color laboratory of the Bureau of chemistry.  
H. D. Gibbs. J Ind & Eng Chem 10:802-3  
O '18

#### *Coast and geodetic survey*

Coast and geodetic survey belongs in the  
National department of public works. Mech  
Eng 41:786 S '19

#### *Commerce*

Abyssinia; present commercial status of the  
country with special reference to the possi-  
bilities for American trade. A. E. Southard.  
map U S Sp Cons Rep 81:1-71 '18

Additions to prohibited import list. Met &  
Chem Eng 17:714 D 15 '17

American chamber of commerce in London  
makes important definite suggestions on  
American reconstruction. Am Arch 114:648-  
9 N 27 '18

American investment abroad and essential  
raw material. P. Farquhar. Ry Age 65:  
108-9 sec 2 Jl 12 '18

American markets for cement. Il Sci Am 118:  
570 Je 22 '18

Annual report of the chief of Bureau of for-  
eign and domestic commerce for the fiscal  
year ended June 30, 1917. U S Bur For &  
Dom Com 77p '17

British and American exports after the war.  
Iron Age 101:380-2 F 7 '18

China's second childhood. Il Sci Am 119:339  
O 26 '18

Collective selling is declared necessary; im-  
portant report on the reconstruction of  
France. P. C. Williams. Iron Age 102:560-2  
S 5 '18

Conduct of business with China. U S Bur  
For & Dom Com misc ser 70:1-47 '19

Direct selling in South America; abstracts.  
P. S. Steenstrup. Automotive Ind 40:1019-20  
My 8 '19; Am Mach 51:30-1 Jl 3 '19

Effect of the war on American chemical  
trade. O. P. Hopkins. J Ind & Eng Chem  
10:692-700 S '18

Financial efficiency in foreign trade. C. A.  
Hinsch. Ry Age 65:107-8 sec 2 Jl 12 '18

Foreign markets for cotton lintels, batting  
and waste. U S Sp Cons Rep 80:1-84 '18

Foreign trade after the war. F. W. Taussig.  
Textile World 53:5218 My 4 '18

Foreign trade after the war; abstracts. E. M.  
Herr. Iron Tr R 62:1042-3 Ap 25 '18; Elec  
R 72:755-6 My 4 '18

Foreign trade essential to our national exist-  
ence. D. Beecroft. Automotive Ind 38:803-5  
Ap 25 '18

Foreign trade opportunities. F. Rhea. Ry Age  
64:963-4 Ap 12 '18

Foreign trade outlook as affected by war.  
J. A. Farrell. Iron Age 101:1087-9 Ap 25 '18;  
Excerpts. Ry Age 64:1063-4 Ap 26 '18

Furniture imports of foreign countries, 1908  
and 1913. E. Whitney. U S Bur For & Dom  
Com misc ser 66:1-31 '18

Future trade must include the world. G. A.  
O'Reilly. Am Mach 49:276 Ag 8 '18

Government trade-building information. C. D.  
Snow. J Ind & Eng Chem 10:931-3 N '18

Greatest trade expansion in history; increase  
of \$1,000,000,000 in 1918 shown by records  
of Latin-American commerce. map Eng N  
81:604-5+ S 26 '18

Laying the rails for future business. F. H.  
Sisson. Am Mach 48:741-5 My 2 '18; Ex-  
cerpts. Ry Age 64:1012-13 Ap 19 '18

Letters from France; —opportunities after  
the war. H. J. Harms. Concrete 13:117-18  
O '18

Looking forward: problems and opportunities  
after the war. F. H. Sisson. Am Mach 48:  
669-70 Ap 18 '18

Matter of credit in export trade. W. E. Tar-  
lton. Automotive Ind 39:49 Jl 11 '18

Mineral and metal imports into the United  
States. map Eng & Min J 105:570 Mr 23  
'18

My forty years' selling experience in Europe.  
H. R. Griffin. Ry Age 64:361-3 F 15 '18

Our duty to France, now that the war 'is  
won. W. W. Nichols. Elec R 73:816-17 N 23  
'18

Philippines as a trade base. Sci Am 119:456 D  
7 '18

Present standing of foreign trade. Sci Am 118:  
384+ Ap 27 '18

**United States—Commerce —Continued**

Proper basis for a prosperous foreign trade. J: L. Harrison. Ry Age 65:183-5 J1 26 '18  
 Restriction of imports into the United States. Sci Am 118:346+ Ap 13 '18  
 Text of the President's export and import proclamation. President Wilson. Automotive Ind 38:431 F 21 '18  
 Trade bodies to handle imports. Iron Tr R 61:1340-1 D 20 '17  
 Trade of the United States with the world 1917-1918. U S Bur For & Dom Com misc ser 78:1-112 '19  
 Trade of the United States with the world 1916-1917; exports. U S Bur For & Dom Com misc ser 63:1-317 pt 2 '18  
 Trade of the United States with the world, 1916 and 1917; imports. U S Bur For & Dom Com misc ser 63:1-112 pt 1 '18  
 Work of American builders for France—In the war and after. H: J. Harms. Il Concrete 13: 185-91 D '18  
*See also* Chamber of commerce of the United States; Chemical industries—United States; Embargo; European war—Economic aspects; Export trade; Interstate commerce commission; Merchant marine—United States; Shipping—United States; Tariff—United States; Terminals; Trading with the enemy; United States—Federal trade commission; United States—Foreign and domestic commerce, Bureau of; United States—Industries and resources; United States—War trade board

**Commercial policy**

Relation of government toward manufacture and industry. W: C. Redfield. Am Ind 19: 28 Je '19  
*See also* Merchant marine—United States; Tariff—United States; United States—Federal trade commission

**Economic conditions**

American reconstruction problems—nation planning. F: L. Ackerman. Am Inst Arch J 6:506-9 N '18  
 Building for the future. A. H. Phelps. Good Roads n s 17:191-2+ My 3 '19  
 National economics. Eng & Min J 105:481-3 Mr 9 '18  
 Technocracy—national industrial management. W: H: Smyth. Ind Management 57: 208-12 Mr '19  
 Technocracy—ways and means to gain industrial democracy. W: H: Smyth. Ind Management 57:385-9 My '19  
*See also* Housing problem—United States; Labor and laboring classes—United States

**Education, Department of (proposed)**

Comprehensive educational measure. Am Arch 115:232 F 12 '19

**Employment service**

Address. A. H. Krom. Am Gas Eng J 109:257-8 S 14 '18  
 Employment managers and the United States employment service. B. Emmet. Ind Management 58:248 S '19  
 Federal employment bureau. Sci Am 119:122 Ag 17 '18  
 Federal engineering employment bureau fulfilling need. Elec R 73:289 Ag 24 '18  
 Government machinery for recruiting labor. Iron Age 101:1414-15 My 30 '18  
 Government's labor program. Automotive Ind 39:162-3 J1 25 '18  
 Government's plan for controlling labor. Automotive Ind 38:1238 Je 20 '18  
 National employment service. Mach 25:32 S 18  
 Operations of the United States employment service. Am Mach 50:444 Mr 6 '19; Excerpts. Power 49:263 F 18 '19  
 A place for every man. C. H. Claudy. Il Sci Am 119:494-5+ D 21 '18  
 President's letter to workers and employers. W. Wilson. Am Mach 48:1118 Je 27 '18  
 Supplying war industries with common labor. Am Gas Eng J 109:112 Ag 3 '18; Same cond. Am Arch 114:203 Ag 14 '18; Excerpts. Chem

& Met Eng 19:174 Ag 15 '18; Excerpts. Sci Am 119:127 Ag 17 '18  
 To stop competitive bidding for labor. Iron Age 101:1424-5 My 30 '18  
 Vacant jobs exceed idle men. Iron Tr R 65: 306 J1 31 '19

*See also* Council of national defense—Emergency employment committee

Engraving and printing, Bureau of  
 Making and destroying paper money. C. H. Claudy. Il Sci Am S 86:200-2 S 28 '18

Federal board for vocational education  
 War work; abstract. Am Soc M E J 40:713 Ag '18

Federal electric railway commission  
 Federal commission holds final hearings. Elec Ry J 54:sup93-113 O 11 '19  
 Federal commission questionnaire. Elec Ry J 54:573-5 S 20 '19  
 Federal commission ready to begin. Elec Ry J 53:1161-2 Je 14 '19  
 Federal commission to investigate street railways. Munic J 46:458 Je 21 '19  
 Federal hearings in Washington. Elec Ry J 54:124-8, 163-74, 228-40, 284-6, 329-39, 374-85, 438 J1 19-Ag 30 '19  
 Federal investigation opens in New York. Elec Ry J 53:1225-6 Je 21 '19  
 National action can help greatly. P. Shoup. Elec Ry J 53:1277-8 Je 28 '19

**Federal trade commission**

Commission reports steel company profits are abnormal. Iron Tr R 63:41-2 J1 4 '18  
 Federal trade commission finds many companies have made huge profits; abstracts. Automotive Ind 39:32-3+ J1 4 '18; Iron Age 102:29-31 J1 4 '18; Eng & Min J 106:30 J1 6 '18  
 Letter from American metal co. Eng & Min J 106:69 J1 13 '18  
 Open conferences on cost-finding between industries and government. W: B. Colver. Il Am Gas Eng J 110:46-9 Ja 18 '19; Same. Am Mach 50:39-41 Ja 2 '19; Same. Dom Eng 86: 63+ Ja 4 '19  
 Report on flour milling and jobbing. U S Fed Tr Comm p 1-27 Ap 4 '18  
 Report on profiteering. Eng & Min J 106:34-5 J1 6 '18  
 Reports on coke. Coal Age 12:1095-6 D 29 '17  
 Rights of manufacturers upheld by court. Iron Age 104:769-70 S 18 '19  
 Suggests railroad administration control for packers. Ry Age 65:302-4 Ag 16 '18  
 Trade commission gone astray. Iron Age 102: 585 S 5 '18  
 Trade commission on profiteering. Am Lumberman 2251:42; 2252:28 J1 6-13 '18  
 Trade commission's future in doubt. Iron Tr R 63:166-7 J1 18 '18

**Federal transportation board (proposed)**

Functions of the Federal transportation board. E. R. Johnson. Ry Age 67:210-12 Ag 1 '19

**Fine arts, Bureau of (proposed)**

Proposed government bureau of fine arts. Am Inst Arch J 7:368-9 Ag '19

**Fisheries, Bureau of**

Encouraging the salmon in Alaska. Sci Am S 85:41 Ja 19 '18

**Food administration**

Accountants and the Food administration. H. G. Stockwell. J Account 26:250-2 O '18  
 Food administration and the nation's response. L. Hatch. Sci Am 119:390 N 16 '18  
 Food for all—a fundamental war problem. H. C. Hoover. Il map Sci Am 118:310-11 Ap 6 '18  
 Peace and food. E. Rickard. map Am Inst Min E Bul 145:sup11-14 Ja '19  
 Work of the Food administration. H. C. Hoover. Am Inst Min E Bul 140:sup26-30 Ag '18

**United States—Continued****Foreign and domestic commerce,  
Bureau of**

Aids to foreign trade in the chemical industry. Chem & Met Eng 20:189 F 15 '19  
 Government trade-building information. C. D. Snow. J Ind & Eng Chem 10:931-3 N '18  
 Publications and their bearing on the chemical industry. O. P. Hopkins. J Ind & Eng Chem 10:933-6 N '18  
 Your foreign business agent. J Elec 43:160-1 Ag 15 '19

**Foreign population**

Naughtiness of nations. Sci Am 120:596 Je 7 '19

See also Americanization; Immigrants in the United States

**Forest products laboratory**

Forest product laboratory and the architect. Am Arch 115:663-4 My 7 '19  
 Laboratory's war-time achievements. Il Am Lumberman 2277:48 Ja 4 '19  
 Production in industrial research. S. Moreell. Il chart diag Ind Management 58:95-9 Ag '19

**Forest service**

Trails constructed by National forest service. Il Eng N 81:539-40 S 19 '18  
 Use of the heliograph. M. R. Tillotson. Sci Am S 86:141 Ag 31 '18

**Fuel administration**

Coal preference again in force. Iron Tr R 65:1263-4 N 6 '19  
 Conference between the United States fuel administrator and the international officials of the United mine workers of America. Coal Age 14:228 Ag 1 '18  
 Conference on railroad fuel supply. Coal Age 13:461 Mr 9 '18  
 Distribution of anthracite. A. S. Learoyd. Am Inst Min Bul 152:1301-8 Ag '19  
 Distribution of coal under U.S. Fuel administration. J. D. A. Morrow. Am Inst Min E Bul 147:585-9 Mr '19  
 Federal control and statistics of natural gas. T. B. Gregory. Gas Age 43:646-7 Je 16 '19  
 Federal fuel administrators. Power 46:886 D 25 '17  
 Fuel administration in Missouri. charts Mech Eng 41:271-2 Mr '19  
 Fuel conservation. D. M. Myers. Mech Eng 41:269-71 Mr '19  
 Fuel conservation. A. E. Schwabacker. Mech Eng 41:264-5 Mr '19  
 Fuel question. H. A. Garfield. Il Sci Am 118:307-4 Ap 6 '18  
 General organization plan; chart. Coal Age 13:149 Ja 19 '18; Same. Elec Ry J 51:134 Ja 19 '18  
 High lights in the coal trade during the war period. A. Moss. Coal Age 15:227-32 Ja 30 '19  
 Industrial coal for next winter. Ind Management 56:101-3 Ag '18  
 Interview with the fuel administrator. F. W. Parsons. Coal Age 13:171 Ja 26 '18  
 Method of fixing prices of bituminous coal adopted by the United States Fuel administration. C. Garnsey, Jr., R. V. Norris, and J. H. Allport. charts map Am Inst Min E Bul 141:1411-33 S '18; Same. Coal Age 14:685-9, 736-9 O 10-17 '18; Discussion. Am Inst Min E Bul 144:1766-8 D '18  
 Moral value of fuel administering. J. C. Taylor. Coal Age 14:13 Jl 6 '18  
 Publications. Heat & Ven 15:47 S '18  
 Purposes of the Fuel administration. J. D. A. Morrow. Coal Age 13:676-7 Ap 13 '18  
 United States Fuel administration. Power 48:831 D 10 '18  
 Visualizing the coal needs of the nation. Il Ind Management 57:349-52 My '19  
 Why should the work of the Fuel administration cease? G. H. Sheasley. Power 49:312 Mr 4 '19  
 Work of National production committee. J. B. Neale. Am Inst Min E Bul 146:439-44 F '19; Discussion. 148:748-9 Ap '19

Work of the New Orleans fuel administration committee. L. S. Weil. Power 47:156-7 Ja 29 '18

**Geological survey**

Geologist in war times: the United States Geological survey's war work. P. S. Smith. Econ Geol 13:392-9 Jl '18

**Government printing office**

Past year's work at the Government printing-office. F. L. Burt. Inland Ptr 62:526 F '19  
 World's greatest printery. H. Allen. Inland Ptr 61:490-1 Jl '18

**Highways council**

Bridge policy outlined by Highways council. Eng N 81:643 O 3 '18  
 District capital issues committee appropriates supposed powers of Highways council. Eng N 81:352-3 Ag 22 '18  
 Federal council on road work. Munic J 45:14 Jl 6 '18  
 Federal highway council controls road work. Eng N 80:1246 Je 27 '18; Same. Good Roads n s 15:325 Je 29 '18; Same. Munic J 44:531-2 Je 29 '18  
 New war policy. Eng N 81:423-4 Ag 29 '18; Same. Good Roads n s 16:79-4 Ag 31 '18; Same abr. Munic J 45:168 Ag 31 '18  
 Policy and procedure of U.S. Highways council during the war. Munic Eng 55:91-2 S '18; Same abr. Munic J 45:168 Ag 31 '18; Same abr. Eng & Contr 50:232 S 4 '18  
 Road work of the Department of agriculture. D. F. Houston. Good Roads n s 16:230-1 D 14 '18  
 Street and highway bridge policy of U.S. Highways council. Eng & Contr 50:391 O 23 '18; Same. Good Roads n s 16:131-2 O 5 '18; Same. Munic Eng 55:176 N '18; Abstract. Eng N 81:643 O 3 '18

**Industrial board**

Industrial board announces its policy. Iron Age 103:701-4 Mr 13 '19; Same. Am Lumberman 2287:69 Mr 15 '19  
 Industrial board of the Department of commerce. Ry Age 66:510 F 28 '19  
 Industrial board of the Department of commerce. G. N. Peek. Ry Age 66:1091-2 My 2 '19  
 Industrial board to meet American iron and steel institute committee. Iron Age 103:700-1 Mr 13 '19  
 Reductions in iron and steel prices; manufacturers confer with Industrial board. Iron Age 103:814-15-4 Mr 27 '19  
 Secretary Redfield explains his plan; Industrial board of the Department of commerce. Iron Age 103:549-50 F 27 '19; Dom Eng 86:486-7 Mr 15 '19; Elec R 74:428-9 Mr 15 '19; Metal Work 91:339 Mr 14 '19; Ry Age 66:510 F 28 '19  
 Secretary Redfield favors price reduction. Iron Age 103:437-9 F 13 '19; Same cond. Am Gas Eng J 110:205-6 Mr 1 '19

**Industrial housing and transportation,  
Bureau of**

See United States housing corporation

**Industries and resources**

For victory through industry. W. C. Redfield. Ind Management 55:1-5 Ja '18  
 Industrial development in the trans-Missouri region. P. F. Walker. Mech Eng 41:821-3 O '19  
 Industrial mobilization for the purpose of war. Elec W 70:1160 D 15 '17  
 Industrial resources of the United States. O. P. Austin. Textile World 55:2532-3-4 Ap 26 '19  
 Manufacturers of northern Ohio make industrial survey. map Eng N 80:1127-8 Je 13 '18  
 Master control of American industries. Ind Management 55:150-2 F '18  
 Our industries and the war; a timely discussion before the New York section of the A. S. M. E. Am Soc M E J 40:302-5 Ap '18  
 Reconstruction: what has already been done to restore our industries to a peace basis. W. C. Redfield. Sci Am 119:410 N 23 '18

**United States—Industries and resources—Cont.**  
This year's outlook on five important raw materials, cotton, lumber, iron, steel and copper. A. W. Douglas. *Factory* 20:240-1 F '18

*See also* Agriculture—United States; Automobile industry and trade—United States; Chemical industries—United States; Dye industry—United States; Electric industries—United States; Iron industry and trade—United States; Mines and mineral resources—United States; Petroleum—United States; Potash; Steel industry and trade—United States; United States—Commerce; Water power—United States

#### Interior, Department of

Office building of the Department of the interior at Washington, D.C. C. Butler. *Il diags plans Arch Rec* 44:199-213 S '18

#### Labor, Department of

Administration of war labor problem. W. B. Wilson. *chart Ind Management* 55:265-8 Ap '18; *Excerpt. Mach* 24:611 Mr '18

Advisory council on labor. *Elec Ry J* 51:289 F 9 '18; Same. *Eng N* 80:275-6 F 7 '18; Same. *Power* 47:240 F 12 '18; Same cond. *Elec W* 71:320 F 29 '18

American report on British labor conditions; findings of the Employers' Industrial commission. *Automotive Ind* 40:861-7 Ap 24 '19  
Government may assume control of labor. *Automotive Ind* 38:1120 Je 13 '18

Government war-labor policy. *Am Mach* 48:489-90 Mr 21 '18

How the U.S. Department of labor is helping to win the war. L. F. Post. *Ind Management* 55:6-9 Ja '18

Labor turnover wasting 20 per cent of effective supply. R. W. Babson. *Eng N* 80:935 My 9 '18

Mobilizing labor for war purposes; plan of Council of national defense being installed by Department of labor. *charts Iron Age* 101:450-1 F 14 '18

National awards for steady work by the U.S. Department of labor. *Coal Age* 14:650-2 O 3 '18; Same cond. *Am Mach* 49:635-6 O 3 '18  
United States public service reserve. *Mach* 24:514 F '18

Women to replace men; slow progress being made in dilution. *Iron Age* 102:743 S 26 '18

*See also* United States—Employment service; United States—National war labor board; United States—War labor policies board; War labor conference board

#### Division of public works and construction development

New bureau formed to secure construction data. *Am Arch* 115:103-4 Ja 15 '19

U.S. Department of labor creates division of public works and construction development. *Munic Eng* 56:100 Mr '19

#### Lighthouse service

*See* Lighthouse service (United States)

#### Merchant marine

*See* Merchant marine—United States

#### Militia

Correlating the militia and the railways. C. H. Sherrill. *Ry Age* 63:1172 D 28 '17

#### Mines, Bureau of

Activities of the U.S. Bureau of mines for the year ended June 30, 1917. *Eng & Min J* 104:1081-3 D 22 '17

Bureau of mines broadens scope of Urbana (Ill.) experiment station. *Coal Age* 12:968 D 8 '17

Bureau of mines reorganized. *Eng & Min J* 108:192 Ag 2 '19

Bureau of mines wants quarter million for war minerals work. *Eng & Min J* 105:477 Mr 9 '18

Dedication of Bureau of mines building. D. J. Baker. *Coal Age* 16:320 Ag 21 '19  
Development of gas warfare work by the Bureau. V. H. Manning. *Am Inst Min E Bul* 141:suppl-13 S '18

Fuel conservation by the Bureau of mines; with discussion. O. P. Hood. *Am Soc M E J* 40:308-10 Ap '18

Men in charge of War minerals investigation. *Iron Tr R* 64:265 Ja 23 '19

Reorganization. *Mech Eng* 41:825-30 O '19

Staff increased. *Eng & Min J* 106:228 Ag 3 '18

Technicians in government service; War-minerals investigation committee. *Eng & Min J* 107:225-6 F 1 '19

War minerals nitrogen fixation and sodium cyanide. V. H. Manning. *U S Bur Mines Bul* 178-B:41-61 '19

Work of the Bureau of mines during 1918. V. H. Manning. *Il Coal Age* 15:105-7 Ja 16 '19

Work summarized. V. H. Manning. *Eng & Min J* 106:1089 D 21 '18

#### Pittsburgh station

Bureau of mines' new laboratories. *Il Power* 49:384-8 Mr 18 '19

Dedication of Bureau of mines buildings. *Il Coal Age* 16:611-13 O 9 '19

Dedication of Bureau of mines laboratories in Pittsburgh. *Il Heat & Ven* 16:54-6 O '19

Dedication of Pittsburgh Bureau of mines building. E. P. McCorken. *Il Eng & Min J* 108:682-5 O 25 '19

Dedication of Pittsburgh station United States Bureau of mines; description of the building. A. C. Fieldner. *Il plan J Ind & Eng Chem* 11:1066-70 N '19

Department of the interior, Bureau of mines, Washington, D.C., opens new million dollar laboratories at Pittsburgh, Pa. *Il Am Gas Eng J* 111:333-4 O 11 '19; *Coal Age* 16:526-7 S 25 '19; *Foundry* 47:704 O 1 '19

Description and activities of the Pittsburgh station, Bureau of mines. E. E. Thum. *Il Chem & Met Eng* 21:432-6 O 1 '19

Mining and metallurgical industries to help dedicate Bureau of mines laboratories. *Il Coal Age* 16:392-5 S 4 '19

New Pittsburgh station of the Bureau of mines. G. W. Harris. *Il plans Coal Age* 15:707-11, 749-51, 852-5, 907-11 Ap 17-May 15 '19

Pittsburgh Bureau of mines experiment station. *Il Eng & Min J* 107:899-902 My 24 '19

#### National advisory committee for aeronautics

Annual report suggests adoption of comprehensive policy. *Automotive Ind* 39:1110-+ D 26 '18

National advisory committee for aeronautics. G. O. Squier. *Am Inst E E Fro* 38:91-2 F '19

3d annual report, 1917. U S Nat Advisory Com for Aeronautics 1917:11-32 '18; Abstract. *Automotive Ind* 38:1217-19 Je 20 '18

4th annual report. *Aviation* 5:750-3 Ja 15 '19

#### National industrial conference board

Views on the European industrial situation. R. Horne. *Elec W* 74:409 Ag 23 '19

#### National war labor board

Appointment of war labor board. *Ry R* 62:139-40 Ja 26 '18

Board declines to establish minimum wage. *Iron Age* 102:330 Ag 8 '18

Board makes important decisions. *Eng & Min J* 106:315 Ag 17 '18

Bridgeport decision. *Iron Age* 102:535 Ag 29 '18

Bridgeport employers accept award; about four thousand employees refuse to work. *Iron Age* 102:570-1 S 5 '18

Decisions by the National war labor board. *Iron Age* 103:748-9 Mr 20 '19

Federal control of industrial relations. *Am Ind* 18:10-12 Ap '18

Functions of the War labor board. J. A. Emery. *Am Ind* 18:15-17 My '18

Labor board's award in Bethlehem case. *Iron Age* 102:326-7 Ag 8 '18

Labor is encouraged to organize; War labor board outlines program for electing shop representatives. *Iron Tr R* 63:516 Ag 29 '18

Labor war board formed. *Iron Tr R* 62:281 Ja 24 '18

United States—National war labor board—*Cont.*  
National labor board appointed. Eng & Min J  
105:433-4 Mr 2 '18

National program for our labor and capital.  
Elec W 71:736 Ap 6 '18; Same. Elec Ry J  
51:673 Ap 6 '18; Same cond. Power 47:528 Ap  
9 '18; Same cond. Eng N 80:682+ Ap 4 '18;  
Same cond. Am Mach 48:678-9 Ap 18 '18;  
Excerpt. Coal Age 13:634-5 Ap 6 '18

National war labor board. Elec Ry J 52:786-  
7 N 2 '18

National war labor board decisions; machin-  
ists' qualifications defined; collective bar-  
gaining favored. Iron Age 102:1080-1 O 31 '18  
New rules announced at Bridgeport, Conn.  
Iron Age 102:755-6 S 26 '18

Plan for collective bargaining outlined. Iron  
Age 102:536-8 Ag 29 '18

President Wilson accepts report of National  
war labor board and reappoints members.  
Iron Tr R 62:992 Ap 18 '18

Principles in labor awards; board explains  
general basis followed in its decisions. Elec  
Ry J 52:243 Ag 10 '18

Proclamation in regard to labor adjustments.  
President Wilson. Am Gas Eng J 109:273-  
5+ S 21 '18

Rules of procedure in industrial controversies.  
Iron Age 101:1335 My 23 '18; Iron Tr R 62:  
1324 My 23 '18; Elec Ry J 51:1022 My 25 '18

Strikes at Pittsfield, Mass., and Chicago set-  
tled. Iron Tr R 62:1263 My 16 '18

War board refuses to recognize union. Iron  
Age 102:421-2 Ag 15 '18

War labor board dissolved. Elec Ry J 54:353  
Ag 16 '19

War labor board grants 48-cent maximum for  
surface lines in Chicago, Cleveland and De-  
troit; maxima in smaller cities 42 cents and  
45 cents. Elec Ry J 52:207-8 Ag 3 '18

#### Naval consulting board

Naval consulting board of the United States.  
W. R. Whitney and L. H. Baekeland. J  
Ind & Eng Chem 11:248-9 Mr '19

Secretary Daniels praises Naval consulting  
board. Elec W 71:61 Ja 5 '18; Same. J Ind  
& Eng Chem 10:175 Mr '18

#### Navy

Achievements of naval engineering in the war.  
W. L. Cathcart. II plans Am Soc M E J 41:  
18-25 Ja '19

Admiral Sims in the team-work for victory.  
II Sci Am 120:374+ Ap 12 '19

Airplanes and seaplanes of our navy in war-  
time. H. C. Richardson. Sci Am 120:188+  
F 22 '19

Annual report on the American navy. Engi-  
neer 125:71-2; Discussion. 75-6 Ja 25 '18

Chemistry and the navy. R. Earle. J Ind &  
Eng Chem 11:924-7 O '19

Commanding naval position of the United  
States. Sci Am 119:512 D 28 '18

Comparison of army and navy efficiency. Sci  
Am 117:470 D 22 '17

Cost of the new three-year naval program.  
II map Sci Am 120:204-5 Mr 1 '19

Difference between army and navy. Am Mach  
49:440-1 S 5 '18

Fifty-year retrospect. C. W. Dyson. Sci Am  
S 86:246-7 O 19 '18

How the navy trains its machinists ashore.  
W. Connely. II Am Mach 50:397-400 F 27  
'19

Is our navy in peril? Sci Am 121:384 O 18  
'19

Navy pay and a fifty-cent dollar. Sci Am  
121:456 N 8 '19

New developments in training wartime sail-  
ors; U.S. naval training station under the  
Dunwoody industrial institute. W. Connely.  
II Sci Am 117:492+ D 29 '17

Pay corps of the navy. D: Potter. J Account  
25:321-50 My '18

Peace and naval policy. Sci Am 119:432 N 30  
'18

Peace parley problems. H. Maxim. Sci Am 120:  
8 Ja 4 '19

Refitting war fleet is big job. V. G. Iden.  
II Marine R 49:375-8 Ag '19

Return of the American fleet. J. B. Walker. II  
Sci Am 120:32-3+ Ja 11 '19

Strong and adequate navy. G. A. Loud. Sci  
Am 120:117 F 8 '19

That big navy. H. D. Tiemann. Sci Am 121:  
9 Jl 5 '19

Three-year naval program abandoned. Sci  
Am 120:620 Je 14 '19

Training coppersmiths for the navy. W. Con-  
nelly. II Metal Work 89:14-17 Ja 4 '18

Training of enlisted personnel of the United  
States navy for engineering duties. R. R.  
Smith. Int Marine Eng 24:685-8 O '19

Training power-plant men for the navy at  
Dunwoody industrial institute, Minneapolis.  
Minn. W. Connely. II Power 47:396-8 Mr 19  
'18

United States navy; annual report. Engineer  
127:30-1, 97-8 Ja 10, 31 '19

U.S. navy strips for action. J. Daniels. II Sci  
Am 118:300-1 Ap 6 '18

Use of coal by American navy. S: McGowan.  
Coal Age 15:60-1 Ja 9 '19

War-time repairs in the navy. F. A. Stanley.  
II diags Am Mach 48:729-34, 999-1103, 1091-4;  
49:621-4; 50:383-7, 433-7 My 2, Je 13, 27, O 3  
'18, F 27-Mr 6 '19

See also United States—Naval consulting  
board; Warships—United States

#### Air service

Congress and our naval air service. Sci Am  
121:4 Jl 5 '19

#### Compensation board

Our newest navy; how its cost is being  
determined. D: Potter. J Account 27:336-  
57 My '19

#### Equipment

Development of machinery in the United  
States navy during the past ten years. C. W.  
Dyson. Engineer 124:170-1, 190-1, 211-12, 214  
Ag 24-S 7 '17; Same. Int Marine Eng 22:  
498-502, 545-7; 23:28-30, 69-71 N '17-F '18

Procurement of supplies for the navy. C. E.  
Parsons. Am Soc M E J 40:pt 1, 548-9 Jl  
'18

Supplying the navy with textiles. Textile  
World 55:231 Ja 11 '19

#### Insignia

Navy aviator device. II Aviation 7:222 O 1 '19

#### Minelaying squadron

North sea mine barrage. R. R. Belknap. II  
diags map Sci Am 120:250-1, 288-9 Mr 15-22  
'19

#### Navy department

American progress in 1917; annual reports of  
the Navy department. Engineer 125:148 F  
15 '18

Annual report on the American navy. Engi-  
neer 125:71-2, 112-4 Ja 25, F 8 '18; Discus-  
sion. 125:75-6 Ja 25 '18

Directory of government departments in  
Washington charged with making pur-  
chases of war materials. Am Lumberman  
2226:46 Ja 12 '18; Same. Iron Tr R 62:222-3  
Ja 17 '18; Excerpts. Foundry 46:57-8 F '18

Fixing of prices for naval contracts discussed  
in annual report of the secretary of the  
navy. Iron Age 100:1420-1 D 13 '17

New office buildings at Washington, D. C. for  
the navy and war departments. G: P. Hales.  
II diags plan Arch Rec 44:522-31 D '18

U.S. navy steam engineering school at Ho-  
boken, N.J. Elec R 73:329 Ag 31 '18

#### Ordnance, Bureau of (Navy dept.)

Year's developments in naval ordnance. Iron  
Age 100:1486-7 D 20 '17

#### Ordnance department

Achievements of the Ordnance bureau. S: Mc-  
Roberts. Iron Age 101:686-9 Mr 14 '18

Activities of the supply division of Ordnance.  
J: H. Van Deventer. II Am Mach 49:1107-11  
D 19 '18

America's great effort in ordnance. II Sci Am  
120:338-9, 432-3+ Ap 5, 26 '19

Appointments. Iron Age 102:631 S 12 '18

Changes in the department. Iron Age 102:501  
Ag 29 '18

Changes made in the organization. Am Mach  
48:1065 Je 20 '18

**United States—Ordnance department—Cont.**

Contracts totaling \$4,300,000,000 placed during the war. *Am Mach* 49:585 S 26 '18  
 Crozier tells of great progress made. *Iron Age* 100:1472-4, 1510-14 D 20 '17  
 Decentralization policy of the Ordnance department. *Ry R* 62:407 Mr 16 '18  
 Economy in the small-arms section. *P. A. MacKenzie. Am Mach* 49:354 Ag 22 '18  
 Education and training in the Ordnance department. *Il Am Mach* 50:357-61 F 20 '19  
 Establishes industrial education section. *Chem & Met Eng* 19:403 S 25 '18; Same. *Am Mach* 49:616 O 3 '18; Same. *Elec R* 73:540-1 O 5 '18; Same. *Textile World* 54:1607 O 5 '18  
 Finding the choke points of ordnance. *J. H. Van Deventer. Il chart Am Mach* 49:967-71 N 28 '18  
 Further details of the reorganization. *Am Mach* 48:329-31 F 21 '18  
 Getting together with Uncle Sam; organization of manufacturers in northern Ohio and western Pennsylvania. map *Iron Tr R* 62:1258-60 My 16 '18  
 Handling ordnance supplies. *Am Mach* 48:405-10 Mr 7 '18  
 History of the Aberdeen ordnance proving ground. *F. P. Lindh. Il Am Mach* 50:459-61, 509-13 Mr 6-13 '19  
 How army ordnance met its responsibilities. *W. S. Peirce. Il Am Mach* 50:408-9 F 27 '19  
 How machine tool builders can help make big guns; machine tool requirements of the Ordnance department. *H. W. Reed. Am Mach* 48:891-3 My 23 '18; Same. *Iron Age* 101:1330-3 My 23 '18; Same cond. *Iron Tr R* 62:1425-6 Je 6 '18; Same cond. *Mach* 24:943-4 Je '18  
 How ordnance is inspected. *F. H. Colvin. Il chart (supp) Am Mach* 50:263-8, 311-16 F 6-13 '19  
 How to deal with the Ordnance department. *P. A. Curtis, Jr. Am Mach* 48:545-6 Mr 28 '18; Discussion. 48:903-4; 49:65-6 My 30, JI 11 '18  
 Industrial achievement of the war. *L. P. Alford. chart Ind Management* 55:97-100 F '18  
 Investigation by the Senate military committee. *Iron Age* 100:1548-9 D 27 '17  
 Large savings attributed to efficiency; annual report of Ordnance bureau. *W. Crozier. Iron Age* 101:148-9 Ja 10 '18  
 Little chance for profiteering in the Ordnance department. *P. A. MacKenzie. Am Mach* 49:34-5 JI 4 '18  
 Mapping out the ordnance program. *J. H. Van Deventer. Il Am Mach* 49:1013-17 D 5 '18  
 Metallurgical board created. *Eng & Min J* 106:459 S 7 '18  
 New ordnance organization. *Am Mach* 50:223 Ja 30 '19  
 Ordnance department contracts since beginning of the war. *Am Mach* 49:138a JI 18 '18  
 Ordnance department work in France. *P. A. Curtis. Am Mach* 49:1181-2 D 26 '18  
 Ordnance repair shops at Mehun-sur-Yevre. *G. S. Brady. Il plan Am Mach* 51:575-8 S 18 '19  
 Probable effects of war motor apparatus on commercial design. *Automotive Ind* 39:905-6+ N 28 '18  
 Recent changes made in the Ordnance department. *Am Mach* 49:871 N 7 '18  
 Ten munition districts established. *Am Mach* 48:539-40 Mr 28 '18; Same cond. *Iron Age* 101:718 Mr 14 '18  
 Tentative personnel of the procurement and production divisions of the Ordnance department. *Am Mach* 49:159-61 JI 25 '18  
 Washington making preparations against industrial unrest; employment management introduced in all departments. *M. Schuyler. Eng N* 80:294-6 F 14 '18  
 What has been done in the Ordnance department to reduce government outlay on war work. *Iron Age* 101:1002-3 Ap 18 '18  
 What ordnance is and does. *J. H. Van Deventer. Il (supp) Am Mach* 49:875-81 N 14 '18

**Engineering division**

Engineering division of the Ordnance department. *J. H. Van Deventer. Il Am Mach* 49:921-31 N 21 '18

**Patent office**

Chief fault of our patent office system. *N. O. Lindstrom. Am Mach* 51:140 JI 17 '19  
 Department of inventions and discovery. *Sci Am* 119:492 D 21 '18  
 Growth of the patent office. *G. W. Evans. Am Mach* 49:284 Ag 15 '18  
 Needs of the patent office. *T. Ewing. Sci Am* 119:497+ D 21 '18  
 Needs of the U. S. patent office. *T. Ewing. J Ind & Eng Chem* 11:237-9 Mr '19  
 New commissioner of patents; James T. Newton. *Sci Am* 117:479 D 22 '17  
 Patent office society completes its first year of existence. *Sci Am* 118:194+ Mr 2 '18  
 Proposed increased efficiency in Patent office. *Am Mach* 50:1044-5 My 29 '19  
 Reforms in the patent system. *F. W. H. Clay. Sci Am S* 85:86-7 F 9 '18  
 Report of the Patent committee to the National research council. *J Ind & Eng Chem* 11:250-3 Mr '19; Excerpts. *Chem & Met Eng* 20:150-1 F 15 '19  
 United States patent office as a national asset. *E. Thomas. Sci Am* 120:642+ Je 14 '19

**See also Patent laws and legislation****Politics and government**

Broad point of view on the war and the industrial situation. *W. Bathon. Am Mach* 48:544 Mr 28 '18  
 Diagrammatic representation of the national administration organization. chart *Ry R* 62:138 Ja 26 '18

**Printing office**

See United States—Government printing office

**Public buildings commission**

Report of the Public buildings commission. *Am Inst Arch J* 6:6-7 Ja '18

**Public health service**

Public health service reserve. *Sci Am* 119:432 N 30 '18

**Public lands**

See Forest reserves; Public lands

**Public roads, Bureau of**

Operations of the Bureau of public roads under the federal aid road act. *P. St J. Wilson. Good Roads n s* 17:97-8 Mr 1 '19; Excerpts. *Eng & Contr* 51:241 Mr 5 '19

**Public works, Department of (proposed)**

Army engineers want control of public works. *M. O. Leighton. Il Am Lumberman* 2301:52 Je 21 '19; Same. *Eng N* 82:1232+ Je 19 '19; Same cond. *Ry Age* 66:1806-7 Je 27 '19  
 Bill to create a National department of public works. *Am Arch* 116:60, 130-1 JI 9, 23 '19  
 Comment on the Department of public works. *Mech Eng* 41:784-5 S '19  
 Contributions from engineers, architects and constructors' conference on national public works. *M. O. Leighton. Eng N* 83:585-6 S 18 '19  
 Engineering conference at Chicago, April 23-25, favors a National department of public works. *Am Arch* 115:642-4 My 7 '19  
 Engineering societies organize to push Public works department bill. *Eng N* 82:855-60 My 1 '19  
 Explanation of the proposed department of public works. *Mech Eng* 41:852-3 O '19  
 Federal department of public works. *Eng N* 82:359-60 F 20 '19  
 How should a federal department of public works be organized? *C. W. Baker. Eng N* 82:722-4 Ap 10 '19  
 Interior department will henceforth be headed by an engineer. *Coal Age* 16:17 JI 3 '19  
 Movement to establish a national department of public works. *F. H. Fay. Boston Soc C E J* 6:235-44; Discussion. 244-62 Je '19  
 National department of public works—its foundation and the necessity for its establishment. *A. T. North. Am Lumberman* 2295:38 My 10 '19



**United States—Public works, Department of (proposed)—Continued**

National public works department versus corps of engineers. I. Randolph. Eng N 83:581-2 S 18 '19; Same. Ry Age 67:608 S 26 '19; Same. Coal Age 16:718-19 O 30 '19  
 Plan for National department of public works. Am Arch 115:646 My 7 '19  
 Proposed department of public works of real interest to the lumber industry. A. T. North. Am Lumberman 2303:39-40 JI 6 '19  
 Proposed governmental department of public works. W. D. Blair. Am Inst Arch J 7:367 Ag '19  
 Reasons for a National department of public works. M. O. Leighton. Am Arch 116:291 Ag 27 '19

**Purchasing agents**

Authorized list of U.S. government purchasing agents. Am Mach 49:79-81 JI 11 '18; Same cond. Iron Tr R 63:99-100 JI 11 '18

**Quartermaster's department**

Quartermaster general's office is reorganized. Eng N 80:248-50 F 7 '18

**Railroad administration**

Accomplishments of the United States Railroad administration. F. McManamy. Ry R 64:152-4 Ja 25 '19  
 Activities of the Director-General. Ry Mech Eng 92:133-5 Mr '18  
 Address. C. C. Elmquist. Ry R 63:737-8 N 23 '18  
 Administration's maintenance program. Ry R 64:406-8 Mr 15 '19  
 Aims and purposes of the safety section U.S.R.A. A. F. Duffy. Ry R 65:588-9 O 18 '19  
 Annual report of the division of law. Ry R 64:260-2 F 15 '19  
 Annual report of the Exports control committee. Ry Age 66:317-18 Ja 31 '19  
 Arithmetic of railroad operation. W. J. Cunningham. Ry R 64:316-18, 355-7 Mr 1-8 '19  
 Attitude of Railroad administration on public improvements. Ry R 64:832 Je 14 '19  
 Chapters from Railroad administration report. Ry Age 66:311-14 Ja 31 '19  
 Director general reviews his stewardship. Ry R 65:585-8 O 18 '19  
 Director general seeks additional funds. Ry R 64:197-8 F 1 '19  
 Discussion of the railroad problem. W. D. Hines. Am Lumberman 2292:1, 64-66b Ap 19 '19  
 Distinguished service medal for George Hodges; manager of railroad troop movements. Ry Age 66:1275-6 My 23 '19  
 Doings of the United States Railroad administration. See weekly numbers of Railway age beginning April 19, 1918  
 Eastern region under A. H. Smith as director. Ry Age 66:1346-8 Je 6 '19  
 Expenses of the U.S. Railroad administration. Ry Age 66:1093-6 My 2 '19  
 Extemporaneous remarks. W. D. Hines. Ry R 64:289+, 335-7 F 22-Mr 1 '19  
 Federal appointments in the southwestern region. Ry Age 65:75-6 JI 12 '18  
 Federal managers. Ry Age 64:1536-7 Je 21 '18  
 Financing and purchasing division organized in two sections. Ry Age 64:545-6 Mr 15 '18  
 Government and the railroads. J. B. Walker. Il Sci Am 118:314-15+ Ap 6 '18  
 Government's railroad deficit. W. G. McAdoo. Ry R 64:25-9, 79-80 Ja 4-11 '19  
 Labor conditions during federal control; abstract of chapter from director general McAdoo's forthcoming report to the President. Ry Age 66:181-6 Ja 17 '19; Same cond. Ry R 64:187-90 F 1 '19  
 Mechanical achievements of United States Railroad administration. F. McManamy. Am Mach 50:1163-6 Je 19 '19  
 Motive power under government control. G. N. De Guire. Ry Age 67:349-52 Ag 22 '19

National association of railway and utilities commissioners 30th annual convention. Ry Age 65:851-8 N 15 sec 1 '18; Ry R 63:737-43 N 23 '18

New York barge canal's first operating season. Eng N 82:370-2 F 20 '19

Officers in charge of railroads under federal control. Ry R 63:103-4 JI 20 '18

Organization diagram. Ry R 62:supp; 64:supp Je 29 '18, F 15 '19; Ry Age 65:supp 1 D 20 '18

Organization diagram; list of railroads under federal control with officials in charge. Ry R 63:supp; 65:supp N 30 '18, JI 12 '19; Ry Age 64:supp; 65:supp 1 Je 14, D 20 '18

Organization diagram; with list of regional limits. Ry Age 66:sup JI 5 '18; Same. Ry Mech Eng 92:sup JI '18

Organization of government railroad administration. chart Eng N 80:723-7 Ap 11 '18

Organization of government railroad administration; chart and explanatory data showing branches and their functions which have to do with construction and other engineering matters. map Eng N 81:502-4 S 12 '18

Organization of the Railroad administration. Ry Age 64:359-60, 1182-4 F 15, My 10 '18

Organization of the southwestern railway region. Ry Age 65:255-7 Ag 9 '18

Progress toward financing railroad requirements. Ry Age 66:768-70 Mr 21 '19

Proposed plans of railroad financing. Ry R 64:404-5 Mr 15 '19

Railroad administration faces new situation. W. D. Hines. Ry Age 66:529-30 Mr 7 '19

Railroad administration news. Ry Mech Eng 92:604-6, 655-8; 93:31-4, 126-8, 470-2 N '18-Ja, Mr, Ag '19

Railroad administration to consider wage demands. Ry Age 67:320-5 Ag 15 '19

Railroad administration's new advertising campaign. Ry Age 66:1085-6 My 2 '19

Railroad appropriation bill before the House. Ry Age 66:431-6 F 21 '19

Railroad appropriation cut to \$750,000,000. Ry Age 66:1404-8 Je 13 '19

Railroad appropriation defeated by filibuster. Ry Age 65:527-9 Mr 7 '19

Railroad corporate accounting during federal control. F. Nay. Ry R 65:172-5, 209-12 Ag 2-9 '19; Same abr. Ry Age 66:1535-8 Je 20 '19

Railroad hearings before senate committee. Ry Age 66:188-94, 306-10 Ja 17, 31 '19

Railroad hearings before senate committee. J. Kruttschnitt. Ry Age 66:258-62 Ja 24 '19; Same. Ry R 64:128-32 Ja 25 '19

Railway crisis. Ry Mech Eng 93:3-4 Ja '19

Report to the President. W. G. McAdoo. map Ry R 63:371-81 S 14 '18

Selling to railroads under government control. Ry Age 64:543-4 Mr 15 '18

Some results of a year of government railway operation. W. G. McAdoo. Eng & Contr 51:66-7 Ja 15 '19

Standard scales of class rates are proposed. map Ry Age 65:781-3 N 1 '18

Three new regional directors appointed. Ry Age 64:1439-40 Je 14 '18

Traffic department of the U. S. R. A. Ry Age 66:213-16 Ja 17 '19

United States Railroad administration. See weekly numbers of Railway review beginning March 9, 1918

United States railroad administration alphabetical roster. Ry R 62:644-5 My 4 '18

U. S. R. A. mechanical department; abstract of Mr McAdoo's report. Ry Mech Eng 93:69-71 F '19

Walker D. Hines appointed new director general. Ry Mech Eng 93:79-80 F '19

Waterway policy of the Railroad administration. W. D. Hines. Ry Age 66:998-1000 Ap 18 '19; Excerpts. Ry R 64:577-9 Ap 19 '19

What the government did in inland waterway navigation. W. G. McAdoo. Eng N 82:480-1 Mr 6 '19

What the Railroad administration has accomplished. T. H. Price. Ry Age 65:382-3 Ag 30 '18; Same. Ry R 63:309-10 Ag 31 '18

Why and wherefore of that 1200 million for Railroad administration. W. D. Hines. Ry R 64:989-90; 65:19-23 Je 28-JI 5 '19

**United States—Railroad administration—Cont.**  
 William G. McAdoo and the administration's railroad policy. Ry Age 65:944-6 N 29 '18  
 Work of the Division of operation. W: G. McAdoo. Ry Age 66:139-50 Ja 10 '19; Same cond. Ry R 64:69-76 Ja 11 '19; Abstract. Eng N 82:178-80 Ja 23 '19  
 Work of the Fuel conservation section. Ry R 63:157+ Ag 3 '18  
 Work of the Fuel conservation section. E. McAuliffe. Ry Age 67:1011-13 N 21 '19  
 Work of the Fuel conservation section. E. C. Schmidt. Ry R 63:769-72 N 30 '18; Same cond. Ry Age 65:953-61 N 29 '18  
 Work of the United States Railroad administration for the first seven months of its existence. W: G. McAdoo. Ry Age 65:468-9, 477-81 S 13 '18; Eng & Contr 50:277-8 S 18 '18  
 Work of troop movement section. Ry R 64: 597-8 Je 14 '19

*See also* Railway board of adjustment

*Bureau for suggestions and complaints*

Railroad bureau for brickbats and bouquets. T. H. Price. Ry Age 65:749-52 O 25 '18

#### Railroads

*See* Railroads—United States

#### Reclamation service

*See* Reclamation service (United States)

#### Shipping

*See* Shipping—United States

#### Shipping board

All ports and terminals to be co-ordinated. Eng N 80:929 My 9 '18  
 America to lead world in shipbuilding; abstracts. E. N. Hurley. Iron Age 101:808-9 Mr 28 '18; Eng & Min J 105:755 Ap 20 '18; Eng & Contr 49:418-19 Ap 24 '18; Int Marine Eng 23:268-70 My '18; Am Mach 48:841 My 16 '18; Eng N 80:837 Ap 25 '18  
 Directory of government departments in Washington charged with making purchases of war materials. Am Lumberman 2226:46 Ja 12 '18; Same. Iron Tr R 62:222-3 Ja 17 '18; Excerpts. Foundry 46:57-8 F '18  
 Disclosures at Shipping board inquiry. Int Marine Eng 23:45 Ja '18  
 1st annual report. Engineer 125:30 Ja 11 '18  
 Fleet corporation programme totals. Int Marine Eng 24:714 O '19  
 Housing department. Am Inst Arch J 6:217-18 My '18  
 Hurrying up Hurley! H. Whipple. Concrete 13:145-6 N '18  
 Shipping board engineers study marine turbine construction and operation. Int Marine Eng 24:756-8 N '19  
*See also* United States shipping board emergency fleet corporation

#### Signal corps

*See* United States—Army—Signal corps

#### Standards, Bureau of

Active year of research along metallurgical and engineering lines. Iron Age 101:176-7 Ja 10 '18  
 Activities of the Bureau of standards for the air service. C: O. Squier. Am Inst E E Pro 38:86-90 F '19  
 Annual report of the director. J Fr Inst 187: 339-52 Mr '19  
 Annual report of the director for the fiscal year ended June 30, 1917. U S Bur Stand 158p '17; Abstract. J Fr Inst 185:138-40 Ja '18  
 Branch gage laboratory of the Bureau of standards. Mach 24:830 My '18; Am Mach 48:838 My 16 '18  
 Bureau of standards and industrial research. S. W. Stratton. Il Iron Age 103:1425-6 My 29 '19  
 Bureau of standards gage laboratories. Mech Eng 41:290-1 Mr '19  
 Bureau of standards research laboratories. E. D. Walen. Il Textile World 55:1563+ Mr 8 '19

Certification of gages at Bureau of standards. H. L. Van Keuren. Il Mech Eng 41:800-2 O '19

Change in method of distribution of Bureau of standards standard samples. Chem & Met Eng 20:276 Mr 15 '19

Chemical properties of textile materials; work of chemistry division of Bureau of standards. E. R. Clark. Textile World 53: 3463 Ja 26 '18

Cleveland gage laboratory. Am Mach 49:70 Jl 11 '18

Gage testing plans are far reaching. Iron Tr R 64:632 Mr 6 '19

Industrial tests by Bureau of standards. Il Automotive Ind 40:478-9 F 27 '19

Investigations in progress. Am Soc M E J 40: 100 Ja '18

Relation of the Bureau of standards to illuminating engineering; abstracts. M. G. Lloyd. Illum Eng Soc 13:368-9 no 7 '18; Elec R 72:599 Ap 6 '18

Science in the war; a resumé of the work done by the Bureau of standards. C. H. Claudy. Sci Am 120:563+ Je 21 '19

Textile tests comprise large amount of work. Textile World 53:2604 D 22 '17

Textile war work of the Bureau of standards. E. D. Walen. Textile World 55:220+ Ja 11 '19

War testing of textiles by Bureau of standards. E. D. Walen. Il Textile World 53: 2957+ Ja 12 '18

Work of the Bureau of standards on electroplating. W: Blum. Metal Ind 16:76 F '18

Work of the national Bureau of standards on the establishment of color standards and methods of color specification; with discussion. I. G. Priest. Illum Eng Soc 13:38-49 no 1 '18

Work of U. S. Bureau of standards in gas field told in annual report. S. W. Stratton. Am Gas Eng J 110:24-5 Ja 11 '19

#### Bibliography

Publications of the Bureau of standards. U S Bur Stand Circ 24:1-149 '19

#### Steam engineering, Bureau of

Achievements of naval engineering in the war. W: L. Cathcart. Il plans Am Soc M E J 41: 18-25 Ja '19

#### Supervising architect, Office of

Annual report for year ending June 30. Am Arch 112:459 D 19 '17

Reasons for a National department of public works. M. O. Leighton. Am Arch 116: 291 Ag 27 '19

#### Training service

Industrial training. H. H. Pratt. Textile World 55:3477 Je 7 '19

Preparing industry for reconstruction demands. C. T. Clayton. Il Am Mach 51:19-22 Jl 3 '19

U. S. Training service and its work. C: T. Clayton. Ind Management 57:103-4 F '19

United States Training service organized. Iron Age 103:127-8 Ja 9 '19

#### Treasury department

Treasury department standard for drinking water; its value and enforcement. H. P. Letton. Am Water Works Assn J 4:478-82 D '17; Same cond. Eng N 78:349-50 My 17 '17; Discussion. Am Water Works Assn J 4:482-8 D '17

#### War department

Aircraft chaos works injury to the nation. A. Sinsheimer. Automotive Ind 38:937-9 My 16 '18

Benedict Crowell, the organizer. Eng & Min J 105:471 Mr 9 '18

Bureau to pass on inventions. Iron Age 101: 1341 My 23 '18; Same. Am Mach 48:1043-4 Je 20 '18

Centralizes purchasing control. Eng N 81:246 Ag 1 '18; Am Mach 49:274-5 Ag 8 '18; Chem & Met Eng 19:174 Ag 15 '18

Chemical warfare service; order creating the division, organization and personnel. J Ind & Eng Chem 10:675-84 S '18

**United States—War department—Continued**

Composition of the board organized to adjust and review war contracts. *Automotive Ind* 40:451-2 F 20 '19

Council to oversee supply of the armies in the field and the military relations between the armies and the War department. *Iron Age* 100:1608 D 20 '17

Directory of government departments in Washington charged with making purchases of war materials. *Am Lumberman* 2226:46 Ja 12 '18; Same. *Iron Tr R* 62:222-3 Ja 17 '18; Excerpts. *Foundry* 46:57-8 F '18

Inland traffic service of War department. *Ry R* 63:201-3 Ag 10 '18; Excerpt. *Ry Age* 65:263-5 Ag 9 '18

New bureau handles material from canceled orders. *Eng & Min J* 106:312-13 Ag 17 '18

New office buildings at Washington, D. C. for the navy and war departments. G. P. Hales. II diag. plan *Arch Rec* 44:522-31 D '18

New purchasing system outlined. *Iron Tr R* 63:457 Ag 22 '18; Same. *Ry R* 63:276-7 Ag 24 '18

Organization of the office of the director of sales of the war department. *Iron Age* 104:516-17 Ag 21 '19

Sales organization of the war department. *Am Mach* 51:335-6 Ag 14 '19

Senate war disclosures. *Sci Am* 117:490 D 29 '17

Supplying army centered in general staff. *Eng N* 81:561-2 S 19 '18

Transfer of the experiment station at American university to the War department. *J Ind & Eng Chem* 10:654 Ag '18; Same. *Am Inst Min E Bul* 141:sup10 S '18

War claims board disbanded May 15. *Iron Tr R* 64:1094-5 Ap 24 '19

War department committee appointed to systematize technical schooling. *Eng & Contr* 49:202 F 20 '18

War department, engineering and standardization branch. C. V. Bacon. *Am Ind* 19:33 Je '19

War dept. reorganized. *Textile World* 53:3806 F 16 '18

**War Industries board**

Automatic priority classification; new rules and regulations issued by War Industries board. *Iron Tr R* 63:270-2 Ag 1 '18

Changes in personnel. *Iron Tr R* 63:218 JI 25 '18

Charles C. Hanch made chief of automotive products section. *Automotive Ind* 38:1230+ Je 20 '18

Chemical division. War Industries board. E. R. Weidlein. *J Ind & Eng Chem* 11:1006-10 N '19

Chemicals and explosives divisions War Industries board. *J Ind & Eng Chem* 10:654 Ag '18

Complete text of War Industries board ruling. *Automotive Ind* 39:823-4 N 14 '18

Cooperation between the A.S.M.E. and the War Industries board. *Am Soc M E J* 40:877 O '18

Domestic dyestuffs during war. V. L. King. *Textile World* 55:327+ Ja 11 '19

Economizing time in War Industries board. W. Robbins. diag *Elec W* 71:1283 Je 15 '18

Electrical manufacturers plan to continue beneficial co-operation. *Elec R* 74:149-50 Ja 25 '19

Executive order of President under Overman bill makes industries body a distinct administrative agency. *Iron Tr R* 62:1447-8 Je 6 '18

Full text of the pig iron and steel agreement. *Automotive Ind* 38:1116-17 Je 13 '18

Great machine distributes steel. M. L. Feiser. II *Iron Tr R* 64:34-40 Ja 2 '19

How the War Industries board controls building. *Eng N* 81:811-14 O 31 '18

Inaugurate new war organizations. *Iron Tr R* 63:48-9 JI 4 '18

J. L. Replogle takes over steel distribution. *Iron Age* 101:1528-30 Je 13 '18

May control all raw materials and finished products. *Automotive Ind* 39:179-80 Ag 1 '18

Necessity halts industrial waste. L. W. Moffett. II *Iron Tr R* 64:85-8 Ja 2 '19

New facilities division. *Textile World* 54:936

Ag 31 '18

New function of the War Industries board.

B. M. Baruch. *Elec W* 72:996 N 23 '18

New regulations of building materials section

for use of pipes, tanks and accessories

in government projects. *Eng & Contr* 50:392

O 23 '18

Personnel of the chemical and explosives section.

*Met & Chem Eng* 18:650 Je 15 '18

Policy of War Industries board and new members

of priorities committee. *Iron Age* 102:

832 O 3 '18

Priority regulations. E. B. Parker and others.

*Elec W* 72:223-4 Ag 3 '18

Rapid progress in regional plan. *Iron Tr R*

63:155-6 JI 18 '18

Readjustment plans of War Industries board;

text of bulletin 1. *Elec R* 73:805-6 N 23 '18;

Same. *Elec W* 72:994-5 N 23 '18

Readjustment plans of War Industries board;

text of bulletin 2. *Elec R* 73:860-1 N 30 '18

Resources and conversion section; lining up

war-work possibilities of the various industries. C. W. Stark. map *Am Mach* 49:393-4

Ag 29 '18

Separate War Industries board from Council of

national defense. *Automotive Ind* 38:1100 Je

6 '18

Story of the War Industries board. P. Yeat-

man. *Am Inst Min E Bul* 140:sup 17-24 Ag

'18

Structural service department; War Industries

board. *Am Inst Arch J* 6:453-6, 485-93

S-O '18

To fix status of building permits. B. M.

Baruch. *Am Lumberman* 2261:38-9 S 14 '18;

*Am Arch* 114:371 S 25 '18

Turbine engine manufacture under govern-

ment supervision. *Iron Age* 102:274 Ag 1 '18

War Industries board discourages further ex-

pansion of electric steel. *Chem & Met Eng*

19:171-2 Ag 15 '18

War Industries board may be reconstruction

agency. W. Bathon. *Chem & Met Eng* 19:

703-4 N 15 '18

War Industries board to be central agency for

mobilizing nation's resources. charts *Eng N*

80:164-6 Ja 24 '18; Same. *Am Mach* 48:165-

7 Ja 24 '18; Same (charts). *Eng & Min J*

105:288-3 F 9 '18; Same cond. *Elec W* 71:

162-4 Ja 19 '18

Waste elimination in war and peace. *Textile*

*World* 55:227+ Ja 11 '19

Work of the automotive products section. C.

C. Hanch. chart *Automotive Ind* 40:283-5 Ja

30 '19

Work of the chemical section of the War in-

dustries board. C. H. MacDowell. *J Ind &*

*Eng Chem* 10:780-3 O '18

Work of the machine-tool section of the War

industries board. *Am Mach* 49:1093-4 D 12

'18

This board was formerly a division of the

Council of national defense *q.v.*

**War labor administration**

See United States—Employment service;  
United States—Labor, Department of;  
United States—National war labor board;  
War labor conference board

**War labor policies board**

War labor policies board of Department of  
Labor. H. Perkins. *Textile World* 54:2321+  
N 9 '18

War labor policies board plans to prevent  
competition for workers. F. Frankfurter.  
*Automotive Ind* 38:1018 My 23 '18

**War trade board**

History. *Automotive Ind* 38:807 Ap 25 '18

New rulings governing imports and exports of  
wool. *Textile World* 53:1603+ D 22 '17

Work of the War trade board; how and why  
our foreign trade is being federally regulat-  
ed. C. H. Claudy. *Sci Am* 119:30+ JI 13 '18

United States and England. See England and  
the United States

- United States army engineer school, Camp A. A. Humphreys, Virginia  
 Problem method at the Army engineer school, Camp A. A. Humphreys, C. C. More and W. E. Duckering. Eng N 83:183-5 JI 24 '19
- United States army school of military aeronautics  
 Barracks group and hospital for the U.S. army school of military aeronautics of Ohio state university, Columbus, Ohio. H. D. Smith. II diag plans Arch Rec 44:387-405 N '18
- United States boys' working reserve  
 Shouting the battle cry of feed 'em. Am Lumberman 2239:41 Ap 13 '18
- United States chamber of commerce. See Chamber of commerce of the United States
- United States employment service. See United States—Employment service
- United States highways council. See United States—Highways council
- United States housing corporation  
 Adjunct of the Bureau of industrial housing and transportation. Am Inst Arch J 6:406-7 Ag '18  
 Extent of the operations of the U. S. housing corporation. Munic Eng 55:176-7 N '18  
 Future of government villages. C. W. Brazer. Am Arch 115:219-21 F 12 '19  
 Government housing: what will follow? C. G. La Farge. Am Arch 115:55-9 Ja 8 '19  
 Keeping the costs of building the government houses. J. C. Prior and H. P. Green. diag charts Eng N 83:252-61 Ag 7 '19  
 Local housing engineers and architects appointed. Eng N 81:197, 292 JI 25, Ag 8 '18  
 Public utilities and housing projects; notes concerning the general policy of the United States housing corporation. Munic J 45:267-8 O 5 '18  
 Report of Test committee on plumbing in the corporation's building at Bridgeport, Conn. A. L. Webster and others. diag Dom Eng 87:100-3 Ap 19 '19  
 Report of the United States housing corporation. II plans Am Arch 116:399-408, 412-14, pl 114-22 S 24 '19  
 Status of United States housing corporation. C. E. Henderson. Eng N 83:480-1 S 4 '19  
 Transportation work. G. F. Wells. II Elec Ry J 53:7-11 Ja 4 '19  
 What about the government housing program? M. Knowles. Eng N 82:329-31 F 13 '19  
 What part the engineer played in government housing. J. W. Alvord. Eng N 82:147-8 Ja 16 '19; Same. Eng & Contr 51:227-8 F 26 '19
- United States Naval training station, Great Lakes, Illinois  
 Enormous heating plant at the Great Lakes Naval training station. J. C. Foster. II Dom Eng 86:299-300 F 15 '19
- United States navy fleet supply base, Brooklyn, New York  
 U.S. navy fleet supply base, South Brooklyn. Arch & Bldg 51:43, pl 79-81 My '19
- United States navy steam engineering school  
 School established at the Stevens institute of technology, Hoboken, N.J. Power 47:748 My 21 '18
- United States printing office. See United States—Government printing office
- United States reclamation service. See Reclamation service (United States)
- United States shipping board. See United States—Shipping board
- United States shipping board emergency fleet corporation  
 C. M. Schwab, director general of the corporation. Eng & Min J 105:874 My 11 '18; Iron Age 101:1019 Ap 18 '18  
 Chart showing organization of the division of transportation and housing of the Emergency fleet corporation. Am Arch 114:pl 106 O 9 '18  
 Electric railways help win the war. A. M. Taylor. chart map Elec Ry J 53:12-14 Ja 4 '19  
 Fleet corporation fights mosquito pest. Eng N 81:513 S 12 '18
- Fleet corporation personnel and purposes. Am Lumberman 2237:29-30 Mr 30 '18  
 How shipyard housing work is organized and operated. Eng N 81:122-4 JI 18 '18  
 Lay-out and equipment of government concrete ship yards. A. L. Bush. plans Concrete 15:73-7 Ag '19  
 List of vessels contracted for by the United States shipping board emergency fleet corporation. Int Marine Eng 24:170-2 Mr '19  
 Organization of the Emergency fleet corporation. W. Fawcett. Int Marine Eng 23:150-5 Ap '18  
 Organization of the U. S. Shipping board emergency fleet corporation. C. Piez. chart Am Soc M E J 41:32-5 Ja '19  
 Organization: partial list of members. Iron Age 101:1605 Je 20 '18  
 Plans of houses of U. S. Shipping board emergency fleet corporation. Am Arch 116:pl 65-73 Ag 20 '19  
 Plumbing standards for the housing projects of the Emergency fleet corporation. W. G. Tucker. plans Arch Rec 46:47-56 JI '19  
 Present and future government of war-created communities. E. Cawcroft. Am Inst Arch J 6:553-8 D '18  
 Putting car wheels under shipbuilders. II chart map Elec Ry J 52:186-92 Ag 3 '18  
 Quantity house production methods, construction branch, Emergency fleet corporation. II Am Arch 115:353-8, 393-8 Mr 5-12 '19  
 Requirement section. Eng N 81:196 JI 25 '18  
 Shipping board plans to sell surplus and salvage property. Int Marine Eng 24:567-8 Ag '19; Sci Am 121:159 Ag 16 '19  
 U.S. Shipping board's work with concrete. J. Glaettil. Concrete 15:69-72 Ag '19  
 Welding committee. C. A. Adams. pors Gen Elec R 21:330-7 D '18
- United States smelting, refining and mining company  
 Annual report, 1917. Eng & Min J 105:884 My 11 '18
- United States steel corporation  
 Charts showing monthly structural awards, production of pig iron, unfilled tonnage United States steel corporation, net earnings United States steel corporation and shipments of Lake Superior iron ore. Iron Tr R 64:56a Ja 2 '19  
 Report for the year 1917. Iron Age 101:812-15 Mr 28 '18; Iron Tr R 62:811-12 Mr 28 '18; Ry Age 64:954-6 Ap 5 sec 2 '18; Met & Chem Eng 18:387 Ap 15 '18; Eng & Min J 105:794-6 Ap 27 '18  
 Steel corporation advances wages. Eng & Min J 106:271 Ag 10 '18  
 Steel suit before highest court. Iron Tr R 65:1064-6 O 16 '19
- United States steel corporation in war time.  
 E. H. Gary. Iron Age 103:879-85 Ap 3 '19; Abstracts. Coal Age 15:751 Ap 24 '19; Eng & Min J 107:704-5 Ap 19 '19; Iron Tr R 64:907-9 Ap 3 '19
- United States steel corporation's production and shipments in 1917. Iron Age 101:889-90 Ap 4 '18
- United States training service. See United States—Training service
- United States war labor administration. See United States—Employment service; United States—Labor, Department of; United States—National war labor board; War labor conference board
- United States war trade board. See United States—War trade board
- United typothetæ of America  
 32d annual convention. Cincinnati, Sept. 23-25. Inland Ptr 62:169-73 N '18  
 Three-year plan for the printing industry. A. E. Southworth. Inland Ptr 62:74-6 O '18  
 United typothetæ in 32d annual convention. New York. Inland Ptr 64:51-2 O '19
- United Verde extension mining company  
 Report. Eng & Min J 107:495-6 Mr 15 '19
- Units  
 Remedy for alleged confusion due to use of the term mass. C. Hering. Eng N 80:133-4 Ja 17 '18

**Units—Continued**

Uniformity in aerographic records. A. McAdie and A. L. Rotch. *Sci Am* 8 87:15-16 Ja 4 '19

See also Electric units; Horsepower; Metric system

Universal craftsmen council of engineers 17th annual convention, Newark, N.J., Aug. 4-8. *Power* 50:316 Ag 19 '19

Universal joints. See Joints, Universal

Universal language. See Language, Universal

Universities. See Colleges and universities

Unloading. See Loading and unloading

**Unsaturation**

Modification of the composition of vegetable oils, with special reference to increasing unsaturation. H. L. White. *J Ind & Eng Chem* 11:648-51 Jl '19

Unsinkable ships. See Ships, Unsinkable

**Uranium**

Chemical experiments bearing on the origin of certain uranium-vanadium ores. F. B. Notestein. *biblog Econ Geol* 13:50-64 Ja '18  
Determination of uranium in alloy steels and ferro-uranium. G. L. Kelley, F. B. Myers and C. B. Illingworth. *J Ind & Eng Chem* 11:316-17 Ap '19

Extraction of uranium from pitchblende. G. Gln. *Chem & Met Eng* 20:382 Ap 15 '19

Rapid method for determining uranium in carnotite. C. E. Scholl. *J Ind & Eng Chem* 11:842 S '19

Uranium and radium in 1918. *Eng & Min J* 107:134 Ja 11 '19

**Urea**

Four-membered cyclic-ureas; history and nomenclature. W: J. Hale. *Am Chem Soc J* 41:370-8 Mr '19

Four-membered cyclic-ureas; the condensation of isocyanic acid with a Schiff base. W: J. Hale and N. A. Lange. *Am Chem Soc J* 41:379-88 Mr '19

**Ureides**

Aromatic arsenic compounds; the ureides and  $\beta$ -substituted ureides of *N*-arylglycine arsenic acids. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 41:1600-10 O '19

**Urethane**

Compressibility of aqueous solutions, especially of urethane, and the polymerization of water. T. W. Richards and S. Palitzsch. *Am Chem Soc J* 41:59-69 Ja '19

**Uretdones**

Four-membered cyclic-ureas; the condensation of isocyanic acid with a Schiff base. W: J. Hale and N. A. Lange. *Am Chem Soc J* 41:379-88 Mr '19

**Uric acid**

Action of hydrogen peroxide upon uric acid; second paper on hydrogen peroxide as a reagent in the purin group. C. S. Venable. *il diags Am Chem Soc J* 40:1099-1120 Jl '18

Allantoxanic acid as an oxidation product of uric acid; third paper on hydrogen peroxide as a reagent in the purin group. F. J. Moore and R. M. Thomas. *Am Chem Soc J* 40:1120-32 Jl '18

**Urine**

Presence of food accessories in urine, bile and saliva. A. M. Muckenfuss. *Am Chem Soc J* 40:1606-11 O '18

Study of the action of 10 per cent thymol-chloroform preservative on the chlorine content of urine. J. O. Halverson and J. A. Schulz. *Am Chem Soc J* 41:440-2 Mr '19

**Analysis**

Detection and estimation of small amounts of certain organic nitro compounds with special reference to the examination of the urine of TNT workers. E. Elvyve. *J Ind & Eng Chem* 11:860-4 S '19

Methods for the determination of total acidity of urine. W: M. Dehn. *Am Chem Soc J* 39: 2726-33 D '17

**Urson**

Isomeric lactones, caryophyllin and urson. F. D. Dodge. *Am Chem Soc J* 40:1917-39 D '18

**Uruguay**

Americans build sewer and water systems for three Uruguayan cities. A. A. Northrop. *il map Eng N* 81:401-4 Ag 29 '18

Railways of Uruguay. W: A. Reid. *il map Ry R* 64:583-6 Ap 19 '19

**Commerce**

Boots and shoes, leather and supplies in Argentina, Uruguay, and Paraguay. H. G. Brock. *il U S Bur For & Dom Com* 177:111-44 '19

Chemical markets of Argentina, Brazil and Uruguay. O. P. Hopkins. *J Ind & Eng Chem* 10:706-7 S '18

Paper, paper products, and printing machinery in Argentina, Uruguay, and Paraguay. R. S. Barrett. *il U S Bur For & Dom Com* 163:1-165 '18

Uruguay wants direct trade. *Sci Am* 119:66 Jl 27 '18

**Industries and resources**

Uruguayan imports and production of cement. W: Dawson. *Concrete* 13:106 Ag '18

**Sanitary affairs**

Construction of water and sewerage systems for the cities of Salto, Paysandu and Mercedes, Republic of Uruguay, South America. G. E. Hines. *il Munic Eng* 55:85-91 S '18

**Usury**

Interest on bank loans. J: E. Brady. *Am Arch* 114:137 Jl 31 '18

**Utah**

See also Geology—Utah

**Description and travel**

Temple of the Gods in Utah. L. Jeffers. *il Sci Am* 119:267 O 5 '18

Zion canyon and the Colob plateau. L. Jeffers. *il Sci Am* 120:144-5 F 15 '19

**Industries and resources**

See Copper mines and mining—Utah; Mines and mineral resources—Utah

**Utah copper company**

Annual report, 1917. *Eng & Min J* 105:1092 Je 15 '18

Plant costs, Utah copper company, 1907-1917. L. H. Goodwin. *Eng & Min J* 106:905 N 23 '18

Utah copper tailings pond. map *Chem & Met Eng* 21:223 S 1 '19

**Utah power & light company, Salt Lake City**

Statistics on growth of company. *Elec R* 72: 561 Mr 30 '18

**V****V-blocks**

Adjustable V-blocks. W. G. Hill. *diags plan Am Mach* 50:26 Ja 2 '19

**Vacant lot cultivation**

Denver union water co. furnishes free water for irrigation of vacant lot gardens. *Eng & Contr* 48:455-6 My 8 '18

Low water rate for vacant lot gardens at Glendale, Cal. *Eng & Contr* 49:463 My 8 '18

**Vaccination**

New vaccine to increase efficiency of the army. *Sci Am* 118:122 F 2 '18

**Vacuum**

Measurement of vacuum. *Int Marine Eng* 24: 711 O '19

Vacuum trouble in turbine condensers. J. Brakes, jr. *charts Power* 49:287-8 F 25 '19  
Why not express vacuum values in per cent? W. Weaver. *Power* 50:396 S 2 '19

**Vacuum cleaners**

Automatic control for stationary vacuum cleaner with flush receptacle. *il Elec R* 72: 253 F 9 '18

Bissell electric suction cleaner. *il Elec R* 72: 740 Ap 27 '18

Developments in vacuum cleaners. *il Elec R* 72:489-92 Mr 16 '18

**Vacuum cleaners—Continued**

Kent vacuum cleaner for factories. *Il Elec W 71:1116 My 26 '18; Ind Management 56:70 JI '18*

Makers of vacuum cleaners agree to limit sizes to two. *Elec R 73:455 S 21 '18*

Piping and profits; stationary vacuum cleaner business. *T: J. Smith. Dom Eng 89:262 N 8 '19*

Training school for vacuum-cleaner salesmen and its results. *C: J. James. Il Elec R 72: 475-6 Mr 16 '18*

Vacuna cleaner. *Elec W 71:647 Mr 23 '18*  
Vacuum cleaner developed by the Philadelphia & Reading. *H. W. Stull. diag Ry Mech Eng 92:102 F '18*

**Vacuum cleaning**

Breathing the dust away. *Il Factory 20:845 My '18*

Notes on the principles, types and installation of vacuum cleaning systems. *C: L. Hubbard. Il diag Dom Eng 89:61-4, 163-6+ O 11, 25 '19*

**Vacuum gages**

High vacua and their measurement. *Sci Am S 87:278-9 My 3 '19*

Simplified short vacuum gauge. *E. Karrer. diag Am Chem Soc J 40:928-9 Je '18*

Vacuum-gage test column. *L: G. O'Donnell. diag Power 49:376 Mr 11 '19*

**Vacuum machines**

Motor-operated piston vacuum machine. *Il Elec R 72:890 My 25 '18*

**Vacuum pumps**

Automatic variation of gas pressure and its application to a vacuum pump, circulation of gases, magnetic stirrer. *O. Maass. diag Am Chem Soc J 41:53-9 Ja '19*

Chicago turbine vacuum pump. *Il Dom Eng 82:13 Ja 5 '18; Same. Metal Work 89:875 Je 28 '18*

Globe-Johnston rotary vacuum pump and condenser. *Il diag Heat & Ven 15:59-61 Ag '18*

Lectroflator air compressors or vacuum pumps. *Il diag Engineer 125:565 Je 28 '18*

New type of vacuum pump. *Il Heat & Ven 15: 62 F '18*

Sizing the vacuum pump. *Heat & Ven 16:72 S '19*

Thompson rotary air pump. *Il diag Heat & Ven 16:62-3 Je '19*

Vacuum pump connections. *diag Heat & Ven 16:73 S; 66 O '19*

Wheeler vertical rotative dry-vacuum pump. *Elec W 71:178 Ja 19 '18; Int Marine Eng 23: 144-5 Mr '18; Met & Chem Eng 18:210 F 15 '18; Ind Management 55:243 Mr '18*

*See also Air ejectors; Vacuum gages*

**Testing**

Test of a rotary vacuum pump. *Il Eng & Min J 105:205-6 Ja 26 '18*

Volumetric efficiency test of a vacuum pump. *G: S. Tayman. Mech Eng 41:823-4 O '19*

**Vacuum tubes**

Continuous-wave land radio sets. *P. T. Weeks and D. G. Little. Il diag Elec W 73: 627-30 Mr 29 '19*

Development of the vacuum valve. *Il J Elec 42:20-2 Ja 1 '19*

Discussion on thermionic tubes before the Mathematical and physical science section of the British association. *Engineer 128: 357 O 10 '19*

Experimental wireless telegraphy and telephony. *L: G. Pacent and A. C. Lescarbours. Il diag Sci Am S 88:272-3+, 324, 340-1 N 8, 29-D 6 '19*

External-anode vacuum tube. *H. P. Donle. Il diag Elec W 73:1204-6 Je 7 '19*

General electric company in the great world war. *J: R. Hewett. Il Gen Elec R 22:611-13 Ag '19*

Neon lamps. *Sci Am S 86:85 Ag 10 '18*

Origin of the thermionic vacuum tube. *P. E. Edelman. diag Sci Am S 85:12-14 Ja 5 '18*

Radio development work. *G: O. Squier. Am Inst E E Pro 38:97-100 F '19; Same abr. Elec W 73:129-30 Ja 18 '19; Same abr. Elec R 74:131-3 Ja 25 '19*

Radio instruments and measurements. *Il diag U S Bur Stand Circ 74:200-21 '18*

Radio telephony. *E. B. Craft and E. H. Colpitts. Il diag Am Inst E E Pro 38:337-75 Mr '19; Same. Sci Am S 87:244-6, 268-71, 280-1 Ap 19-My 3 '19*

Radio vacuum-tube litigation is settled. *Elec W 73:1349 Je 21 '19*

Signaling and talking through space. *Il Sci Am 120:371+ Ap 12 '19*

Some startling electrical phenomena obtained with new form of vacuum tube. *Il Sci Am 120:579+ My 31 '19*

Vacuum-tube amplifiers. *M. C. Batsel. Il diag Elec W 73:568-70 Mr 22 '19*

Vacuum tube as a generator of alternating-current power. *J: H. Morecroft and H. T. Friis. Il diag Am Inst E E Pro 38:1193-1231 O '19*

War-time development of vacuum tubes. *R. Bown. Il Elec W 73:358-63 F 22 '19*

**Valence (chemistry)**

Arrangement of electrons in atoms and molecules. *I. Langmuir. diag Am Chem Soc J 41:887-934 Je '19; Same. Gen Elec R 22: 587-600, 789-804 Ag, O '19*

Chemical affinity and atomic valence. *G. Ciamician and M. Padoa. Sci Am S 86:154-5 S 6 '19*

Definition of valency. *F. H. Loring. Sci Am S 86:390-1 D 21 '18*

Isomorphism, isosterism and covalence. *I. Langmuir. Am Chem Soc J 41:1543-59 O '19*

**Valuation**

Depreciation and its relation to industrial appraisalment. *C: W. McKay. Ind Management 55:281-3 Ap '18*

Depreciation and obsolescence as governed by federal income tax regulations. *H: B. Ferriald. J Account 25:241-7 Ap '18; Same. Eng & Min J 105:631-3 Ap 6 '18*

How to find what your factory is worth. *W. R. Basset. Factory 20:850-1 My '18*

Intangible values and war tax. *C: W. McKay. Ind Management 55:129-33 F '18*

I. C. C. lays down valuation principles. *Elec Ry J 52:515 S 21 '18*

Methods of valuing oil lands. *M. L. Requa. Am Inst Min E Bul 134:409-28 F '18; Same. without tables. Eng & Min J 105:544-8 Mr 23 '18; Discussion. Am Inst Min E Bul 136: 837-41; 137:1014-19 Ap-My '18*

Pennsylvania Superior court decision covers moot valuation questions. *Eng N 80:216-18 Ja 31 '18*

Personal element in valuation and appraisal. *A. F. Brewer. Ind Management 58:104 Ag '19*

Reproduction cost in industrial appraisalment. *C: W. McKay. Ind Management 55:62-4 Ja '18*

Three industrial appraisals in one for excess profit tax computation, for plant accounting, for insurance adjustment. *C: W. McKay. Ind Management 57:141-3 F '19*

Valuation aspect of abandoned property. *W: G. Raymond. Ry Age 65:955-7 N 29 '18*

Valuation of property. *Elec W 72:465 S 7 '18*

Value of manufacturing property. *C: W. McKay. Mach 24:532-3 F '18*

*See also Depreciation; Electric railroads—Valuation; Mine valuation; Public utilities—Valuation; Railroads—Valuation; Street railroads—Valuation; Waterworks—Valuation*

**Valve gear**

Anderson valve gear. *Il plan Ry Mech Eng 92: 424-5 JI '18*

Miller vacuum dashpot. *diag Power 49:561 Ap 15 '19*

Setting link-motion valve gear. *Power 48:503 O 1 '18*

Stephenson link motion. *H. A. Everett. diag Int Marine Eng 23:43 Ja '18*

Types of valve gear on French locomotives. *W. G. Landon. diag Ry Mech Eng 93:523 S '19*

Valve gear for three-cylinder locomotives. *Engineer 126:264 S 27 '18*

**Valves**

Automatic blow-case valve. *diag Chem & Met Eng 19:342 S 15 '18*

Automatic self-draining globe valve. *J. H. Hahn. diag Ry Mech Eng 93:488 Ag '19*

**Valves—Continued**

- Automatic valve for motor-driven air compressors. *Il* diag Engineer 127:464 My 9 '19
- Boiler blowoff valves. R. B. Dale. *diag* Power 48:565 O 15 '18; Discussion. 48:718, 818 N 12, D 3 '18
- Carbonizing in valve chambers and cylinders. F. P. Roesch. *diags* Ry R 65:30-3 JI 5 '19
- Complete system of electrically operated steam valves. *plan* Elec R 75:327-8 Ag 23 '19
- Dean valve controls at new plate mill. *Il* Iron Age 102:1267 N 21 '18; Same. *Elec* R 73:832 N 23 '18
- Device for locking engine throttle valve. *diags* Int Marine Eng 23:654-5 N '18
- Edlich flow-indicating valve. *diag* Power 48:836-7 D 10 '18
- Electrical valve control. *Il* Eng & Min J 107:411-12 Mr 1 '19; Same cond. *Iron Tr* R 63:1356 D 12 '18
- Emergency reducing valve. *diag* Metal Work 89:238 F 15 '18
- Emergency repairs to main check valve spindle. E. B. Dell. *diags* Int Marine Eng 23:653-4 N '18
- Emergency valve repairs. R. E. Leech. *diag* Power 47:811 Je 4 '18
- Four-way equalizing plug valve. *Il* *diags* Power 48:519 O 8 '18
- Fuel-injection valves in constant-pressure engines; abstract. W. Stremme. *diags* Am Soc M E J 41:52-3 Ja '19
- Gas-engine-valve problems. G. W. Muench. *Power* 47:911-12 Je 25 '18
- Gate valve that turned in the ground. M. Moffitt. *Il* *diag* Eng N 82:1031 My 22 '19
- Gold inside connected vapor valve. *Il* *diags* Ry Age 65:974 N 29 '18; Same. *Ry Mech* Eng 92:634 N '18
- Gyratory valve for high speed internal combustion engines. R. J. Gilcher. *diags* Sibley J 33:8-10 O '18
- Heating buildings from high pressure mains. H. L. Alt. *diag* *plan* Metal Work 89:138-40+ Ja 25 '18
- How the valve works; different type return line valves used on vacuum heating systems. *Il* *diags* Metal Work 89:97-9+ Ja 18 '18
- Improper setting of valves caused alternator to hunt. A. Hearvey. *Eng* N 83:423 S 9 '19
- Improved shifting valve. A. L. Haas. *diag* Power 47:410 Mr 19 '18; Discussion. J. Lewis. 47:668 My 7 '18
- Improvement in engine valves. J. E. Schipper. *Il* *diag* Automotive Ind 38:900-1 My 9 '18
- Leaky valves. W. H. Springer. *Int Marine Eng* 24:498-9 JI '19
- Maintenance of magnet valves. H. R. Meyer. *Il* *diags* *Elec* J 16:353-4 Ag '19
- Making a pressure regulator more sensitive. W. T. Meinzner. *diags* Power 48:820 D 3 '18
- Marine practice in valves and fittings. A. G. Christie. *Am Soc M E J* 41:135-6 F '19
- New arrangement of Donnelly positive differential heating system. J. A. Donnelly. *diags* Heat & Ven 16:71-2 JI '19
- New automatic float valve for use in evaporating pans in warm-air furnaces. *Il* Heat & Ven 16:58-9 N '19
- New gas-reversing valve. *Il* Eng & Min J 107:498 Mr 15 '19; Chem & Met Eng 20:435-6 Ap 15 '19
- Notes on drop valves for steam engines. H. W. Morley. *diags* Engineer 128:25-6 JI 11 '19; Same. *Sci Am* S 88:164-5 S 13 '19; Abstract. *Mech Eng* 41:775 S '19
- Notes on the repairing and adjusting of valves. W. H. Wakeman. *diags* Dom Eng 86:556-9 Mr 29 '19
- Placing valves in unsafe positions. V. R. Hughes. *Il* Power 49:266-8 F 25 '19
- Pressure regulating devices. C. L. Hubbard. *diags* Dom Eng 84:312-14, 350-2 Ag 31-S 7 '18
- Rapid operating gas reversing valve. *Il* Iron Age 103:431 F 13 '19; *Iron Tr* R 64:452+ F 13 '19
- Replacing a boiler-feed valve. J. D. Cooper. *Power* 49:826 My 27 '19
- Reseating a globe valve. M. L. Lowrey. *diags* Power 48:886 D 17 '18
- Safety and relief valves. M. W. Link. *Il* Int Marine Eng 23:172-4, 301-4 Ap-May '18
- Safety device for hydraulically operated relief valve. *diags* Power 50:215 Ag 5 '19
- Sandusky packless valve. *Il* Ind Management 55:241 Mr '18
- Scoville metal-to-metal pump valve. *Il* Power 47:369 Mr 12 '18
- Setting exhaust valves of double-eccentric engine. *Power* 48:719 N 12 '18
- Setting the valves on duplex steam pumps. P. R. Prescott. *Power* 48:531 O 8 '18
- Steam heat end valve with automatic drip. *Il* *diag* Ry Age 65:562 S 20 '18; Same. *Ry Mech* Eng 92:581 O '18
- Sullivan straight line compressor now equipped with plate valves; type WB-3. *Il* Eng & Contr 51:119 Ja 29 '19; *Power* 49:481 Ap 1 '19; *Ry Mech* Eng 93:381 Je '19
- Sullivan wafer air compressor valves. *Il* Iron Age 103:1649 Je 19 '19; *Power* 50:54 JI 8 '19
- Thermodynamics of the throttle valve; abstract. M. Jakob. *Am Soc M E J* 40:357 Ap '18
- Trane exhaust air valve and float vent trap. *Il* Heat & Ven 15:72 S '18
- Turbo-blower valve control. F. M. Nourse. *Il* Power 49:621 Ap 22 '19
- Valve and port minimize operation loss. *diags* Iron Tr R 65:426 Ag 14 '19
- Valve for gas mains is quick-acting. *Il* *diag* Iron Tr R 65:26-7 JI 3 '19
- Valve relieves explosion pressure. *diags* Iron Tr R 64:1024 Ap 17 '19
- Valve-reseating device. C. Harbottle. *diags* *plan* Eng & Min J 106:711 O 19 '18; Same. *Power* 48:731 N 19 '18
- Valves for corrosive liquids. *Il* Chem & Met Eng 19:212 Ag 15 '18
- Water-column blowoff valves. R. A. Cultra. *Power* 50:27 JI 1 '19
- Water-column blowoff valves. J. E. Noble; E. A. Jackson. *Power* 50:518 S 23 '19
- What it pays to know about valves. H. Bard. *Il* *diags* Metal Work 88:739-41 D 21 '17
- See also* Automobile engines—Valves; Gates, Hydraulic; Locomotives—Valves; Safety valves; Slide valves; Thermionic valve

**Manufacture**

- Brass-working tools in a railroad shop for making blow-off valves and their fittings. F. A. Stanley. *Il* *diags* Am Mach 49:1081-4 D 12 '18
- Molding and melting practice for making globe valves. Foundry 47:308-9 My 15 '19
- Producing sound nonferrous castings for valves. R. R. Clarke. *Il* *diag* Foundry 47:441-7 JI 1 '19
- Progress in valve materials. Motor Age 33:41-2 Je 13 '18
- Some facts about monel metal. H. R. Williams. *Power* 50:14-16 JI 1 '19
- Tools for locomotive-valve parts. F. A. Stanley. *Il* *diags* Am Mach 50:1119-22 Je 12 '19

**Valves, Hydraulic**

- Composition lined cylinders. A. M. Stiles. *diags* Power 49:460 Mr 25 '19
- Economical nonfreezing type of outlet valve. J. H. Sawkins. *diags* Eng N 82:541 Mr 13 '19
- Electrically controlled hydraulic valve. *Il* Elec W 72:523 S 14 '18
- Experiences with large-capacity reservoir outlets. J. M. Gaylord. *diags* Eng N 81:945-50 N 21 '18; Same cond. Eng & Contr 51:43-5 Ja 8 '19
- High-pressure hydrant regulation. C. W. Geiger. *Il* *diags* Sci Am 120:234+ Mr 8 '19
- Home-made quick-opening valve works well for small water tanks. D. J. McFadden. *diag* Eng N 83:713 O 9 '19
- Hydraulic accumulator protective valve. *Il* Iron Age 102:389 Ag 15 '18
- Hydraulic operating valve. *diag* Power 49:397 Mr 18 '19
- Hydraulic press manufacturing co.'s accumulator protective valve. *Il* Am Mach 49:135 JI 18 '18
- Johnson hydraulic valve. *Il* *diags* Munic J 45:197-8 S 7 '18
- Loss of hydraulic head in small valves. A. N. Talbot and F. B. Seely. *Il* *diags* Ill U Eng Exp Sta Bul 105:7-22 '18

- Valves, Hydraulic—Continued**  
Valves and fittings for high hydraulic pressures. W: W. Gaylord. *diags Am Soc M E J* 40:952-4 N '18
- Valves, Safety.** See Safety valves
- Vampire bats**  
Vampire bat. W. H. Ballou. *Il Sci Am* 120: 286-7+ Mr 23 '19
- Vanadinite**  
Proposed metallurgical process for the treatment of vanadinite for the recovery of lead and vanadium. J. E. Conley. *diag Chem & Met Eng* 20:514-18 My 15 '19
- Vanadium**  
Chemical experiments bearing on the origin of certain uranium-vanadium ores. F. B. Notestein. *bibliog Econ Geol* 13:50-64 Ja '18  
Determination of phosphorus in vanadium steels, ferrovanadium, non-vanadium steels, and pig iron. C. M. Johnson. *J Ind & Eng Chem* 11:113-16 F '19  
Determination of vanadium in steels by electrometric titration; the selective oxidation of vanadyl salts by nitric acid in the presence of chromic salts. G. L. Kelley and others. *J Ind & Eng Chem* 11:632-4 J1 '19  
Metals required for the German steel industry. Eng & Min J 108:141 J1 26 '19  
Proposed metallurgical process for the treatment of vanadinite for the recovery of lead and vanadium. J. E. Conley. *diag Chem & Met Eng* 20:514-18 My 15 '19  
Treatment of cuprodesclozite for extraction and recovery of vanadium, lead and copper. J. E. Conley. *Chem & Met Eng* 20:465-9 My 1 '19  
Vanadium in 1918. Eng & Min J 107:149 Ja 18 '19
- Vanadium steel**  
Use of vanadium in steel-making. G. L. Norris. *Mach* 25:248 N '18
- Vancouver, B. C.**  
Rapid transit  
Railway service must be preserved; report of special investigator says jitneys in British Columbia territory must go. *Elec Ry J* 50: 1159-61 D 29 '17
- Vanderlip, Frank A.**  
Scarboro-on-Hudson school. G: Elling. *Il Am Arch* 115:476-80, pl 104-12 Ap 2 '19
- Van Hise, Charles Richard, 1857-1918**  
Sketch. *por Eng & Min J* 106:999-1000 D 7 '18
- Vanilla extract**  
Tincture of vanilla of the national formulary. B. H. Smith. *J Ind & Eng Chem* 11:953-4 O '19
- Vapor density**  
Vapor densities of coal-tar fractions. W. J. Huff. *J Ind & Eng Chem* 10:1018-19 D '18
- Vapor pressure**  
Lecture experiment on vapor pressure of solutions. H. S. van Klooster. *diag Am Chem Soc J* 40:193-5 Ja '18  
Measurement of low temperatures; vapor pressures of hydrogen in the neighborhood of the boiling-point and between the boiling-point and the critical temperature; abstract. P. G. Cath and H. K. Onnes. *Am Soc M E J* 40:1052 D '19  
Method for the determination of the relation between vapor pressures and their corresponding temperatures at pressures of less than five millimetres. W. R. Ham, J. C. Churchill and E. M. Ryder. *Il diag J Fr Inst* 186:15-28 J1 '18  
On the system acetone-ethyl ether. J. Same-shima. *diags Am Chem Soc J* 40:1486-98 O '18  
Pressure-temperature curves in univariant systems. G: W. Morey and E. D. Williamson. *Am Chem Soc J* 40:59-84 Ja '18  
Vapor pressure of lead chloride. E. D. Eastman and L. H. Duschak. *Il diags U S Bur Mines Tech Pa* 225:1-14 '19  
Vapor pressure of liquid ammonia up to the critical temperature. F: G. Keyes and R. B. Brownlee. *diags Am Chem Soc J* 40:25-46 Ja '18
- Vapor pressure of tetranitro-methane.** A. W. C. Menzies. *Am Chem Soc J* 41: 1336-7 S '19
- Vapor pressures of liquid metals.** J. H. Hildebrand. *Am Chem Soc J* 40:45-9 Ja '18
- Vapor pressures of mercury in the range 120° to 250°.** A. W. C. Menzies. *diag Am Chem Soc J* 41:1783-7 N '19
- Vapor tensions of the metals.** J. W. Richards. *J Fr Inst* 187:581-98 My '19
- Vaporization.** See Evaporation
- Vaporizers**  
Economical method of burning fuel oil. *Il Int Marine Eng* 23:348-51 Je '18  
Four new carburation devices. *Il diags Motor Age* 34:40-2 Ag 8 '18  
Holley heavy fuel devices. *Il diags Automotive Ind* 38:405-6 F 21 '18  
Kerosene gasifier may solve motor fuel problem. Eng & Min J 104:1134 D 29 '17  
Kerosene vaporization. L. E. French. *diag Automotive Ind* 39:845 N 14 '18  
Paraffin vaporiser. *diag Engineer* 126:339 O 18 '18  
Small power loss from Holley kerosene vaporizer. *diags Automobile* 37:546-7 S 27 '17  
See also Carbureters
- Vapors**  
Atmospheric vapor-absorption system. G. C. Derry. *Power* 47:801 Je 4 '18  
See also Evaporation; Gases; Steam; Vapor density; Vapor pressure
- Variable speed.** See Speed variation
- Variation (biology)**  
Problem of the method of evolution. H. S. Jennings. *Sci Am S* 85:178-9, 198-9 Mr 23-30 '18  
See also Natural selection
- Varnish and varnishing**  
Cellon insulating varnishes. *Automotive Ind* 40:419 F 20 '19  
Color designation of oil varnishes. F. A. Wertz. *J Ind & Eng Chem* 10:475-6 Je '18  
Effect of varnish upon coil characteristics. *Elec W* 74:133 J1 19 '19  
Hardness and viscosity of varnish. *Sci Am S* 86:383 D 14 '18  
Meeting new demands; what the war and the airplane development mean to the paint and varnish makers. A. de Waele. *Sci Am S* 87:390 Je 21 '19  
Methods of varnish analysis. W. T. Pearce. *J Ind & Eng Chem* 11:200-1 Mr '19  
Paint and varnish. *U S Bur Stand Circ* 69: 1-85 '17  
Selection of varnishes for coil insulation. *Elec W* 74:416-17 Ag 23 '19  
Shellac. R. A. Lyons. *Coal Age* 13:955 My 25 '18  
Solvent chart for insulating varnishes. *Elec W* 74:192 J1 26 '19; *Elec Ry J* 54:348 Ag 16 '19  
Study of the fatty acids obtained from varnish oils and from varnishes. W. T. Pearce. *J Ind & Eng Chem* 11:121 F '19  
See also Japanning; Lacquer and lacquering
- Vases**  
Unique form of prehistoric pottery. J. W. Fewkes. *Sci Am S* 87:377+ Je 14 '19
- Vats, Dipping.** See Dipping vats
- Vauxhall ordnance factory**  
Links in the history of engineering: Vauxhall ordnance factory of King Charles I. R. Jenkins. *Engineer* 128:506-8 N 21 '19
- Vegetable oils.** See Oils and fats
- Vegetables**  
Carbohydrates of fresh and dehydrated vegetables. K. G: Falk. *J Ind & Eng Chem* 11:1133 D '19  
Car-let shipments of fruits and vegetables in the United States in 1916. P. Froehlich. *U S Agric Bul* 667:1-196 '18  
Palate of civilized man and its influence on agriculture. D: Fairchild. *Il J Fr Inst* 185: 299-316 Mr '18  
See also Dalkon



**Vegetables—Continued****Storage**

- Helping Hoover with concrete—storage cellars. *Il diag plan Concrete* 13:191-3 Je '18  
 Proper storage conditions for potatoes. *Sci Am* 85:363 Je 8 '18  
 Sweet potato storehouse. *diags plan Am Lumberman* 2259:46 Ag 31 '18  
 Vegetable cellar is a good investment for the gardener. C. C. Sherlock. *Il Bldg Age* 40:523 N '18  
 Vegetable storage cellar. *diags plan Am Lumberman* 2262:44 S 21 '18
- Vegetables, Drying of.** See Drying (fruit and vegetables)

**Velveteen.** See Dyes and dyeing—Velveteen

**Veneers and veneering**

- Calculation of pressure in a hydraulic veneer press. *Automotive Ind* 41:636 S 25 '19  
 Gluing veneer at high moisture. *Sci Am* 121:14 J1 5 '19  
 Gluing veneer at higher moisture. *Sci Am* 120:475 My 3 '19

**Venezuela**

- Macao Indians of Venezuela. T. De Booy. *Il map Il Sci Am* 87:8-10, 24-6, 40-2 J1 13-20 '19  
 Progressive Venezuela. *Sci Am* 120:606 Je 7 '19  
 Weights and measures. *Power* 47:816 Je 4 '18  
 See also Mines and mineral resources—Venezuela; Railroads—Venezuela

**Venice****Protection of art treasures**

- Rescuing the art treasures of Venetia. A. Colasanti. *Il Sci Am* 86:24-5, 40-2 J1 13-20 '18

**Ventilating fans.** See Fans, Mechanical

**Ventilation**

- Air supply for a large general office building; Swift & co., Chicago. S. R. Lewis. *Il diags plans Heat & Ven* 15:21-36 D '18  
 Better ventilation in public buildings. E. C. Allan. *Il Dom Eng* 87:474-6 Je 14 '19  
 Care of heating and ventilating equipment. H. L. Alt. *Power* 48:383-4, 527-30 S 10, O 8 '18  
 Common errors in the installation of propeller fans with resulting short circuits. *diags Heat & Ven* 15:44-5 Je '19  
 Comparison of pipe coils and cast iron sections for warming air. J. R. Allen. *Il charts Am Soc Heat & V E* 23:141-59 '17  
 Conditions affecting air change. *diags Heat & Ven* 16:46-8 Je '19  
 Development in heating and ventilation during the past five decades. W. Nygren. *Heat & Ven* 15:14-18 Ag '18  
 Discussion of the papers of E. V. Hill and G. T. Palmer. *Am Soc Heat & V E* 23:644-8 '17  
 Heating and ventilating dormitory buildings. C. L. Hubbard. *diags Dom Eng* 85:398-401+ D 14 '18  
 Heating and ventilating equipment; synopsis of the mechanics of heating and ventilating. D. D. Kimball, J. I. Lyle and A. K. Ohmes. *Il Am Soc Heat & V E* 23:482-94 '17  
 Heating and ventilating small audience halls. C. L. Hubbard. *diags Dom Eng* 84:156-9+ Ag 3 '18  
 Heating and ventilation a national issue. W. Nygren. *Dom Eng* 87:47-9+ Ap 12 '19  
 Heating and ventilation of engine houses. T. W. Reynolds. *diags plans Ry Age* 66:1245-8 My 23 '19  
 Improvement in ventilating apparatus. W. J. Baldwin. *Il diag Am Soc Heat & V E* 23:211-18 '17  
 Interpretation of adequate ventilation. E. V. Hill. *Heat & Ven* 15:52 J1 '18  
 Meeting the high cost of heating and ventilating apparatus. *chart diags plans Heat & Ven* 15:15-21 Mr '18; Discussion. G. T. Mott. 15:18-24 Ag '18  
 No quarrel necessary between natural and mechanical ventilation advocates. E. V. Hill. *Heat & Ven* 15:37-40 N '18  
 Novel arrangement for heating and cooling an auditorium. *Il diags Heat & Ven* 16:23-7 O '19

Opportunity for better ventilation in industrial buildings. E. C. Allan. *Il Dom Eng* 87:44-6 Ap 12 '19

Progress of unit ventilation. *Il diag Heat & Ven* 16:61-2 Je '19

Refrigeration in relation to air conditioning in war industries. *Heat & Ven* 16:41-3 Je '19

Removal of moisture from special rooms and buildings. C. L. Hubbard. *diags Dom Eng* 85:283-5+ N 23 '18

Test of air conditions in the wholesale tailoring establishment of the John Gorman company. J. Howatt. *Il charts Heat & Ven* 15:34-42 Ap '18

Theatre ventilation from a health and business standpoint. E. V. Hill. *Il Dom Eng* 87:237-9+ My 10 '19

25th annual meeting of the American society of heating and ventilating engineers, New York; abstracts of papers. *Metal Work* 91:180-2 F 7 '19

Ventilating equipment reduces mortality during winter. E. V. Hill. *Dom Eng* 89:167-8 O 25 '19

Ventilation for concrete barns. *diags Concrete* 12:67-8 F '18

Ventilation of army barracks. W. J. Maurer. *Il diags plans Am Soc Heat & V E* 23:431-45; Discussion. 446-51 '17

Ventilation of restaurant kitchens. E. V. Hill. *Il Dom Eng* 88:52-5, 246-8+ J1 12, Ag 9 '19

Ventilation, temperature and humidity; their effect on health, comfort and energy. W. A. Evans. *Metal Work* 89:359-60 Mr 15 '18

See also Air conditions; Air filters; Air flow; Air pipes; Air pollution; Air purification; Air washers; Air washing; Chimneys; Cooling; Ductometer; Dust removal; Electric fans; Factories—Heating and ventilation; Fans, Mechanical; Flues; Foundries—Heating and ventilation; Heating; Hotels—Heating and ventilation; Humidity; Mine ventilation; Schoolhouses—Heating and ventilation; Subways—Ventilation; Theaters—Heating and ventilation; Tunnel ventilation; Ventilators

**Bibliography**

Structural service department; heating and ventilating and mechanical equipment in general. *Am Inst Arch J* 5:522-9 O '17; Same cond. *Heat & Ven* 15:36-44 Ja '18

**Laws and regulations**

Heating and ventilating plants and mechanics' lens. A. L. H. Street. *Heat & Ven* 16:19-23 My; 32-5 Je '19  
 Legal liability of employers for lack of ventilation. *Dom Eng* 88:8 J1 5 '19

**Standards**

Government publication on requirements and standards for heating and ventilation. *Heat & Ven* 16:17-21 Ja '19  
 New York Board of health interprets adequate ventilation. *Heat & Ven* 15:37 My '18  
 Proposed standards for ventilation prepared by committee of A. S. H. V. E. *Am Soc Heat & V E* 23:495-8 '17  
 Requirements and standards for heating and ventilation. W. Nygren and R. Hering. *Dom Eng* 86:219-21 F 1 '19  
 Standard heating and ventilating symbols. *Heat & Ven* 15:65 Mr '18  
 Synthetic air chart; with discussion. E. V. Hill. *Am Soc Heat & V E* 23:225-30 '17  
 Ventilation standards and the synthetic air chart. E. V. Hill. *charts plan Am Soc Heat & V E* 23:607-28 '17

**Tables, calculations, etc.**

Figuring fume extraction problem. B. S. Harrison. *Heat & Ven* 15:61-2 D '18  
 Power requirements for ventilation. W. F. Schaphorst. *chart Heat & Ven* 16:42-4 O '19

**Testing**

Movement to eliminate mechanical ventilation in New York city's public schools. *Heat & Ven* 15:47-9 O '18

**Ventilation—Testing—Continued**

Test of Chicago and Cook county school for boys. M. J. Sturm. diags plans Heat & Ven 15:41-4 D '18; 16:28-36 Ja '19

**Ventilation of mines.** See Mine ventilation

**Ventilators**

Largest round ventilator in the world. II diag Metal Work 91:28-9 Ja 3 '19

Manufacturing ship's ventilator cowls. H. E. McCauley. II diags Am Mach 50:47-51 Ja 9 '19

Service of sheet metal ventilators. Metal Work 91:721+ Je 6 '19

Swartwout barn ventilator. II Bldg Age 40:66 Ja '18

Tapping-floor ventilators. diag Chem & Met Eng 21:118 Ag 1 '19

Ventilation of dining cars. II diag Metal Work 90:848+ D 20 '18

Ventilators for the roof. diags Heat & Ven 16:44-5 Ag '19

**Venturi meters**

Air weight and volume measurement. D. T. Hastings. diags Automotive Ind 40:1278-87, 1399-1402 Je 12-19 '19

Computation of the coefficient of discharge of venturi meters. W. S. Pardoe. diag Eng N 83:606-8 S 25 '19

Fully metered plant treats highly turbid Arkansas for Tulsa, Okla. II diag plan Eng N 81:221-3 Ag 1 '18

**Verdun, France**

War books of the cathedrals. B. Ferree. Arch Rec 48:186-8, 385-7 F, Ap '18

**Vero, Florida**

Pleistocene man of Vero, Florida. F. H. Sterns. bibliog Sci Am S 85:354-5 Je 8 '18

**Vessel tonnage.** See Tonnage

**Vessels.** See Ships; Steamboats

**Vestal (repair ship)**

War-time repairs in the navy. F. A. Stanley. II diags Am Mach 48:729-34, 999-1003, 1091-4 My 2, Je 13, 27 '18

**Vesuvius**

Recent researches at Vesuvius. A. Malladra. Sci Am S 84:393 D 22 '17

**Vibration**

Airplane engine vibration. G. D. Angle. diags Aviation 7:118-22, 212-16 S 1, O 1 '19

Critical speed in tapered shaft design. A. Musso. diag Mach 25:59-60 S '18

Gas engine vibration. M. Meredith. Am Gas Eng J 111:46+ J1 19 '19; Same. Gas Age 44: 249-50 S 15 '19

Protection against noise and vibration. Sci Am S 85:57 Ja 26 '18

Reducing vibration. Factory 20:1186 Je '18

Vibration: mechanical, musical and electrical. E. H. Barton. Sci Am S 87:5 Ja 4 '19

Wind pressures on 550 ft. chimney. F. Omori. Eng & Contr 51:452-3 Ap 30 '19; Abstract. Am Soc M E J 41:56-8 Ja '19

See also Light

**Vibrators, Pneumatic**

Tocknell compressed-air vibrator. II diags Power 49:354 Mr 11 '19

**Vinci, Leonardo da**

Leonardo, an architectural theorist. R. F. Bach. Arch Rec 43:485-6 My '18

**Vinton, Iowa****Water supply**

How Vinton, Iowa, obtained a dual system of water supply. J. H. Dunlap. II diag Munic Eng 56:232-3 Je '19

**Violin**

What a little inquisitiveness did for the violin. II diags Sci Am 118:260+ Mr 23 '18

**Virgin Islands**

Virgin Islands census. Sci Am 119:337 O 26 '18

**Antiquities**

Archeological notes on the Danish West Indies: the petroglyphs of the island of St John and of Congo Cay. T. de Booy. II Sci Am S 84:376-7 D 15 '17

**Virgin Islands of Great Britain**

History, character and archeology of a little-known group. T. de Booy. map Sci Am S 85:42-3 Ja 19 '18

**Virginia.** See Mines and mineral resources—Virginia; Roads—Virginia

**Virginia creeper (ampelopsis quinquefolia)**

Composition of the fruit of the Virginia creeper, ampelopsis quinquefolia. G. D. Beal and E. A. Glenz. J Ind & Eng Chem 11:959-60 O '19

**Viscose silk**

Detection of boron by means of turmeric viscose silk fibers. E. M. Chamot and H. I. Cole. J Ind & Eng Chem 10:48-9 Ja '18

**Viscosimeters**

Determination of absolute viscosity by short-tube viscosimeters. W. H. Herschel. diag U S Bur Stand Tech Pa 100:1-55 '17

Standard substances for the calibration of viscometers. E. C. Bingham and R. F. Jackson. diags U S Bur Stand Bul 14:59-86 Ap 6 '18

Standardization of the Saybolt universal viscosimeter. W. H. Herschel. U S Bur Stand Tech Pa 112:1-25 '18; Abstract. J Fr Inst 186:243-5 Ag '18

**Viscosity**

Nature of viscosity. N. Flamel. diags Sci Am S 88:130-1 Ag 30 '19

New method and apparatus for measuring the viscosity of oils. G. Cheneveau. Sci Am S 88:187 S 20 '19

Relative viscosity of oils at room temperature. C. F. Sammet. J Ind & Eng Chem 10:633 Ag '18

Slag control in the iron blast-furnace by means of slag viscosity tables. A. L. Feild. Chem & Met Eng 19:294-300 S 15 '18

Slag viscosity tables for blast-furnace work. A. L. Feild and P. H. Royster. U S Bur Mines Tech Pa 187:1-35 '18; Abstracts. Am Inst Min E Bul 132:2029-36 D '17; Met & Chem Eng 18:652-3 Je 15 '18; Iron Tr R 64: 271-2 Ja 23 '19; Discussion. Am Inst Min E Bul 136:791-4 Ap '18

Temperature-viscosity relations in the ternary system CaO- $\text{Al}_2\text{O}_3$ - $\text{SiO}_2$ . A. L. Feild and P. H. Royster. diags U S Bur Mines Tech Pa 189:1-33 '18; Abstract. Am Inst Min E Bul 132:2087-43 D '17; Abstract. Met & Chem Eng 18:652-3 Je 15 '18

Viscosity and sticking strength of binders. A. Abrams. charts Textile World 55:3957+ Je 28 '19

Viscosity of blast-furnace slag. A. L. Feild. II diags Am Inst Min E Bul 122:307-32 F '17; Same cond. Iron Tr R 62:979-85 Ap 18 '18; Discussion. Am Inst Min E Bul 123:390-6; 124:473-9 Mr-Apr '17

See also Viscosimeters

**Vises**

Bees' wax vise for the miller. E. A. Dixie. diags Am Mach 50:504-5 Mr 13 '19

Chainrip pipe vise. II Eng & Min J 105:684-5 Ap 13 '18

Exerting an even pressure on irregular surfaces. II Sci Am 119:72 J1 27 '18

Germanow-Simon combination vise. II Am Mach 48:980 Je 6 '18

Home-made pipe and drilling vise. J. A. Lucas. II Power 47:704 My 14 '18

How the Reed vise is made. J. V. Hunter. II Am Mach 50:923-6 My 15 '19

Question of weight. J. Vincent. Am Mach 50:339-40 F 20 '19

Quick-action machinists' vise. II Iron Age 102: 579 S 5 '18

Velox high-speed vise. II Mach 25:78 S '18

Winans' vise. II Mach 24:1052 J1 '18; Power 48:86 J1 16 '18

**Visibility**

Increasing visibility through a knowledge of camouflage. R. G. Skerrett. II Sci Am 120: 457+ My 3 '19

Low visibility phase of protective coloration. L. A. Jones. II diags J Fr Inst 188:363-87, 507-33 S-O '19

Measuring visibility. A. H. Thiessen. Sci Am S 88:279 N 8 '19

Principles of camouflage; visibility of airplanes. M. Luckiesh. Illum Eng Soc 14:247-55 no 5 '19

Visibility of airplanes. M. Luckiesh. II J Fr Inst 187:289-312, 409-57 Mr-Apr '19

**Visibility—Continued**

Visibility of radiation. P. Reeves. *diags Illum Eng Soc* 13:101-8 no 1 '18; *Abstract. J Fr Inst* 185:711-13 My '18

**See also Light****Vision. See Eye; Sight****Vitamines**

Presence of food accessories in urine, bile and saliva. A. M. Muckenfuss. *Am Chem Soc J* 40:1606-11 O '18

Vitamines. W. Ramsden. *Sci Am S* 87:62 Ja 25 '19; Same cond. *J Fr Inst* 186:265 Ag '18

Vitamines in war-time diets. E. M. Hume. *Sci Am S* 85:361 Je 8 '18

**Vocabularies**

Average person's vocabulary. F. H. Teall. *Inland Ptr* 63:80 Ap '19

Vocabulary test of intelligence. L. M. Terman. *Eng & Contr* 51:361-2 Ap 9 '19

**Vocational education**

Commercial body takes up vocational education. plan *Eng N* 81:760 O 24 '18

Crippled soldier in industry. F. B. Gilbreth. *Am Inst Min E Bul* 136:893-9 Ap '18; Discussion. 136:899-903; 137:1025-32 Ap-May '18

Electrical courses at the School of engineering of Milwaukee. *Il Elec R* 72:513-15 Mr 23 '18

Engineer, the cripple and the new education. F. B. Gilbreth and L. M. Gilbreth. *Am Soc M E J* 40:51-4 Ja '18; Excerpt. *Am Mach* 47:1124-6 D 27 '17; Excerpt. *Iron Tr R* 62:268-9 Ja 24 '18; Discussion. *Am Soc M E J* 40:54-61 Ja '18

Federal promotion of vocational training. H. E. Miles. *Am Ind* 19:22 Je '19

Fitting the crippled soldier for self-support; abstract of addresses delivered at a special conference of the National association of cotton manufacturers. *Am Ind* 18:16-17 F '18

Industrial restoration of disabled soldiers. B. J. Morris. *Il Ind Management* 56:477-81 D '18

Industrial training for the war maimed in Great Britain. I. W. Chubb. *Il diags Am Mach* 48:771-9 My 9 '18

Industries and education after the war. E. H. Fish. *Ind Management* 56:475-6 D '18

Jobs for cripples. *Textile World* 53:4489 Mr 30 '18

Need for vocational schools in mining communities. J. C. Wright. *Am Inst Min E Bul* 145:91-4 Ja '19; Discussion. 148:674-80; 150:991-4 Ap. Je '19

New developments in training wartime sailors; U.S. naval training station under the Dunwoody industrial institute. W. Connely. *Il Sci Am* 117:492-4 D 29 '17

Provisions for vocational education. *Metal Work* 91:553 My 2 '19

Rebuilding the crippled soldier. D. C. McMurtre. *Am Ind* 18:26-8 Ap '18

Textile industry and disabled soldiers. E. Szepesi. *Textile World* 53:2959 Ja 12 '18

Vocational education in England. J. C. M. Garnett. *Sci Am S* 85:149 Mr 9 '18

Vocational re-education of Canadian soldiers. T. B. Kidner. *Am Ind* 18:16-20 D '17

Vocational training for foundry occupations. *Dom Eng* 89:355- N 15 '19

**See also** Industrial education; Mining schools and education; Technical education; Trade schools

**Vocational guidance**

Vocational selection at the Carnegie institute of technology. W. D. Scott. *U S Bur Labor Statistics Bul* 227:114-19 '17

**Vbille**

Colored stripe and check volles. *Il Textile World* 54:1853- O 19 '18

**Volatility**

Volatilization of gold; abstract. T. K. Rose. *Chem & Met Eng* 21:101-2 JI 15 '19

**Volcanic steam. See Steam, Natural****Volcanoes**

At Pompeii and St Pierre. G. W. Cole. *Sci Am S* 87:314-15- My 17 '19

Electrical energy from the Volterra soffioni. *Il Engineer* 125:124 F 8 '18; Same. *Eng & Contr* 50:422-3 O 30 '18; Same cond. *Power* 47:531 Ap 9 '18

Lava fluctuations at Halemaumau. *Sci Am S* 85:263 Ap 27 '18

Results of volcano study in Hawaii. T. A. Jaggard. *Sci Am S* 86:67 Ag 3 '18

Setting volcanoes to work. *Il Sci Am* 117:305 O 27 '17; Same. *Dom Eng* 81:436-7 D 15 '17

Thirteen-foot model of the world's most active volcano; reproduction of the Kilauea district in Hawaii on a scale of 1-1500.

R. A. Daly. *Il Sci Am* 118:132- F 9 '18

Volcanic eruptions; a possible explanation of the mechanical and thermo-dynamic results. G. N. Cole. *Sci Am S* 85:334-6 My 25 '18

**See also Mud volcanoes****Voltage regulation**

Auxiliary coil for contact making voltmeter for regulating voltage for two different pressures. *diag Elec R* 73:704-5 N 2 '18

Close voltage control for lighting circuits. *Elec R* 74:393 Mr 8 '19

Combining static boosters with induction regulators. *Elec W* 70:1245 D 29 '17

Compensated-type potential regulators. A. H. Ford, P. E. Mead and G. W. Thomas. *diags Elec W* 73:620-3 Mr 29 '19

Feeder voltage regulators for outdoor operation; abstract. I. C. Minick. *Elec W* 72:119-20 JI 20 '18

G. E. line-drop compensator. *Il Elec W* 70:1129 D 8 '17; *Elec R* 71:993 D 8 '17

Hartford polyphase induction regulator. *Il Elec R* 73:28-9 JI 6 '18; *Elec W* 72:138-9 JI 20 '18

How to reduce cost of station regulator. *diag Elec W* 72:843 N 2 '18

Improving power factor and voltage regulation by using synchronous condensers. J. T. Peyton. *Il Elec W* 72:492-3 S 14 '18

Means of maintaining accurate test voltage. C. H. Sharp. *diag Elec W* 72:206 Ag 3 '18

Methods of increasing capacity of existing transmission lines. E. C. Stone. *diags Elec R* 75:562-6 O 4 '19

Peculiar trouble with automatic voltage regulator. L. A. Martin. *Elec R* 74:356 Mr 1 '19

Regulator for Mazda lamps. *Il Elec W* 71:1010 My 11 '18

Renewable brakeshoes for induction regulators. *Elec R* 73:532 O 12 '18

Voltage regulation capitalized. *Elec R* 74:520-1 Mr 29 '19

Voltage regulation of distributing feeders as a means of improving central station efficiency. F. Hershey. *Il Gen Elec R* 22:544-51 JI '19; Excerpts. *Elec W* 74:344-6 Ag 16 '19

Voltage regulation of three-phase feeders by automatically controlled induction regulators. M. Unger. *diags Gen Elec R* 21:222-31 Mr '18

Voltage regulator and phase-balancer regulator equipment of the Philadelphia electric company. R. M. Carothers. *Il diags Gen Elec R* 21:196-201 Mr '18

Westinghouse outdoor-type induction regulators. *Il Elec W* 70:1177 D 15 '17; *Elec R* 71:992-3 D 8 '17

**Voltaic cell. See Electric batteries**

**Voltmeters**

Measurement of the crest values of alternating voltage by the kenotron, condenser, and voltmeter. J. R. Craighead. *Il diags Gen Elec R* 22:104-9 F '19

Recording voltmeters are useful at feeder centers. *Il Elec W* 70:1198 D 22 '17

Testing permanent magnets by means of a voltmeter. *Il Elec W* 73:267-8 F 8 '19

Voltmeter for synchronizing purposes; abstract. G. Keinath. *Elec W* 73:1333 Je 21 '19

**Volumenometer**

Volumenometer. J. S. Rogers and R. W. Frey. *Il J Ind & Eng Chem* 10:554-5 JI '18

**Volumetric analysis**

Abnormalities in the formol titration method. S. L. Jodidi. *Am Chem Soc J* 40:1031-5 JI '18

Accurate method for taking aliquots in volumetric analysis. H. E. Eastlack. *Am Chem Soc J* 40:620-2 Ap '18

Acidity determination in water, leach liquors, mine waters, etc. J. J. Rankin. *Met & Chem Eng* 18:96 Ja 15 '18

**Volumetric analysis—Continued**

- Adaptation of the Mohr volumetric method to general determinations of chlorine. L. Yoder. *J Ind & Eng Chem* 11:755 Ag '19
- Determination of arsenic in insecticides by potassium iodate. G. S. Jamieson. *J Ind & Eng Chem* 10:290-2 Ap '18
- Determination of manganese in steel in the presence of chromium and vanadium by electrometric titration. G. L. Kelley and others. *J Ind & Eng Chem* 10:19-23 Ja '18
- Determination of nitrates in caliche and its products. J. E. Clennell. *Eng & Min J* 106:660-3 O 12 '18
- Determination of phthalic anhydride in crude phthalic acid. C. R. Downs and C. G. Stupp. *diag J Ind & Eng Chem* 10:596-8 Ag '18
- Determination of sulphur dioxide. O. R. Sweeney, H. E. Outcalt and J. R. Withrow. *J Ind & Eng Chem* 9:949-50 O '17; Same cond. *Eng & Min J* 105:162-3 Ja 19 '18
- Electrometric titrations, with special reference to the determination of ferrous and ferric iron. J. C. Hostetter and H. S. Roberts. *diags Am Chem Soc J* 41:1337-57 S '19
- Free acid determination in presence of metallic salts. L. F. Clark. *Eng & Min J* 106:1066-8 L 21 '18
- Gravimetric and volumetric determination of mercury precipitated as mercury zinc thiocyanate. G. S. Jamieson. *J Ind & Eng Chem* 11:296-7 Ap '19
- Gravimetric and volumetric determination of zinc precipitated as zinc mercury thiocyanate. G. S. Jamieson. *Am Chem Soc J* 40:1036-9 Jl '18
- Iodide titration of silver nitrate with palladium nitrate as the indicator. L. Schneider. *Am Chem Soc J* 40:583-93 Ap '18
- Method for the rapid analysis of mixtures of chlorinated toluene. H. A. Lubs and A. B. Clark. *Am Chem Soc J* 40:1449-53 S '18
- Modified method for the analysis of mixtures of ethylene and acetylene. W. H. Ross and H. L. Trumbull. *diags Am Chem Soc J* 41:1180-9 Ag '19
- Rapid determination of carbon in steel by the barium carbonate titration method. J. R. Cain and L. C. Maxwell. *J Ind & Eng Chem* 10:520-2 Jl '18
- Standard alkali for mixed acid control. E. Hearsey and C. M. Joyce. *J Ind & Eng Chem* 11:341 Ap '19
- Titration of copper with cyanide. M. P. Applebey and K. W. Lane. *Eng & Min J* 107:242 F 1 '19
- Titration of oxalic acid by the conductance method. H. S. Harned and C. N. Laird. *diags Am Chem Soc J* 40:1213-18 Ag '18
- Use of benzaldehyde sulfite compound as a standard in the quantitative separation and estimation of benzaldehyde and benzoic acid. G. A. Geiger. *Am Chem Soc J* 40:1453-6 S '18
- Use of metallic silver as a reducing agent in the volumetric estimation of iron. G. Edgar and A. R. Kemp. *Am Chem Soc J* 40:777-84 My '18
- Use of thymosulphophthalein as an indicator in acidimetric titrations. A. B. Clark and H. A. Lubs. *Am Chem Soc J* 40:1443-8 S '18
- Volumetric determination of free sulfur in soft rubber compounds. H. S. Upton. *J Ind & Eng Chem* 10:518-20 Jl '18
- Volumetric determination of hydroxylamine. W. C. Bray, M. E. Simpson and A. A. MacKenzie. *Am Chem Soc J* 41:1363-78 S '19
- Volumetric determination of reducing sugars. W. B. Clark. *Am Chem Soc J* 40:1759-72 D '18

*See also Iodometry*

**Volumetric apparatus**

- Anaerobic culture volumeter. Z. Northrup. *diag J Ind & Eng Chem* 10:624-5 Ag '18
- Electrical apparatus for use in electrometric titration. H. S. Roberts. *il diags Am Chem Soc J* 41:1358-62 S '19

*See also Pipets*

**Vulcanization**

- Effect of certain accelerators upon the properties of vulcanized rubber. G. D. Kratz and A. H. Flower. *Chem & Met Eng* 20:417-20 Ap 15 '19

**Vulcanized fiber**

- Electrical properties of vulcanized fiber. W. Eves. *Elec W* 71:190-2 Ja 26 '18; Same cond. *Elec Ry J* 51:238-9 F 2 '18
- Fiber; abstract. *Mech Eng* 41:470-1 My '19

**W****Wabash-Pittsburgh terminal railway**

- Report of the interstate commerce commission on the Wabash-Pittsburgh terminal Ry. *Ry R* 62:242-3 F 16 '18
- Wabash-Pittsburgh terminal investigation. *Ry Age* 64:375-8 F 15 '18

**Wabash railroad**

- Financial statistics. map *Ry Age* 67:88-9 Jl 18 '19

**Wages**

- Anthracite wage increase proposed. *Coal Age* 14:789 O 24 '18
- British solve war labor problem. J. Horton. *Iron Tr R* 63:212-14 Jl 25 '18
- British wages up 68 to 156 per cent. J. Horton. *Iron Tr R* 64:1689 Je 26 '19
- Cleveland wage discussion. *Elec Ry J* 51:821 Ap 27 '18
- Collective bargaining outside or inside? H. Tipper. *Automotive Ind* 39:712-13+ O 24 '18
- Community guarantees for piece prices. J. C. Spence. *Am Mach* 50:793-7 Ap 24 '19
- Co-operative payment-by-results. *Engineer* 125:419 My 17 '18
- Cost of living in an industrial community. R. M. Hudson. *Ind Management* 56:185-91 S '18
- Credit system of wage payments in Chicago. *Elec Ry J* 51:89-90 Ja 12 '18
- Effect of democracy, political or industrial, upon wages. *Eng & Contr* 52:426-7 O 15 '19
- Efficiency wage scale. *Eng & Contr* 49:481 My 15 '18
- Efficient wage classification system. A. Spangenberg. *Mach* 25:414 Ja '19
- Fitting the wage to the work. W. R. Basset. *Factory* 21:40-2, 236-8 Jl-Ag '18
- Four-year range of wages in the automotive industry. charts *Automotive Ind* 40:1316-18 Je 12 '19
- Fundamentals of wage payment. *Ry Mech Eng* 93:297-9 Je '19
- General relation of wages to cost of living; translated from an article in the *Neue zeit*. A. Ellinger. *Gas Age* 41:451-2 My 15 '18
- General wage advance for steel workers. *Iron Age* 101:917 Ap 4 '18
- Government wages to electrical men. *Elec W* 71:869 Ap 27 '18
- Guaranteeing piece rates. S. Coolidge, jr. *Ind Management* 57:411 My '19
- Handling the labor situation. J. D. Strain. *Textile World* 54:2323 N 9 '18
- Have we reached the limit of wages? W. R. Basset. *Factory* 22:255-8 F '19
- High wages raise shipping costs. *il Marine R* 49:78-81 F '19
- John Hays Hammond for high wages. *Eng & Min J* 107:1013 Je 7 '19
- Labor-adjusters approve wage contract. *Coal Age* 14:829 O 31 '18
- Labour administration. E. T. Elbourne. *Engineer* 126:388-90, 453-4, 478-80 N 8, 29-D 6 '18
- Labor gets most of mill income. J. W. Hill. *Iron Tr R* 65:918-19 O 2 '19
- Labor shortage made good by station contract system; Winnipeg aqueduct; abstracts. F. P. Kemon. *il Eng N* 81:542-4 S 19 '18; *Eng & Contr* 50:342-4 O 9 '18
- Labor situation. R. D. Hall. *Coal Age* 14:1127-8 D 19 '18
- Lieu-rates and time and a bit systems of renumeration labor. *Eng & Contr* 52:487-8 O 29 '19
- Living wage. *Ind Management* 58:251 S '19

**Wages—Continued**

- Living wage—what is it? J. A. Norton. *Ind Management* 58:211-12 S '19
- Maintaining high wages. *Am Arch* 114:727-8 D '18 '19
- Managing for maximum production. L. V. Estes. *Ind Management* 58:54-61 JI '19
- Mastering power production; relations of wages and bonus to the labor problem. W. N. Polakov. *Ind Management* 55:298-302 Ap '18
- Method for a compensated wage by index numbers. L. K. Comstock. *J Account* 26:1-22 JI '18
- Methods of wage payment in the Pittsburgh district. *Mach* 24:523 F '18
- Milwaukee raises employees' salaries. *Munic J* 45:170 Ag 31 '18
- National war labor board declines to establish minimum wage. *Iron Age* 102:330 Ag 8 '18
- Past and prospective rise of wages in the building trades. *Eng & Contr* 51:557-8 My 28 '19
- Payrolls jump high. *Elec Ry J* 52:418-19 S 7 '18
- Price and the man. A. Schielmer. *Am Mach* 47:1047-8 D 13 '17; *Discussion*. 48:734 My 2 '18
- Prices and wages. W. Wesnedge. *Coal Age* 16:584 O 2 '19
- Principles of employing labor. E. H. Fish. *Ind Management* 57:373-7 My '19
- Probable wages and supply of construction labor during coming season. C. E. Baldwin. *Eng & Contr* 51:284-6 Mr 19 '19
- Problems of wage payment. H. N. Stronck. *Met & Chem Eng* 18:236-42 Mr 1 '18
- Providing for the depreciation of human earning power. J. Couzens. *Am Ind* 19:14-15 N '18
- Raising wages with cost of living. L. K. Comstock. *Elec W* 71:552-3, 615-16 Mr 16-23 '18
- Readjusting John Jones back to a normal wage. E. Dean. *Am Gas Eng J* 109:457-8 N 16 '18
- Salary and wage adjustment. M. McKune. *Metal Ind* 17:375-6 Ag '19
- Standardization and administration of wages; abstracts. H. P. Kendall and E. D. Howard. *Am Soc M E J* 41:35-7 Ja '19; *Iron Age* 103:182-3 Ja 16 '19
- Standardization of metal trades wages; a conference of employers and union employees with the War labor policies board. *Iron Age* 102:246 JI 25 '18
- Standardizing wages in munition and other plants. *Iron Age* 101:1328 My 23 '18
- System of labor compensation; a combination of the Taylor, piecework and Prusso-Hessian methods developed in Russian railway shop. M. K. Smogorjevsky. *Ry Mech Eng* 92:325-9 Je '18
- Trend of wages paid by American water works. L. Metcalf. *Munic Eng* 55:197-8 D '18
- Wage disputes and cost of living. L. W. Alwyn-Schmidt. *Am Mach* 50:1009-10 My 22 '19
- Wage increase. W. B. Willson. *Coal Age* 14:703 O 10 '18
- Wage limit. *Am Mach* 49:302 Ag 15 '18
- Wage payment slide rule. J. B. Carroll. *diags Am Mach* 48:375-6 F 28 '18
- Wage payment systems in machine shops. W. D. Stearns. *Il Mach* 25:1115-17 Ag '19
- Wage scale and conditions of labor at Delaware river and Baltimore shipyards; final report of shipbuilding board. *Iron Age* 101:551-2 F 28 '18
- Wage scale for building trades of Manitoba. *Eng & Contr* 52:461 O 22 '19
- Wage scale for shipbuilding labor on North Atlantic coast. *Eng & Contr* 49:411 Ap 24 '18
- Wage scale in building trades in New York city. *Eng & Contr* 51:560 My 28 '19
- Wage scale of St Louis building trades. *Eng & Contr* 52:471 O 22 '19
- Wage scales must be on reasonable basis. J. H. Pardee. *Elec Ry J* 54:sup2-4 O 11 '19
- Wage side of my labor creed. W. S. Rogers. *Factory* 20:37-8 Ja '18
- Wages and hours of labor in cotton goods manufacturing and finishing, 1916. U S Bur Labor Statistics Bul 239:1-258 '18
- Wages and hours of labor in the iron and steel industry: 1907-1916; with a glossary of occupations. U S Bur Labor Statistics Bul 218:1-526 '17
- Wages and hours of labor in the lumber, millwork, and furniture industries, 1915. U S Bur Labor Statistics Bul 225:1-314 '18
- Wages and hours of labor in woolen and worsted goods manufacturing, 1918. U S Bur Labor Statistics Bul 261:1-93 '19
- Wages and profits in British industry. E. T. Good. *Engineer* 125:47-8 Ja 18 '18
- Wages in Japanese engineering works in 1914-1918. *Iron Age* 104:640 S 4 '19
- Wages in various industries; a summary of wage movements during the war. 56p '19 Bureau of applied economics, Washington, D.C.
- Wages in war and peace. H. H. Lewis. *Textile World* 55:217-4 Ja 11 '19
- Wages increase more than living cost; investigation in Bridgeport metalworkers' strike. *Iron Age* 102:146-7 JI 18 '19
- Wages of common laborers on U. S. reclamation projects. *Eng & Contr* 49:193 F 20 '18
- Wages of woods and mill workers established. *Am Lumberman* 226:146 S 14 '18
- Wages paid in California oil fields. M. L. Requa. *Eng & Min J* 105:796 Ap 27 '18
- Wages problem in Mexico. *Eng & Min J* 105:557-8 Mr 23 '18
- War wages in England and France. *Engineer* 125:331 Ap 19 '18
- Water-works labor prices in Boston district. *Eng N* 82:1192 Je 19 '19
- What carpenters earn with one contractor. O. R. Rietschlin. *Eng N* 82:737-8 Ap 10 '19
- Will wages and prices remain stable? A. F. Rice. *Coal Age* 15:533 Mr 20 '19
- See also Bonus system; Cost of living; Engineers—Salaries; Labor and laboring classes; Minimum wage; Overtime; Piece work; Profit sharing; Salaries; Time study
- Tables, calculations, etc.
- Rapid calculation of piece-work earnings. S. P. Keator. *Il Mach* 26:271 N '19
- Wagons**
- Conference of hardwood and vehicle manufacturers associations declares wagon makers not guilty of profiteering. *Am Lumberman* 225:50-1 JI 13 '18
- Two-wheel shop wagon. *diags Ry R* 61:772 D 22 '17
- Walker, A. Stewart**
- Residence of A. Stewart Walker, esq., New York. J. T. Boyd, Jr. *Il plan Arch Rec* 46:2-17 JI '19
- Walking**
- What walking comes to. C. N. Holmes. *Sci Am* 121:335 O 4 '19
- Wall board**
- Building construction necessary for good wall-board work. L. H. Harvey. *diags Bldg Age* 40:376-9 Ag '18
- Effective design with wallboard. L. H. Harvey. *Il Bldg Age* 41:266-7 Ag '19
- Fan heating system installed without the use of galvanized iron. F. B. Rowley and J. R. Allen. *Il diags plans Heat & Ven* 16:17-23 Ag '19
- How did wall board originate? J. A. Poehl. *Il Bldg Age* 40:130-2 Mr '18
- How should this wallboard panelling be designed? *diags Bldg Age* 40:357-8 JI '18
- How wallboard was used in remodeling an old home. L. H. Harvey. *Il Bldg Age* 40:552-4 D '18
- How wallboard was used in the building of 100 homes. L. H. Harvey. *Il plans Bldg Age* 40:425-8 S '18
- Money-saving wall board kink. H. J. Payton. *Bldg Age* 41:164 My '19
- Notes on the manufacture of wall board. J. A. Poehl. *Il Bldg Age* 40:36-8 Ja '18
- Unique wall board machine. F. C. Perkins. *Il Sci Am* 121:317-7 S 27 '19
- Unusual use of wall board in construction of \$1700 cottage. *Il diags plans Bldg Age* 40:296-9 Je '18
- Using wall board as a building material. J. A. Poehl. *Il Bldg Age* 40:74-6 F '18

**Wall board—Continued**

Wall board construction for the attic. J: Up-

ton. Bldg Age 40:187 Ap '18

Wallboard kink that speeds up ceiling work. L. H. Harvey. Il diags Bldg Age 40:531-2 N '18

**Wall footings**

Country house details. A. B. Greenberg. diags Bldg Age 40:490-1 O '18

Wall painting. See Mural painting and decoration

**Wall paper**

Evolution of wall paper. Am Arch 114:615-16 N 20 '18

Manufacture of wall-paper. Il Sci Am S 87: 184 Mr 22 '19

**Walls**

Decorating and coloring walls with cement. Eng & Contr 51:449 Ap 30 '19

Protective and decorative treatment for plastering. Am Arch 113:331 Mr 13 '18

Wall construction at Norfolk army supply base by cement gun process. Il Eng & Contr 51:574-5 My 28 '19; Eng N 82:1199-1200 Je 19 '19

See also Building; Dams; Foundations; Mural painting and decoration; Partitions; Plaster and plastering; Retaining walls; Sea walls; Wall board

**Walls, Concrete**

Building concrete walls on the farm. diag Bldg Age 40:151 Mr '18

Concrete wall construction is continuous process. Il diags plan Eng N 83:454-6 S 4 '19

Concrete wall on Chicago lake front. Il diags plan Concrete 13:158 N '18

Conditions for economy in reinforced concrete wall design. G. Paaswell. diags Eng & Contr 51:226-7 F 26 '19

Double air space in triple walls. Il diags plan Concrete 14:157-8 Ap '19

Economical construction of concrete foundation wall. D. W. Daley. Il diags Bldg Age 40:495-6 O '18

Forms for concrete footings and foundation walls. E. I. Freese. diags Bldg Age 41: 202-3, 208 Je '19

How to build weatherproof walls. S. B. Newberry and others. Concrete 12:174-5 My '18

Rapid concrete wall construction. Il Iron Tr R 63:153-4 J1 '18

Repairing a leaky basement wall. Concrete 11:184 D '17

Superframe on footing form supports thirty-foot wall bars. Il diags Eng N 81:820-1 O 31 '18

Surface treatment for monolithic concrete walls; symposium. Concrete 13:18-20 J1 '18

Viaduct protected from snowslides by concrete walls. E. E. Adams. Il diags plan Eng N 83:470-1 S 4 '19

See also Concrete construction; Dams, Concrete; Retaining walls, Concrete

**Walnut**

Quest for walnut during the war. M. E. Singleton. Il Am Lumberman 2318:79 O 18 '19

South American walnut. C. D. Mell. Am Lumberman 2263:64 S 28 '18

Walnut for airplane propellers; government specifications. diags Am Lumberman 2246: 33 Je 1 '18

**Walnuts**

What machinery is doing for the walnut industry. H. C. Kegley. Il Sci Am 120:51+ Ja 18 '19

**Walrus**

From the frozen Arctic to the polisher's bench. Il Sci Am 121:227 S 6 '19

**Waltham, Massachusetts****Water supply**

How a deficit of \$2,000 was changed to a surplus of \$27,000 in one year at the Waltham water works. B. Brewer. diags Munic Eng 54:108-10 Mr '18

**War**

Biological aspects of warfare. H. Campbell. Sci Am S 85:18-19, 46-8, 58 Ja 12-26 '18

War and discovery. T. Blake. Sci Am 119: 391+ N 16 '18

See also Aeronautics, Military; Armies; Automobiles in war and army service; European war, 1914-; Hospital trains; Military art and science, and other headings beginning Military; Motor trucks in war; Munitions of war; Railroads in war; Submarine warfare; Transportation, Military; Trench warfare; Wireless telegraph in war; also headings beginning War

**Relief of sick and wounded**

See European war—Medical and sanitary affairs; Hospital cars; Hospital trains

War committee of technical societies

Good job, well done. Sci Am 120:22 Ja 11 '19

Report, 1917. D. W. Brunton. Elec W 73:41 Ja 4 '19

Review of the work of the War committee of technical societies. Eng & Min J 107:9-11 Ja 4 '19; Same. Am Mach 50:224-6 Ja 30 '19

Statement concerning War committee of technical societies. L. M. Scott. Illum Eng Soc 13:532 no 9 '18

War emergency and reconstruction conference. See Chamber of commerce of the United States

**War finance**

Address before Ways and means committee. G: M. Graham. Automotive Ind 38:1232-3 Je 20 '18

Adjusting industry to strain of war finance. C: H. Sabin. Textile World 53:5205+ My 4 '18

Automobile tax hearing before the Ways and means committee; statement made by Alfred Reeves. Automotive Ind 38:1124-5 Je 13 '18

Broad point of view on the war and the industrial situation. W. Bathon. Am Mach 48: 323-5, 544 F 21. Mr 28 '18

Cheering thoughts on the war debt. J: G. Lonsdale. Ry Age 65:89-90 sec 2 J1 12 '18

Excess profits regulations explained. Am Lumberman 2230:42 F 9 '18; Excerpts. Ry Age 64:326-7 F 8 '18

Excess profits tax returns. J Account 25:128-34, 137 F '18

Federal board controls financial operations. Munic J 44:400 My 11 '18

Financing our second year in the war. Eng & Min J 105:834-5 My 4 '18

Financing the second year of the war; share of yearly incomes contributable in taxes and bond purchases; tabulation. Power 47:624 Ap 30 '18

How the war tax is collected. Elec Ry J 50: 1111-12 D 22 '17

How to win the war. F. A. Vanderlip. Textile World 53:2951+ Ja 12 '18

Intangible values and war tax. C: W. McKay. Ind Management 55:129-33 F '18

Internal revenue bureau rulings as to excess profits tax law. Iron Age 101:136 Ja 10 '18

Making our resources available for war. J: E. Oldham. Ry Age 64:935-7 Ap 5 sec 2 '18

Memorandum on war excess profits tax. Eng & Min J 104:1042-5 D 15 '17

Millions for war; very large appropriations will be asked. Iron Age 100:1417-18 D 13 '17

Standing timber's relation to invested capital. Am Lumberman 2226:34-5 Ja 12 '18

Suggestion for war financing. G. P. Billon. Am Ind 18:10 D '17

Suggestions for assessment of excess profits; brief submitted to the War excess profits tax committee by American Institute of accountants. J Account 25:1-6 Ja '18

Trying to solve the great national puzzle; excess profits tax. G. F. Creveling. Iron Tr R 62:2-7 Ja 3 '18

Uncle Sam's slow pay a factor of business. G. F. Creveling. Il Iron Tr R 62:1037-42 Ap 25 '18

War taxation and effect upon business. J: W. Weeks. Textile World 53:2950 Ja 12 '18

War taxes and bond issues. W: B. Dickson. Iron Age 101:1610-11 Je 20 '18

See also European war—Finance; War loans; War revenue act, 1918

**War finance corporation**

Capital issues committee begins work. *Munic J* 44:438-9 My 25 '18  
 Capital issues committee law. *Good Roads* n s 15:252 My 18 '18  
 Comments on the bill for establishing War finance corporation. *Met & Chem Eng* 18:288 Mr 15 '18  
 Helps Aurora line. *Elec Ry J* 52:348 Ag 24 '18  
 New capital issues committees. *Munic J* 45:59-60 Ji 20 '18  
 Position of directors. *Elec W* 71:1152-3 Je 1 '18  
 Powers of the War finance corporation. *Am Ind* 18:25-6 My '18  
 President nominates War finance board. *Eng N* 80:883 My 2 '18  
 War finance corporation; inflation can be prevented only by saving drastic enough to offset the government's extraordinary demands. *O. M. W. Sprague. Ry Age* 64:946-7 Ap 5 sec 2 '18  
 What federal financing requires. *Elec Ry J* 51:1109 Je 8 '18

**War industries board.** See Council of national defense—War industries board; United States—War industries board

**War labor.** See European war—Labor problems  
**War labor administration.** See United States—Employment service; United States—Labor, Department of; United States—National war labor board; War labor conference board

**War labor conference board**

Federal control of industrial relations. *Am Ind* 18:10-12 Ap '18  
 Joint conference of capital and labor. *Ry Age* 64:418 F 22 '18  
 National program for our labor and capital. *Elec W* 71:736 Ap 6 '18; Same. *Elec Ry J* 51:673 Ap 6 '18; Same cond. *Power* 47:528 Ap 9 '18; Same cond. *Eng N* 80:682+ Ap 4 '18; Same cond. *Am Mach* 48:678-9 Ap 18 '18  
 War labor conference board. *C. E. Michael. Am Ind* 18:35-6 Je '18

See also United States—National war labor board

**War loans**

Accounting for the first Liberty loan. *H. S. Chase. J Account* 25:7-16 Ja '18  
 Accounting for the second Liberty loan. *H. S. Chase. J Account* 25:91-100 F '18  
 Accounting for the third Liberty loan subscriptions. *A. F. Jones. J Account* 25:426-32 Je '18  
 All ready for third Liberty loan campaign. *Iron Age* 101:883-4 Ap 4 '18  
 Details of successful plans for selling bonds to employees. *Textile World* 53:4563-5 Ap 6 '18  
 Foundrymen plan for fourth Liberty loan. *Il Foundry* 46:492-4 O '18  
 Fourth Liberty loan; iron and steel industry preparing. *W. H. Lloyd. Il Iron Tr R* 63:717-20 S 26 '18  
 Further suggestions for selling Liberty bonds. *Il Automotive Ind* 38:625-6 Mr 28 '18  
 Get behind the fourth Liberty loan. *Elec Ry J* 52:452-5 S 14 '18  
 How some companies pushed the sale of Liberty bonds. *Coal Age* 13:589 Mr 30 '18  
 How some of the large metal industries handle Liberty loans. *Metal Ind* 16:159-60 Ap '18  
 How the electric railways have been fostering the Liberty loan spirit among their employees and patrons. *Elec Ry J* 51:602-7 Mr 30 '18  
 How to get workers to invest in war loans. *J. Heywood. Il map Factory* 20:642-3 Ap '18  
 Liberty loan accounting for small banks. *W. H. Lawton. J Account* 26:93-7 Ag '18  
 Liberty loan and labor. *Elec W* 71:669 Mr 30 '18  
 Liberty loan campaign in a prominent machine-tool factory. *L. D. Burlingame. Am Mach* 48:565-8 Ap 4 '18  
 Liberty loan sale stimulants. *Elec W* 71:617-18 Mr 23 '18  
 Liberty loan subscriptions by railway employees. *Ry R* 62:69-71 Ja 12 '18

Organizing a factory Liberty loan drive. *J. E. Schipper. charts Automotive Ind* 38:580-3 Mr 21 '18

Organizing a Liberty loan campaign; methods employed by the Brown & Sharpe manufacturing co., and the Cleveland automatic machine co. *Il Mach* 25:22-6 S '18

Plan of organization for Liberty loan campaign. *Automotive Ind* 38:672-3 Ap 4 '18

Railroad drive for Liberty loan subscriptions. *Ry Age* 64:980-2 Ap 12 '18

Steel centers respond to liberty's call. *Iron Age* 102:839-40+ O 3 '18

Third Liberty loan. *Mach* 24:540 F '18

War-loan statistics. *Eng & Min J* 105:838 My 4 '18

War savings stamps at United Verde mine. *H. D. Smith. Eng & Min J* 105:947-8 My 25 '18

**War measures**

Broad point of view on the war and the industrial situation. *W. Bathon. Am Mach* 48:323-5 F 21 '18

Business machine at Washington. *H. E. Coffin. Ind Management* 55:10-14 Ja '18

Co-ordinating industries for war work. *W. Butterworth. Textile World* 53:5207-8 My 4 '18

Co-ordinating production and transportation. *H. L. Gantt. Met & Chem Eng* 18:278-9 Mr 15 '18; Same. *Am Mach* 48:503-4 Mr 21 '18; Excerpt. *Eng & Min J* 105:478 Mr 9 '18

Economic aspects of fire-protection problems and hazards in war times. *J. D. Pryor and F. V. Sackett. Il diag plans Am Soc M E J* 40:441-9 Je '18; Excerpt. *Iron Tr R* 63:214 Ji 25 '18

Essentials and non-essentials of industry in war times. *W. Catchings. Dom Eng* 82:454-5 Mr 23 '18

Manufacturers aiding the nation. *R. K. Shepard. Il Elec W* 71:6-7 Ja 5 '18

Master control of industry. *T. R. Hay. Ind Management* 55:318 Ap '18

Our industries and the war; a timely discussion before the New York section of the A. S. M. E. *Am Soc M E J* 40:302-5 Ap '18

Safeguarding war industries from enemies within. *Mach* 24:662 Mr '18

To win the war industries must increase production. *C. Grl. Automotive Ind* 37:1123-4 D 27 '17

Utilize the non-essential industries. *S. H. Bunnell. Iron Age* 101:603-5 Mr 7 '18

War organization; centralization of administrative authority advocated. *H. P. Kendall. Iron Age* 100:1414 D 13 '17

What every one should know about war legislation. *R. E. Cushman. Am Lumberman* 224:36+ My 18 '18

See also Agriculture—War measures; Council of national defense; Gas industry—War measures; Railroads in war

**War memorials.** See Arches, Memorial; Memorials

**War minerals bill (H.R. 11259)**

Proposed minerals administration bill. *Met & Chem Eng* 18:442-3; 19:498 My 1, S 28 '18; *Eng & Min J* 106:462, 500, 545 S 7-21 '18

**War-minerals relief act**

War-minerals relief act interpreted by attorney general. *Eng & Min J* 108:107 Ji 19 '19

**War-minerals relief commission**

Relief claims exceed \$18,000,000. *P. Wooton. Eng & Min J* 107:1053 Je 14 '19

War-minerals relief commission has returned to Washington. *P. Wooton. Eng & Min J* 108:479 S 13 '19

War minerals relief scandal. *Eng & Min J* 108:361-3 Ag 30 '19

Work of the War-minerals relief commission. *Eng & Min J* 108:238-40 Ag 9 '19

**War pictures**

War rendering of Ypres. *L. V. Solon. Il Arch Rec* 46:287-8 S '19

**War revenue act, 1918**

Amortization and inventory values regulations promulgated. *Am Ind* 19:42-3 Je '19

Business ideas on new tax law. *Metal Work* 91:202-3 F 14 '19

**War revenue act, 1918—Continued**

Clear up snarls in war tax application. Iron Tr R 62:746 Mr 21 '18

Defects of title 2 of the federal revenue act of October 3, 1917, viewed from the accounting standpoint. A. Bentley. J Account 25:81-90 F '18

Features of the new war tax law. M. Wolff. Metal Work 91:72 Ja 10 '19

Federal taxes and the manufacturer. G. R. Webster. Am Mach 49:1196-7 D 26 '18

How to report net income under war revenue act. R. H. Butz. Metal Ind 16:81-2 F '18

New forms and departmental regulations. J. B. Niven. J Account 27:272-304 Ap '19

Revenue act, 1918. J Account 27:171-3; Text. 176-226 Mr '19

Revenue law in relation to timber. Am Lumberman 2304:59 Jl 12 '19

Senate revenue bill draft. Am Gas Eng J 110:62-4 Ja 18 '19

War revenue act and its relation to taxpayers. D. C. Roper. Am Ind 18:13-15 Ja '18; Same. Foundry 46:37-9 Ja '18

War revenue act of 1917. D. C. Roper. Am Ind 18:11-13 D '17

**War savings and thrift stamps**

Teaching thrift through thrift stamps. L. D. Burlingame. Il Am Mach 50:293-3 F 13 '19

**War service**

Accountants' bit in the American expeditionary forces. C. B. Holloway. J Account 26:244-6 O '18

Address at Schenectady plant of General electric co. J. Daniels. Il Gen Elec R 21:491-3 Jl '18

Aggregate producers form war service committee. Concrete 13:sup29 S '18

American chemist in warfare. C. L. Parsons. J Ind & Eng Chem 10:776-80 O '18

American engineers in service; list of more than three hundred electrical and mechanical engineers with commissions of captain or higher. Elec W 71:20-3 Ja 5 '18

Business man and the war. W. Catchings. Am Lumberman 2238:64-5 Ap 6 '18

Conservation of technical engineers urged; resolutions of Engineering council. Elec R 72:953 Je 8 '18; Same. Am Mach 48:1080a Je 20 '18

Criticism and individual efficiency. R. T. Strong. Ind Management 56:253 S '18

Engineer in war. O. N. Solbert. Am Soc Heat & V E 23:341-5 '17

Engineering societies in the national defense. G. Dunn. Am Soc M E J 40:17-21 Ja '18

Engineers and the war. W. M. Black. Am Inst E E Pro 37:1049-60 Ag '18; Excerpts. Elec W 72:59 Jl 13 '18

Essential industry—to win the war. Il Mach 25:19 S '18

Geologist in war time—geology on the western front. H. F. Cleland. Econ Geol 13:145-6 Mr '18

Geologist in war times—relation to military water supplies. O. E. Meinzer. Econ Geol 13:314-15 Je '18

Geologist in war times—the training of artillery officers. A. M. Bateman. Econ Geol 12:628-31 O '17

Geology in the war. Sci Am 118:353+ Ap 20 '18

Getting together with Uncle Sam; organization of manufacturers in northern Ohio and western Pennsylvania. map Iron Tr R 62:1258-60 My 16 '18

How American mechanics can win the war. B. M. W. Hanson. Mach 24:990 Jl '18

List of war emergency courses offered by colleges. E. M. Johnson. Special Libraries 9:6-8 Ja '18

Manufacturers of northern Ohio make industrial survey. map Eng N 80:1127-3 Je 13 '18

Our war program and the value of co-operation. E. W. Rice, Jr. Gen Elec R 21:167-71 Mr '18; Same cond. Power 47:345-6 Mr 5 '18

Report of the committee on war service for chemists. J Ind & Eng Chem 11:413-15 My '19

Slackers in the shop. D. A. Baker. Am Mach 48:61-2 Ja 10 '18

Specialized training of technicians. A. L. Williston. Am Soc M E J 40:pt 1, 553-4 Jl '18

Training technicians and mechanics for the army. Am Mach 48:1049-50 Je 20 '18

Usefulness of a technical society in war; inquiries received by A. S. M. E. in one week. C. W. Rice. Am Soc M E J 40:401-2 My '18

War industries committee is organized. Iron Tr R 61:1341 D 20 '17

War service committees ready to cooperate with War industries board—hardware and hand tool section. Metal Work 90:286-7 S 6 '18

See also Automobile industry and trade—War service; Electric industries—War service; Hardware manufacturers' organization for war service; Telephone companies—War service; also National research council

War ships. See Warships

War supplies. See Armies—Commissariat; Armies—Equipment; Military equipment and supplies; Munitions of war; Soldiers—Clothing; Soldiers—Equipment

War trade board. See United States—War trade board

Warehouses

Army intermediate depot in France problem in getting labor and supplies. R. K. Tomlin, Jr. Il diag plans Eng N 81:478-83 S 12 '18

Bonded warehouses for the storage of cotton. Am Ind 19:9-10 Ag '18

Camp warehouses are largely of plank construction. diags Eng N 79:1159-60 D 20 '17

Cotton warehousing and financing. R. N. Durfee. Textile World 55:230+ Ja 11 '19

Detroit news storage warehouse. Detroit, Mich.; views and plans. Arch Forum 31:pl 4-5 Jl '19

Field warehouse record card carries perpetual stock inventory. Eng N 81:913 N 14 '18

Industrial building construction in Trafford park, Manchester, England. Il diags plans Engineer 127:98-100 Ja 31 '19; Excerpt. Eng & Contr 51:454-5 Ap 30 '19

Modern warehouse opened in East; Morris, Wheeler & co., Philadelphia. Il Iron Tr R 64:1218-20 My 8 '19

Navy engineer advocates asphalt blocks for warehouse floors. H. S. Rinker. Eng N 80:863 My 2 '18

Port terminals for war transportation being built. diags plans Eng N 80:462-4 Mr 7 '18

Regulations for cotton warehouses. U S Agric Circ 94:1-43 '18

Small army warehouses built with speed and economy. Il diags plans Eng N 80:1045-7 My 30 '18

Twentieth century storage warehouse. Il diags plans Am Arch 113:264, 267-9 F 27 '18

Union warehouse corporation organization. Textile World 55:2520+ Ap 26 '19

Wood construction feature of Charleston port terminal. H. Abbott. Il diags plans Eng N 82:702-6 Ap 10 '19

See also Army supply bases; Freight houses; Grain elevators

Warehouses, Concrete

Army supply depot at Chicago is large concrete warehouse. A. Epstein. diags Eng N 81:269-70 Ag 8 '18

Army's biggest building job done at double quick. L. I. Smoyer. Il Concrete 13:172-6 D '18

Boston army supply base—construction features. C. R. Gow. Il Boston Soc C E J 6:80-93 Mr '19

Brooklyn army base is largest port terminal. Il diags plans Eng N 82:817-23 F 13 '19

Building for the Globe warehouse company. Il diag plan Am Arch 113:264+ F 27 '18

Cantilevers carry concrete floors over loading platforms. Il diags plan Eng N 80:411-13 F 28 '18

Concrete army warehouses built in record time. E. H. Mosher. Il diags plan Eng N 80:312-14 F 14 '18

Concrete construction on the Mississippi sands. R. Gotthold. Il Sci Am 121:532-3+ N 29 '19



**Warehouses, Concrete—Continued**

- Concrete frame of building carries wood floor. *Il* *diags* Eng N 79:1055-8 D 6 '17
- Cost of permanent warehouses at navy yards and stations. K. Smith. Eng & Contr 50: 224 Ag 28 '18
- Form work for warehouse, Boston army supply base. W. F. Kearns. Eng & Contr 51: 430-1 Ap 23 '19
- Freight station and warehouse in Chicago has 23 acres of floor space. *Il* *diags* plans Eng N 80:405-8 F 28 '18
- New freight house of the Pennsylvania lines in Chicago. *Il* *diags* plans Ry R 62:365-71 Mr 16 '18; Ry Age 65:215-19 Ag 2 '18
- New ocean freight terminal started on Staten Island. *diags* Eng N 80:120-3 Ja 17 '18
- New Orleans army base improves facilities of the port. G. H. Davis. *Il* *diags* plan Eng N 82:823-6 Ap 24 '19
- Produce terminal for Los Angeles, Cal. L. A. Waterbury. *Il* *diags* plan Eng N 80:187-8 Ja 24 '18
- Sinking six cylinder foundations a day on Boston army supply base. *Il* *diags* plan Eng N 81:584-8 S 26 '18
- Speeding a mammoth naval base. G. S. Nobles. *Il* *diag* plan Concrete 13:176-9 D '18
- Storage of electric supplies. *Il* J Elec 42:161-2 F 15 '19
- Terminal and warehouse facilities for the army. *Il* Ry R 63:299-301 Ag 31 '18
- Warehouse and office building for Newport News shipbuilding and dry dock company. Arch & Bldg 50:54, pl 153 Ag '18
- Warehouse for concrete and lime storage—plan and construction details. *Il* *diags* plan Concrete 15:154-6 O '19
- Warm air furnaces. See Furnaces, Hot air
- Warranty**
- Dealer's warranty. Motor Age 33:27 Je 20 '18
- Warren, H. Langford, 1857-1917
- Leader in American architectural education. J: T. Boyd, Jr. Arch Rec 42:588-91 D '17
- Warren master clock**
- Better frequency control. H: E. Warren. *Il* Gen Elec R 21:816-19 N '18
- Standardization of frequency; description of the Warren duplex-clock frequency control system. H: E. Warren. *Il* Elec R 72:967-9 Je 8 '18; Excerpt. Elec W 71:1294 Je 15 '18
- Warships**
- Battleship of the future. Sci Am 120:480 My 10 '19
- British and German warships compared. Sci Am 120:280 Mr 22 '19
- Decoy ships for submarines. *Il* Sci Am 120: 774 Ja 26 '19
- Protection of warships against under-water attack. *diags* Engineer 127:345-6 Ap 11 '19
- Re-gunning a battleship's turrets. *Il* Sci Am 121:161-4 Ag 16 '19
- Revival of the American Monitor. *Il* Sci Am 121:303 S 27 '19
- Sandbag armor on warships. *Il* Sci Am 118:187 Mr 2 '18
- Three-decker and the dreadnought. P. A. Hissam. Sci Am 118:179 F 23 '18
- To solve the battle-cruiser problem. Sci Am 120:280 Mr 22 '19
- See also Navies; Submarine boats; Torpedo boat destroyers; Torpedo boats; also New Mexico (United States steamship); Seydlitz (German battleship); also subdivision Navy under names of countries, e.g. Great Britain—Navy, United States—Navy

**Names**

- Old names for a new navy. Sci Am 120:27+ Ja 11 '19

**Painting**

- Painting battleships for low visibility. E. L. Warner. Illum Eng Soc 14:220-4 no 5 '19

**Germany**

- German naval types. *Il* plan Engineer 127:56 Ja 17 '19

**Great Britain**

- Battle cruiser Repulse. *Il* Sci Am 120:257 Mr 15 '19

- Battleships and battle-cruisers. Engineer 127: 14-15 Ja 3 '19
- British monitors. *Il* (supp) Engineer 127:143-5 F 14 '19; Sci Am 120:227 Mr 8 '19
- H.M.S. Hood, the latest capital ship. *Il* Engineer 128:468-70 N 7 '19
- Hush ships of the British navy. *Il* Sci Am 119: 491+ D 21 '18
- Light cruiser Hawkins. *Il* Engineer 128:296-7 S 26 '19
- Light cruisers of the D class. *Il* Engineer 128:429 O 31 '19
- Naval construction during the war. E. T. D'Eyncourt. *Il* *diags* (supp) Engineer 127: 358-62 Ap 11 '19; Same. Int Marine Eng 24: 384-93, 495-6, 559-61 Je-Ag '19
- New British warships. *Il* (supp) Engineer 127: 71-2 Ja 24 '19
- New ships of the British navy. *diags* plans Sci Am 120:654-5 Je 21 '19
- Ships of the British navy on August 4th, 1914. P. Watts. *diags* (supp) plan Engineer 127:447-50 My 9 '19

**United States**

- Electrical equipment of the U.S.S. New Mexico. *diags* Engineer 128:204-6, 234-6 Ag 29-S 5 '19
- Our latest dreadnought Idaho. *Il* Sci Am 120: 460 My 3 '19
- United States battleship New Mexico. S. M. Robinson. *Il* *diags* Int Marine Eng 24:322-34 My '19
- U. S. S. New Mexico. H. B. Gregory. *Il* *diag* Sci Am 120:340-1 Ap 5 '19
- We should hasten battle-cruisers construction. Sci Am 120:680 Je 28 '19
- Washers (machinery)**
- Making angle-faced washers. F. P. Terry. *diags* Am Mach 49:834 N 7 '18
- Washing. See Laundry**
- Washing machines**
- Clenzall washing machine. *Il* Textile World 53:5779 My 25 '18
- Overalls washing machine. F. D. Buffum. *diag* Power 46:807 D 11 '17
- Washing machines, Electric**
- Almetal electric washer. *Il* Elec R 73:711 N 2 '18
- Blue bird electric washing machine. *Il* Elec R 74:1051-2 Je 21 '19
- Copper-tub washing machine. *Il* Elec W 72: 187 Jl 27 '18
- Dolly-type washer made by the Automatic electric washer co. *Il* Elec W 70:1225 D 22 '17
- Electric washing machine with safety stop. *Il* Elec W 72:474 S 7 '18
- Haag stove-leg model electric washer. *Il* Elec R 72:654 Ap 13 '18
- Hirschy electric washer. *Il* Elec R 72:741 Ap 27 '18
- Motor-driven dolly-type washers made by the Thistle mfg. co. *Il* Elec R 72:169 Ja 26 '18
- Selling the washing machine. J Elec 43:444-5 N 15 '19
- Washing machine campaign as a business builder. J Elec 43:456-7 N 15 '19
- Washing machine service stations. *Il* J Elec 43:448-9 N 15 '19
- Washing machine with safety features. *Il* Elec W 71:1399 Je 29 '18
- Washing machine with safety wringer. *Il* Elec W 71:751 Ap 6 '18
- Washing of coal. See Coal washing**
- Washing of sand. See Sand washing**
- Washington, D. C.**
- Housing problem. E. M. Jenkins. Am Mach 48:504-5 Mr 21 '18
- War expansion of Washington's utilities. Elec W 71:1179-80 Je 8 '18
- Washington's alley dwellers homeless after July 1st. Am Arch 113:354 Mr 20 '18
- Architecture**
- Arlington building. *Il* plans Arch & Bldg 51: 5-6, pl 19, 22-4 Ja '19
- Housing war workers in Washington. *Il* Am Arch 114:861-5 D 4 '18

## Washington, D.C.—Continued

## Public buildings

- Jade fence; Pan American buildings. G. N. Rosé. *il* Arch Rec 46:153-8 Ag '19  
 New office buildings for the navy and war departments. G. F. Hales. *il* diags plan Arch Rec 44:522-31 D '18  
 New program for public buildings in Washington. *il* Am Inst Arch J 6:19-26 Ja '18  
 Office building of the Department of the Interior at Washington, D. C. C. Butler. *il* diags plans Arch Rec 44:199-213 S '18  
 Report of the Public buildings commission. Am Inst Arch J 6:5-7 Ja '18  
 United States treasury annex; designs and plans. Am Arch 113:pl 227-31 Je 26 '18  
 Whooping 'er up on war work; reinforced concrete office building group for War and Navy departments. H. Whipple. *il* Concrete 13:39-41 Ag '18

## Rapid transit

- Automobile parking chokes Washington traffic channels; fifth section of Beeler report. diags Elec Ry J 51:613-17 Mr 30 '18  
 Beeler Washington report considered. Elec Ry J 51:542 Mr 16 '18  
 Belt line recommended for Washington; section 10 of the Beeler report. map Elec Ry J 52:200 Ag 3 '18  
 Both Washington railways find cost and wage burdens more than present fares will stand. Elec Ry J 52:526 S 21 '18  
 Interurban cars slow up city service; third section of Beeler report. Elec Ry J 51:405-6 Mr 2 '18  
 Loading platforms and front-end collectors; 8th section of Beeler report. Elec Ry J 52:64 Jl 13 '18  
 Practical traffic relief offered to Washington; second section of Beeler report. Elec Ry J 51:312-13 F 16 '18  
 Relieving the most congested point in the national capital; first section of Beeler report. diags Elec Ry J 51:223-4 F 2 '18  
 Saving fuel through operating economies. Elec Ry J 51:267-70 F 9 '18  
 Skip stop at Washington adds 10 to 15 per cent to service. *il* plan Elec Ry J 51:848-50, 926-6 My 4-11 '18  
 Space-grabbing automobile; with section of Beeler report. Elec Ry J 52:147-9 Jl 27 '18  
 Staggered hours for 88,000 Washington employees; Beeler report. Elec Ry J 51:655-9 Ap 6 '18; Discussion. 51:787-8 Ap 20 '18  
 Washington increases car-miles and reduces car-hours; Beeler report. Elec Ry J 52:614 O 5 '18

## Water supply

- Water waste prevention surveys in Washington. P. Lanham. *il* charts Munic J 47:250-4 O 25 '19  
 Washington (state). See Roads—Washington  
 Washington. University  
 University cooperations. J Elec 42:217-18 Mr 1 '19  
 Wasps  
 Social wasps and their ways. H. Bastin. *il* Sci Am S 87:196 Mr 29 '19  
 Waste  
 America's national fault. L. E. Pierson. Heat & Ven 15:44-5 F '18  
 British conversion of useless war material. Sci Am 121:392 O 18 '19  
 Charging materials to get true manufacturing costs. W. R. Bassett. Factory 20:644-7 Ap '18  
 Common wastes of industrial materials. H. E. Howe. Ind Management 57:303-7 Ap '19  
 Conservation of material in the shop. E. Andrews. Am Mach 50:437-8 Mr 6 '19  
 Eliminating waste. A. B. Day. Gas Age 41:255-6 Mr 15 '18  
 Food wastes—some causes and remedies. L. P. Brown. *il* diags J Fr Inst 185:585-610 My '18  
 Leaks and wastes in state institutions. F. J. McCullough. Power 49:742-4 My 13 '19  
 Organization for waste reclamation. J. D. Jones. Munic J 45:490 D 21 '18  
 Prevention of waste vs. reclamation of scrap. H. J. Miller. Ry Mech Eng 92:470-1 Ag '18  
 Reclamation of waste to be extended. Iron Tr R 64:220-1 Ja 16 '19; Munic J 46:45-6 Ja 18 '19  
 Salvaging spoiled work. F. F. O'Shea. *il* Am Mach 50:804-5 Ap 24 '19  
 Scientific salvage. H. N. Sessions. diags J Elec 42:106-7 F 1 '19  
 Some things that might be used. J. Waddell. Sci Am S 87:298-9+ My 10 '19  
 Textile thrift in salvage service. *il* Textile World 55:226+ Ja 11 '19  
 Warring on waste. *il* Factory 17:13-17, 129-32, 252-5, 392-5, 538-41, 657-9; 18:28-30, 178-80, 333-6, 483-6, 661-2; 19:114+, 264+, 448+, 666+, 822+, 968+; 20:170+, 344+, 494+, 740+, 942+; 21:126+, 318+, 640-2; 22:388+; 23:534+, 1444+ Jl '16-My, Jl '17-My, Jl-Ag, O '18, F, S, D '19  
 Warring on waste. J. Heywood. *il* Factory 22:1161-5; 23:44-7, 273-6 Je-Ag '19  
 Wasting natural resources. Mach 24:640 Mr '18  
*See also* Spoilage; Trade waste; Waste heat; Waste products, and references under that subject; Water waste

## Bibliography

- Selective bibliography on waste utilization as affected by the war. E. D. Greenman. J Ind & Eng Chem 11:1171-2 D '19  
 Waste, Disposal of. See Refuse disposal; Sewage disposal; Waste products; Waste removal  
 Waste heat  
 Boilers reclaim melting furnace heat. C. D. Townsend. *il* Iron Tr R 62:719-20 Mr 21 '18  
 Dollar value of heated air. W. F. Schaphorst. chart Elec R 71:1114-15 D 29 '17  
 Foundry utilizes waste heat from open hearth. *il* Foundry 47:387 Je 15 '19  
 Internal-combustion economy. Power 47:555-6 Ap 16 '18  
 Make cement cheaper; save two million tons coal; theory and practice of power production by the use of exhaust gases from cement kilns. F. G. McKelvy. *il* Concrete 14:supl-4 Ja '19  
 Oil-engine exhaust heating. *il* Power 46:823-4 D 18 '17  
 Stopping leaks that waste the coal pile. C. L. Hubbard. plans Factory 20:228-31 F '18  
 Use of waste gases for steam generation. J. B. C. Kershaw. Engineer 124:27-9 Jl 13 '17; Same. Coal Age 14:591-4 S 26 '18; Abstract. Elec W 70:359-60 Ag 25 '17  
 Utilization of heat radiated from boiler. Power 46:879 D 25 '17  
 Utilization of waste heat from blacksmith furnaces. *il* diags Ry Mech Eng 93:91-2 F '19  
 Utilization of waste heat from open-hearth furnaces for the generation of steam; abstracts. T. B. Mackenzie. Engineer 126:259-60 S 27 '18; Iron Age 103:350 F 6 '19  
 Utilization of waste heat of tunnels; test made at Chicago state hospital. F. J. Postel. *il* diags plans Heat & Ven 16:26-31 My '19  
 Utilizing waste heat and the fuel shortage; abstract. Elec W 72:991 N 23 '18  
 Utilizing waste heat from gas and oil engines. C. L. Hubbard. diags Dom Eng 86:343-5+, 382-4, 430-1 F 22-Mr 8 '19  
 Waste heat boiler as practical step in fuel conservation. H. D. Baylor. diags Concrete 14:sup5-6 Ja '19  
 Waste-heat boiler for malleable furnaces. A. D. Pratt. diags Foundry 46:221-6 My '18  
 Waste heat utilization. A. L. Haas. Int Marine Eng 24:176-6 Mr '19  
*See also* Boiler plants; Carbon dioxide recorders; Combustion; Exhaust steam  
 Waste material dealers. National association of. See National association of waste material dealers  
 Waste metal. See Metal waste; Scrap metal  
 Waste paper  
 Recovery of waste paraffined paper by extraction with volatile solvents. O. Kress and L. F. Hawley. J Ind & Eng Chem 11:227-9 Mr '19  
 Salvage department of the Westinghouse lamp company. A. W. Ross. *il* Ind Management 56:311 O '18

**Waste paper—Continued**

War service by waste collection. *Munic J* 45: 261-3 O 5 '18

Waste-paper collection in Glasgow. *Munic J* 43:607 D 22 '17

**Waste products**

Bagasse as a source of fuel. *E. C. Freeland. Am Soc M E J* 39:919-21 N '17; Abstract. *Power* 46:779 D 4 '17; Discussion. *Am Soc M E J* 40:135-7 F '18

Bureau of standards urges use of waste pottery bisque. *Met & Chem Eng* 18:13 Ja 1 '18

By-products on the farm. *Sci Am* 119:482 D 14 '18

Common wastes of industrial materials. *H. E. Howe. Ind Management* 57:303-7 Ap '19

Conservation applied to brass plant wastes. *Iron Age* 103:1233-4 Mv 8 '19

Cooking corn cobs. *Sci Am* 119:273+ O 5 '18

Eliminating a railroad waste. *Il Sci Am* 120: 176+ F 22 '19

Industrial waste products—methods of reclamation. *Sci Am S* 87:103 F 15 '19

Instructive examples of utilizing industrial wastes. *H. E. Howe. Ind Management* 57: 225-9 Mr '19

New kind of specialist, and what he can do. *Sci Am* 119:184 S 7 '18

Operating experiences with activated sludge process for factory wastes. *G. W. Fuller. Munic Eng* 57:123-5 S '19

Possibilities in saving and utilizing industrial wastes. *H. E. Howe. Ind Management* 57: 92-6 F '19

Reclaiming steel works and industrial wastes. *F. Hall. Chem & Met Eng* 20:326-7 Ap 1 '19

Recovery of pyrite from washery refuse. *E. A. Holbrook. flow sheets Coal Age* 15: 848-51 My 8 '19

Salvage and reclamation department of the B. F. Goodrich rubber company. *G. W. Sherman. Il chart Ind Management* 58:176-8 S '19

Salvaging and utilizing wastes and scraps in industry. *W. R. Conover. Ind Management* 56:449-51 D '18; Same. *Gen Elec R* 22:88-91 Ja '19

Salvaging miscellaneous wastes. *W. R. Conover. Il Ind Management* 57:12-16 Ja '19; Same. *Gen Elec R* 22:126-33 F '19

Saving grace of war. *J. W. Harrington. Il Sci Am* 119:454+ D 7 '18

Storing scrap material. *diags Eng & Min J* 104:1090 D 22 '17

Treatment of waste liquors from paper pulp mills. *Chem & Met Eng* 20:542-3 My 15 '19

Use of culm and other waste materials from coal-washing plant for other purposes. *J. B. C. Kershaw. Met & Chem Eng* 18:25-8 Ja 1 '18

Utilizing woolen mill waste. *Textile World* 56:1991+ O 4 '19

Warring on waste; salvaging the scrap heap. *J. Heywood. Il Factory* 23:273-6 Ag '19

Waste sulphite liquor problem. *B. Johnsen. Sci Am S* 86:190-1 S 21 '18

*See also* Blast furnace gas; Coke manufacture—By-products; Coke-oven gas; Cotton waste; Culm; Flue dust; Flue gas; Gas manufacture and works—By-products; Leather waste; Metal waste; Railroads—Scrap material; Refuse, Utilization of; Sawdust; Scrap metal; Sewage sludge; Slag; Smelter fumes; Tar; Trade waste; Waste paper; Wood waste; Wool waste

**Waste puller**

Improved waste puller and redesigned rag shredder. *Il Textile World* 53:3281+ Ja 12 '18

**Waste removal**

Design of industrial exhaust piping systems. *Il diags Metal Work* 91:144-6, 275-7 Ja 31, F 28 '19

Exhaust removal of planing mill waste; instruction for determining the size of exhaust fan, piping and dust arrester and their arrangement. *Il Metal Work* 91:714-17, 337 Je 6, S 19 '19

**Waste wood. See** Wood waste

**Watches**

Adjusting watches to temperature. *J. Thompson, Jr. J Fr Inst* 186:123-4 Jl '18

Watch from the sixteenth century. *Il Sci Am* 121:485 N 15 '19

**Water**

Color of water. *W. D. Bancroft. J Fr Inst* 187:249-71, 459-85 Mr-Ap '19; Same. *Sci Am S* 87:374-5+, 393-5, 410-11+; 88:62-3 Je 14-23, Jl 26 '19

Determination of surface tension (free surface energy), and the weight of falling drops: the surface tension of water and benzene by the capillary height method. *W. D. Harkins and F. E. Brown. Il Am Chem Soc J* 41:499-524 Ap '19

Effect of dissolved substances on the velocity of crystallization of water. *A. Brann. diags Am Chem Soc J* 40:1168-84 Ag '18

Emulsification of water and of ammonium chloride solutions by means of lamp black. *W. C. Moore. Am Chem Soc J* 41:940-6 Je '19

Estimating hardness in water. *Eng & Contr* 51:470-1 Ap 30 '19

Few facts about water as the operating engineer should know them. *C. H. Bromley. diags Power* 48:906-7 D 24 '18

Observations on ice, water and steam. *W. D. Owens. Il Coal Age* 13:1056-7 Je 8 '18

Property of certain waters with reference to their action on metals. *S. W. Farr. Am Water Works Assn J* 5:451-3 D '18

Something about water. *J. H. Perry. diags Dom Eng* 81:494-6, 541-4; 82:130-2+; 83:285-6, 327-8 D 22-29 '17, Ja 26, My 25-Je 1 '18

Specific heat of water. *W. R. Bousfield. Am Soc M E J* 40:205 F '18

*See also* Erosion; Feed water; Floods; Fog; Frost; Hall; Hydraulic engineering; Hydraulics; Ice; Lakes; Mine water; Mineral waters; Ocean; Rain and rainfall; Rain water (water supply); Rivers; Sea water; Snow; Steam; Water supply, and other headings beginning Water; Waterways; Waves; Wells

**Analysis**

Chemical control of water softeners; a discussion of the reactions involved in the lime-soda-ash process. *L. F. Clark. Chem & Met Eng* 19:674-7 N 1 '18

Composition of the waters of the intermountain region. *J. E. Greaves and C. T. Hirst. J Ind & Eng Chem* 10:1001-4 D '18

Making water analyses. *Munic J* 46:131-2, 179-80 F 15, Mr 1 '19

Phosphorus, potassium, and nitrogen content of the waters of the intermountain region. *J. E. Greaves and C. T. Hirst. J Ind & Eng Chem* 11:451-4 My '19

Siphon reservoir blow-off. *G. C. Bunker. Il Munic J* 46:83-4 F 1 '19

*See also* Water—Bacteriology

**Bacteriology**

Bacteriological standards for drinking water supplies in interstate commerce. *E. Judson. Eng & Contr* 51:507 My 14 '19

Critical study of the bacterial count in water and sewage. *M. F. Stehn. Eng & Contr* 51:166-8 F 12 '19

Differentia of B. coli. *E. Judson. bibliog Am Water Works Assn J* 6:243-5; Discussion. 245-7 Je '19

Differentiation of bacteria of the colon-aerogenes family. *W. M. Clark. Am Water Works Assn J* 5:26-32; Discussion. 32-5 Mr '18

Further studies on gentian violet as a means of eliminating spurious presumptive tests for B. coli in water. *I. C. Hall and L. J. Ellefson. Am Water Works Assn J* 6:67-77 Mr '19

Notes on the presumptive test for b. coli. *M. Levine. Am Water Works Assn J* 5:168-71 Je '18; Same abr. *Eng & Contr* 49:34-5 Ja 9 '18

Numerical interpretation of bacteriological tests. *M. F. Stein. Eng N* 82:1106-9 Ja 5 '19

Observations of California bureau of sanitary engineers on tests for b. coli. *Eng & Contr* 50:44-5 Jl 10 '18

Practicability of adopting standards of quality for water supplies. *R. B. Morse and A. Wolman. Am Water Works Assn J* 5:198-228 S '18; Summary. *Eng & Contr* 50:168 Ag 14 '18

**Water—Bacteriology—Continued**

- Standards of purity for water used in railroad coaches. Z. Zentmire. *Am Water Works Assn J* 6:490-5 S '19
- Studies in the bacteriology of water. D. B. Wood. *Eng & Contr* 52:141-2 JI 30 '19
- Treasury department standard for drinking water; its value and enforcement. H. P. Letton. *Am Water Works Assn J* 4:478-82 D '17; Same cond. *Eng N* 78:349-50 My 17 '17; Discussion. *Am Water Works Assn J* 4:482-8 D '17
- Water supply standards and their improvement. W. J. Orchard. *Am Water Works Assn J* 5:49-59 Mr '18; Same cond. *Eng & Contr* 50:38-40 JI 10 '18; Discussion. *Am Water Works Assn J* 5:59-62 Mr '18

**Standards**

See **Water—Bacteriology**

**Weighing**

- Turner automatic water weigher. *diag Power* 50:297 Ag 19 '19

**Water, Distilled**

- Carbonation of distilled water. H. E. Patten and G. H. Mains. *diag J Ind & Eng Chem* 10:279-88 Ap '18
- With a limit of 2½ cents per gallon for gas cost, Burlington company gets water distilling installation. E. D. Clary. *Am Gas Eng J* 108:543 Je 8 '18

**Water, Industrial. See Water supply for factories.****Water, Mine. See Mine water****Water, Purification of. See Water purification****Water, Underground**

- Absence of water in certain sandstones of the Appalachian oil fields. K. Reeves. *diag map Econ Geol* 12:354-78 Je '17; Discussion. E. W. Shaw. 12:610-28 O '17
- Water expectancy in tunnels, mines and deep wells in homogeneous rocks. R. E. Horton. *Am Water Works Assn J* 6:183-6 Je '19; Same. *Eng & Contr* 52:185 Ag 13 '19
- Water surfaces in the oil fields. M. R. Daly. *diag Am Inst Min E Bul* 133:151-7 Ja '18
- See also **Divining rod; Mine water; Wells**

**Water analysis. See Water—Analysis****Water backs**

- Operating experiences with water-backs for underfeed stokers. J. Dallas. *Elec R* 74:1046-7 Je 21 '19

**Water codes. See Water laws and legislation****Water companies****Public relations**

- Educating the water consumer. *Eng & Contr* 49:41-2 Ja 9 '18

**Regulation**

- Pennsylvania water rate decision covers many points. F. Gannett. *Eng N* 80:620-2 Mr 28 '18
- Present tendencies and influence of war period on public utility commission decisions. L. Metcalf. *Eng & Contr* 52:35-6 JI 9 '19
- Relation of depreciation to investment. W. C. Hawley. *Am Water Works Assn J* 6:305-19 Je '19
- Water utilities accounting. W.-A. Clader. *J Account* 28:81-94 Ag '19

**Service pipes**

- Extension of water mains; powers and obligations of municipalities and private water companies. J. Simpson. *Munic J* 44:363-5 My 4 '18

**Water conduits**

- Economical design of water conduits. W. T. Taylor. *diag Engineer* 128:293-6 S 26 '19
- Economical section of water conduit for power development. C. T. Hutchinson. *diag Mech Eng* 41:369-71 Ap '19; Same. *Eng & Contr* 51:508-10 My 14 '19
- Formulas for calculating thickness and reinforcement for concrete conduit. L. R. de la Mahottiere. *diag Eng & Contr* 49:591-3 Je 12 '18
- Large concrete-cased steel pipe laid in one piece. *il Eng N* 83:176-7 JI 24 '19

- St Louis' new concrete water conduit. W. E. Hardenburg. *il diag Munic J* 44:179-81 Mr 2 '18

See also **Aqueducts; Flumes; Siphons; Water pipes; Water supply engineering**

**Water conservation**

- Water economy in hydroelectric plants. L. W. Wyas. *Elec W* 73:727-8 Ap 12 '19

See also **Water laws and legislation; Water waste**

**Water consumption**

- Baths', pressure and pipes' influence effect of water meters; abstracts. H. P. Matte. *Eng N* 82:767 Ap 17 '19; *Eng & Contr* 51:628 Je 11 '19

- Domestic and commercial use of water. E. E. Wall. *Eng & Contr* 49:457 My 8 '18

- Effect of metering on water consumption. H. P. Matte. *il diag W Soc E J* 24:132-48 Mr '19; Abstracts. *Eng N* 82:767 Ap 17 '19; *Eng & Contr* 51:628 Je 11 '19; Discussion. *W Soc E J* 24:148-52 Mr '19

- Increase in water consumption in certain Massachusetts municipalities. B. Brewer. *Munic Eng* 55:132-3 O '18

- Public water consumption. *Munic J* 45:105 Ag 10 '18

- Quantity of water used by Detroit and the cost of pumping. *Eng & Contr* 49:459 My 8 '18

- Rates and duration of flow in service pipes. C. M. Saville. *il Eng & Contr* 51:34-6 Ja 8 '19

- Reduction of water consumption by means of pitometer survey and constant inspection. G. C. Andrews. *Am Water Works Assn J* 6:355-70 S '19

- Saving water and conserving coal. G. W. Carpenter. *Power* 48:577-8 O 15 '18

- Setting 25,000 meters cut water consumption at San Francisco. G. W. Pracy. *il Eng N* 80:902-4 My 9 '18

- Suggested units for comparing water consumption in different cities. *Eng & Contr* 50:540-1 D 11 '18

- Use of water in districts occupied by poorer classes of people. E. E. Wall. *Eng & Contr* 49:455 My 8 '18

- Water consumption in army and guard camps compared. D. H. Maury. *Eng N* 80:904 My 9 '18

- Water consumption in Detroit. G. H. Fenkell. *Munic J* 46:218-20 Mr 22 '19

- Water consumption in Metropolitan water district, Boston. *Eng & Contr* 50:338 O 9 '18

- Water consumption in St Louis. *Munic J* 44:504-5 Je 22 '18

- Water consumption statistics in larger American cities. *Eng & Contr* 49:260 Mr 13 '18

- Water required per capita. R. L. Yates. *Metal Work* 90:210 Ag 23 '18

- Water works operation; consumption, waste and leakage. *Munic J* 44:526-7; 45:2-3+ Je 29-JI 6 '18

See also **Water meters; Water waste**

**Water cooling. See Cooling of water****Water distillation. See Distillation; Water, Distilled****Water distribution**

- Distribution of water. E. E. Wall. *Munic Eng* 57:88+ Ag '19

- Engineering supervision improves water-distribution system in Chicago, Ill. *Eng N* 81:534 S 19 '18

- Improvements in water distribution system under efficient organization. R. S. Spalding. *il diag Eng N* 80:921-3 My 9 '18

- Location methods for water works distribution system in Newton, Mass. E. H. Rogers. *diag Eng & Contr* 50:171-2 Ag 14 '18

- Water works operation. *Munic J* 45:147-8 Ag 24 '18

See also **Aqueducts; Hydraulics; Pumping stations; Water pipes; Water supply engineering; Water towers; Waterworks**

**Water dog. See News****Water flow**

- Calculation of flow in open channels, by I. E. Houk. Review by R. E. Horton. *Eng N* 82:149-50 Ja 16 '19

**Water flow—Continued**

- Computation of the coefficient of discharge of venturi meters. W. S. Pardoe. *diag Eng N 83:606-8 S 25 '19*
- Computation of the time required to fill a graving dock. E. E. Halmos. *diag Eng N 82:920-1 My 8 '19*
- Diagrams for excess loss of head in pipe lines. F. S. Bailey. *Eng N 83:162-3 Jl 24 '19*
- Discharge of large cast-iron pipe-lines in relation to their age. A. A. Barnes. *Eng & Contr 52:152 Jl 30 '19*
- Effect of mouthpieces on the flow of water through a submerged short pipe. F. B. Seely. *bibliog il diags Ill U Eng Exp Sta Bul 96:1-49 '17; Abstracts. Eng & Contr 48:301 O 10 '17; Am Soc M E J 39:957-8 N '17; Munic J 43:426 N 1 '17; J Fr Inst 185:281-2 F '18*
- Fire streams from small hose and nozzles. V. R. Fleming. *diags Ill U Eng Exp Sta Bul 105:45-60 '18*
- Flow conditions in irrigation flumes unstable. J. S. Longwell. *Eng N 80:38-9 Ja 3 '18; Discussion. S. M. Woodward. 80:574 Mr 21 '18*
- Flow in Chicago water tunnels is tested by salt solution method. *Eng N 81:445 S 5 '18*
- Flow of water in pipes and pressure tunnels. F. J. Mallett. *Eng & Contr 51:466 Ap 30 '19*
- Flow of water in siphons; abstract. M. Halliday. *diags Am Soc M E J 40:193-4 F '18*
- Flow of water in wash water troughs for rapid sand filters. F. V. Fields. *diag Eng & Contr 50:461-2 N 13 '18*
- Flow of water through a tutage. *Power 46:879 D 25 '17*
- Flow of water through 1½-in. pipe and valves. F. W. Greve, jr. *plan Heat & Ven 16:62-4 Ja '19*
- Flow of water through submerged orifices. F. B. Seely. *diags Ill U Eng Exp Sta Bul 105:27-40 '18*
- Formulas for figuring pipe capacities. *Heat & Ven 15:51-2 Ja '18*
- Friction of water in iron pipes and elbows. F. E. Giesecke. *il diags Am Soc Heat & V E 23:499-506; Discussion. 507-9 '17*
- Friction of water in pipes and fittings. F. E. Giesecke. *Am Arch 114:443-4 O 9 '18*
- Hexagonal chart for finding velocity of water in pipes. C. W. Anthony. *diag Eng N 83:169 Jl 24 '19; Same. Mech Eng 41:767-8 S '19*
- Lateral flow of water under low heads; abstract. A. E. Guy. *diags Am Soc M E J 40:427-8 My '18*
- Loss of head in corporation cocks and service pipes. B. J. Bleistein. *diags Am Water Works Assn J 5:240-9 S '18; Excerpt. Eng & Contr 50:258-9 S 11 '18*
- Loss of head in water pipe. W. F. Schaphorst. *chart Gas Age 43:469 My 1 '19*
- Loss of hydraulic head in small valves. A. N. Talbot and F. B. Seely. *il diags Ill U Eng Exp Sta Bul 105:7-22 '18*
- Peak run-off data on restricted dry-wash channel of Lytle Creek. *il map Eng N 81:531-3 S 19 '18*
- Rainfall, absorption and run-off on small rural drainage area. I. E. Houk. *Eng N 82:875-6 My 1 '19*
- Rates and duration of flow in service pipes. C. M. Saville. *il Eng & Contr 51:34-6 Ja 8 '19*
- Tests of flow in brick-lined water tunnels in Chicago. J. Ericson. *Eng N 81:773 O 24 '18*
- Theory of the flow of water over a canal weir. L. L. Wickham. *Sci Am S 88:183+ S 20 '19*
- Variation of roughness coefficient in Manning and Kutter formulas. H. R. Leach; R. E. Horton. *diags Eng N 82:536-8 Mr 13 '19*
- Water delivered by 4-in. pipe. *Power 47:97 Ja 15 '18*
- Water service pipes. A. Bateman. *diag Dom Eng 85:441-2 D 21 '18*
- See also Hydraulics; Stream flow; Venturi meters; Water gages; Water meters*
- Water gages**
- Chain arrangement for gage-glass cocks. W. D. Lewis. *diag Power 50:515 S 23 '19*
- Durable gage-glass shield. *il Power 49:320 Mr 4 '19*
- Ernst safety gage-glass. *il Power 47:406 Mr 19 '18*
- Liability in case of bursting water gages. C. C. Sherlock. *Power 48:612-13 O 22 '18*
- Making water-gage fittings in a railroad shop. F. A. Stanley. *il diags Am Mach 50:1171-3 Je 19 '19*
- Measuring distant water levels. C. G. Brown. *diags Elec R 72:75-6 Ja 12 '18*
- Pointers on the care of gage-glasses. J. W. Lea. *Power 48:607-8 O 22 '18*
- Reservoir water-level indicator and recorder. J. T. Sharp, jr. *il Power 48:817 D 3 '18*
- Sargent triple-faced water gage. *il diags Ry R 62:628 Ap 27 '18*
- Simple and reliable water-level indicator. D. R. Shearer. *diag Elec R 72:161-2 Ja 26 '18*
- Simplex gage-glass guard. *il Coal Age 12:1024 D 15 '17*
- Wight electrical boiler-level recorder. *diags Power 47:18 Ja 1 '18*
- Water gas.** *See Gas, Water*
- Water hammer**
- Air chambers in plumbing systems. R. J. Gordon. *diags Dom Eng 86:124-6 Ja 18 '19*
- Cause and cure of water hammer. *diags Metal Work 91:515-16 Ap 25 '19*
- Cause of noise at range boiler connections. *diag Dom Eng 85:125-6 O 26 '18*
- Charts for calculating water hammer. *diags J Elec 42:74-5 Ja 15 '19*
- Remedy for hammering in water main to village, which breaks the pipes. *diags Dom Eng 85:445 D 21 '18*
- Remedy for water hammer in steam coil of horizontal range boiler. *diags Dom Eng 86:436 Mr 8 '19*
- Water-hammer action in boilers. *diags Locomotive 32:195-208 Jl '19*
- Water hammer in penstocks as affecting economy of design. *Eng N 82:1222-4; 83:437 Je 19, Ag 28 '19*
- Water heaters**
- Floating head type of water heater. *il Iron Age 102:688 S 19 '18*
- Instantaneous water heater. R. M. Orr. *diag Power 48:465 S 24 '18*
- See also Electric water heaters; Feed water heaters; Gas water heaters; Hot water supply*
- Water heaters, Electric.** *See Electric water heaters*
- Water heaters, Gas.** *See Gas water heaters*
- Water heating**
- Boiler horsepower and coal required to heat water. *Power 47:305 F 26 '18*
- Coal required for heating water. *Power 48:101 Jl 16 '18*
- Historical notes on the evolution of water heating. H. H. Manchester. *il Gas Age 40:507-9; 41:17-19, 159-61, 411-12, 453-4 D 1 '17, Ja 1, F 15, My 1-15 '18*
- Hot water economizer. H. W. Newbert. *diags Gas Age 41:156 F 15 '18*
- Method of increasing the evaporation in boilers. C. Hering. *diags Power 47:10-13 Ja 1 '18; Same. Sci Am S 85:316-17 My 18 '18; Abstract. Am Soc M E J 40:203-4 F '18*
- New principle in the flow of heat. C. Hering. *J Fr Inst 185:75-81 Ja '18; Same. Am Gas Eng J 108:82-3+ Ja 26 '18*
- Water-heating system. H. K. Wilson. *Power 47:848 Je 11 '18*
- See also Feed water heating; Hot water supply*
- Water heating, Feed.** *See Feed water heating*
- Water hyacinth**
- Fertilizing values of water hyacinth. *Eng & Contr 50:415 O 30 '18*
- Water hyacinth as a fertilizer. R. S. Finlow and K. C. McLean. *Sci Am S 86:75 Ag 3 '18*
- Water in oil fields.** *See Petroleum—Water problem*
- Water laws and legislation**
- Administration bill for water-power legislation. *Elec W 71:111-12 Ja 12 '18*
- Administration water power bill. F. K. Lane. *Power 47:514-15 Ap 9 '18*
- Administration water-power bill now before Congress. *Power 48:140-2 Jl 23 '18*

**Water laws and legislation—Continued**

Arizona has new water code. G. E. P. Smith. Eng N 82:1027-8 My 22 '19

Fuel administration on water-power law. C: E. Stuart. Elec W 71:734-5 Ap 6 '18

Hearings on administration water-power bill. Elec W 71:630-2, 684-5 Mr 23-30 '18; Met & Chem Eng 18:339-42, 439 Ap 1, My 1 '18; Power 47:486-9 Ap 2 '18

In re proposed water-power legislation; joint letter from the Secretary of war, Secretary of the Interior and Secretary of agriculture, addressed to the President. Power 47:135-6 Ja 22 '18

Little plain talk on water powers. W. L. Jones. Elec W 71:974 My 11 '18

Nation's business men for water-power legislation. Elec W 71:686 Mr 30 '18

Pending water-power bill. A. Beck. Elec W 71:837-8 Ap 20 '18

Recent western water law. A. E. Chandler. J Elec 43:80 Jl 15 '19

Responsibility for damages caused by mains broken by increased pressures. W. W. Brush. Am Water Works Assn J 6:337-9 S '19

Rights in waters of streams. Power 47:604 Ap 23 '18

Special joint committee hearing on administration water-power bill. Power 47:641-2 Ap 30 '18

Statement before joint water-power committee of the House of representatives. W. H. Onken, jr. Elec W 71:1099-1100 My 25 '18

Successful operation of the state water code of Oregon. P. A. Cupper. Eng N 82:420-1 F 27 '19

Swiss law concerning the utilization of hydraulic power; abstract. G. Tochon. Elec W 71:263 F 2 '18

Water-power act is passed by United States Senate. Elec W 70:1206 D 22 '17

Water-power hearings at Washington concluded. Elec W 71:1050-2 My 18 '18; Abstract. Met & Chem Eng 18:568-9 Je 1 '18

Water-power law; analysis of the bill. Elec W 73:439-40 Mr 1 '19

Water-power legislation urged by president. Eng N 80:94 Ja 10 '18

See also Water pollution; Water rights; Waterworks—Laws and regulations

**Water level indicators.** See Water gages

**Water mains.** See Water pipes

**Water measurement**

Construction and use of farm weirs. V. M. Cone. diags plan U S Agric Farmers' Bul 813:1-18 '17

Measuring and recording deliveries of irrigation water to farms. J. S. Longwell. Eng & Contr 51:169-70; Discussion. D. C. Henny. 170 F 12 '19

Methods of measuring irrigation water deliveries to farms. J. S. Longwell. Eng & Contr 50:463-4 N 13 '18

Methods used and results obtained in metering the water supply of Terre Haute, Ind. D. R. Gwinn. diags Munic Eng 57:129-33 S '19

Most recent developments in the methods of measuring irrigation water to farms and irrigators. F. E. Trask. Il Munic Eng 57:142-3 S '19

Orifice bucket for measuring water. M. L. Enger. Il diags Ill U Eng Exp Sta Bul 105: 65-76 '18; Abstract. Eng & Min J 107:580-1 Mr 29 '19

See also Stream measurement; Water flow; Water gages; Water meters

**Water meters**

All San Francisco's consumers on meter basis. Munic J 45:253 S 23 '18

Chicago can save \$200,000,000 in 33 years by metering its water. Eng & Contr 49:159-60 F 13 '18

Devices for water-waste surveys at Oak Park, Illinois; abstracts. H. P. Matte. Il charts Eng N 82:829-31 Ap 24 '19; Eng & Contr 51:621-3, 632 Je 11 '19

Effect of metering on water consumption. H. P. Matte. Il diags W Soc E J 24:132-48; Discussion. 148-52 Mr '19

Financial benefits of metering. G: H. Fenkell. Eng & Contr 51:165 F 12 '19

How to read gas, electric and water meters. Il Bldg Age 41:90-1 Mr '19

Meter practices of the Hackensack water company. D. W. French. Am Water Works Assn J 6:31-4 Mr '19; Same abr. Eng & Contr 51:373-4 Mr 12 '19; Discussion. Am Water Works Assn J 6:35-6 Mr '19

Meter settings and new construction at Lansing water works. G. G. Crane. Munic Eng 53:252 D '17

Metering at Middletown, Conn., results in stoppage of water wastage. Eng & Contr 49:456 My 8 '18

Metering private sprinkler systems. J: T. Brainard. Il Munic J 46:369 My 24 '19

Metering renders additional water-supply unnecessary. Eng N 83:613 S 25 '19

Meters; oversizing; practices and experience of the Passaic water company. W: R. Edwards. Am Water Works Assn J 6:26-9 Mr '19; Same. Munic J 46:4-5 Ja 4 '19; Same. Eng & Contr 51:175 F 12 '19; Discussion. Am Water Works Assn J 6:29-30 Mr '19

Methods of determining and plotting meter capacities and some results. F. B. Nelson. Am Water Works Assn J 6:120-31 Je '18

Methods used and results obtained in metering the water supply of Terre Haute, Ind. D. R. Gwinn. diags Munic Eng 57:129-33 S '19

New meter rates in the San Francisco district. A. Hazen. Am Water Works Assn J 6:37-45 Mr '19

Notes on utility and performance of compound meters. F. B. Nelson. Am Water Works Assn J 6:190-3 Je '19

Piezometers and current meters used to test wells; water conservation program at Honolulu. R. D. Klise. Il Eng N 81:407-8 Ag 29 '18

Popular objections to water metering and how to overcome them. Eng & Contr 49:264-5 Mr 13 '18

Prevention of water waste and reasons for metering. Eng & Contr 51:356-7 Ap 9 '19

Reading registration of water meter. diag Power 48:765 N 19 '18

Reading water meter at a distance. Il Elec R 73:463 S 21 '18

Reliance irrigation meter for registering flow in ditches and canals. Il Eng & Contr 49:112 Ja 30 '18

Selection of water meters. C. M. Saville. Il Munic J 45:439-43 D 7 '18; Abstract. Eng N 81:1074-6, 1186-7 D 12, 26 '18

Simplifying handling of meter reader's reports. Eng & Contr 49:599 Je 12 '18

Sizes of meters. W. Seilhmer. Munic J 47:222-3 O 11 '19

Taylor condensation meter. diags Power 47:16-18 Ja 1 '18

Use of water meters by Metropolitan water district, Boston, defers construction of new works and lowers cost of maintenance. Munic Eng 53:238-9 D '17

Water meter data. Munic J 46:407-21; 47:153-5, 166-8 Je 7, S 6-13 '19

Water meter program at Philadelphia. Eng N 80:911 My 9 '18

Why Chicago should meter its water. Eng & Contr 49:173-6 F 13 '18

See also Venturi meters; Water flow; Water gages; Water waste

**Cost**

Cost of meter installation and testing in Detroit, Mich. Eng & Contr 49:461 My 8 '18

Cost of meter testing and cost of installing meters at Detroit. Eng & Contr 51:175 F 12 '19

Setting 25,000 meters cut water consumption at San Francisco. G: W. Fracy. Il Eng N 80:902-4 My 9 '18

Unit costs for setting water meters. A. F. Brewer. Eng N 81:366 Ag 22 '18

**Freezing**

Experience with frozen water meters in Terre Haute, Ind. D. R. Gwinn. Munic Eng 53:205-6 N '17

Frost no respecter of meter setting. Eng N 80:764-5 Ap 13 '18

## Water meters—Continued

## Testing

- Water-meter practice and testing at Buffalo, New York. C. L. Lund. *Il Eng N* 82:1110-12 Je 5 '19
- Water pipes**
- American water pipe made possible the winning of Jerusalem. *Eng & Contr* 49:26 Ja 9 '18
- Bonna system reinforced concrete pipes in Antwerp waterworks extension. *Il Eng & Contr* 50:117-18 Ji 31 '18
- Carrying capacity of a steel water supply main. J. C. Keith. *Eng & Contr* 51:627 Je 11 '19
- Causes of iron rust in domestic water supply. *Metal Work* 88:712-13 D 14 '17
- Choice of material for pressure pipes; abstract. R. Bennett. *Elec W* 72:406 Ag 31 '18
- Closing the end of an inlet pipe. J. M. Purcell. *diag Power* 48:393 S 10 '18; Same. *Eng N* 81:611-2 O 3 '18
- Corrosion of service pipes. *Il Munic J* 44:273-4 Ap 6 '18
- Discharge of large cast-iron pipe-lines in relation to their age. A. A. Barnes. *Eng & Contr* 52:152 Ji 30 '19
- Durability of materials conveying steam, air and water. A. K. Ohmes. *Il diags Am Soc Heat & V E* 23:109-20; Discussion. 121-4 '17
- Economic pressure pipe on penstock pipe design. B. F. Jacobsen. *Eng & Contr* 50:554-6 D 11 '18
- Electric exploration for buried water-pipes. *Il Sci Am* 121:363 O 11 '19
- How to calculate size of water main. *Dom Eng* 86:393 Mr 1 '19
- Lead pipe couplings. J. A. Jensen. *Am Water Works Assn J* 5:407-11 D '18
- Making and placing ten miles of concrete pipe for Winnipeg aqueduct. K. B. Kumpe. *Il diag Eng N* 80:111-14 Ja 17 '18
- Method for practical elimination of corrosion in hot water supply pipe. F. N. Speller. *Il diags plan Am Soc Heat & V E* 23:125-36; Discussion. 137-40 '17
- Method of determining most economical size of water main for given condition. D. M. Mowat. *Eng & Contr* 50:116 Ji 31 '18
- Method of lowering 12 in. water main while under full service pressure. *Eng & Contr* 49:466 My 8 '18
- New trunk main between Burrator and Rotherbury reservoirs, England. *Il Engineer* 125:120, 124-5 F 3 '18
- Pipe corrosion in domestic service. T. F. Payne. *J Fr Inst* 185:419 Mr '18
- Prevention of corrosion in hot water service lines. *Il diags Am Arch* 114:207-12 Ag 14 '18
- Recent developments in reinforced concrete pressure pipe for water supply lines. W. R. Harris. *diags Munic Eng* 55:58-9 Ag '18
- Reinforced concrete pressure pipe. C. Meriwether. *diags Am Water Works Assn J* 5:419-24 D '18
- Remedy for washing away of water main crossing a river. *diags Dom Eng* 86:222-3 F 1 '19
- Rusty water trouble. *Metal Work* 88:725, 783; 89:114-15 D 14, 28 '17, Ja 18 '18
- Stresses and strains in a lateral. E. F. Hollinger. *Il diags J Elec* 42:433-4 My 1 '19
- Underground pipe mains—material, depreciation, sizes for steam and water. C. L. Hubbard. *Power* 48:80-3 Ji 16 '18
- Use of National Matheson joint steel water mains. F. N. Speller. *Il Munic Eng* 54:27-8 Ja '18
- Water hammer in penstocks as affecting economy of design. *Eng N* 82:1222-4; 83:437 Je 19, Ag 28 '19
- Water service pipes. A. Bateman. *diag Dom Eng* 85:441-2 D 21 '18
- Water works operation; electrolysis. *Il Munic J* 45:188-9, 201-4, 226-7 S 7-21 '18
- Water works operation; leakage and waste. *Munic J* 45:25+, 49+, 70+, 90-1 Ji 13-Ag 3 '18
- Water works operation; selection of material for service pipe. *diag Munic J* 45:170-1 Ag 31 '18

Wiped and flanged joints for lead pipe connections in services. J. A. Jensen. *Eng & Contr* 50:252-3 S 11 '18

*See also* Aqueducts; Electrolytic corrosion; Hot water heating; Hot water supply; Pipe fittings; Pipe joints; Pipe laying; Pipes; Pipes, Concrete; Siphons; Thawing; Water conduits; Water flow; Water hammer; Water waste; Waterworks

## Cleaning

- Mechanical cleaning of water mains in Rochester, N.Y. E. H. Keith. *Il Munic Eng* 54:16-17 Ja '18
- Results from cleaning water mains. B. B. Hodgman. *Eng & Contr* 49:589 Je 12 '18
- Results of cleaning water mains at St Louis. E. E. Wall. *Il Eng & Contr* 51:31 Ja 8 '19
- Water main cleaning in St Louis. *Il Munic J* 46:5-6 Ja 4 '19
- Water works operation; street mains. *Munic J* 44:485+ Je 15 '18

## Cost

- Cost of water main construction at Fall River, Mass. *Eng & Contr* 50:269 S 11 '18
- Cost of water main construction at Pasadena, Cal. *Eng & Contr* 48:487 D 12 '17
- Cost of water main construction in Mason City, Iowa. W. A. Judd. *Am Water Works Assn J* 6:473-4 S '19
- Prices and depreciation of cast iron pipe. B. B. Hodgman. *Am Water Works Assn J* 5:145-54; Discussion. 155-62 Je '18
- Table for estimating water-main extension costs. A. F. Brewer. *Eng N* 80:910 My 9 '18

## Freezing

- Cold weather and mains in Duluth. D. A. Reed and E. W. Kelley. *Munic J* 46:6-7 Ja 4 '19
- Cost of thawing services with electricity. A. E. Walden. *Eng & Contr* 50:45 Ji 10 '18
- Cost of thawing water services with electricity. *Eng & Contr* 50:32 Ji 10 '18
- Electric thawing of frozen water pipe; report of committee of N. E. water-works association. *Eng N* 81:530-1 S 19 '18; Same. *Power* 48:580 O 15 '18
- Handling zero weather rush business. E. Stern. *diag Metal Work* 89:193-5 F 8 '18
- How to prevent freezing of riser pipes to elevated water supply tanks. *Munic Eng* 55:213-14 D '18
- Insulation of pipes to avoid freeze-ups. *Metal Work* 92:368 S 26 '19
- Method of thawing service pipes with electric current. *Il diags Eng & Contr* 49:363 Ap 10 '18
- Methods of Baltimore county water & electric co. for thawing water services. *Eng & Contr* 49:458-9 My 8 '18
- Methods of preventing freezing of riser pipes. *Eng & Contr* 50:460 N 13 '18
- Profit to a water department from thawing frozen service pipes. *Eng & Contr* 49:353 Ap 10 '18
- St Paul water bureau thaws frozen services. *Eng N* 80:901 My 9 '18
- Sandusky gas & electric contracts to thaw water pipes. *Munic J* 44:210 Mr 9 '18
- Something about ice and how it affects the plumbing trade. J. H. Perry. *diags Dom Eng* 81:386-8 D 8 '17
- Thawing concealed stacks and supply pipes. *diags Metal Work* 89:294-5 Mr 1 '18
- Thawing frozen pipes with hot water. *diag Metal Work* 89:323 Mr 8 '18
- Thawing frozen water mains and service pipes by electricity; with discussion. W. I. McMane. *Am Water Works Assn J* 4:544-52 D '17
- Thawing frozen water mains; method of using electricity at North Attleboro. W. Plattner. *Il Munic J* 44:188-9 Mr 2 '18; Same. *Gas Age* 41:262-3 Mr 15 '18; Same. *Munic Eng* 54:157-8 Ap '18
- Thawing frozen water pipes by electricity. M. King; W. R. Bryans. *diag plan Power* 47:449-50 Mr 26 '18
- Thawing outfit made from old auto engine and generator. *Il diags Eng & Contr* 49:277 Mr 13 '18

**Water pipes—Freezing—Continued**

- Thawing service connections by means of electric current; with discussion. H: B. Machen. *Il* *diag* *Munic J* 42:684-7 *My* 17 '17; Same. *Am Water Works Assn J* 4:538-43 *D* 17
- Thawing services and hydrants at Windsor, Conn. H. R. Turner. *diag* *Munic J* 44:512 *Je* 22 '18
- Thawing services at Lawrence, Kansas. *Munic J* 44:257 *Mr* 30 '18; Same. *Eng & Contr* 49:369 *Ap* 10 '18
- Thawing services with hot water and electric outfit. D. A. Heffernan. *Eng & Contr* 50:164 *Ag* 14 '18
- Thawing water mains with home-made electric outfit. A. G. C. McKalip. *Eng & Contr* 49:608 *Je* 12 '18
- Water tanks and piping in cold climates. *Eng & Min J* 106:171 *Jl* 27 '18
- Waterworks operation; freezing and thawing of water mains and services. *Munic J* 45:408-10 *N* 23 '18

**Leakage**

*See* Water waste

**Repair**

- Leaks in water mains at Hamilton, Ont., and cost of repairs. E. R. Gray. *Eng & Contr* 50:260 *S* 11 '18
- Locating leaks in Ottawa. A. F. Macallum. *Munic J* 45:88 *Ag* 3 '18
- Method of finding leak in pipe under 30-ft. fill. *diag* *Eng & Contr* 52:301 *S* 10 '19; Same. *Munic J* 47:213-14 *O* 4 '19
- Practical methods of detecting leaks in underground pipes. D: A. Heffernan. *Eng N* 81:528-9 *S* 19 '18; Same *abr. Eng & Contr* 50:350 *O* 9 '18
- Repairs to risers in the shafts of the city tunnel of the Catskill aqueduct; with discussion. J. W. Smith. *Am Water Works Assn J* 6:46-53 *Mr* 19
- Sleeve spacer facilitates repair of large water mains. W: A. Foley. *diag* *Eng & Contr* 50:349 *O* 9 '18
- Small bypass carried water-supply of Oregon City, Ore., after submerged break. H. A. Randa. *diag* *Eng N* 80:467-8 *Mr* 7 '18
- Water works operation; repairing leaks and breaks in water mains and underground appurtenances. *Il* *Munic J* 45:107-8+ *Ag* 10 '18

**Specifications**

- Tentative draft of proposed standard specifications for cast iron pipe and fittings. *Am Water Works Assn J* 5:385-93 *S* '18

**Testing**

- Leakage test of wood-stave pipe line. V: M. Crown. *map* *Eng N* 83:264 *Ag* 7 '19
- Pipe-testing apparatus saved both water and time. T. H. Carver. *Il* *diag* *Eng N* 80:917-18 *My* 9 '18
- Testing newly laid mains by air pressure. R. O. Wynne-Roberts. *Eng & Contr* 49:461 *My* 8 '18

**Thawing**

*See* Thawing

**Water pollution**

- All sewage going into boundary waters should be treated. F. A. Dallyn. *Eng N* 81:660-3 *O* 10 '18
- Atmospheric pollution and the impurities of rain-water. J: B. C. Kershaw. *Engineer* 124:443-4 *N* 23 '17
- Coagulant and filters remove oily tastes and odors; experiments at Whiting, Ind. *Il* *Eng N* 80:87-8 *Ja* 10 '18
- Conclusions of international joint commission on pollution of boundary waters. *Eng & Contr* 52:46 *Jl* 9 '19
- Contaminating a water supply by storage coal. *Ry Age* 66:1817-18 *Je* 27 '19
- Control of stream pollution—a problem in economics. E. B. Phelps. *Munic Eng* 55:22-4 *Jl* '18
- Dual water supply and cross connections. J: G. Mitchell. *Metal Work* 89:453-4 *Ap* 5 '18

Find cause of obnoxious taste in Milwaukee water. H. P. Bohmann. *Eng N* 82:181-2 *Ja* 23 '19; Same. *Eng & Contr* 51:629-30 *Je* 11 '19

Findings of international joint commission on pollution of boundary waters. F. A. Dallyn. *Eng & Contr* 50:459 *N* 13 '18

Gas company will not be enjoined where it has only in past years been polluting a stream. *Gas Age* 42:389 *N* 1 '18

Industrial waste problems with reference to the smaller cities. L. Pearce. *Munic Eng* 54:18-21 *Ja* '18

Investigation of odors from lake at Madison, Wisconsin. *Eng N* 83:469 *S* 4 '19

Legal status of stream pollution. S. D. Montgomery and E. B. Phelps. *Munic J* 44:521-3 *Je* 29 '18

Pollution of drinking water from failure of connections in manufacturing establishments. S. D. Gage. *Eng & Contr* 48:496 *D* 12 '17

Pollution of streams. C. C. Sherlock. *Eng & Min J* 106:861 *N* 16 '18

Proper authority should govern control use of dual water supply. J. F. Doud. *Metal Work* 89:454-5 *Ap* 5 '18

Relation of main drainage to river and harbor front improvements in various American cities. M. Knowles and J: M. Rice. *Munic Eng* 55:204-5 *D* '18

Sewage and dissolved oxygen in New York harbor. K. Allen. *diag* *Eng N* 83:228-9 *Jl* 31 '19; Abstract. *Eng & Contr* 51:33 *Ja* 8 '19; Same. *Munic Eng* 56:172-3 *My* '19

Stream pollution. H: B. Ward. *Am Water Works Assn J* 6:823-31 *N* '19

Stream pollution and its relation to the chemical industries. E. B. Phelps. *J Ind & Eng Chem* 11:928-9 *O* '19

Stream pollution; state requirements as to sewage disposal. V. M. Ehlers. *Texas U Bul* 1733:5-9 *Je* 10 '17

Water pollution and fish life. V: E. Shelford. *Am Water Works Assn J* 5:434-7 *D* '18

*See also* Filters and filtration; Refuse disposal; Sewage; Sewage disposal; Trade waste; Water purification; Water supply

**Water power**

Coal—black, white, green and blue. *Sci Am* 120:220 *Mr* 8 '19

Development of water power. D: A. Shearer. *diag* *Textile World* 54:3219+ *D* 28 '18

Distribution of hydraulic resources and primary power by sections, 1918; map. *Elec W* 73:478 *Mr* 8 '19

Efficient use of water power. W. F. Uhl. *Power* 50:67-8 *Jl* 8 '19

Fundamental principles in the development of water power. D: R. Shearer. *diag* *Power* 48:563-5 *O* 15 '18; Criticism. 48:819 *D* 3 '18

Future of water and steam power. L. P. Breckenridge. *Power* 47:857 *Je* 11 '18

Government control of water power and electrical distribution abroad. L. W. Schmidt. *Power* 47:505-8 *Ap* 9 '18

Government ownership of water power in relation to electrochemical industry. F. A. J. FitzGerald. *Chem & Met Eng* 21:95-8 *Jl* 15 '19

Need for and status of water-power legislation. *Elec R* 74:893-4 *My* 31 '19

Notes on water-power development. D. H. Colcord. *Eng & Min J* 107:699 *Ap* 19 '19

Railroad electrification and water supply. *Power* 48:436 *S* 17 '18

Relation of water-power conservation to fuel saving. C: T. Main. *Elec W* 72:758-9 *O* 19 '18

Successful co-operative control of water power. W. H. Sawyer. *Elec W* 73:687 *Ap* 5 '19

Water power of the world. *Eng & Contr* 51:472 *Ap* 30 '19

*See also* Dams; Flumes; Hydraulic engineering; Hydraulic machinery; Hydroelectric plants; Hydroelectric power; Tide power; Turbines; Water rights; Water wheels

**Australasia**

Australasian undeveloped water power. *J Elec* 42:77 *Ja* 15 '19



## Water power—Continued

## California

- Need for water-power development shown. F: S. Myrtle. Elec R 72:726 Ap 27 '18  
 Water power in California. A. H. Palmer. II map Sci Am S 87:260-1+ Ap 26 '19  
 Water power situation on the Pacific coast. G: F. Sever. J Elec 42:6-10 Ja 1 '19

## Canada

- Canada's heritage in the St Lawrence river. A. V. White. map Elec W 72:1216-17 D 28 '18; Excerpt. Elec R 73:928 D 14 '18  
 Canada's water powers and their relation to the fuel situation; abstract. J. B. Challies. Elec W 71:988 My 11 '18  
 Fuel problem of Canada—some national and international aspects. A. V. White. Gen Elec R 22:465-74 Je '19

## France

- New French water-power law. Elec R 75:740 N 1 '19  
 Utilizing differences in seasonal stream flow in France. E: H. Sargent. Eng N 83:462 S 4 '19

See also Hydroelectric plants—France

## Great Britain

- Empire water resources. Engineer 126:141-2 Ag 16 '18  
 Hydroelectric power development in British empire. Elec R 75:606-7 O 11 '19  
 Water-power utilization urged in Great Britain. Elec R 74:712 My 3 '19

## India

- Water power in the Indian Central provinces. Engineer 128:418-19 O 24 '19

## Japan

- Undeveloped water powers of Japan. H. Higo. II plan J Elec 43:163-4 Ag 15 '19

## Maine

- Increase of Maine water powers through regulation. Elec W 74:72 JI 12 '19  
 Investigation of Maine water powers. map Elec W 73:120-1 Ja 18 '19  
 Water power conditions. C. E. Milliken. Elec W 71:996-7 My 11 '18  
 Water-power controversy is being waged in Maine. Elec W 71:997 My 11 '18

## Massachusetts

- Development of Massachusetts' water power. map Elec W 73:272-3 F 8 '19  
 Needless apprehension of water-power control. Elec W 73:698+ Ap 5 '19  
 Water conservation plan is discussed. Elec W 73:65 Mr 29 '19

## Minnesota

- Engineering activities of the Twin Cities. F. C. Shenehon. Eng N 82:1251-4 Je 26 '19  
 Survey of water powers. R. D. Thomas. Elec R 72:519-20 Mr 23 '18

## New England

- Conservation of water power. Elec W 72:1080 D 7 '18  
 Important to conserve the New England water powers. H: I. Harriman. Elec W 73:529 Mr 15 '19  
 Water-power progress in New England states. P. Cabot. II Elec W 71:931 My 4 '18  
 Waterpowers of New England. H: I. Harriman. Boston Soc C E J 4:423-35 D '17; Excerpts. Power 47:434 Mr 26 '18

## New Hampshire

- New Hampshire water power conservation. Elec W 73:787-8 Ap 19 '19  
 Potential water power and coal saving. map Elec W 74:401-4 Ag 23 '19

## Norway

- Norwegian water power. Sci Am S 86:167 S 14 '18

## Russia

- Russian water-power possibilities at Dnieper river rapids. V. V. Tchikoff. Eng N 82:1065 My 29 '19

## Scotland

- Big water-power scheme for the West Highlands. Engineer 124:463 N 23 '17  
 Scottish local section: chairman's address. A. Page. map Inst E E J 56:45 D '17

## Siberia

- Water power in Siberia. V. V. Tchikoff. J Elec 43:398 N 1 '19

## Switzerland

- Swiss law concerning the utilization of hydraulic power; abstract. G. Tochon. Elec W 71:263 F 2 '18

## United States

- Administration bill for water-power legislation. Elec 71:111-12 Ja 12 '18  
 Administration water-power bill. Met & Chem Eng 18:225-6 Mr 1 '18  
 Administration water-power bill. F. K. Lane. Power 47:514-15 Ap 9 '18  
 Administration water-power bill now before Congress. Power 48:140-2 JI 23 '18  
 America's energy supply. C: P. Steinmetz. Am Inst E E Pro 37:591-615 Je '18; Same. Gen Elec R 21:454-66 JI '18; Excerpts. Power 48:364-5 S 3 '18; Abstract. Elec W 71:1367-8 Je 29 '18  
 Case for water power. Sci Am 120:541+ My 24 '19  
 Congressional inertia on water-power legislation. Elec W 73:94-5 Ja 11 '19  
 Conservation of the nation's water power. Sci Am 118:100 F 2 '18  
 Delay faces the water-power bill. Power 50:546-7 S 30 '19  
 Developing the water power. Power 47:125-6 Ja 22 '18  
 Distribution of water power and central station power in the United States; map. Power 50:371 S 2 '19  
 Fuel administration for water-power law. C: E. Stuart. Elec W 71:734-5 Ap 6 '18  
 Government and the water powers. F. K. Lane. Power 47:692-3 My 14 '18  
 Hearings on administration water-power bill. Elec W 71:630-2. 684-5 Mr 23-30 '18; Met & Chem Eng 18:339-42, 439 Ap 1, My 1 '18; Power 47:486-9 Ap 2 '18  
 Hydroelectric development. Am Inst E E Pro 37:sup41-5 F '18; Same. Elec R 72:150-2 Ja 26 '18; Same. Sci Am S 85:262-3 Ap 27 '18; Same cond. Elec Ry J 51:177-8 Ja 26 '18; Same cond. Elec W 71:202-3 Ja 26 '18; Same cond. Eng N 80:160-2 Ja 24 '18; Same cond. Power 47:236-7 F 12 '18  
 Importance of electrometallurgy. V. H. Manning. Met & Chem Eng 18:441 My 1 '18  
 In re proposed water-power legislation; joint letter from the Secretary of war, Secretary of the interior and Secretary of agriculture, addressed to the President. Power 47:135-6 Ja 22 '18  
 Little plain talk on water powers. W. L. Jones. Elec W 71:974 My 11 '18  
 Nation's business men for water-power legislation. Elec W 71:686 Mr 30 '18  
 Nature's gift to the electrochemist at Muscle Shoals, Ala. W. G. Waldo. II Met & Chem Eng 18:444-6 My 1 '18  
 New water-power program in Congress. Met & Chem Eng 18:62-3 Ja 15 '18  
 Pending water-power bill. A. Beck. Elec W 71:837-8 Ap 20 '18  
 Prospect for water-power development. C: W. Baker. Eng N 80:60-1 Ja 10 '18  
 Public interest demands enactment of administration water-power bill. G. Pinchot. Eng & Min J 105:338 F 16 '18; Same. Power 47:337 Mr 5 '18  
 Referendum vote on water-power policy inaugurated by U. S. Chamber of commerce. Elec R 72:277-8 F 16 '18; Same cond. Eng N 80:330+ F 14 '18  
 Save the power of our unused streams. F. K. Lane. Elec W 71:4 Ja 5 '18  
 Senate committee report on the water-power bill. Elec W 74:667-8 S 20 '19  
 Special joint committee hearing on administration water-power bill. Power 47:641-2 Ap 30 '18

**Water power—United States—Continued**

- Statement before joint water-power committee of the House of representatives. W. H. Onken, Jr. Elec W 71:1099-1100 My 25 '18
- Transportation and western power problems. J. H. Lewis. J Elec 42:14-15 Ja 1 '19
- U. S. Chamber of commerce adopts resolution asking federal legislation encouraging water power development. Eng & Contr 49:603 Je 12 '18
- Water-power act is passed by United States Senate. Elec W 70:1206 D 22 '17
- Water-power development. F. K. Lane. Met & Chem Eng 18:440 My 1 '18
- Water power development. G. Pinchot. Eng & Contr 48:478 D 12 '17; Discussion. D. A. Reed. 49:28 Ja 9 '18
- Water-power development an ever-increasing need. W. W. Nichols. Il Elec W 71:1263 Je 15 '18
- Water power development to conserve coal. Ry R 63:268-70 Ag 24 '18
- Water-power hearings at Washington concluded. Elec W 71:1050-2 My 18 '18; Abstract. Met & Chem Eng 18:568-9 Je 1 '18
- Water-power legislation urged by President. Eng N 80:84 Ja 10 '18
- Water power—our electrochemical salvation. C. A. Winder. Il map Gen Elec R 21:110-15 F '18
- Water power rights on government land. W. B. Heroy. J Elec 43:262-3 S 15 '19
- Water powers. F. Darlington. Elec J 16:164-6 My '19

See also Niagara Falls

**Wales**

- Electrical energy from the River Dee. map Engineer 127:524-6 My 30 '19

**Water power electric plants. See Hydroelectric plants****Water pressure**

- Something about ice and how it affects the plumbing trade. J. H. Perry. diags Dom Eng 81:386-8 D 8 '17
- Something about water. J. H. Perry. diags Dom Eng 81:541-4; 82:130-2+ D 29 '17, Ja 26 '18
- Why and wherefore of sanitary engineering. A. Bateman. diags Dom Eng 85:163-4 N 2 '18

See also Hydraulics

**Water proofing. See Waterproofing****Water purification**

- Army motor trucks carry water purification plant. E. K. Tomlin, Jr. Il diag plan Eng N 81:458-60 S 5 '18; Same. Chem & Met Eng 19:678-80 N 1 '18
- Aspects of chemical treatment at St Louis water works. A. V. Graf. Am Water Works Assn J 5:279-87 S '18; Abstract. Eng N 80:990 My 23 '18
- Better operators for water and sewage treatment plants; New Jersey law provides for examination and licensing under direction of State department of health. Eng N 81:322-3 Ag 15 '18
- Coagulants versus sand filters as aids to water purification in the field. H. S. Briggs and E. R. Marle. Eng & Contr 50:399-400 O 30 '18
- Combined aerator and mixer for colloidal water. Il diag Eng N 82:1210-11 Je 19 '19
- Combined water purification and softening plant of Great Falls, Mont. Il Eng & Contr 49:28-31 Ja 9 '18
- Decarbonation and removal of iron and manganese from ground waters at Lowell, Mass. F. A. Barbour. Il 4 pls Am Water Works Assn J 4:129-64 Je '17; Discussion. 5:185-9 Je '18
- Design and construction of the new water purification plant at Checotah, Okla. V. V. Long. Il Munic Eng 55:70-1 Ag '18
- Design and performance of the iron removal plant for laundry water at state school, Sparta, Wis. W. G. Kirchoffer. diag plan Munic Eng 56:88-90 Mr '19
- Dry feeding of chemicals used in water purification. F. B. Leopold. Il Munic Eng 56:134-5 Ap '19

**Features of present-day water purification practice. M. F. Stein. Il diags Munic Eng 56:57-60 F '19**

- Filtration and sterilization of water. R. G. Tyler. Texas U Bul 1733:23-31 Je 10 '17
- Four years' operating results of Minneapolis water purification plant. F. W. Cappelen. Eng & Contr 50:347-8 O 9 '18
- Gauntt chemical feeder for continuous treatment in water purification plants. Il Munic J 47:247 O 18 '19
- Getting chemicals for treatment of water in Ohio. W. H. Dittos. Eng N 80:819 Ap 26 '18
- Great Falls, Mont., electrically operated purification plant. Il Elec R 71:1012-13 D 15 '17
- Great Falls, Mont. water purification and softening plant. Il Munic J 43:553-5 D 6 '17; Same. Munic Eng 54:3-5 Ja '18
- How the water supply for 6,000,000 people is made safe. W. W. Brush. Il map Munic Eng 57:81-5 Ag '19
- Improvement of a hydrogen sulphide water by aeration and lime treatment. C. G. Gillespie. Eng & Contr 50:467 N 13 '18
- Improving Fort Worth's water supply. Il Munic J 45:295-7 O 19 '18
- Manganese in the water supply of Pierre, South Dakota. J. W. Sale. Il Eng N 79:1063-4 D 6 '17
- Massachusetts experiments in use of ammonia with bleach in water treatment. J. Race. Eng & Contr 50:40 J1 10 '18
- Methods of removing crenothrix from public water supplies—chlorine treatment is successful. W. F. Monfort. Munic Eng 56:182-4 My '19
- Microscopic organisms in drinking water. J. J. Schoonoven. Il Sci Am 120:623 Je 14 '19
- Motor truck mounted water purification units. W. J. Orchard. Il plans Am Water Works Assn J 6:562-71 S '19; Same. Eng & Contr 52:190-1 Ag 13 '19
- New water filtration plant of Whiting, Ind. R. S. Rankin. diags plan Eng & Contr 52:292-4 S 10 '19
- New water treating plants for the Burlington. Il diags plans Ry R 63:661-6 N 9 '18
- Operating results of purification plant of St Louis. A. V. Graf. Eng & Contr 51:41-2 Ja 8 '19
- Operation of an American or rapid water filtration plant for twenty years at Elmira, New York. J. M. Caird. Am Water Works Assn J 6:409-21 S '19
- Ozone as a disinfectant in water purification. J. W. Ellms. Munic Eng 57:186+ O '19
- Ozone method of water treatment and some examples of recently installed industrial plants. I. D. Groak. Il diags Munic Eng 54:200-3 My '18
- Purification-plant methods and results at Albany. Eng N 83:604 S 25 '19
- Purifying circulating water for surface condensers; abstract. W. Seyffert. Am Soc M E J 40:111-12 Ja '18
- Recent development in equipment used in ozone method of water treatment. I. D. Groak. Il diag Munic Eng 55:109-11 S '18
- Removal of iron and manganese from water supply of Wausau, Wis. W. G. Kirchoffer. Eng & Contr 51:177-8 F 12 '19
- Rivers as sources of water supply. R. S. Weston. Munic Eng 54:59-60 F '18
- Rotary screens remove dirt from water at St Paul. Il diags Eng N 82:566-7 Mr 20 '19
- St Louis water purification plant. Munic J 45:503-5 D 28 '18
- Sanitary aspect of the water supplies at the army cantonments. J. T. B. Bowles. Am Water Works Assn J 5:232-9 S '18; Same. Eng & Contr 50:460 N 13 '18
- Sanitary effect of water storage in open reservoirs. A. Wolman and S. T. Powell. diag Eng N 83:804-5 O 30 '19
- Sanitary survey of a city. Il Munic J 45:382-6 N 16 '18
- Successful ultra-violet ray sterilization of Henderson, Ky., water supply. Il Munic Eng 54:21-2 Ja '18
- Treatment of water to prevent the growth of crenothrix. F. C. Amsbury. Am Water Works Assn J 6:194-5 Je '19

**Water purification—Continued**

- Typhoid fever epidemic at Xenia, Ohio. F. H. Waring. *Am Water Works Assn J* 6:167-8 Je '19
- Typical water borne typhoid. *Munic Eng* 56: 15-16 Ja '19
- Water filtration at Minneapolis. *Munic J* 45: 502-3 D 28 '18
- Water purification at Buffalo, N.Y.—present and prospective. H. F. Wagner. *Munic Eng* 57:183+ O '19
- Water purification in the Canal Zone. G. C. Bunker. *Munic J* 44:296-7 Ap 13 '18
- Water purification plant on wheels. *Munic J* 45:29-30 JI 13 '18
- Water purification problems. B. M. Mohler. *Am Water Works Assn J* 5:132 Je '18
- Water supply standards and their improvement. W. J. Orchard. *Am Water Works Assn J* 5:49-59 Mr '18; Same cond. *Eng & Contr* 50:38-40 JI 10 '18; Discussion. *Am Water Works Assn J* 5:59-62 Mr '18
- Water treatment at Council Grove, Kansas. L. L. Tribus. *diag Am Water Works Assn J* 5:438-47 D '18
- Water works operation—reservoir maintenance. *Munic J* 46:86-9 F 1 '19
- Why and wherefore of sanitary engineering. A. Bateman. *diags Dom Eng* 85:402-4 D 14 '18

*See also* Feed water purification; Filters and filtration; Water—Bacteriology; Water softening

**Chloramine process**

- Chloramine and crenothrix. W. F. Monfort and O. A. Barnes. *Am Water Works Assn J* 6:196-201 Je '19
- Chloramine process as applied to the Catskill (Esopus) water. F. E. Hale. *Am Water Works Assn J* 6:804-17 N '19; Excerpts. *Eng & Contr* 51:262-4 Mr 12 '19; Discussion. *Am Water Works Assn J* 6:818-22 N '19
- Chloramine tried by New York city. *Eng N* 82:556 Mr 20 '19
- Chlorination and chloramine. J. Race. *Am Water Works Assn J* 5:63-82 Mr '18
- Further data on chloramine from Denver. *Eng N* 80:1141 Je 13 '18
- Permanent plants for chloramine installed at Denver. *II diag Eng N* 83:608-9 S 25 '19

**Chlorination**

- Chlorination and chloramine. J. Race. *Am Water Works Assn J* 5:63-82 Mr '18
- Chlorination at San Diego. Cal. W. H. Judy. *diags plan Munic J* 44:237-8 Mr 23 '18
- Chlorination in Michigan. E. D. Rich. *Munic J* 46:403-4 Je 7 '19
- Chlorination in West Virginia. M. Tolman and E. S. Tisdale. *Munic J* 47:20-2 JI 12 '19
- Chlorination of Chicago's water supply. J. Ericson. *diags Munic Eng* 56:6-8 Ja '19; Same abr. *Eng N* 81:1126-7 D 19 '18
- Chlorination of swimming pool water. C. G. Gillespie. *Munic Eng* 56:231-2 Je '19
- Chlorine absorption and the chlorination of water. A. Wolman and L. H. Enslow. *charts J Ind & Eng Chem* 11:209-13 Mr '19; Abstract. *Munic J* 46:264-5 Ap 12 '19
- Device for feeding hypochlorite. W. O. Myers. *diags Eng & Contr* 49:467 My 8 '18
- Disinfection of water supplies. *Munic J* 46: 402-3, 437-9 Je 7-14 '19
- Emergency use of portable chlorine sterilization plants. E. S. Chase. *Eng & Contr* 49: 372-3 Ap 10 '18
- Field methods for the chlorination of small amounts of water. F. G. Georgia. *diag Am Water Works Assn J* 6:654-63 N '19
- Fine screens and chlorine meet Daytona conditions. G. W. Simons, jr. *Eng N* 82:99-101 Ja 9 '19
- Progress of water disinfection in Maryland. R. B. Morse and H. R. Hall. *Munic J* 46: 405-7 Je 7 '19
- Relation of the chemical industry of Niagara Falls to the water works. J. A. Klenle. *II diag Am Water Works Assn J* 6:496-513 S '19; Abstract. *Munic J* 47:7-9 JI 5 '19; Excerpt (Advance in chlorination). *Eng N* 82:1194 Je 19 '19; Discussion. *Am Water Works Assn J* 6:514-17 S '19

- Results of the chlorination of public water supplies in Michigan. E. D. Rich and E. L. Waterman. *Munic Eng* 54:114-16 Mr '18
- Results secured by chlorine compounds in water purification and sewage treatment. C. A. Jennings. *Munic Eng* 54:249-51 Je '18; Excerpt. *Eng & Contr* 49:598-9 Je 12 '18
- Sterilisation of London water. A. C. Houston. *charts Engineer* 125:552-4 Je 28 '18; Abstract. *Eng & Contr* 50:414-15 O 30 '18; Abstract. *Munic Eng* 56:29-30 Ja '19
- 13th annual report on London water. A. C. Houston. *Engineer* 128:4-5 JI 4 '19; Same. *Eng & Contr* 52:120-2 JI 30 '19
- Typhoid and water disinfection in Maryland. *Munic J* 47:37 JI 19 '19
- Use of liquid chlorine in war service. W. D. Marshall. *Eng & Contr* 49:40-1 Ja 9 '18
- Water-borne typhoid outbreak due to neglect of chlorinator. *Munic Eng* 55:141-3 O '18

**Cost**

- Cost of chlorine treatment of water supplies. C. M. Baker. *Eng & Contr* 49:373 Ap 10 '18

**Filtration**

*See* Filters and filtration

**Testing stations**

- Water testing stations. W. T. McClenahan and R. S. Rankin. *Am Water Works Assn J* 6:248-57 Je '19; Same. *Eng & Contr* 51: 515-16 My 14 '19; Bibliography. *Am Water Works Assn J* 6:256-7 Je '19

**Water rates**

- All San Francisco's consumers on meter basis. *Munic J* 46:253 S 28 '18
- Another step in San Francisco ten-year water rate suit. *Eng N* 81:291-2 Ag 8 '18
- Commission control does not remove hazard of utility investment; ruling in Indianapolis water-rate case. L. Metcalf. *Eng N* 81:1134-6 D 19 '18
- Curtailing water waste and fixing equitable rates at Sault Ste Marie, Michigan. W. M. Rich. *Munic Eng* 57:90+ Ag '19
- Emergency irrigation rate for garden farming at Alhambra, Cal. *Eng & Contr* 49:459 My 8 '18
- Flat rates vs. meter rates. C. E. Abbott. *Eng & Contr* 52:294 S 10 '19
- Grappling with water-works problems at St Louis. E. E. Wall. *Eng N* 80:898-9 My 9 '18
- Increase of waterworks operating expenses and readjustment of rates. F. C. Jordan. *Eng & Contr* 50:352 O 9 '18
- Low water rate for vacant lot gardens at Glendale, Cal. *Eng & Contr* 49:463 My 8 '18
- Need of raising water rates to offset increased costs. J. J. Moore. *Eng & Contr* 50:547 D 11 '18
- New meter rates in the San Francisco district. A. Hazen. *Am Water Works Assn J* 6:37-45 Mr '19
- Pennsylvania water rate decision covers many points. F. Gannett. *Eng N* 80:620-2 Mr 28 '18
- Public utility rates. J. E. Field. *Eng & Contr* 51:27-8 Ja 8 '19
- Rates for irrigation water and quantity used for various crops. H. L. Miller. *Eng & Contr* 49:451-2 My 8 '18
- Revision of water rates at Catskill, N.Y. H. W. Taylor. *Munic J* 44:490-1 Je 15 '18
- Spring Valley water company to charge meter rates. *Eng N* 81:583 S 26 '18
- Study of revenue from sale of water to metered domestic consumer. P. Burgess. *Eng N* 82:1116-19 Je 5 '19
- Water charges in 51 cities of 9,000 to 10,000 population. *Eng & Contr* 51:367 Ap 9 '19
- Water company allows higher rates. *Munic J* 44:379 My 4 '18
- Water rate revision by municipal works. B. Brewer. *Eng & Contr* 48:497-8 D 12 '17
- Water rates and fire protection charges. *Munic J* 47:38-40, 54-6, 70-1, 88-90, 108-10, 122-3, 135-7 JI 19-Ag 30 '19
- Water rates at Niagara Falls. *Munic J* 44: 377 My 4 '18
- Water rates in 13 large American cities. *Eng & Contr* 52:313 S 10 '19

**Water rights**

Water rights' determination from an engineering standpoint, by J. M. Whitman. Review by R. E. Horton. Eng N 81:547-9 S 19 '18

Water rights in mining; legal elements defining ownership in water. C. C. Sherlock. Eng & Min J 108:181 Ag 2 '19

Water supply and the public lands. W. B. Heroy. J Elec 43:24 Jl 1 '19

*See also* Water laws and legislation

**Water sheds. See Watersheds****Water shut-off boxes**

How water shut-off boxes are made. Il diag Foundry 47:495-8 Ag 1 '19

**Water softening**

Boiler water treatment. U S Bur Mines Tech Pa 218:1-8 '19; Same. Ry R 64:547-9 Ap 12 '19; Same. Eng & Contr 51:519-20 My 14 '19; Same. Power 50:198-9 Jl 29 '19

Chemical control of water softeners; a discussion of the reactions involved in the lime-soda-ash process. L. F. Clark. Chem & Met Eng 19:674-7 N 1 '18

Combined water purification and softening plant of Great Falls, Mont. Il Eng & Contr 49:28-31 Ja 9 '18

Great Falls, Mont., water purification and softening plant. Il Munic J 43:553-5 D 6 '17; Same. Munic Eng 54:3-5 Ja '18

Home-made water-softening plant. H. D. Odell. Il Power 48:728-31 N 19 '18

Improvements in water softening practice on the Chicago & Eastern Illinois R. R. W. H. Hobbs. Ry R 62:161-3; 63:633-5 F 2, N 2 '18; Discussion. 62:167, 188-90, 311-13, 484-5 F 2-9, Mr 2, 30 '18

Increasing the capacity of a water softener without enlargement. C. R. Knowles. diag Ry Age 65:448-9 S 6 '18

International water softener. Il Ind Management 56:253 S '18

Lime softening of water and the use of sludge as an aid thereto. W. A. Sperry. Am Water Works Assn J 6:215-27 Je '19; Same abr. Eng & Contr 51:364-5 Ap 9 '19; Abstract. Eng N 82:973-4 My 15 '19; Discussion. Am Water Works Assn J 6:228-9 Je '19

New type of lime and soda softening plant for water purification. diag plan Eng & Contr 52:509 O 29 '19

Purifying water for sealing steam turbine glands. J. B. Linker. diag Power 47:772 My 28 '18

Water softening at Daytona, Florida. G. A. Main. Il Munic J 44:463-6 Je 8 '18

Water softening for municipalities. M. F. Stein. diag plans Am Water Works Assn J 6:202-14 Je '19; Same abr. Eng & Contr 51:353-6 Ap 9 '19

Water softening plant on construction job pays for itself in two months. M. W. Woolsey. Eng & Contr 51:393-4 Ap 16 '19

*See also* Feed water purification

**Water storage**

Advantages and disadvantages of the storage of water. M. C. Whipple. Eng & Contr 50:468-9 N 13 '18

Algal growths and water filtration. Engineer 128:233-4 S 5 '19; Same. Eng & Contr 52:486-7 O 29 '19

General principles of the development and storage of water for electrical purposes. J. W. Meares. diag Inst E E J 57:426-39 Je '19; Same cond. Engineer 128:186-9 Ag 22 '19

Sanitary effect of water storage in open reservoirs. A. Wolman and S. T. Powell. diag Eng N 83:804-5 O 30 '19

*See also* Dams; Irrigation; Rain and rainfall; Reservoirs; Water supply

**Water supply**

Determination of water-supply from snow fields. diag Eng N 83:766-8 O 23 '19

Influence of forests on water power supply. A. A. Griffin. Il J Elec 42:268-70 Mr 15 '19

Rivers as sources of water supply. R. S. Weston. Munic Eng 54:59-60 F '18

**Study of water supply for budget purposes.**

W. W. Brush. Am Water Works Assn J 6:80-6 Mr '19

Water supply problem of our state institutions; with discussion. F. J. Postel. Am Water Works Assn J 6:276-84 Je '19

Waterahed leakage in relation to gravity water-supplies. R. E. Horton. Eng N 83:826-7 O 30 '19

Why and wherefore of sanitary engineering. A. Bateman. diag Dom Eng 85:323-5+ N 30 '18

*See also* Aqueducts; Armies—Water supply; Artesian wells; Cisterns; Cooling water; Dams; Dewponds; Drinking fountains; Feed water; Filters and filtration; Fire service; Hot water supply; Hydrants; Hydraulic engineering; Irrigation; Plumbing; Pumping machinery; Pumping stations; Pumps; Railroads—Water supply; Rain water (water supply); Reservoirs; Snow surveys; Standpipes; Water companies; Water consumption; Water meters; Water pollution; Water purification; Water storage; Water supply engineering; Water tanks; Water towers; Water waste; Waterworks; Wells

**Rates**

*See* Water rates

**Alabama**

Increasing the well water supply of Montgomery. A. O. Beauchemin. Munic Eng 55:59-60 Ag '18

**Australia**

Cabbage Tree Creek reservoir for Brisbane water supply. Il Engineer 125:70. 74 Ja 25 '18  
Regulating storage reservoir on the upper Murray river. diag map plan Engineer 128:49-50 Jl 18 '19

**California**

Health board orders water company to install filters. Eng N 80:449 Mr 7 '18

*See also* Water power—California

**Canada**

Greater Winnipeg new water supply. diag map plan Engineer 128:399-401 O 24 '19

**Chile**

Constructing a 98-kilometer water conduit in Chile. G. H. Bayles. Il diag plan Eng N 83:593-9 S 25 '19

**England**

Derwent Valley waterworks. Engineer 125:325 Ap 12 '18

**France**

French waterworks and roads interest American engineers. P. Hansen. Eng N 80:478-9+ Mr 7 '18

**Great Britain**

National control of watersheds. C. G. Hengell. Munic J 45:444-5 D 7 '18

**Hawaiian Islands**

Water resources of Hawaii. J Fr Inst 185:440-1 Mr '18

**Illinois**

Quality of water in Illinois streams; with discussion. M. E. Jewell. Am Water Works Assn J 6:290-6 Je '19

**Iowa**

Future public water supplies in Iowa. L. Higgins. Am Water Works Assn J 6:844-51 N '19; Excerpts. Eng & Contr 51:514 My 14 '19

**Kansas**

Conserving city water-supplies in southeastern Kansas. F. M. Veatch and F. N. Raymond. Eng N 82:145-6 Ja 16 '19

**Massachusetts**

Ipswich river water supply for the city of Lynn. H. K. Barrows. Il diag map Munic Eng 57:133-4+ S '19

**Water supply—Massachusetts—Continued**

Pumping in the Metropolitan water district of Massachusetts. A. O. Doane. *Am Water Works Assn J* 4:504-13; Discussion. 513-16 D '17

**New York**

Some results of supervision of public water supplies by N.Y. state department of health. T. Horton. *Eng & Contr* 52:413 O 8 '19

**Ontario**

Watershed run-off in Ontario. *Munic J* 47:203 S 27 '19

**Palestine**

Ancient, war-time and present water-supply in Jerusalem. H. Y. Carson. *Il Eng N* 82:1092-4 Je 5 '19

Some water supply problems in Palestine. H. Y. Carson. *Il Am Water Works Assn J* 6:439-43 S '19

**Philippine Islands**

Philippine water-supplies get strict sanitary supervision. G. W. Heise. *Eng N* 82:238-40 Ja 30 '19

**Uruguay**

Americans build sewer and water systems for three Uruguayan cities. A. A. Northrop. *Il map Eng N* 81:401-4 Ag 29 '18

**Utah**

Protect water-supply creek from pollution and ice in Salt Lake City. *Il Eng N* 81:411 Ag 29 '18

**Wisconsin**

Artesian wells for water supply, with special reference to the artesian wells of Wisconsin. W. G. Kirchoffer. *Munic Eng* 55:136-8 O '18

**Water supply, Hot.** See Hot water supply

**Water supply, Rural**

Creating sales for water supply systems. *Il Metal Work* 91:831-3 Je 27 '19

Development of water supplies for rural communities in Saskatchewan. E. L. Miles. *plans Eng & Contr* 50:254-5 S 11 '18

Double water supply system in country home. *Il plan Metal Work* 89:351-3 Mr 15 '18

Farm bungalow sets example in modern equipment. G. Haig. *Il diag plan Dom Eng* 88:461-2 S 6 '19

Hot and cold water in the farm kitchen. *Il Sci Am* 118:109+ F 2 '18

Need of water supply and plumbing systems in farm and country homes. *Dom Eng* 82:336-8 Mr 2 '18

Overhauling the plumbing in an old colonial mansion. R. J. Gordon. *diag Dom Eng* 89:169-72+ O 25 '19

Pneumatic water systems for country houses and estates. J. A. Deyo. *Il plan Am Arch* 112:480-5 D 26 '17

Pressure water supply lightens farm work. *Il Metal Work* 90:382-3 O 4 '18

Private water supply system for country estate. *diags Dom Eng* 85:248-9 N 16 '18

Selling private water supply systems to rural homes. I. Spear. *Dom Eng* 82:476-9+ Mr 30 '18

Selling the farm water supply outfit. *Il diag plan Metal Work* 89:630-1 My 17 '18

Selling water systems. T. E. O'Brien. *Metal Work* 91:210 F 14 '19

Suggestions for the farm water supply campaign. F. S. Hanley. *Dom Eng* 82:494 Mr 30 '18

Typical complete water supply system for installation in garage basements. J. A. Deyo. *Il diag Am Arch* 115:861-5 Je 18 '19

Water-supply, sewerage and heating for Florida home. W. G. Kirchoffer. *diags plan Eng N* 81:443-4 S 5 '18

Water supply systems for hilly country. J. H. Brookes. *diags Metal Work* 91:747-8+ Je 13 '19

Water systems for farm homes. G. M. Warren. *Il diags plan U S Agric Farmers' Bul* 941:1-68 '18

**Water supply engineering**

Ancient, war-time and present water-supply in Jerusalem. H. Y. Carson. *Il Eng N* 82:1092-4 Je 5 '19

Cantonment construction. M. Knowles. *Il diags Eng Soc W Pa* 34:214-23 Mr '18

Capacity tests of a water tunnel. F. A. Smith. *Eng & Contr* 50:269 S 11 '18

Constructing a 98-kilometer water conduit in Chile. G. H. Bayles. *Il diags plan Eng N* 83:593-9 S 25 '19

Construction features of water supply system and sewerage works for the Camp Custer cantonment. *Il Eng & Contr* 48:479-82 D 12 '17

Construction methods employed in building the new intake and remodeled reservoirs of the Oshkosh, Wisconsin, water works. T. B. Jorgensen. *Il Munic Eng* 55:101-3 S '18

Design and construction of the water supply system of Camp McClellan, Alabama. M. R. Scharff. *Munic Eng* 57:44-7 Jl '19

Design and construction of water and sewer systems at Camp Custer, Battle Creek, Mich. D. W. Bingham. *Munic Eng* 53:241 D '17

Design and construction of water and sewerage works at the Hog Island shipyard. W. H. Blood, jr. *Il Munic Eng* 55:54-7 Ag '18

Details of the design and construction of the water supply of Camp Meade, Md. M. Knowles. *Il Munic Eng* 54:49-50 F '18

Dual system of water supply recommended for eastern cities. R. J. Thomas. *Munic Eng* 54:15-16 Ja '18

Economical design of water conduits. W. T. Taylor. *diag Engineer* 128:293-6 S 26 '19

Economical section of water conduit for power development. C. T. Hutchinson. *diag Mech Eng* 41:369-71 Ap '19; Same. *Eng & Contr* 51:508-10 My 14 '19

Gallery collecting system of the Des Moines (Ia.) water co. A. T. Luce. *diags plan Eng & Contr* 52:32-4 Jl 9 '19; Same. *Munic Eng* 57:75-7 Ag '19; Same. *Am Water Works Assn J* 6:476-85 S '19

Graphical records of surge pressures in pipe lines. R. Bennett. *diag Eng N* 82:1048-50 My 29 '19; Abstract. *Mech Eng* 41:618-20 Jl '19

Greater Winnipeg new water supply. *diags map plan Engineer* 128:399-401 O 24 '19

Index numbers and scoring of water supplies. A. Wolman. *Am Water Works Assn J* 6:444-56 S '19

Links in the history of engineering. R. Jenkins. *Il Engineer* 126:333-4 O 18 '18

Los Angeles water department appliances. C. W. Geiger. *Il Munic J* 44:159-61 F 23 '18

Oklahoma City wages strenuous fight for water. *Il diags Eng N* 81:752-4 O 24 '18

Practical hints on various features of water works design. J. W. Ledoux. *Munic Eng* 54:23-7 Ja '18

Pumping experiments for subsoil water supply for Puri, India. *diag Eng & Contr* 50:425-6 O 30 '18

Pumping machinery used by service of supply of American expeditionary forces in France. W. B. Gregory. *Mech Eng* 41:462-3 My '19

Sheet piling channel in forebay eliminates slush ice. *Il diag Eng N* 80:615-16 Mr 28 '18

Solving the water supply and sewerage problems at the Camp Pike cantonment. E. B. Black. *Il Munic Eng* 53:177-8 N '17

Special features of improvements to main water supply lines of Bayonne, N. J. N. S. Hill, jr. *Il Munic Eng* 55:14-16 Jl '18

Water supply and sewage disposal at the military aviation fields, posts, depots, etc., in the United States. R. H. Craig. *Am Water Works Assn J* 6:664-78 N '19

Waterworks and sewerage of Buenos Aires, Argentina. A. B. Lea. *Il Eng & Contr* 51:162-4 F 12 '19

Water works at Camp Grant. C. B. Burdick. *Am Water Works Assn J* 5:100-9 Je '18

Water works operation statistics; appliances used. *Munic J* 44:365-74+ My 4 '18

See also Aqueducts; Arries—Water supply; Canals; Dams; Filters and filtration; Hydraulic engineering; Irrigation; Pipe laying; Plumbing; Pumping machinery; Pumping stations; Pumps; Siphons; Wa-

- Water supply engineering—Continued**  
 ter conduits; Water distribution; Water flow; Water hammer; Water meters; Water pipes; Water storage; Water towers; Waterworks; also Catskill aqueduct
- Water supply for armies.** See Armies—Water supply
- Water supply for factories**  
 Cold drinking water during hot weather. H. L. Alt. diags plan Dom Eng 84:120-1, 160-1 J1 27-Ag 3 '18  
 Cooling drinking water. Factory 20:858 My '18  
 How to sell drinking fountains to factories. D. H. Bowler. Dom Eng 83:291 My 25 '18  
 Water supply of the Old Hickory works. O. E. Bulkeley. Am Water Works Assn J 6:427-38 S '19  
 Watering and un-watering an industrial plant and its relation to the public water supply. W. F. Wilcox. Munic Eng 54:206-9 My '18  
 What it pays to know about factory water supply. C. L. Hubbard. II Factory 22:453-5, 689-92, 919-23, 1165-8 Mr-Je '19  
 Youngstown sheet & tube co. cools drinking water for mill workers. Iron Tr R 65:421-2 Ag 14 '19
- Water supply for fire service.** See Fire service (water supply)
- Water supply for mines**  
 Drinking water and morale. R. W. Arms. Eng & Min J 108:453 S 13 '19  
 Old diamond-drill hole as cableway for new churn-drill hole. R. H. Poston. diags Eng & Min J 108:398 S 6 '19  
 Water supply at coal mines. C. Scholz. diag plan Coal Age 15:391 F 27 '19
- Water supply for power plants**  
 Water intake screens are easily and quickly cleaned. II Elec W 73:793 Ap 19 '19
- Water tables**  
 Country house details: the best way to place and frame water-tables so that they will be weather tight. A. B. Greenberg. diags Bldg Age 41:24-6 Ja '19
- Water tanks**  
 Concrete foundation for a wooden water tank. diags plan Ry Age 67:473 S 5 '19  
 Concrete shell built around tall steel water tanks. II diags Eng N 79:305-7 Ag 16 '17; Abstract. Eng & Contr 48:389 N 14 '17; Abstract. Munic Eng 53:240-1 D '17; Abstract. Sci Am 119:128 Ag 17 '18  
 Data on supplying water from tanks. C. L. Hubbard. diags Metal Work 91:707-11 Je 6 '19  
 House tanks in large buildings. H. L. Alt. Dom Eng 85:366 D 7 '18  
 Pneumatic water supply system. H. L. Alt. diags Dom Eng 82:47-9+ Ja 12 '18  
 Special features in recent water tank and tower construction. M. Whitacre. II Munic Eng 54:190 My '18  
 Wooden tanks: abstracts. C. R. Knowles. Ry Age 65:708-10 O 18 '18; Eng N 81:754 O 24 '18; Eng & Contr 50:202, 466 Ag 21, N 13 '18  
 See also Water towers
- Water tanks, Concrete**  
 40,000 gal. reinforced concrete tower and tank built for \$3,100. diag Eng & Contr 50:261-2 S 11 '18  
 New water treating plants for the Burlington. II diags plans Ry R 63:661-6 N 9 '18  
 Water tanks of concrete staves. II diag Sci Am 120:25 Ja 11 '19  
 Water tanks without form work. H. B. Wright. II Concrete 14:89-90 Mr '19
- Water testing stations.** See Water purification—Testing stations
- Water towers**  
 Special features in recent water tank and tower construction. M. Whitacre. II Munic Eng 54:190 My '18  
 Water plus gravity for fire fighting. II Factory 21:643 O '18  
 Water towers and standpipes. Eng & Contr 50:270 S 11 '18  
 See also Standpipes; Water tanks
- Water towers, Concrete**  
 40,000 gal. reinforced concrete tower and tank built for \$3,100. diag Eng & Contr 50:261-2 S 11 '18  
 Range of results obtainable in the use of concrete in water tank construction. C. C. Whitaker. II diags plans Munic Eng 54:96-101 Mr '18
- Water trees.** See Trees
- Water-tube boilers.** See Boilers, Water-tube
- Water waste**  
 Buffalo water-waste survey saves water, coal and labor. G. C. Andrews. Eng N 81:1033-4 D 5 '18  
 Curtailing water waste and fixing equitable rates at Sault Ste Marie, Michigan. W. M. Rich. Munic Eng 57:90+ Ag '19  
 Curtailment of water waste. C. R. Knowles. diags Ry R 63:666-7 N 9 '18  
 Devices for water-waste surveys at Oak Park, Illinois; abstracts. H. P. Matte. II charts Eng N 82:823-31 Ap 24 '19; Eng & Contr 51:621-3, 632 Je 11 '19  
 How to conserve fuel by the elimination of water wastes in plumbing systems. Dom Eng 85:78-81 O 19 '18  
 Kinks in water-waste detection at Oak Park, Ill. Eng N 80:964 My 16 '18  
 Leakage test of wood-stave pipe line. V. M. Crown. map Eng N 83:264 Ag 7 '19  
 Leaks from high pressure fire service mains. New York city. H. B. Machen. Am Water Works Assn J 5:44-8 Mr '18; Same cond. Eng & Contr 50:256 S 11 '18  
 Little drops of water run into money. J. H. Perry. diag Dom Eng 84:5 J1 6 '18  
 Measures adopted to curtail water consumption in the city of St Louis. E. E. Wall. Munic Eng 54:110-11 Mr '18  
 Meters help but are not sufficient to control waste. Eng N 80:918-20 My 9 '18  
 Philadelphia and New England in water and fuel saving campaigns. C. E. Davis. Eng N 81:329 Ag 15 '18  
 Poor plumbing and unruly temper cause institutional water waste. H. G. Thomas. Eng N 82:910 My 8 '19  
 Practical methods of detecting leaks in underground pipes. D. A. Heffernan. Eng N 81:528-9 S 19 '18; Same abr. Eng & Contr 50:350 O 9 '18  
 Publicity in water waste prevention work. W. V. Brush. diags Am Water Works Assn J 6:5-8 Mr '19  
 Pumpage of wasted water in Chicago consumes 100,000 tons of coal annually. Munic Eng 55:65 Ag '18  
 Reducing water losses in delivery in Chicago. Eng & Contr 49:601-2 Je 12 '18  
 Reducing water waste to save coal; figures derived from data relative to New York cities. Munic J 45:128-9 Ag 17 '18  
 Reduction of water consumption by means of pitometer survey and constant inspection at Buffalo, N.Y. G. C. Andrews. Munic Eng 56:236, 238-40 Je '19; Same cond. Munic J 47:51-3 J1 26 '19; Excerpts. Eng N 82:1196-7 Je 19 '19; Excerpts. Eng & Contr 52:43-4 J1 9 '19  
 Save water and help win the war. Munic J 45:131 Ag 17 '18  
 Saving water and conserving coal. G. W. Carpenter. Eng N 81:529-30 S 19 '18  
 Suggestions for preventing wasting of water. Eng & Contr 50:268 S 11 '18  
 Water consumption cut more than half at Newark, Ohio. F. H. Waring. Eng N 82:731-2 Ap 10 '19  
 Water waste control by house inspections with district metering. E. D. Case. Eng & Contr 52:303 S 10 '19  
 Water waste elimination; methods and results at Oak Park, Ill. H. P. T. Matte. diags Am Water Works Assn J 5:263-71 S '18; Same abr. Eng & Contr 50:340-1 O 9 '18  
 Water waste in Philadelphia. Munic J 44:377 My 4 '18  
 Water waste prevention surveys in Washington. P. Lanham. II charts Munic J 47:250-4 O 25 '19  
 Water-waste report of Chicago Bureau of public efficiency written to educate lay public. Eng N 80:268-70 F 7 '18

**Water waste—Continued**

- Water waste survey in Buffalo; with discussion. E. D. Case. *Am Water Works Assn J* 6:54-7 Mr '19
- Water waste warnings on back of water bill. Eng & Contr 50:344 O 9 '18
- Water works conservancy. A. A. Reimer. *Munic Eng* 56:24-8 Ja '19
- Water works operation—leakage and waste. *Munic J* 44:507+, 526-7; 45:2-3+, 25+, 49+, 70+, 90-1 Je 22-Ag 3 '18
- Waterworks operation; reservoir maintenance. *Munic J* 46:10-12 Ja 4 '19
- What are you going to do about it, and Meter matters. Eng & Contr 50:457-8 N 13 '18
- What becomes of the water pumped in Chicago? Eng & Contr 49:274-6 Mr 13 '18
- What your small leaks cost you. *Factory* 20:56+ Ja '18
- Women water-waste inspectors at Baltimore, Maryland. W. E. Lee. II Eng N 82:1105 Je 5 '19

See also Seepage; Water meters

**Water wheels**

- Little power obtainable from current water-wheel. *Power* 48:467 S 24 '18
- Loss of power in waterwheels. W. Weaver. *Power* 48:246 Ag 13 '18
- Old Southern mill has curious horizontal wheel. H. K. Higgins. *diags plan Eng N* 82:675-6 Ap 3 '19
- Origin of the Pelton water wheel. C. H. Tallant. II *J Elec* 43:265-6 S 15 '19
- Shipments of waterwheels manufactured here in 1918. *Elec W* 74:847 O 18 '19
- Utilize dry season to overhaul waterwheels. C. A. Graves. *diags Elec W* 72:203 Ag 3 '18
- Waterwheel types and settings. D. R. Shearer. *diags Power* 48:670-2 N 5 '18

See also Turbines

**Water works. See Waterworks****Watering troughs**

- Making a concrete watering trough. G. W. Childs. *diags plan Bldg Age* 40:207 Ap '18

**Watermelons**

- Paste which preserves watermelons. *Sci Am* 121:299 S 20 '19

**Waterproofing**

- Adhesive waterproofs drawings and tracings without crimping. J. S. Carpenter. *Eng N* 81:597 S 26 '18
- Apparatus for mixing soap and alum waterproofing with concrete. H. V. Knouse. *diag chart Eng & Min J* 103:388 Mr 3 '17
- Building concrete foundations: how to make them waterproof. E. I. Freese. *diags plan Bldg Age* 41:250-1 Ag '19
- Cement as a waterproofing compound. E. H. Mosher. *Concrete* 15:39 Jl '19
- Facing leaky rock fill dam with creosoted timber planks. G. M. Bull. II *diags Eng N* 81:229-31 Ag 1 '18
- How concrete can be made waterproof. *Bldg Age* 40:150-1 Mr '18
- Leaky basements made waterproof. O. Robinson. *Concrete* 13:130 O '18
- Making a concrete cellar wall dry. H. C. Campbell. *diags Bldg Age* 40:347-9 Jl '18
- Making damp cellars waterproof. *Bldg Age* 39:692 D '17; Discussion. 40:32 Ja '18
- Making the cellar waterproof. J. Y. Dunlop. *diags Bldg Age* 41:26-7 Ja '19
- Observations on waterproofing of concrete. C. A. Whittemore. *Arch Forum* 31:95-7 S '19
- Portland cement construction for chemical works. M. Toch. *Chem & Met Eng* 19:487-8 S 27 '18
- Repairing a leaky basement wall. *Concrete* 11:184 D '17
- Tests of moisture and water resistant coatings. H. A. Gardner. *Aviation* 6:539-40 Je 15 '19
- Water-tight concrete. *Bldg Age* 40:65-6 Ja '18
- Waterproofed floors for railway crossings over streets. H. T. Welty. *diags Eng N* 81:1081-6 D 12 '18
- Waterproofing a damp basement. *diags Bldg Age* 40:309-10 Je '18
- Waterproofing bridge floors with burlap. A. H. Rhett. *Eng N* 82:299-300 F 6 '19

**Waterproofing cement pole settings. M.**

- Rogers. *diag Elec R* 72:465 Mr 16 '18
- Waterproofing concrete; letters of a general superintendent of concrete construction to his son. *Concrete* 13:21-2 Jl '18
- Waterproofing railway ties to preserve them. H. K. Wicksteed. *Ry Age* 66:849-50 Mr 28 '19; Same. *Eng & Contr* 51:537-8 My 21 '19

See also Corrosion and anti-corrosives

**Bibliography**

- Structural service department; damp-proofing, waterproofing and underwater construction. *Am Inst Arch J* 6:44-6 Ja '18
- Waterproofing of textiles**
- Deterioration of burlap in waterproofing. *Eng N* 82:440-1, 682-3 F 27, Ap 3 '19
- Manufacture of waterproofed canvas. E. R. Clark. *Textile World* 53:5585+ My 18 '18
- Processes for waterproofing textile fabrics. L. J. Matos. *Textile World* 53:3457+ Ja 26 '18
- Water-resisting process on military cloths. H. P. Pearson and F. Sundermann, jr. *Textile World* 53:3075+ Ja 12 '18
- Waterproofing braided cord. *Textile World* 54:947 Ag 31 '18
- Waterproofing gauze. *Textile World* 54:537 Ag 3 '18
- Waterproofing processes for textile fabrics. W. H. Adams. *Textile World* 53:3073+ Ja 12 '18
- Waters, Mineral. See Mineral waters**
- Watersheds**
- National control of watersheds. C. G. Hengell. *Munic J* 45:444-5 D 7 '18
- Snow surveys of water sheds. II *Munic J* 46:234-6 Mr 29 '19
- Watershed leakage in relation to gravity water-supplies. R. E. Horton. *Eng N* 83:826-7 O 30 '19
- Waterways**
- Co-ordinated transportation between railways, ocean and rivers. F. G. Newlands. *Int Marine Eng* 23:57-9 F '18
- Railroads as feeders to waterways. W. D. Hines. *Ry R* 64:312-13 Mr 1 '19
- Railways, waterways and highways. E. A. Bradford. II *Ry R* 62:935-8 Je 29 '18
- Water transportation for relieving railroad congestion. *map Coal Age* 13:831-2 My 4 '18

See also Canals; River traffic; Rivers; Ship railroads; also Names of canals and rivers, e.g. Panama canal, Rhine river

**Switzerland**

- Switzerland connected to the Mediterranean. *Sci Am S* 86:148 S 7 '18

**United States**

- Canals ready to help handle freight traffic. *Eng N* 80:488-9 Mr 7 '18
- Engineering activities of the Twin Cities. F. C. Shenehon. *Eng N* 82:1251-4 Je 26 '19
- Imperative need of the Lakes to the Gulf deep waterway. H. B. Morgan. *Munic Eng* 54:6-7 Ja '18
- Industrial influence of waterways. H. C. Plummer. II *Ind Management* 57:353-8 My '19
- Inland waterway development lags. *Eng N* 81:696-7 O 17 '18
- Lower Mississippi as an arm of the sea; potential value to the new American merchant marine. M. von Pagenhardt. *Int Marine Eng* 23:59-61 F '18
- National rivers and harbors congress 14th annual meeting. *Ry Age* 66:400 F 14 '19
- Need of inland water transportation. W. E. Joyce. *plan Coal Age* 16:487-9 S 11 '19
- Plans for the development of inland water transportation. W. Parker. *Ry R* 62:661-3 My 4 '18; Excerpts. *Am Lumberman* 2241:47 Ap 27 '18
- Progress of inland waterways development. W. Parker. *Eng & Contr* 49:40 Ja 9 '18
- Waterway policy of the Railroad administration. W. D. Hines. *Ry Age* 66:998-1000 Ap 18 '19; Excerpts. *Ry R* 64:577-9 Ap 19 '19

**Waterways—United States—Continued**

What the government did in inland waterway navigation. W. G. McAdoo. Eng N 82:480-1 Mr 6 '19

See also Great Lakes; Mississippi river

**Waterworks**

Albany water-works a hundred years and more ago. Eng N 83:605 S 25 '19  
Antwerp water works during the war period. Mr. Van der Taelen. Am Water Works Assn J 6:486-9 S '19  
Breadth of view in water works design. J: W. Alvord. Munic Eng 54:57-8 F '18  
Chicago water works notes. Munic J 45:283-4 O 12 '18  
Concrete in water works construction. A. C. Irwin. II Munic Eng 57:225-8+ N '19  
Construction of water and sewerage systems for the cities of Salto, Paysandu and Mercedes, Republic of Uruguay, South America. G. E. Hines. II Munic Eng 55:85-91 S '18  
Crisis in the Harrisburg, Pa., water department and its cause. Eng N 80:316 F 14 '18  
Design features and form of contract for constructing a large earthen water supply dam on cost plus fee basis. J. L. Crane, Jr., and J. G. Kimmel. diag map Munic Eng 57:85-6+ Ag '19  
Dionic tester in water works service. J. Race. Eng & Contr 50:40-1 JI 10 '18  
Economic considerations in municipal engineering designs. C. S. Burns. Eng & Contr 49:366-8 Ap 10 '18  
Effect of war conditions on water works. Munic J 44:376-7 My 4 '18  
Effect of war conditions upon construction, operation and maintenance of water works. Eng & Contr 50:176-7 Ag 14 '18  
Holland, Mich., water and light plants operated on same basis as private utility. Eng & Contr 48:496-7 D 12 '17  
Improving Providence water supply. J: R. Hess, Jr. II diags Munic J 46:350-3 My 17 '19  
Lack of foresight in municipal water-supplies. M. Knowles. Eng N 83:599 S 25 '19  
Milwaukee water works. Munic J 47:40 JI 19 '19  
New coal-handling plants for Philadelphia water-works. H. R. Cady. diags plans Eng N 82:1095-7 Je 5 '19  
New Madison water works. II diags plan Power 50:128-33 JI 22 '19  
Okmulgee's water supply and sewerage. Munic J 46:338-40 My 10 '19  
Pneumatic water works. Sci Am 118:408 My 4 '18  
Pumping plants for small water works. H: A. Symonds. Eng & Contr 52:422-3 O 8 '19  
Reconstructing Madison's water works. Munic J 47:164-5 S 13 '19  
Reconstruction of water works plant including filtration system without interruption of service. Fort Madison, Iowa. II Eng & Contr 49:355-7 Ap 10 '18; Same. Munic J 44:293-6 Ap 13 '18; Same cond. Eng N 80:766-7 Ap 18 '18; Same cond. Munic Eng 54:240-3 Je '18  
Some experiences gained in the private ownership of the public water supply works at Council Grove, Kansas. L: L. Tribus. II Munic Eng 57:38, 40+ JI '19  
Suggested improvements for waterworks of Fort Wayne, Ind. Eng & Contr 52:423-4 O 8 '19  
Water works for a small village. II Munic J 47:264-5 N 1 '19  
Water works improvements and fire insurance rates. K. L. Walling. Am Water Works Assn J 6:889-43 N '19; Same. Munic Eng 57:95-6 Ag '19  
Water works land for park purposes. Munic J 44:489-90 Je 15 '18  
Waterworks of Palmerston, Ontario. A. E. Davison. Munic J 45:82 JI 13 '18  
Water works parks in Fort Wayne. R. D. Evans. II Munic J 44:481-2 Je 15 '18  
Why adjacent waterworks should lay a connecting supply main. Eng & Contr 50:250 S 11 '18

See also Filters and filtration; Hydrants; Pumping stations; Pumps; Reservoirs;

Water conduits; Water distribution; Water pipes; Water purification; Water supply; Water supply engineering; Water towers; Water waste; also National industrial council for waterworks undertakings

**Accounting**

Accounting for interest and taxes; discussion. Am Water Works Assn J 5:40-3 Mr '18  
Advantages of classified cash book in water-works accounting. A. L. Sawyer. Eng & Contr 52:203-4 Ag 13 '19  
Block system of handling water consumers' accounts at Milwaukee, Wis. H. P. Bohmann. Eng & Contr 51:636 Je 11 '19  
Labor saving method of handling water consumers' accounts. W. H. Williams and W. P. Conway. Eng & Contr 51:352 Ap 9 '19  
Relation of depreciation to investment. W. C. Hawley. Am Water Works Assn J 6:305-19 Je '19  
Water utilities accounting. W.-A. Clader. J Account 28:81-94 Ag '19  
Water works accounting and billing. O. J. Ronge. Munic J 47:19-20 JI 12 '19

**Cost**

After-the-war prices on water works construction. R. E. McDonnell. Munic J 44:361-3 My 4 '18; Same. Eng & Contr 49:454-5 My 8 '18; Same. Munic Eng 54:238-9 Je '18  
Bidding prices in 1915 and 1919 on gravity water supply system. J. P. Wells. Eng & Contr 51:616 Je 11 '18  
Constructing a 98-kilometer water conduit in Chile. G: H. Bayles. II diags plan Eng N 82:593-9 S 25 '19  
Cost data on small water works systems. W: Artlingstall. Munic Eng 57:184+ O '19  
Cost figures on new Sooke lake water supply system, Victoria, B. C. C. H. Rust. Eng & Contr 52:191 Ag 13 '19  
Cost of constructing sewers and water mains at Montreal South, Que. Eng & Contr 52:415 O 8 '19  
Cost of water main construction at Los Angeles. Eng & Contr 51:259 Mr 12 '19  
Cost of water main construction at Pasadena, Cal. Eng & Contr 50:466 N 13 '18  
Effect of war conditions on the operation and maintenance of water works. Munic Eng 56:16-17 Ja '19  
Financial benefits of metering. G: H. Fenkell. Eng & Contr 51:165 F 12 '19  
Original cost and estimated life of Rockford, Ill., waterworks. Eng & Contr 52:38 JI 9 '19

**Finance**

American waterworks association to educate public on necessity for increased revenues for waterworks. Eng & Contr 49:467 My 8 '18  
Assessment for water main extensions in Los Angeles, California. Eng N 83:644 O 2 '19  
Columbus waterworks in 1918. Munic J 46:221-2 Mr 22 '19  
Diagrammatic representation of public utility commission decisions on fire charges. Eng & Contr 51:517 My 14 '19  
Duluth way of meeting cost of water-main extensions. D. A. Reed; E. J. Mehren. Eng N 82:789 Ap 10 '19  
Earnings and expenses of the Chicago waterworks, 1915 and 1916. Eng & Contr 49:161 F 13 '18  
Effect of the war period 1914-1918, and public control upon the water works of the United States. L. Metcalf. Am Water Works Assn J 6:785-803 N '19; Same cond. Munic J 46:451-4, 472-3 Je 21-23 '19; Excerpts. Eng N 82:1194-6 Je 19 '19; Excerpts. Eng & Contr 52:39 JI 9 '19  
Free water in Santa Rosa, Cal. Munic J 44:16-17 Ja 5 '18  
Funding sanitary improvements as a means of increasing water consumption. R. A. Butler and F. C. Jordan. Am Water Works Assn J 4:489-98 D '17; Excerpts. Eng N 77:478-9 Mr 22 '17; Discussion. Am Water Works Assn J 4:498-503 D '17; Eng N 78:372 My 17 '17



**Waterworks—Finance—Continued**

Hannibal's municipal light and water departments. *Munic J* 45:427-8 N 30 '18  
 How the city of Quincy, Illinois, purchased a \$1,000,000 water works plant with \$380,000. W. R. Gelston. *Munic Eng* 56:84-6 Mr '19  
 Plant extensions of public utilities financially considered. J. W. Ledoux. *Eng & Contr* 50:32-3 J1 10 '18; Same. *Am Gas Eng J* 109:76-7 J1 27 '18; Same. *Munic J* 45:9-10 J1 6 '18  
 Report of American water works association committee on war burdens of water works in the United States. *Am Water Works Assn J* 5:303-44 S '18  
 Study of revenue from sale of water to metered domestic consumer. P. Burgess. *Eng N* 82:1116-19 Je 5 '19  
 Trend of business and prices in the water works field. E. J. Bittenhelm. *Am Water Works Assn J* 6:403-8 S '19  
 War burdens of water-works of United States increase; from a report to the executive committee of the American water-works association. *Eng N* 81:308-12 Ag 15 '18  
 Water works profit in Charlotte, N.C. *Munic J* 45:192 S 7 '18

**Ice protection**

Freezing of a reservoir outlet works. G. Christie. *diag Eng & Contr* 51:444 Ap 30 '19  
 Keeping ice from ports of water intake. C. M. Daily. *il diags plan Eng N* 80:900-1 My 9 '18

**Laboratories**

American water works laboratories. J. J. Hinman, Jr. *Am Water Works Assn J* 5:133-41 Je '18; Same cond. *Eng & Contr* 48:485-7 D 12 '17

**Laws and regulations**

Advantages of state supervision of water works. F. Bass. *Munic Eng* 56:243-4 Je '19  
 Clarksburg, West Virginia, water board's new charter. S. G. Highland. *Am Water Works Assn J* 4:517-20 D '17  
 Suggestion in regard to state control in the design of small water works. F. Bass. *Am Water Works Assn J* 6:832-3 N '19

**Maintenance and repair**

Cleaning mains, leakage and meters; reports from various cities. *Munic J* 44:390, 412, 448, 468, 486, 508 My 11-18, Je 1-22 '18  
 Maintenance of public utility plants. R. J. Thomas. *Munic Eng* 56:14-15 Ja '19

**Management**

Advantages of combined operation of water and electric utilities and selling electric current for private use in Springfield, Ill. W. J. Spaulding. *Munic Eng* 56:229-30 Je '19  
 Analysis and quality of water—public use of grounds. *Munic J* 45:4-6, 26-7, 50-1, 71 J1 6-27 '18  
 Business of supplying water. G. M. Lorradne. *Eng & Contr* 49:452 My 8 '18  
 Economy kinks in water-works operation in Omaha. H. V. Knouse. *Eng N* 82:8 J1 8 '19  
 Five million children to be enrolled in the U. S. garden army and what this should mean to water works superintendents. *Eng & Contr* 49:449 My 8 '18  
 How a deficit of \$2,000 was changed to a surplus of \$27,000 in one year at the Waltham (Mass.) water works. B. Brewer. *diags Munic Eng* 54:108-10 Mr '18  
 Improvements in water distribution system under efficient organization. R. S. Spalding. *il diags Eng N* 80:921-3 My 9 '18  
 Managerial law of inspection and constructive criticism, with special reference to waterworks. H. P. Gillette. *Eng & Contr* 52:417 O 8 '19  
 Meters, rates, municipal use; reports from various cities. *Munic J* 44:391, 413, 449, 468, 487, 509 My 11-18, Je 1-22 '18  
 Operation of cantonment water-works. G. A. Johnson. *diags Am Water Works Assn J* 6:169-82 Je '19

Problems of a small water works plant from the manager's standpoint. T. C. Gordon. *Am Water Works Assn J* 5:165-6 Je '18  
 St Louis waterworks operation. E. E. Wall. *il Munic J* 45:481-3 D 21 '18  
 Some economies that may be effected in the operation and maintenance of the water works system. H. V. Knouse. *il Munic Eng* 57:136+ S '19; Excerpts. *Eng & Contr* 52:405-6 O 8 '19  
 Trend of wages paid by American water works. L. Metcalf. *Munic Eng* 55:197-8 D '18  
 Unique features of unified operation of water, sewerage and drainage facilities at New Orleans, La. G. G. Earl. *il Munic Eng* 56:121-9 Ap '19  
 Water waste elimination; methods and results at Oak Park, Ill. H. P. T. Matte. *diags Am Water Works Assn J* 5:263-71 S '18; Same abr. *Eng & Contr* 50:340-1 O 9 '18  
 Water waste prevention surveys in Washington. P. Lanham. *il charts Munic J* 47:250-4 O 25 '19  
 Waterworks operation. *Munic J* 44:359, 388-9+, 447+, 477+; 45:129-30, 188-9, 201-4, 226-7, 244-6, 264-6, 300-1, 322-4, 344-6, 408-10, 425-6, 445-7, 506-7; 46:10-12, 49-50, 65-7, 86-9, 105-7 My 4-11, Je 1-8, Ag 17, S 7-O 5, 19-N 2, 23-D 7, 28 '18-Ja 4, 18-F 8 '19  
 Water-works should push sales. C. M. Bell. *Eng N* 80:369-70 F 21 '18

See also Water meters; Water waste

**Rates**

See Water rates

**Records**

Location of water mains, connections and valves kept on card file. *plan Eng N* 79:1071 D 6 '17; *Eng & Contr* 49:35 Ja 9 '18  
 Memoranda of office records. A. W. Cuddeback. *diags Am Water Works Assn J* 5:429-33 D '18  
 Office records of the St Louis water division, distribution section. T. E. Flaherty. *Am Water Works Assn J* 5:412-18 D '18; Same. *Eng & Contr* 51:45-7 Ja 8 '19  
 Records of installation and maintenance of water mains and appurtenances of the municipal distribution system of the city of New York. W. Hauck. *Am Water Works Assn J* 5:448-50 D '18  
 Water works operation; securing and recording data—distribution system. *Munic J* 44:411+ My 18 '18

**Statistics**

Statistics on water works operation by American municipalities; reports from 66 cities on pumpage, meterage repairs and renewals, and depreciation. *Eng & Contr* 49:453 My 8 '18  
 Water works operation statistics; appliances used. *Munic J* 44:365-74+ My 4 '18

**Valuation**

Effect of war-time prices on water-works valuation. E. W. Clausen. *Munic Eng* 57:239-40 N '19  
 Engineer arbitrators fix value of water-company property. F. Gannett. *Eng N* 82:625-7 Mr 27 '19  
 Pennsylvania water rate decision covers many points. F. Gannett. *Eng N* 80:620-2 Mr 28 '18  
 Practical checks upon water-works depreciation estimates. L. Metcalf. *Am Water Works Assn J* 6:371-93 S '19  
 Watt, James, 1736-1819  
 James Watt centenary. *Engineer* 128:277-8, 308-9 S 19-26 '19; *Iron Tr J* 65:766-8 S 18 '19; *Locomotive* 32:239-43 O '19  
 James Watt centenary. H. T. Wade. *il Sci Am* 121:206+ Ag 30 '19  
 Sketch. *Engineer* 128:209-10, 226 Ag 29-S 5 '19; Same. *Eng & Contr* 52:483-4 O 29 '19  
 Sketch. C. H. Bromley. *por Power* 50:284-6 Ag 19 '19

**Watt, James—Continued**

Watt centenary celebration in England. I. W. Chubb. *Il diag Power* 50:596-8 N 22 '19

**Watt-hour meters**

Calibration of switchboard watt-hour meters. H. L. Smith. *Elec Ry J* 51:716 Ap 13 '18

Determining the size of watt-hour meter. *Elec W* 71:828-9 Ap 20 '18

Duplex dial watt-hour meter for electric locomotives using regenerative braking. *Il Elec Ry J* 54:402 Ag 23 '19; *Ry Age* 67:472 S 5 '19

Equipment inspection on a kw.-hr. basis. W. C. Bolt. *Il Elec Ry J* 53:575-7 Mr 22 '19

G. E. prepayment watt-hour meter. *Il Elec W* 71:1294 Je 15 '18; *Elec R* 72:1056-7 Je 22 '18

How to correctly read a watt-hour meter. V. H. Todd. *Il Power* 49:446-9 Mr 25 '19

Increasing revenue by the watt-hour meter. O. A. Knopp. *Il J Elec* 42:359-60 Ap 15 '19

Westinghouse recording-demand watt-hour meter. *Il Ind Management* 55:241 Mr '18

**Testing**

Calibrating standard watt-hour meters. F. A. Kartak. *Il diags Elec W* 74:740-2 O 4 '19

Special devices for testing many watt-hour meters. *Il Elec W* 74:759-60 O 4 '19

Special switch made for testing watt-hour meters. R. M. Berry. *diag Elec W* 72:891 N 9 '18

Testing direct-current watt-hour meters. P. B. Findley. *Il diags Power* 48:947-50 D 31 '18

Testing single-phase watt-hour meters using a rotating standard. P. B. Findley. *Il diags Power* 49:118-21, 168-71 Ja 28-F 4 '19

**Wattmeters**

Danger of 600-volt direct-current switchboard wattmeters. M. S. Montgomery. *Elec R* 72:845-6 My 18 '18

Obtaining power factor by use of wattmeter. E. G. Barrington. *diags Elec W* 71:140-1 Ja 19 '18

Wattmeter wrongly applied in measuring the power taken by a three-phase motor from a three-phase circuit. E. C. Parham. *diags Power* 50:16 J1 1 '19

**Wausau, Wisconsin****Water supply**

Removal of iron and manganese from water supply of Wausau. W. G. Kirchoffer. *Eng & Contr* 51:177-8 F 12 '19

**Wave lengths. See Light—Wave length; Spectrum analysis****Wave meter**

Heterodyning wavemeter. J. Scott-Taggart. *diag Sci Am S* 88:241+ O 25 '19

**Waves**

Blue coal; utilizing the energy of waves and tides. *diags plans Sci Am S* 87:156-7+ Mr 8 '19

Coasting in the wake of a ferry boat. *Il diags Sci Am* 121:158-9 Ag 16 '19

Way of a ship at sea. *diag Sci Am S* 87:184-5 Mr 22 '19

*See also* Electric waves; Ether of space; Light; Radiation; Shore protection; Sound; Vibration

**Waves, Electric. See Electric waves****Wax work**

Wax modeling from nature. P. Collins. *Il Sci Am S* 85:248-50 Ap 20 '18

**Waxes**

Wax palm and its uses. C. D. Mell. *Sci Am S* 86:395 D 21 '18

**Waybills**

Universal interline freight waybill adopted; general order no. 11. *Ry Age* 64:794-5 Mr 29 '18

Universal interline way-billing; general order no. 21. *Ry Age* 64:1068-9 Ap 26 '18

**Weagant, Roy A.**

Highly important invention disclosed in wireless telegraphy. E. J. Nally. *Elec R* 73:820 N 23 '18

**Weather**

*See* Atmospheric pressure; Meteorology. Agricultural; Rain and rainfall

**Weather forecasts**

Long range temperature forecasts. F. S. Wood. *Sci Am S* 85:318-20 My 18 '18

Ocean temperatures in long-range forecasting. C. F. Brooks. *Sci Am S* 87:166-7 Mr 15 '19

**Weaver, William Dixon, 1857-1919**

An appreciation by William E. Kelly. *Elec R* 75:832-4 N 15 '19

Lamme and Weaver honored by the A.I.E.E. *Il Elec W* 73:1123-4 My 24 '19

Sketch. *Elec W* 74:860-3 O 25 '19

**Weaving**

Bobbin stripper. *Il Textile World* 54:749 Ag 17 '18

Calculating the twill angle. C. J. Brickett. *Il Textile World* 54:183 J1 13 '18

Cover straps. *Textile World* 55:1685 Mr 15 '19

Injured heroes weave Blighy homespun. W. Davis. *Il Textile World* 55:399+ Ja 11 '19

Management of the dressing room. A. W. Anderson. *Textile World* 54:2449+ N 16 '18

Plating on large and small machines. *Textile World* 53:2792 Ja 5 '18

Production records for weave room. *Textile World* 54:2349+ N 9 '18

Simplifying the drawing-in draft. *Textile World* 56:1515+ S 13 '19

Thick and thin places in cloth. *Textile World* 56:929 Ag 16 '19

Weaves used in linen fabrics. T. Woodhouse. *Il diags Textile World* 55:1049+ F 8 '19

Weaving artificial silk yarns. *diags Textile World* 55:3835+ Je 21 '19

*See also* Lace; Linen; Looms; Textile fabrics; Woolen and worsted manufacture

**Webb law. See Export trade****Wedge bolts. See Steam engines****Weeds**

Chemical method of killing weeds. *Il Munic Eng* 54:161 Ap '18

Cleaning lakes of weeds with the submarine saw. *Il Sci Am* 118:269 Mr 30 '18

Killing weeds with live steam. *Il Sci Am* 120:599+ Je 7 '19

Mowing weeds on interurban right-of-way. E. Main. *Il Elec Ry J* 54:569 S 20 '19

Spent oxide as a weed eradicator. M. G. Hall. *Gas Age* 41:273 Mr 15 '18

Submarine saw removes weeds in streams and lakes. *Il Eng N* 80:305-6 F 14 '18

Sugar cane paper for fighting weeds. *Il Sci Am* 118:358 Ap 20 '18

**Weighing**

Single deflection method of weighing. P. H. M.-P. Brinton. *Am Chem Soc J* 41:1151-5 Ag '19

Small weights on big scales. M. D. Church. *Il Power* 47:405-6 Mr 19 '18; *Same. Sci Am S* 86:163 S 14 '18

Weighing a 2,000-ton coke pile with postal scales. R. W. Bumstead. *Il Factory* 23:1053-4 N '19

Weighing patterns and castings by their displacement of water. W. H. Sargent. *diags Am Mach* 49:173 J1 25 '18

*See also* Balances; Coal weighing; Scales

**Weighing machines**

Electric weighing of a moving mass. J. M. Bird. *Il Sci Am* 119:111+ Ag 10 '18

Turner automatic water weigher. *diag Power* 50:297 Ag 19 '19

*See also* Track scales

**Weights and measures**

American decimal system of weights for paper. *Inland P'tr* 62:393-5 Ja '19

Congress should eliminate long tons. *Coal Age* 13:1205 Je 29 '18

Fluid ton. A. W. Allen. *Eng & Min J* 107:16-17 Ja 4 '19

Fluid ton. *Eng & Min J* 106:504 S 14 '18

Japanese weights, measures and money, with English and French equivalents. *Eng & Min J* 105:1075 Je 15 '18

Materials for the household. *U S Bur Stand Circ* 70:234-54 '17

**Weights and measures—Continued**

- New standards for French industry. F. Milltown. Iron Tr R 63:600 Ag 29 '18
- Report of committee. Am Soc M E J 40:756-66 S '18
- Sexagesimal trade units; factors and factor interrelations of gallons, pounds, cubic feet, and gravities. Chem & Met Eng 19:178 Ag 15 '18
- Some metrological memories. T: C. Mendenhall. J Fr Inst 186:104-6 Jl '18
- Table for converting cubic yard weight to tons. T. A. Polansky. Eng & Contr 52:161 Ag 6 '19
- Table of unit displacement of commodities. U S Bur Stand Clrc 77:1-67 '19
- Useful conversion multipliers. Power 47:366 Mr 12 '18
- Weights and measures of Latin America. F: A. Halsey. Am Soc M E J 40:947-52 N '18; Excerpts. J Elec 42:123-4 F 1 '19
- Why have two tons in America? Coal Age 13:1166 Je 22 '18
- Work of International bureau of weights and measures. C.-E. Guillaume. Sci Am S 86:186-7 S 21 '18
- See also* Decimal system; Electric measurement; Gages; Gaging; Measuring instruments; Mensuration; Metric system; Specific gravity; Units
- Weilmann, Petr Petrovic von**
- Dispersoidology and the theory of von Weilmann. S. C. Bradford. Sci Am S 87:182-3 Mr 22 '19
- Weirs**
- Construction and use of farm weirs. V: M. Cone. diags plan U S Agric Farmers' Bul 813:1-18 '17
- Universal weir chart. E. E. Glass. diags Eng N 82:926 My 8 '19
- Welding**
- Acetylene welding. Ry Mech Eng 93:442 Jl '19
- Acetylene welding in the natural gas field. C. P. Clappitt. Il Gas Age 42:341-3 O 15 '18
- Airco welding torch. Il Am Mach 51:772 O 23 '19
- Aluminothermic process and its application in the non-ferrous industry. A. F. Braid. Il Metal Ind 16:40-1 Ja '18
- Are there any advantages in welding boiler plate? H. L. Boyd. Il Cal Safety News 2:5-13 Mr '18; Same. Power 48:504-6 O 1 '18
- Autogenous welding at Albuquerque. H. L. Hahn. diags Ry Mech Eng 93:271-2 My '19
- Autogenous welding at Sayre shops, Lehigh Valley R. R. Ry R 62:855-6 Je 15 '18
- Autogenous welding in automotive repairs. T: P. Bowman. Il Motor Age 36:22-4 Jl 3: 26-7 Jl 10; 32-3 Jl 17; 32-4 Jl 31; 28-9 Ag 7; 26-7 Ag 14; 30-1 Ag 21; 32-3 Ag 28; 24-5 S 4; 30-1 S 11; 28-9 S 18; 30-1 S 25; 28-9 O 2; 36-7 O 9; 38-9 O 16; 36-7 O 23; 29-30 O 30; 98-9 N 6; 32-3 N 13 '19
- Autogenous welding in automotive repairs. D. S. Hatch. Automotive Ind 35:7-8 Je 26 '19
- Autogenous welding of cylinders and other parts. J. T. Leach. Ry Age 67:523 S 12 '19; Same. Ry Mech Eng 93:604 O '19
- Broken power arm of clamshell dredge bucket welded on job. G. W. McAlpin. Il Eng N 81:243 Ag 1 '18
- Building special work with an oxygen-acetylene cutting and welding outfit. M. C. Smith. diags Elec Ry J 54:317-19 Ag 16 '19
- Comparison of forge, oxy-acetylene and electric welding. H. James. Mach 24:471-2 Ja '18
- Cost of oxy-acetylene welding. N. Marple. Ry Mech Eng 92:627 S '18
- Designed to handle requirements of mill repair shops made by G. H. Dyer co., Cambridge, Mass. Il Textile World 55:3699 Je 14 '19
- Difficulties of welding steel by the oxyacetylene process. B. K. Smith. Ry Mech Eng 92:628 N '18; Same. Am Mach 49:1025-6 D 5 '18

- Effect of impurities in acetylene on quality and cost of welds. C: Bingham. Mach 25:341 D '18
- Electric arc welding. R. E. Kinkead. Power 48:791-2 N 26 '18; Abstract. Iron Age 102:930 O 10 '18
- Emergency war training for oxy-acetylene welders. bibliog Il diags Fed Bd for Vocational Educ Bul 11:1-85 Je '18
- Engineer's judgment of oxy-acetylene process. A. S. Kinsey. Textile World 56:2015+ O 4 '19; Same. Gas Age 44:203-6 S 1 '19; Same cond. Am Mach 51:600 S 25 '19; Same cond. Power 50:404-5 S 2 '19
- Factors that make for efficiency in gas main welding. M. S. Clark. Am Gas Eng J 107:546-7 D 15 '17
- Fusion welding applied to drop forgings. S. W. Miller. Il Iron Age 104:287-93 Jl 31 '19; Same cond. Am Mach 51:378-82 Ag 21 '19
- Fusion welding fallacies. S. W. Miller. Il Mach 24:1014-15, 1082-4; 25:12-13, 123-4 Jl-O '18
- Gas and electric welding as applied to truck parts. diags Elec Ry J 53:1213-14 Je 21 '19
- Gas welding of thin plates. J. F. Springer. diags Ry Mech Eng 93:207-9, 268-71 Ap-Mr '19
- Growth of the oxygen industry in the United States and its relation to oxy-acetylene welding and cutting processes. H. L. Barnitz. Am Gas Eng J 109:434-6 N 9 '18
- Handling acetylene welding outfits. E. Wana-maker. Ry R 63:869-71 D 21 '18; Same abr. Ry Mech Eng 93:160 Mr '19
- High temperature processes and products. C. R. Darling. Engineer 125:118 F 8 '18
- How modern welding processes save time of ships in dry dock for repairs. Il diags Int Marine Eng 23:228-9 Ap '18
- Improved tipping device for oxy-acetylene welding table. J. T. Smoody. diags Eng & Min J 108:553-4 S 27 '19
- Institution of mechanical engineers meeting; abstracts of papers. Engineer 127:108-9 Ja 31 '19
- Large oxy-acetylene weld in Pennsylvania shops. J. F. Chandler. Il Ry Mech Eng 93:599-600 O '19
- Large wrecked steam engine cylinders restored by oxy-acetylene welding. L. M. Malcher. Il Int Marine Eng 24:426-8 Je '19; Same cond. Power 49:896 Je 10 '19; Abstract. Iron Age 103:873 Ap 3 '19
- Manufacture of oxygen and its use for welding and metal-cutting. J. M. Christie. Eng & Contr 50:129-30 Jl 31 '18
- Maximum thickness of material welded with gas torch or electric arc. R. L. Browne. diags Am Mach 50:995 My 22 '19
- Mechanically operated cutting and welding torches. E: K. Hammond. Il Mach 24:869-76 Je '18
- Microscopic study of welded tires. S. W. Miller. Il diags Ry Mech Eng 92:104-10 F '18
- Modern welding and cutting. E. Viall. Il diags Am Mach 50:243-8, 283-91, 341-6, 389-94, 479-83, 529-32, 641-5, 675-9, 733-7, 833-8, 879-83, 877-83, 1237-43; 51:61-5, 117-22, 685-9 F 6-27, Mr 13-20, Ap 3-17, My 1-8, 22, Je 26, Jl 10-17, O 9 '19
- New gas welding and cutting. Sci Am 118:283 Mr 30 '18
- New oxy-acetylene welding outfit. Il Metal Ind 15:402 S '17
- Operating a plant for foundry welding. Il plan Foundry 47:512-13 Ag 1 '19
- Oxy-acetylene aids ship fabrication. Iron Tr R 62:1178-9 My 9 '18
- Oxy-acetylene and electric welding and cutting processes in locomotive works. A. F. Dyer. Eng & Contr 49:93-4 Ja 23 '18; Same. Ry R 62:197-9 F 9 '18; Same cond. Ry Mech Eng 92:571-2 O '18
- Oxy-acetylene cast-iron welds. Iron Age 100:1538 D 27 '17
- Oxy-acetylene pipe welding and cutting. Il diags Gas Age 42:471-4, 515-16, 43:27-8, 85-8 D 2 '18-Ja 15 '19
- Oxy-acetylene welding and cutting. Eng & Min J 107:268-9 F 8 '19
- Oxy-acetylene welding and cutting; abstract. H. H. Dyer. Iron Age 102:930-1 O 10 '18

**Welding—Continued**

- Oxy-acetylene welding in hull construction. C. C. Phelps. *Il Int Marine Eng* 24:727-9 N '19
- Oxy-acetylene welding problems. W. L. Bean. *Il diag Ry Mech Eng* 93:97-100 F '19; Same cond. *Ry R* 64:513-15 Ap 5 '19
- Oxy-acetylene welding schools. Motor transport corps, U.S. army. C. K. Bryce. *Am Mach* 51:678-9 O 2 '19
- Oxy-hydrogen gas—its uses at the J. I. Case threshing machine company, manufacturers of tractors and farm implements. C. Kandel. *Il plan Am Gas Eng J* 111:219-22 S 13 '19
- Path of rupture in steel fusion welds. S. W. Miller. *Il Am Inst Min E Bul* 146:311-38 F '19; Discussion. 148:750-2; 149:809-10 Ap-My '19
- Pneumatic tamp for thermit weld molds. *diags Ry Mech Eng* 93:260 My '19
- Preheating torch. *diag Gas Age* 42:161 Ag 15 '18
- Process of autogenous welding; definitions of welding terms. T. P. Bowman. *diag Motor Age* 35:8-10 Je 26 '19
- Proposed bureau of welding. *Iron Age* 103:690 Mr 13 '19
- Reclaiming contact shoes by welding. *Il Elec Ry J* 53:651 Mr 29 '19
- Reclaiming frogs and switch points by oxy-acetylene welding process. A. W. Talbert. *Eng & Contr* 51:653 Je 18 '19
- Rehabilitating the interned German ships. *Iron Age* 101:50 Ja 3 '18
- Relining a worn pump by welding. *Il Iron Tr R* 65:510 Ag 21 '19
- Repairing ex-German steamers seized in America; abstracts of papers by E. P. Jessop and H. G. Knox. *Engineer* 125:236 Mr 15 '18
- Repairing the stern-frame of the Northern Pacific. *Il Sci Am* 121:130 Ag 9 '19; *Iron Tr R* 65:291-2 Jl 31 '19; *Int Marine Eng* 24:456-8 Jl '19; *Marine R* 49:435-6 S '19
- Repairing water tank by acetylene welding. D. Baxter. *Il Metal Work* 90:303-5 S 13 '18
- Repairs by oxyacetylene torch. J. I. Cranford. *diags Power* 47:778 My 28 '18
- Salvaging of high-speed steel. *Il diags Iron Tr R* 62:845-8 Ap 4 '18
- Saving motor shells from the scrap heap by thermit welding. *Il diags Elec Ry J* 53:581-6 Mr 22 '19
- Six-throw crankshaft made from steel billets by thermit process. *Il Iron Age* 103:812-13 Mr 27 '19
- Steel ship and oxy-acetylene welding. J. F. Springer. *Int Marine Eng* 23:699-701 D '18
- Strength of weld in wrought iron pipe. E. A. Klages. *Il diags Gas Age* 41:36-7 Ja 1 '18; Same. *Metal Work* 89:67+ Ja 11 '18; Same abr. *Iron Age* 101:203 Ja 17 '18; Abstract. *Mach* 25:45 S '18
- Structures in steel fusion welds. S. W. Miller. *Il Am Inst Min E Bul* 134:391-408 F '18; Same cond. *Iron Tr R* 62:713-18 Mr 21 '18; Discussion. *Am Inst Min E Bul* 136:720-4; 137:1023 Ap-My '18; Excerpt. Z. Jeffries. *Iron Tr R* 62:1265-6 My 30 '18
- Tank welding by the oxy-acetylene process. C. C. Phelps. *Il Mach* 25:1071-2 Jl '19
- Tests of oxyacetylene welded joints in steel plates. H. F. Moore. *Il diags Ill U Eng Exp Sta Bul* 98:1-21 '17; Excerpts. *Eng & Contr* 48:542 D 26 '17; Summary. *Am Gas Eng J* 107:sup18 D 29 '17; Same. *Ry Mech Eng* 92:111-12 F '18; Same. *Metal Work* 90:501-2 N 1 '18
- Thermit repairs to a rock crusher. *Il Eng & Min J* 107:828-9 My 10 '19
- Thermit vs. autogenous welding. E. A. Murray. *Il Ry Mech Eng* 93:410 Jl '19
- Training of war welders. M. J. Carney. *Am Mach* 48:800 My 9 '18
- Training welders in the ordnance department. R. J. Kehl. *Am Mach* 51:836 N 6 '19
- Unusual welding repair job. *Il Power* 50:385 S 2 '19
- Use of acetylene in the navy yards during the war. H. G. Knox. *Il plan Am Mach* 51:661-4 O 2 '19
- Utilizing gas welding at Salt Lake City. J. M. Bamberger. *Il Elec Ry J* 52:1056 D 14 '18
- Various systems used for welding. J. Caldwell. *Elec Ry J* 52:1057-8 D 14 '18
- Vertical and overhead welding by the oxy-acetylene process. S. W. Miller. *Mach* 24:760 Ap '18
- Weld strength of pipe. *Iron Tr R* 61:1327 D 20 '17
- Welding blocks for galvanized barrel bodies. J. A. Haward. *Il Mach* 25:855 My '19
- Welding broken crankshafts. J. H. Deppeler. *Il Iron Age* 103:1217 My 8 '19
- Welding cracked cast iron radiators. D. Baxter. *Il diags Metal Work* 91:83-5 Ja 17 '19
- Welding firebox patches and cracks. E. D. Johnson. *Il Ry Mech Eng* 92:520 S '18
- Welding high-speed-steel forming tools of the dovetail type. H. V. Styers. *diags Am Mach* 49:1186-7 D 26 '18
- Welding improves repair work. *Factory* 20:54 Ja '18
- Welding in cotton finishing plant. *Il Textile World* 53:4039 Mr 2 '18
- Welding locomotive cylinders. J. B. Tynan. *Il Ry Mech Eng* 93:540 S '19
- Welding mild steel. H. M. Hobart. *Il diags Am Inst E E Pro* 38:561-609 Ap '19; Same abr. *Am Inst Min E Bul* 146:517-61 F '19; Discussion. 148:752-60; 149:810-49 Ap-My '19
- Welding of iron and steel. W. H. Cathart. *Il Iron Age* 102:1578-83 D 26 '18
- Welding of locomotive cylinders. L. A. North. *Ry Age* 67:522-3 S 13 '19; Excerpts. *Ry Mech Eng* 93:603-4 O '19
- Welding operations on Liberty motor cylinders. H. A. Carhart. *Il Am Mach* 50:1019-25 My 29 '19
- Welding propellers in Panama canal foundry; how blades are repaired by burning-on, with a comparison of costs with autogenous processes. J. H. Moffett. *Il Foundry* 46:356-8 Ag '18
- Welding tools vs. the sledge; how interned German liners wrecked by Prussian vandalism were repaired. H. C. Estep. *Il Iron Tr R* 62:57-72 Ja 3 '18
- Welding truck side frames, bolsters and arch bars. M. C. B. committee report. *Il Ry Age* 64:1493-6 Je 21 '18
- Welding truck side frames, bolsters and arch bars; report. *diags Ry R* 64:980-1 Je 28 '19
- Wizardy and economy of modern welding. *Il Am Lumberman* 2262:41 S 21 '18
- See also Electric welding; Oxyacetylene flame; Solder and soldering

**Safety devices and measures**

- Eye protection in iron welding operations. W. S. Andrews. *Il Gen Elec R* 21:961-6 D '18
- Safety rules for oxy-acetylene welding. *Mach* 25:733-4 Ap '19; Same. *Power* 49:665-6 Ap 29 '19; Same abr. *Textile World* 55:2721 My 3 '19

**Terminology**

- Definitions of welding terms. T. P. Bowman. *Motor Age* 35:9 Je 26 '19
- Electric welding nomenclature and symbolism. chart *diags Ry R* 63:702-7 N 16 '18
- Welding, Electric.** See Electric welding
- Welding society, American.** See American welding society
- Welfare work in industry**
- American club at Kohler, Wis. *Il plans Am Arch* 114:401-2 O 2 '18
- Argo mills co. establishes playground. *Il Textile World* 54:1072 S 7 '18
- Beginnings of labor maintenance service in a small plant. M. L. Morris. *Ind Management* 56:205-8 S '18
- Capitalizing feelings in industry. W. Williams. *Iron Tr R* 61:1268-9 D 13 '17
- Care of employees in Kohler co. enameled ware plant. *Il Metal Work* 90:191+ Ag 16 '18
- Good housekeeping in the factory. A. R. Bond. *Il Sci Am* 119:208-9 S 14 '18
- Guiding the workman's personal expenditures; Ford reduced turnover 350 per cent. C. J. Shower. *Il Automotive Ind* 38:539-41+ Mr 14 '18

**Welfare work in industry—Continued**

- Helping workers to help themselves. W. J. Tewksbury. *Il Factory* 23:276-7 Ag '19
- How welfare work entered the French automotive industry. W. F. Bradley. *Il Automotive Ind* 41:712-16 O 9 '19
- Luxurious factory club and roof garden of the Globe machine & stamping co. *Il Iron Age* 103:1575-7 Je 12 '19
- Maintaining the efficiency of the working force. E. Oberg. *Il Mach* 25:1149-52 Ag '19
- Modern industrial plants; excessive turnover of labor and the influence of employees' welfare work in reducing it. G. C. Nimmons. *Il Arch Rec* 45:450-70 My '19
- Modern industrial relations department. E. C. Gould. *Iron Age* 102:831-2 O 3 '18; Same cond. *Iron Tr R* 63:784-5 O 3 '18
- Reo's clubhouse for workers. C. J. Shower. *Il Automotive Ind* 38:1136-8 Je 13 '18
- Safety, hygiene, and welfare work in a modern factory. F. H. Korff. *Mach* 25:218 N '18
- Service work in a small plant. M. L. Morris. *Textile World* 54:2327+ N 9 '18
- Service work of the Eastern manufacturing co. J. Hoskins. *U S Bur Labor Statistics Bul* 227:153-7 '17
- Social and religious organizations as factors in the labor problem. E. E. Bach. *Am Inst Min E Bul* 134:321-30 F '18; Excerpts. *Iron Tr R* 62:384 F 7 '18; Discussion. *Am Inst Min E Bul* 136:866-74; 137:1032-5 Ap-May '18
- Sociological work accomplished by the Consolidation coal company. *Il Coal Age* 15:54-8 Ja 9 '19
- Welfare important factor in industrial efficiency. E. Szepesi. *Il Textile World* 53:2963-4+ Ja 12 '18
- Welfare work among mill women and girls. P. Wyche. *Textile World* 53:2497 D 15 '17
- Welfare work for employees in the United States. *Il plans U S Bur Labor Statistics Bul* 250:1-139 '19
- Welfare work in a rubber plant; rest rooms and the cost of maintaining them at B. F. Goodrich co., Akron, O. *Il Automotive Ind* 39:413-14 S 5 '18
- Work of the employment and service department of the Clothcraft shops. M. B. Gilson. *U S Bur Labor Statistics Bul* 227:139-52 '17
- Y. M. C. A. building vs. Y. hut. C. F. Willis. *Il Coal Age* 14:486-8 S 12 '18
- See also* Dental service, Industrial; Employment management; Housing projects, Company; Industrial betterment; Lunch rooms; Medical service, Industrial; Pensions
- Well hall, Woolwich, England**  
Industrial housing developments. L. Veiller. *Il Arch Rec* 44:140-51 Ag '18
- Welland canal**  
New Welland canal. *Il Sci Am* 121:477+ N 15 '19
- Wellman, Samuel Thomas, 1847-1919**  
Sketch. *por Iron Age* 104:204 Jl 17 '19; *Iron Tr R* 65:184-6 Jl 17 '19
- Wells**  
Bottom-dump bucket concretes cave in drilled well. *diags Eng N* 81:236-7 Ag 8 '18
- Deep well pumps at El Paso. H. P. Jackson. *Munic J* 45:308 Ap 26 '19
- Drilling a well by hydraulic pressure. W. S. Heckendorn. *Il diag Power* 49:97-8 Ja 21 '19
- Features of the well system of the Dayton, Ohio, water works. H. C. Wight. *Munic Eng* 56:232+ Je 19 '19
- Grouting wells in rock formation effective and simple. W. G. Kirchoffer. *diag Eng N* 81:367-8 Ag 22 '18
- How Vinton, Iowa, obtained a dual system of water supply. J. H. Dunlap. *Il diag Munic Eng* 56:232-3 Je 19 '19
- Importance of diameter of deep wells. *diags Munic J* 45:166-7 Ag 16 '18
- Increasing flow of water in drilled wells by shooting. C. F. Higgs. *Eng & Contr* 51:48 Ja 8 '19
- Increasing the well water supply of Montgomery, Alabama. A. O. Beauchemin. *Munic Eng* 55:69-60 Ag '18
- New well of large capacity at the University of Illinois. M. L. Enger. *diag Am Water Works Assn J* 6:263-7 Je '19; Same. *Eng*

- N* 82:280-1 My 1 '19; Same. *Eng & Contr* 51:362-3 Ap 9 '19; Discussion. *Am Water Works Assn J* 6:267-70 Je '19
- New well supply of Minot, N. Dak. A. Hunt. *Eng & Contr* 52:301 S 10 '19
- Operation methods and results on the Lindsay-Strathmore irrigation district. E. C. Eaton. *Eng N* 83:474-5 S 4 '19
- Railway water supply from wells. C. R. Knowles. *Ry R* 63:669-70 N 9 '18
- Relation of the private well to typhoid. H. E. Barnard. *Eng & Contr* 52:199 Ag 13 '19
- Rotary method of well drilling. A. G. Wolf. *Il diags plan Eng & Min J* 108:171-5 Ag 2 '19; Same. *Sci Am S* 88:248-50 O 25 '19
- Sealing formations by slime-laden fluid. S. S. Langley. *diags Eng & Min J* 108:268-71 Ag 16 '19
- Shooting water wells with nitroglycerine. T. M. Knight. *Il Eng & Contr* 51:173 F 12 '19
- Shoots well with single hundred-foot bomb in four sections. *diag Eng N* 81:193-4 Jl 25 '18
- Sixteen-inch cast-iron well casing sunk by floating. *diag Eng N* 81:242-3 Ag 1 '18
- Special cast iron lining of two large bore wells. W. H. Maxwell. *diags Eng & Contr* 50:173-5 Ag 14 '18
- Water supply at coal mines. C. Scholz. *diag plan Coal Age* 15:391 F 27 '19
- See also* Artesian wells; Drilling and boring (earth and rocks); Gas, Natural; Petroleum; Water, Underground

**Testing**

- Piezometers and current meters used to test wells; water conservation program at Honolulu. R. D. Klise. *Il Eng N* 81:407-8 Ag 29 '18
- Testing a well under difficulties by unusual methods. W. G. Kirchoffer. *Munic Eng* 55:114-15 S '18
- Wells, Artesian.** *See* Artesian wells
- Weisbach mantle.** *See* Gas mantles
- Wentworth institute, Boston, Massachusetts**  
Power plant course at Wentworth. C. H. Beers. *Il Power* 46:862-4 D 25 '17
- Training of soldier mechanics. *Am Mach* 49:70 Jl 11 '18
- West coast lumbermen's association**  
Annual meeting, Seattle, Wash., Jan. 25. *Am Lumberman* 2229:56-8 F 2 '18
- Midsummer meeting, Mt Rainier, Wash. *Il Am Lumberman* 2255:64-5; 2256:50-2 Ag 3-10 '18
- West End consolidated mining company**  
11th annual report for year ended Dec. 31, 1917. *Eng & Min J* 106:911 N 23 '18
- West Ham, England**  
Zone fare in practice. W. Jackson. *Il map Elec Ry J* 63:1163-9 Je 14 '19
- West Indies**  
*See also* Automobile industry and trade—West Indies

**Commerce**

- Chemical markets of the West Indies. O. P. Hopkins. *J Ind & Eng Chem* 11:19-26 Ja '19
- West Virginia coal mining institute**  
20th semi-annual meeting, Huntington, W. Va., June 3-4. *Coal Age* 15:1113-15 Je 19 '19
- Western association of electrical inspectors**  
13th annual meeting, Memphis, Tenn., Jan. 29-31. *Elec R* 72:240-2 F 9 '18; *Elec W* 71:321 F 9 '18
- 14th annual convention, Chicago, Jan. 28. *Elec R* 74:177-82 F 1 '19; *Elec W* 73:236 F 1 '19
- Western electric company**  
Antwerp plant will soon be in operation again. *Elec R* 74:385 Mr 8 '19
- Business during 1918 of Western electric company. *Elec W* 73:691 Mr 22 '19
- 50th anniversary. *Elec R* 75:729-40 N 1 '19
- Management of the Western electric co. H. A. Halligan. *Iron Age* 100:1415+ D 13 '17
- Report for 1917. *Elec W* 71:633 Mr 23 '18

- Western Pacific railroad**  
Western Pacific. map Ry Age 67:496 S 12 '19
- Western pine manufacturers' association**  
Semi-annual meeting, Missoula, Mont., Aug. 14-15. *il* Am Lumberman 2258:47-50 Ag 24 '18  
12th annual meeting, Spokane, Wash. Am Lumberman 2231:55-6 F 16 '18
- Western railway club**  
Western railway club opens with keynote meeting. Ry Age 65:599-601 S 27 '18
- Western reserve university**  
Old Western reserve college. I. T. Frary. *il* Arch Rec 44:575-6 D '18
- Western retail lumbermen's association**  
15th annual conference, Great Falls, Mont. Am Lumberman 2231:48-50+ F 16 '18
- Western society of engineers**  
Address. H: J. Burt. W Soc E J 23:55-64 Ja '18  
Address of president-elect. C: B. Burdick. W Soc E J 23:64-7 Ja '18  
Annual banquet, Chicago, Jan. 22. Power 49: 185 F 4 '19  
48th annual meeting, Chicago, Jan. 24. Elec R 72:198-9 F 2 '18  
50th anniversary, Chicago, June 27. Elec R 75:25-6 J1 5 '19  
Fuel-supply meeting. Power 47:889-90 Je 18 '18  
Illinois legislative matters interesting to Chicago engineers. Elec R 74:555-6 Ap 5 '19  
Reports and proceedings, 1918. W Soc E J 23: 68-74, 77-8 Ja '18
- Western union telegraph company**  
Report for 1917. Ry Age 64:951-2 Ap 5 sec 2 '18
- Western warm air furnace and supply association**  
Meetings, Omaha, Neb., Feb. 6 and Des Moines, March 11. Metal Work 91:425 Ap 4 '19
- Westinghouse electric & manufacturing company**  
Annual report for the fiscal year ended March 31, 1918. Elec W 71:1097-8 My 25 '18  
Heating the Essington plant. Heat & Ven 15: 58-9 N '18; Same. Eng & Contr 51:91-2 Ja 22 '19  
Manufacturing scheme of the south Philadelphia works. O. Otto. *il* Elec J 16:122-6 Ap '19  
New south Philadelphia plant. H. T. Herr. *il* diag maps plan Elec J 16:114-21 Ap '19  
New Westinghouse research building. C. E. Skinner and R. W. E. Moore. *il* Elec W 71: 1132-3 Je 1 '18  
New works of the Westinghouse company, South Philadelphia. *il* Elec W 71:816-17 Ap 20 '18  
Power system at the South Philadelphia works. G. Bright. *il* Elec J 16:126-31 Ap '19  
Report for fiscal year ended March 31, 1919. Elec W 73:1180 My 31 '19  
South Philadelphia works. *il* plan Ind Management 55:494-7 Je '18  
Westinghouse employment department. J: C. Bower. Mach 26:243-6 N '19  
Westinghouse marine engineering works. E: K. Hammond. *il* Mach 25:538-44, 789-96, 929-33 F. My-Je '19  
Westinghouse plant at South Philadelphia. *il* Iron Age 102:22-4 J1 4 '18
- Westinghouse lamp company**  
Salvage department. A. W. Ross. *il* Ind Management 56:311 O '18
- Whale meat**  
Ocean venison. *il* Sci Am S 85:312-13 My 18 '18  
Whale as a food factor. C. H. Claudy. *il* Sci Am 118:208-9 Mr 9 '18  
Whale beef and whales. E: T. Martin. Sci Am S 85:23 Ja 12 '18  
Whale meat approved by the American public. *il* Sci Am '119:388+ N 16 '18
- Whales**  
Killer whale. *il* Sci Am 120:491 My 10 '19
- Whaling**  
Sub-antarctic whaling. S. F. Harmer. Sci Am S 88:79-80 Ag 2 '19
- Wharves**  
Corrosion of steel wharves at Kowloon and method of encasing members in concrete. S. H. Ellis. *il* diag plan Eng & Contr 50:104-5 J1 31 '18  
Labor costs on a gravity type quay wall. E. W. Robinson. *il* diag Concrete 12:49-51 F '18  
Pneumatic caisson method of quay wall construction at Halifax. J. J. Macdonald. *il* diag Eng & Contr 50:489-90 N 20 '18  
Preservation of wood in connection with the building of wharves and docks. H. von Schrenk. *il* Int Marine Eng 23:230-2 Ap '18  
Use of reinforced concrete in marine works. A. F. Dyer. Eng & Contr 50:483-5, 492 N 20 '18  
West quay of Madras harbor. Eng & Contr 50:434 O 30 '18  
Wharf at Buffalo, N.Y., has combination timber and concrete piles. *il* diag Eng N 79:1114-15 D 13 '17  
*See also* Docks; Piles and pile driving
- Wharves, Municipal**  
Construction of St Louis municipal wharf. *il* diag Ry R 64:275-9 F 22 '19
- Wheat**  
Effect of manganese on the growth of wheat: a source of manganese for agricultural purposes. J. S. McHargue. *il* J Ind & Eng Chem 11:332-5 Ap '19  
Experiments with durum wheat. C. R. Ball and J. A. Clark. *il* biblog *il* maps U S Agric Bul 618:1-64 '18  
Improving war bread with lime-water. Sci Am 118:131 F 9 '18  
Much wheat—little corn? Sci Am 120:600+ Je 7 '19  
What shall we do with wheat bran? is its use for human food the most efficient utilization of its mineral constituents? A. D. Holmes. Sci Am 119:106 Ag 10 '18  
Wheat and corn grinder for home use. F. Telford. *il* Sci Am 118:136 F 9 '18  
Wheat and ships. Sci Am 118:294 Ap 6 '18  
*See also* Flour
- Diseases and pests**  
Banish the barberry; common barberry a menace in spring-wheat states. *il* diag Sci Am S 86:76 Ag 3 '18; Am Lumberman 2242:34 My 4 '18  
Serious wheat disease discovered in the East. Sci Am S 86:202 S 28 '18
- Wheat, Substitutes for**  
Chemical analysis of wheat-flour substitutes and of the breads made therefrom. J. A. Le Clerc and H. L. Wessling. *il* U S Agric Bul 701:1-10 '18  
Substitute bread. K. Heppe. *il* Sci Am 119: 415 N 23 '18  
Substitutes for wheat employed in making bread for the French army. A. Balland. Sci Am S 86:138 Ag 31 '18
- Wheatstone bridge**  
Measuring the ohmic resistance of plating solutions. C. W. Heil. *il* diag Metal Ind 15: 253-5 Je '17  
New standard of current and potential. C. T. Allcutt. *il* diag Am Inst E E Pro 37:83-9 F '18
- Wheel of fortune.** *See* Lotteries
- Wheeler, Andrew**  
Assistant steel director, handling steel stocks. *il* Iron Tr R 63:461 Ag 22 '18
- Wheels**  
Making ingots for rolled wheels. L. H. Fry. Iron Tr R 65:1186-7 O 30 '19  
New devices in Soc wheel shop. *il* diag Ry Mech Eng 92:577-9 O '18  
Repairing a cracked irregular hub. J. V. Hunter. *il* diag Am Mach 47:1083-4 D 20 '17  
Resilient wheels for motor vehicles. Sci Am S 86:327 N 23 '18

**Wheels—Continued**

Steel wheels by a new process; a combination of rolling and forging. E. F. Cone. *Il Sci Am* 120:650 Je 21 '19

Wheel patterns. J. A. Shelly. *diags Mach* 25: 1063-6 Jl '19

Wheel that floats the load. *Il Sci Am* 120:208 Mr 1 '19

Zamboni pressed-metal wheel. *Il diags Mach* 24:640-1 Mr '18

*See also* Automobiles—Wheels; Axles; Car wheels; Casters; Emery wheels; Flywheels; Gearing; Grinding wheels; Motor trucks—Wheels; Pulleys; Sprocket wheels; Tires; Tires. Automobile; Tractors—Wheels; Turbines; Water wheels; Windmills

**Whiskey.** *See* Distilling, Illicit

**Whistles**

Steam whistle as legal nuisance. *Power* 50: 208 Ag 5 '19

Water whistle. F. Huskinson. *diags Coal Age* 13:572-3 Mr 30 '18

*See also* Locomotive whistle

**Whitaker, Milton C.**

Testimonial. *Chem & Met Eng* 19:533-4 S 28 '18

**White, William Allen**

Writers who have helped make a state famous. *Am Lumberman* 2259:44-5 Ag 31 '18

**White company, Cleveland, Ohio**

Physical exercises made part of day's routine; gymnasium established. *Il Automotive Ind* 38:688-9 Ap 4 '18; *Same. Gas Age* 41: 353-4 Ap 15 '18

Report for 1917. *Automotive Ind* 38:703 Ap 4 '18

**White House**

Competition for the federal buildings, 1792-1793. F. Kimball and W. Bennett. *Am Inst Arch J* 7:98-102 Mr '19

**White lead**

Simple tests for painting material. *Bldg Age* 40:235-6 My '18

**White pine blister rust.** *See* Pine blister rust

**White star line**

White star line jubilee. *Engineer* 128:261-2 S 12 '19

**Whitewash**

How to mix a good whitewash. *Factory* 20: 860+ My '18

Whitewash and fire-retarding mixture. *Power* 47:614 Ap 30 '18

**Whiting, Indiana**

**Water supply**

Coagulant and filters remove oily tastes and odors. *Il Eng N* 80:87-8 Ja 10 '18

New water filtration plant. R. S. Rankin. *diags plan Eng & Contr* 52:292-4 S 10 '19

**Whitley report**

Just what is the Whitley report? S: Crowther. *plan Factory* 23:269-73 Ag '19

**Whitman, Walt**

Composer who prefigured the Red cross. H: L: Bullen. *por Inland Ptr* 61:598-600 Ag '18

**Whittemore, Don Juan, 1830-1916**

Memoir. C: F. Loweth and O. Bates. *W Soc E J* 23:221-35 Mr '18

**Wholesale lumber distributors, National bureau of.** *See* National bureau of wholesale lumber distributors

**Wholesale sash & door association**

Annual meeting, Chicago, Dec. 19-20. *Am Lumberman* 2275:51; 2276:46 D 21-28 '18

**Wichita, Kansas**

**Sanitary affairs**

Wichita shares profits from feeding garbage to hogs. *Eng N* 80:1180-2 Je 20 '18

**Wigglers.** *See* Drilling and boring (metal working, etc.)

**Wild cucumber**

Seeds of the echinocystis oregana. M. R. Daughters. *J Ind & Eng Chem* 10:126-7 F '18

**William H. Nichols medal.** *See* Nichols medal

**Williams, Clarence Charles, 1869-**

Award of the distinguished service medal. *por Am Mach* 50:269-70 F 6 '19

**Williamsport, Pennsylvania**

Industrial housing developments in America; a development of group houses, Sawyer Park. *Il plans map Arch Rec* 43:447-69 My '18

Sawyer Park—an industrial development; views and plans. *Am Arch* 113:639-42 My 15 '18

**Wills**

How some business men's wills have gone wrong and why. E. J. Buckley. *Metal Work* 89:83-4 Ja 11 '18

**Willys-Overland company**

Report for 1917. *Automotive Ind* 38:702 Ap 4 '18

**Wilmington, Delaware**

Union Park gardens; a model garden suburb for shipworkers. W: E. Groben. *Il diags plans map Arch Rec* 45:44-64 Ja '19

**Wilson, Hugh M., d. 1919**

Sketch. *por Elec W* 74:715 S 27 '19; *Ry Age* 67:637 S 26 '19

**Wilson, Woodrow**

Portrait: two-color engraving. *Inland Ptr* 63:400a Jl '19

What one man has taken on himself to do. *Eng & Min J* 105:242-3 F 2 '18

**Wilson bridge.** *See* Lyons—Bridges

**Winchell, Horace Vaughn**

Officers of mining engineering societies. *por Eng & Min J* 107:487 Mr 15 '19

**Winches**

Cargo winch made by Dake engine co. *Il Marine R* 49:606 D '19

Electric cargo winches. E. F. Whitney. *Il Gen Elec R* 21:135-42 F '18

Electric winches gain favor on motorships. *Il Int Marine Eng* 23:343-4 Je '18

Otis power winch for motor trucks. *Il Automotive Ind* 38:509 Mr 7 '18

Power winches for cable pulling. *Elec R* 73: 548 O 5 '18

Winch for motor trucks. *Il Am Lumberman* 2233:58 Mr 2 '18

Winches operate by electricity. *Il Marine R* 49:458-9 O '19

**Winchester repeating arms company, New Haven, Connecticut**

Salvage at the Winchester plant. C: M. Horton. *Il Ind Management* 56:201-4 S '18

Tool department of Winchester works. *Iron Age* 102:1129-33 N 7 '18

Training operators at Winchester plant. W: E. Freeland. *Il Iron Age* 103:178-9 Ja 16 '19

Winchester plan of management. W: E. Freeland. *Il plans Iron Age* 101:23-7+, 189-93, 253-5, 498-502, 616-21, 1521-6; 102:8-10 Ja 3, 17-24, F 21, Mr 7, Je 13, Jl 4 '18

**Wind.** *See* Winds

**Wind power**

Wind power for electricity generation; abstract. P. Schubach. *Am Soc M E J* 41:58-9 Ja '19

*See also* Windmills

**Wind pressure**

Calculation of wind pressure on arched roofs. F. Grau. *diags Eng & Contr* 52:253-4 Ag 27 '19

Wind pressure on cylindrical structures in practice. R. Fleming. *Eng N* 83:499-502 S 11 '19; *Correction.* 83:659 O 2 '19

Wind pressures and wind stresses in tower design. R. Fleming. *diags Eng N* 83:660-4 O 2 '19

Wind pressures on 550 ft. chimney. F. Omori. *Eng & Contr* 51:452-3 Ap 30 '19; *Abstract.* *Am Soc M E J* 41:56-8 Ja '19

*See also* Anemometers

**Wind resistance.** *See* Air resistance

**Wind shields.** *See* Windshields

**Wind tunnels.** *See* Aerodynamic laboratories

**Wind wheels.** *See* Windmills

**Windmills**

- How to work a feed grinder from a windmill. diags Dom Eng 84:164-5 Ag 8 '18  
 Old windmills of the south side of Long Island. R. S. Fanning. *Il Arch Rec* 42:591-2 D '17  
 Some Long Island windmills. E. P. Buffet. *Il diag Am Mach* 49:735-9 O 17 '18  
 Use of windmills in irrigation in the semiarid West. P. E. Fuller. *Il diags U S Agric Farmers' Bul* 866:1-37 '17; Abstract. *J Fr Inst* 185:135-6 Ja '18  
 Windmills, picturesque and historic; the motors of the past. F. H. Shelton. *Il J Fr Inst* 187:171-98 F '19

Window cards. See Show cards

Window dressing. See Show windows

**Window shades**

- Test of the conductivity of window shades. J. R. Allen. *Am Arch* 115:561-2 Ap 16 '19

**Windows**

- Construction of double hung window in a brick wall. A. B. Greenberg. diags Bldg Age 41:334-5 O '19  
 Construction of double hung windows in frame walls. A. B. Greenberg. diags plan Bldg Age 41:274-5 Ag '19  
 Framing different kinds of double hung windows in frame walls. A. B. Greenberg. diags Bldg Age 41:298-9 S '19  
 Good and evil of window-glass. R. E. Danforth. *Am Arch* 116:449-50 O 1 '19  
 Heat loss and leakage loss factors. Heat & Ven 15:52-3 Mr '18  
 Heat transmission through various types of sash. *Il Am Arch* 113:695-9, 775-9 My 22, Je 5 '18  
 Heat transmission through various types of sash; with discussion. A. N. Sheldon. *Am Soc Heat & V E* 23:219-24 '17  
 How to construct casement windows. E. I. Freese. diags Bldg Age 41:63-7 F '19  
 How to construct double hung windows. E. I. Freese. diags Bldg Age 40:336-9 JI '18  
 Leaky windows an unnecessary handicap to the heating industry. A. M. Lane. Heat & Ven 15:64-5 S '18  
 Modern industrial plants; various types of windows. G. C. Nimmons. *Il Arch Rec* 45:148-9 F '19  
 Natural lighting for work spaces in shops. C. E. Clewell. *Il diags Metal Work* 89:100-3 Ja 18 '18  
 Proportioning skylight and window areas. M. W. Ehrlich. *Il Metal Work* 89:229-32, 299-302 F 15, Mr 1 '18; Discussion. 89:354-7 Mr 15 '18  
 Small window panes. F. A. Bourne. *Arch Rec* 44:380-1 O '18  
 Windows. E. V. Hill. *Il Am Soc Heat & V E* 23:193-210 '17  
 Windows—a problem in building design. Concrete 13:96 S '18  
 See also Glass; Screens, Window; Show windows; Skylights; Stained glass

**Windows, Fireproof**

- Metal window a fire retardant. P. L. Biersach. *Il Metal Work* 90:683-4 D 20 '18  
 Proper glazing of hollow metal fire window sash. A. R. Small. *Am Inst Arch J* 7: 184 Ap '19; Same. *Metal Work* 92:519-20 O 31 '19

**Winds**

- Physics of the air. W. J. Humphreys. diag J Fr Inst 184:527-51, 651-74, 805-36; 185:33-117; 186:481-509 O '17-Ja. O '18  
 Simple automatic wind-direction recorder. J. Robertson. *Il diags plans Eng & Min J* 105: 995-6 Je 1 '18  
 Wind circulation of the globe. *Sci Am S* 87: 217 Ap 5 '19  
 Wind observations at the Naueu radio-telegraphic station. S. Hellmann. *Sci Am S* 85:413 Je 29 '18

**Velocity tables**

- Gradient wind velocity tables. *J Fr Inst* 186: 485-509 O '18

**Windspeeds**

- Clearing the windshield of rain and snow by centrifugal action. *Il Sci Am* 119:72 JI 27 '18

- Design of automobile glass fronts. K. Faelicke. diags Automotive Ind 38:855-7, 904-6, 1001-2, 1048-50 My 2-9, 30 '18  
 New windshield for closed bodies. G. J. Mercer. diags Automotive Ind 40:416-17 F 20 '19

**Winnipeg, Manitoba****Water supply**

- Greater Winnipeg new water supply. diags map plan Engineer 126:399-401 O 24 '19  
 See also Winnipeg aqueduct

**Winnipeg aqueduct**

- Backfilling tunnel through holes bored from surface. J. Armstrong. diags Eng N 83: 174-5 JI 24 '19; Same cond. Concrete 15: 130-1 S '19  
 Concrete pipe made and laid for Winnipeg aqueduct. *Il Concrete* 14:208-13 Je '19  
 Greater Winnipeg new water supply. diags map plan Engineer 128:399-401 O 24 '19  
 Laborers work as contractors on aqueduct. F. P. Kemm. Concrete 14:131-2 Ap '19  
 Making and placing ten miles of concrete pipe for Winnipeg aqueduct. K. B. Kumpke. *Il diag Eng N* 80:111-14 Ja 17 '18  
 Work on the aqueduct—a film version. *Il Concrete* 14:127-30 Ap '19

**Winston-Salem Southbound railway**

- Final valuation. Ry Age 66:1265-70 My 23 '19  
 Valuation report on the Winston-Salem Southbound. Ry Age 65:489-90 S 13 '18

**Winter construction**

- Concreting, bricklaying, etc., in cold weather. Eng & Contr 49:403 Ap 24 '18  
 See also Concrete construction in winter; Thawing

**Wintergreen**

- Work of sheet metal man in new industry; making apparatus for use in distillation of volatile oils from birch and wintergreen. W. B. Metzger. *Il diags Metal Work* 91: 802-4 Mr 7 '19

Wiping waste. See Cotton waste

**Wire**

- Combined table of sizes in the principal wire gages. U S Bur Stand Circ 67:1-5 '18  
 Cutter for large-sized wire. M. P. Bertrande. diags Power 47:448 Mr 26 '18  
 Electricity in the making of copper wire. *Il J Elec* 42:569-70 Je 15 '19  
 Fence wire corrosion and its causes. O. W. Storey. *Iron Age* 100:1449-51 D 13 '17  
 Four wire take-up devices. M. P. Bertrande. diags Power 48:696-7 N 12 '18  
 Home-made wire straighteners. diags Power 48:732-3; 47:196 N 27 '17, F 5 '18  
 Is the core of stranded wire disproportionately stressed? F. A. B. Sahm. *Elec Ry J* 53:786 Ap 19 '19  
 Magnetic apparatus for testing wire. *Il Iron Age* 101:1595 Je 20 '18  
 Manufacture of measuring wires. E. A. Suverkrop. *Il Am Mach* 50:1251-2 Je 26 '19  
 Much steel is diverted from wire mills. *Iron Tr R* 64:105 Ja 2 '19  
 Standard specifications for hard-drawn copper wire; English and Spanish. diags U S Bur For & Dom Com Ind Stand 50:1-25 '19  
 Standard specifications for medium hard-drawn copper wire; English and Spanish. U S Bur For & Dom Com Ind Stand 51:1-21 '19  
 Standard specifications for soft or annealed copper wire; English and Spanish. U S Bur For & Dom Com Ind Stand 52:1-15 '19  
 Tools for splicing wire. M. P. Bertrande. diags Power 47:158 Ja 29 '18  
 Twisting a loop in a baling wire. R. P. Deane. diags Am Mach 51:664 O 2 '19  
 Use of measuring wires. H. L. Van Keuren. Automotive Ind 39:1056-7 D 19 '18  
 Wire bending die. F. A. Ball. diags Am Mach 47:1094 D 20 '17  
 Year's wire needs exceed mill output. *Iron Tr R* 62:29 Ja 3 '18  
 See also Barbed wire; Cables; Electric wire and wiring; Thermocouple wire; Trolley wire



Wire, Barbed. See Barbed wire

#### Wire cloth

Wire cloth and its adaptability to the chemical industry. A. A. Campbell. *J Ind & Eng Chem* 11:761-3 Ag '19

#### Wire forming machines

Design of small machinery. W. E. Thompson. *diags Mach* 26:148-9 O '19

#### Wire rods

Designing passes for wire rod mill roll train. W. S. Standiford. *diags Am Mach* 49:601-4 O 3 '18

Morgan continuous wire-rod rolling mill. II (supp) *diags plan Engineer* 127:597-9 Je 20 '19

#### Wire rope

Breaking of cable in protection shaft. R. Dunn. *diags Coal Age* 15:489-91 Mr 13 '19

Concerning wire rope for aircraft. *diags Automotive Ind* 38:366-7 F 14 '18; *Excerpts. Am Soc M E J* 40:344-5 Ap '18

Considerations in the selection and use of hoisting ropes. H. C. Behr. *Eng & Min J* 104:1075-7 D 22 '17

Determination of stresses in wire rope as applied to modern engineering problems. J. F. Howe. *diags Am Soc M E J* 40:1016-21 D '18

Formulae for hoisting ropes. *Eng & Min J* 105:1047 Je 8 '18

Hoisting-rope accidents. *Eng & Min J* 107:435 Mr 8 '19

Investigation of wire rope. J. H. Griffith. *Eng & Min J* 107:787-8 Ap 26 '19; Same. *Power* 49:873-4 Je 3 '19

Length of service and care of hoisting ropes. *Eng & Min J* 105:992-4 Je 1 '18; Same. *Coal Age* 14:11-13 Ji 6 '18

Lubrication of wire rope. *Power* 48:286 Ag 20 '18; Same. *Eng & Contr* 50:285 S 18 '18

Minor price changes are announced. *Iron Age* 102:648-9 S 12 '18; Same. *Iron Tr R* 63:600, 745 S 12, 26 '18

Safe practice in using wire ropes in mines. E. H. Kudlich and O. P. Hood. *U S Bur Mines Tech Pa* 237:1-11 '19

Safety factor and causes of failure of hoisting ropes. M. H. Sigafos. *Eng & Contr* 49:91-2 Ja 23 '18

Strength and other properties of wire rope; abstracts. J. H. Griffith and J. G. Bragg. *Mech Eng* 41:617-18 Ji '19; *J Fr Inst* 188:123-6 Ji '19; *Eng & Contr* 52:256-6 Ag 27 '19; *Eng N* 83:560 S 18 '19

Stresses in wire rope. S. Hardesty. *Mech Eng* 41:257-60 Mr '19

Tom Hunter, hoisting engineer. W. O. Rogers. II *Power* 46:366-8 D 25 '17

Wire-rope formulas. J. H. Plant. *Coal Age* 14:1137 D 19 '18

See also Cables

#### Wire wrapping machine

Edstrom wire wrapping machine. II *Aviation* 6:280-1+ Ap 1 '19

#### Wireless apparatus

Direction finding by wireless telegraphy. R. Sankey. II *diags map Engineer* 128:388-91 O 17 '19

Experimental wireless telegraphy and telephony. L. G. Pacent and A. C. Lescarboursa. II *diags Sci Am* S 88:125, 224-5, 272-3+, 324, 340-1, 356-7+, 372-3, 384-5 Ag 23, O 11, N 8, 29-D 27 '19

Heterodyning wavemeter. J. Scott-Taggart. *diags Sci Am* S 88:241+ O 25 '19

Loop of wire: an interesting radio communication development. W. J. Henry. II *diags Sci Am* 121:368+ O 11 '19

New plant for manufacturing radio apparatus. W. A. Scott. II *Elec R* 75:103-4 Ji 19 '19

Radio direction-finding apparatus. A. S. Blatterman. *diags Elec W* 73:464-7 Mr 8 '19

Radio instruments and measurements. II *diags U S Bur Stand Circ* 74:1-341 '18

Standardization of electrical indicating instruments for use with radio apparatus. G. Y. Allen. II *diags Elec J* 16:494-500 N '19

Theory and practical attainments in the design and use of radio direction finding apparatus using closed coil antennas. A. S. Blatterman. II *diags J Fr Inst* 188:289-362 S '19

Thordarson apparatus for amateur radio work. II *Elec R* 75:290-1 Ag 16 '19

Transatlantic radio communication. E. F. W. Alexanderson. II *diags map Am Inst E E Pro* 38:1077-93 O '19

#### Wireless compass

Wireless compass. J. Lachenbruch. *diags map Sci Am* 120:291+ Mr 22 '19

#### Wireless control

Naval radio remote control. P. H. Boucheron. *map Sci Am* 121:234+ S 6 '19

Wirelessly-directed aircraft. *Engineer* 127:357-8 Ap 11 '19

#### Wireless signals

Finding aircraft landing stations by means of audio frequency receivers. E. C. Hanson. II *diags Flying* 8:442-3 Je '19

Synchronous signalling and safety at sea. J. Joly. *Engineer* 125:331-2 Ap 19 '18

#### Wireless stations

Nauen—Germany's wireless voice. II *Sci Am* 121:383 O 18 '19

Nauen high-power wireless station; abstract. E. Quack. *Elec W* 74:311 Ag 9 '19

New Swedish radio station; abstract. *Elec W* 71:387 Ap 27 '18

Proposed Telegraph Hill memorial, San Francisco, Cal. *Am Arch* 114:730 D 18 '18

Report on government wireless telegraph stations. *Elec R* 75:157 Ag 2 '19

Tree telephony and telegraphy. G. O. Squier. *J Fr Inst* 187:657-87 Je '19; *Excerpts. J Elec* 43:256 S 15 '19

With trees for ears; a wireless station within the reach of everybody. *Sci Am* 120:624 Je 14 '19

#### Wireless telegraph

Amateurs in name only. A. C. Lescarboursa. II *Sci Am* 120:688-9+ Je 28 '19

Automatic wireless receiver which anyone can operate. II *Sci Am* 120:403+ Ap 19 '19

Continuous-wave land radio sets. P. T. Weeks and D. G. Little. II *diags Elec W* 73:627-30 Mr 29 '19

Development of arc radio transmitters. A. L. Anderson and H. F. Elliott. II *diags Elec W* 74:452-6 Ag 30 '19

Developments of Poulsen wireless system shown. *Elec R* 75:397 S 6 '19

Disclosures of radio development in war time. E. F. W. Alexanderson. *Elec W* 73:783 Ap 19 '19

Electrical oscillations in antennas and inductance coils. J. M. Miller. *diags U S Bur Stand Bul* 14:677-96 Ji 12 '19

Elimination of static in radio communication. *Elec W* 73:539 Mr 15 '19

Evolution of the thermionic valve. R. L. Smith-Rose. *diags Inst E E J* 56:253-66 Ap '18

Experimental wireless telegraphy and telephony. L. G. Pacent and A. C. Lescarboursa. II *diags Sci Am* S 88:12-13+, 52-3, 84-5+, 125, 152-3, 224-5, 272-3+, 324, 340-1, 356-7+, 372-3, 384-5 Ji 5, 26, Ag 9, 23, S 6, O 11, N 8, 29-D 27 '19

Fundamental formula in radio transmission; abstract. L. Bouthillon. *Elec W* 73:185 Ja 25 '19

General electric company in the great world war. J. R. Hewett. II *Gen Elec R* 22:607-15 Ag '19

High-frequency alternators; abstract. M. Latour. *diags Elec W* 74:424 Ag 23 '19

Highly important invention disclosed in wireless telegraphy. E. J. Nally. *Elec R* 73:320 N 23 '18

Home-made wireless set. *plan J Elec* 42:528-9 Je 1 '19

How wireless helps the mariner; keeping navigation posted by means of the radiometer and the radiophone. R. A. Lavender. II *diags Sci Am* 118:340+ Ap 13 '18

Marconi time-sparked continuous-wave transmitter. *diags Elec W* 74:897 O 25 '19

New possibilities in radio service. A. A. C. Swinton. *Elec R* 73:1009-10 D 28 '18

Ocean cables and wireless as weapons of commerce. *Sci Am* S 85:386-7 Je 22 '18

**Wireless telegraph—Continued**

- Principles of radio transmission and reception with antenna and coil aeriels. J. H. Dellinger. diags U S Bur Stand Sci Pa 354: 435-95 '19; Same. Am Inst E E Pro 38:1095-1150 O '19; Abstract. J Fr Inst 188:95-6 JI '19
- Problems relating to intercommunication between wireless stations. C. J. de Groot. Sci Am S 85:147 Mr 9 '18
- Radio communication for President Wilson en route to France. Elec R 74:61 Ja 11 '19
- Radio communication with moving trains; abstract. F. H. Millener. Elec W 73:185 Ja 25 '19
- Radio instruments and measurements. II diags U S Bur Stand Circ 74:1-341 '18
- Radiotelegraphy and radiotelephony. S. M. Kintner. II diags Eng Soc W Pa 33:581-609 D '17
- Radio-telegraphy in Germany and in France; abstract. M. Bouthillon. Elec W 73:232 F 1 '19
- Radio transmitters of synchronous rotary spark-gap type. M. C. Spencer. diags Elec R 74:456-8, 497-9, 542-3 Mr 22-Apr 5 '19
- Receiving wireless messages on a paper ribbon. II Sci Am 120:623+ Je 14 '19
- Reception through strays and interference. R. A. Weagant. Elec R 74:427-8 Mr 15 '19
- Results prove wireless valuable for police communication. II Elec R 73:863 N 30 '18
- Revival of amateur wireless. Sci Am 120: 421 Ap 26 '19
- Signaling and talking through space. II Sci Am 120:370-1+ Ap 12 '19
- Telegraphy through the ground; abstract. C. Nordmann. Elec W 71:628 Mr 23 '18
- Transatlantic radio communication. E. F. W. Alexanderson. II diags map Am Inst E E Pro 38:1077-93 O '19
- Transatlantic radio reception. C. A. Culver. diags J Fr Inst 187:529-79 My '19
- Weagant's anti-static invention; abstract. E. E. Bucher. diags Elec W 73:901 My 3 '19
- Wireless incendiary. J. Boyer. II diags Sci Am 120:628 Je 14 '19; Discussion. T. D. Paret. Sci Am 121:253 S 13 '19
- Wireless telegraphy and static. Sci Am 119:457 D 7 '18
- See also Vacuum tubes; Wireless apparatus; Wireless compass; Wireless control; Wireless signals; Wireless stations
- Bibliography**
- Radio instruments and measurements. U S Bur Stand Circ 74:324-9 '18
- Government regulation**
- Amateur side of the proposed wireless legislation. L. G. Pacent. Sci Am 119:517 D 28 '18
- Wireless situation. Sci Am 119:512 D 28 '18
- Study and teaching**
- Making war specialists of Young America. Sci Am 118:596 Je 29 '18
- Wireless telegraph in aviation**
- Aircraft transmitting equipment, type SE-1310. II diags Aviation 6:476-7 Je 1 '19
- Airplane antenna constants. J. M. Cork. diags U S Bur Stand Sci Pa 341:199-213 '19
- Development of radio equipment for naval aircraft. E. H. Felix. II Flying 8:536-40 JI '19
- High-frequency generator for airplane wireless telegraph sets. A. Nyman. II diags Elec J 16:140-5 Ap '19
- Radio apparatus for artillery fire control. G. F. Gray and J. W. Reed. II diags Elec W 73:408-12 Mr 1 '19
- Radio application in warfare explained to Chicago engineers; abstracts. A. A. Oswald. Elec R 74:719 My 3 '19; Elec W 73: 946 My 10 '19
- Radio development during the war. N. H. Slaughter. II chart plan Elec W 73:311-15 F 15 '19
- Radio direction-finding apparatus. A. S. Blatterman. II diags Elec W 73:464-7 Mr 8 '19

- Radio equipment on the naval seaplanes. F. D. Roosevelt. Elec W 73:1128 My 24 '19
- Wireless telegraphy applied to aviation. W. Knight. diags Aviation 6:572-5 JI 1 '19
- Wireless telegraph in war**
- Army development of charging sets. A. E. Flowers. II diags Elec W 73:1312-16 Je 21 '19
- Communicating by wire and by wireless at the front; abstract. Elec W 70:1204 D 22 '17
- Freaks of war wireless. Sci Am 121:365 O 11 '19
- General electric company in the great world war. J. R. Hewett. II Gen Elec R 22:607-15 Ag '19
- Loop of wire: an interesting radio communication development. W. J. Henry. II diags Sci Am 121:368+ O 11 '19
- Military radio communication. A. D. Cameron. II diags Elec W 73:521-5 Mr 15 '19
- Radio apparatus for artillery fire control. G. F. Gray and J. W. Reed. II diags Elec W 73:408-12 Mr 1 '19
- Radio application in warfare explained to Chicago engineers; abstracts. A. A. Oswald. Elec R 74:719 My 3 '19; Elec W 73:946 My 10 '19
- Radio communications and the great war. Sci Am 119:447 N 30 '18
- Radiotelegraphy, its uses and possibilities in the war. G. E. Mitchell. II Sci Am S 86:83-90 Ag 10 '18
- Telegraphs and telephones in the first year of war. J. V. L. Hogan. Elec W 71:352-3 F 16 '18
- Wireless telephone**
- Amateurs in name only. A. C. Lescarboursa. II Sci Am 120:688-9+ Je 28 '19
- Bell telephone system. J. J. Carty. Elec R 72: 874-5 My 25 '18
- Disclosures of radio development in war time. E. F. W. Alexanderson. Elec W 73:783 Ap 19 '19
- Dynamotors and wind-driven generators for radiotelephony. R. G. Thompson. II diags Elec J 16:206-10 My '19
- Experimental wireless telegraphy and telephony. L. G. Pacent and A. C. Lescarboursa. II diags Sci Am S 88:12-13+, 52-3, 84-5+, 125, 152-3, 224-5, 272-3+, 324, 340-1, 356-7+, 372-8, 384-5 JI 5, 26, Ag 9, 23, S 6, O 11, N 8, 29-D 27 '19
- First transatlantic telephonic transmission. R. A. Fessenden. Sci Am 119:189 S 7 '18
- General electric company in the great world war. J. R. Hewett. II Gen Elec R 22:607-15 Ag '19
- How wireless helps the mariner; keeping navigation posted by means of the radiometer and the radiophore. R. A. Lavender. II diags Sci Am 118:340+ Ap 13 '18
- Interesting features of wireless telephone. Elec R 74:510-11 Mr 29 '19
- Loud-speaking telephone for Victory plan campaign. II Elec W 73:1047 My 17 '19
- Much progress achieved in radio-telephony development. Elec W 73:426 Mr 1 '19
- Radiotelegraphy and radiotelephony. S. M. Kintner. II diags Eng Soc W Pa 33:581-609 D '17
- Radio telephony. E. B. Craft and E. H. Colpitts. II diags Am Inst E E Pro 38:337-75 Mr '19; Same. Sci Am S 87:244-6, 268-71, 280-1 Ap 19-May 3 '19
- Recent novelties in public speaking; application of the vacuum-tube amplifiers and the loud-speaking telephone. II Sci Am 120: 489+ My 10 '19
- Signaling and talking through space. II Sci Am 120:370-1+ Ap 12 '19
- Speeches through radiotelephone inspire New York crowds. II Elec R 74:895-7 My 31 '19
- Stray interference in radio-telephony; abstract. A. N. Goldsmith. Elec W 71:784 Ap 13 '18
- Telephoning without wires in Japan. II Sci Am 119:298 O 12 '18
- Wireless telephony and direction finding. II Engineer 127:563 Je 6 '19
- See also Vacuum tubes

**Wireless telephone in aviation**

- Airplane radio telephone set. G: O. Squier. Am Inst E E Pro 38:101-3 F '19; Same. Elec R 74:132-3 Ja 25 '19; Same. Elec W 73:130, 222 Ja 18, F 1 '19
- Development of airplane radiotelephone set. H. M. Stoller. Il diags Elec J 16:211-14 My '19
- Development of radio equipment for naval aircraft. E. H. Felix. Il Flying 8:536-40 Jl '19
- 'Phoning between airplanes and ground. Il Sci Am 119:523 D 28 '18
- Radio development in the air service. E: R. Doyle. diags Elec W 73:27-9 Ja 4 '19
- Radio-telephone development in army. N. H. Slaughter; G. F. Gray and J. W. Stokes. Il diags Elec W 74:340-3 Ag 16 '19
- Radio telephony; aircraft telephony. E. B. Craft and E. H. Colpitts. Il diags Am Inst E E Pro 38:359-64 Mr '19; Same. Sci Am S 87:269-70 Ap 26 '19
- Wireless telephone transmitter for seaplanes. Il diags Elec R 75:237-41 Ag 9 '19
- Wireless telephony between airships and ground stations. Il Sci Am 120:95+ F 1 '19
- Wiring, Electric.** See Electric conductors; Electric wire and wiring

**Wisconsin**

- Training engineers and firemen. A. W. Rugles. Il Ind Management 55:126-8 F '18
- See also Chemical industries—Wisconsin; Mines and mineral resources—Wisconsin; Roads—Wisconsin; Zinc mines and mining—Wisconsin

**Wisconsin electrical association**

- 10th annual convention, Milwaukee, March 27-28. Elec Ry J 51:624 Mr 30 '18; Elec W 71:739 Ap 6 '18; Elec R 72:597-8 Ap 6 '18

**Wisconsin gas association**

- 17th annual convention, Milwaukee, March 26. Am Gas Eng J 108:305-6 Mr 30 '18

**Wisconsin state association of electrical contractors and dealers**

- Annual convention, Madison, April 23-24. Elec R 72:766-7 My 4 '18
- Annual convention, Milwaukee, March 24-26. Elec R 74:508-10 Mr 29 '19

**Wisconsin state board of health**

- Advance of modern sanitation in Wisconsin during 1918. Dom Eng 86:240-1+ F 1 '19

**Wise, James B.**

- The man and the making of a big industry. A. J. Norris. por Il Dom Eng 82:350-1, 386-7, 428-9, 458-9, 498-9; 83:22-3, 66-7, 100-1 Mr 2-Ap 20 '18

**Witnesses**

- Engineering testimony. Gas Age 43:192-3 F 15 '19

**Witton, Frederick Roy, 1892-**

- Appreciation of the work of Frederick Roy Witton. W: W. Bosworth. Il Am Arch 113:113-15 Ja 30 '18

- 32d winner of the Rotch traveling scholarship. Am Arch 113:112, pl 49-56 Ja 30 '18

**Witwatersrand.** See Geology—Transvaal; Gold mines and mining—Transvaal**Wolframite**

- Estimation of tin in high-grade wolframite and the use of lead as a reducing agent in Pearce's assay. A. R. Powell. Chem & Met Eng 19:213 Ag 15 '18

- Tungsten in manganese ore. W: R. Jones. Eng & Min J 106:779 N 2 '18

- Wolframite ore in South China. Eng & Min J 105:24 Ja 5 '18

See also Tungsten

**Woman**

- Physical power of women. Sci Am S 85:276 My 4 '18

**Employment**

- Additional safeguards required for women employees. P: F. O'Shea. Il Ind Management 57:301-2 Ap '19

- American women in war industry. C. E. Knoepfel. Ind Management 55:480-3; 56:49-52 Je-Jl '18

**Art of training saleswomen.** Gas Age 42:496-7 D 2 '18

- Attendance and turnover records of women workers. Automotive Ind 40:1222-4 Je 5 '19

- Baltimore plan abolishes flat flame burners; women employed to carry out plan. Il Gas Age 42:291-6, 333-40 O 1-15 '18

- British foundries assign heavy tasks to women. Il Foundry 46:69-70 F '18

- Brockton plan of developing gas business; employing women in maintenance-selling department. C: W. Wardell. Il Gas Age 41:249-53 Mr 15 '18; Abstract. Illus Engr 11:159-60 Je '18

- Call for women by the railway mechanical department. Elec Ry J 52:645 O 12 '18

- Changing from male to female help. W. L. Churchill. Ind Management 55:322-4 Ap '18

- Cleveland women object; organize to fight dismissal from railway service by federal labor investigators. Elec Ry J 52:630-1 O 6 '18

- Commonwealth Edison employs women meter readers. Elec R 73:374-5 S 7 '18

- Converting women workers to overalls. E. McCann. Il Am Ind 18:18-19 Mr '18

- Daughters of France in war plants promote victory. F. Miltoun. Il Iron Tr R 63:375-8 Ag 15 '18

- Demand for and supply of women workers. Automotive Ind 39:490-1 S 19 '18

- Detroit motor car manufacturer has training school for women; photographs. Iron Tr R 62:610-11 Mr 7 '18

- Difficulties in employing women. L. H. Colburn. Ind Management 55:218 Mr '18

- Diluting skilled labor. G. H. Baillie. Automotive Ind 37:995-6 D 6 '17

- Dilution of labor. Iron Age 101:864 Ap 4 '18

- Dilution of labor; report of Ministry of munitions of Great Britain. Am Ind 18:33-4 Ap '18

- Duluth street railway has women car and shop workers. Il Elec Ry J 52:414 S 7 '18

- Effect of workmen's compensation laws in diminishing the necessity of industrial employment of women and children. M. K. Conynghton. U S Bur Labor Statistics Bul 217:1-170 '18

- Efficiency of both sexes in the machine industry. L. W. Alwyn-Schmidt. Am Mach 51:281-2 Ag 7 '19

- Efficient utilisation of labour in engineering factories (with special reference to women's work). B. H. Morgan. Engineer 125:432-3 My 17 '18

- Effort to fix status of women; final ruling asked in regard to Cleveland women. Elec Ry J 52:1110-11 D 21 '18

- Employing women in cotton finishing. diags Textile World 54:2685+ N 30 '18

- Employment of women. Iron Age 102:1018-19 O 24 '18

- Employment of women in industries after the war. R. Sinclair. Eng & Contr 50:401 O 30 '18

- Employment of women in mining. F. W. Parsons. Coal Age 13:859 My 11 '18

- Employment of women in munition factories. O. E. Monkhouse. Sci Am S 85:282-3 My 4 '18; Excerpts. Engineer 125:249 Mr 22 '18; Excerpts. Eng & Contr 50:135-6 Jl 31 '18; Abstract. Iron Age 102:90, 743 Jl 11, S 26 '18; Discussion. Engineer 125:246-7 Mr 22 '18

- Employment of women in our industries. W. A. Viall. Am Mach 48:909-11 My 30 '18; Same cond. Iron Age 101:1189-90 My 2 '18; Same cond. Iron Tr R 62:1190-1 My 9 '18

- Employment of women in railway work. T: G. Aston. Elec Ry J 51:1193-4 Je 22 '18

- Employment of women in stock-room positions. W. F. Stevens. Elec W 72:743-9 O 19 '18

- Employment of women on state highway construction. H. A. Nunn. Eng & Contr 50:323-4 O 2 '18

- Employment of women workers in our industries. Il Gas Age 43:123-8 F 1 '19

- Enlisting women in electrical work. A. H. Bridge. Il Elec R 72:272-3 F 16 '18

- Equal pay for women urged for equal work. Automotive Ind 41:42+ Jl 3 '19

**Woman—Employment—Continued**

Experience in training mechanical operators. *II* Iron Age 182:551-3 S 5 '18  
 Experience with women workers in London gas works. C. Roberts. *II* Gas Age 41:297-300 Ap 1 '18  
 Facts assembled on war labor problems at conference of industrial and efficiency engineers; abstracts. Iron Age 101:876-81 Ap 4 '18; Iron Tr R 62:861-3 Ap 4 '18  
 Female labor's place in automotive industry. A. Sinsheimer. *II* Automobile 37:525-31, 592-3 S 27-O 4 '17; Abstract. Am Soc M E J 39:966-7 N 17  
 Female workers in British foundries. *II* Foundry 47:828-3 N 15 '19  
 Fill your draft vacancies by hiring more women for your plant. M. C. Lynch. *II* Iron Tr R 62:205-12 Ja 17 '18  
 Handling women workers. Factory 36:546+; 21:352+, 576+, 704+, 1116+; 22:78+, 848+, 1342+; 23:328+, 1406+ Mr, Ag-O, D '18-Ja, Ap, Je, Ag, D '19  
 Health of women in railway service. A. Bowman. Elec Ry J 52:706 O 19 '18  
 How we trained 5000 women to do precision work on fuses and instruments. C. U. Carpenter. *II* Ind Management 55:353-7 My '18; Abstracts. Iron Age 101:1057 Ap 25 '18; Am Gas Eng J 108:419 My 4 '18  
 How women are trained to become meter readers. *II* Elec W 72:604 S 28 '18  
 Human problem thought of paramount importance in Paris shrapnel plant. R. K. Tomlin, Jr. *II* Eng N 80:813-16 Ap 25 '18  
 Hydraulically operated shell production machinery. I. W. Chubb. *II* Am Mach 48:939-43 Je 6 '18  
 Improved equipment permits employment of additional women workers at Morgan & Wright plant. *II* Automotive Ind 39:92-4 Jl 18 '18  
 In the service of New England gas companies woman worker has demonstrated that she merits a place in the gas industry. G. H. Priest. Am Gas Eng J 110:168-70 F 22 '19  
 Increased employment of women in the industries. A. L. Smith. Mach 24:509-11 F '18  
 Industrial experience of trade-school girls in Massachusetts. U S Bur Labor Statistics Bul 215:1-269 '17  
 Installing a training department in the Buffalo factory of the Curtiss aeroplane and motor corporation. J. W. Russell. *II* Ind Management 57:177-82 Mr '19  
 Introducing woman labor into the shop. M. C. Hobart. Am Mach 49:769-70 O 24 '18  
 Iron, steel, and engineering industries in 1917. Engineer 125:23-4 Ja 11 '18  
 Keeping the gas mantle business going as usual. *II* Gas Age 41:153-6 F 15 '18  
 Labour administration. E. T. Elbourne. Engineer 126:348-50 O 25 '18  
 Labor conditions during federal control. Ry Age 66:184-6 Ja 17 '19; Same cond. Ry R 64:189-90 F 1 '19  
 Laws regarding women in shops. Am Mach 48:239-40 F 7 '18  
 Massachusetts' only licensed female engineer. Power 48:417 S 17 '18  
 Meeting war burdens; Croydon corporation tramways in the London suburban area. T. B. Goodyer. Elec Ry J 51:220-1 F 2 '18  
 Men are still on the job; industrial report shows few women substituted as yet. Iron Tr R 63:276-7 Ag 1 '18  
 Motor company's shop training for women. F. L. Prentiss. *II* Iron Age 102:1453-5 D 12 '18  
 National industrial conference board finds woman labor meets the need. Iron Tr R 63:626 S 12 '18  
 New York gas company's women appliance inspectors. Am Gas Eng J 108:464 My 18 '18  
 Night farming by women in England. *II* Sci Am 118:341 Ap 13 '18  
 Opposition of certain labor unions to women workers; how can it be overcome? Eng & Contr 50:335-6 O 9 '18  
 Our experience with the employment of women. D. S. Earll. Am Mach 48:240-1 F 7 '18

Output and work of women in industry: study of National industrial conference board. Elec W 72:490-1 S 14 '18  
 Packard gives women complete mechanical training. *II* chart diags Automotive Ind 38:986-8+ My 23 '18  
 Part-time women—a new source of labor supply. *II* Factory 21:831-2 N '18  
 Place of women in the industries; employment in gas works of London. *II* Gas Age 41:345-7 Ap 15 '18  
 Policy as to women in industries; United States employment service issues instructions. Iron Age 102:843-4 O 3 '18  
 Position of the Amalgamated association of Street & electric railway employees of America on the question of employment of women as conductors. Elec Ry J 52:470 S 14 '18  
 Preliminary training for women workers. F. H. Colvin. *II* diags Mach 49:1067-70 D 12 '18  
 Problem of women in war industry. C. E. Knoeppel. Ind Management 55:385-7 My '18; Excerpts. Iron Tr R 62:924-7 Ap 11 '18  
 Problems of female labor discussed at the monthly meeting of the Employment managers' association, June 11. Automotive Ind 38:1119-20+ Je 13 '18  
 Progress in the employment of female labor in England in the automotive industries. B. H. Morgan. Automotive Ind 38:1082 Je 6 '18  
 Psychology of environment. C. B. Lord. Am Soc M E J 40:48-9 Ja '18; Excerpts. Eng N 80:69-70 Ja 10 '18; Discussion. Am Soc M E J 40:49-51 Ja '18  
 Putting women into the machine shop. F. L. Prentiss. *II* Iron Age 102:892-5 O 10 '18  
 Railway women employees. W. G. McAdoo. Ry Mech Eng 93:149-50 Mr '19  
 Relative efficiency of male and female operatives. Automotive Ind 39:537-40 S 26 '18  
 Safeguard working women and their offspring. A. S. Cutler. Ind Management 56:508-9 D '18  
 Safety equipment for the protection of women operatives. *II* Automotive Ind 39:150-1 Jl 25 '18  
 Selection, training and supervision of women workers at Nordyke & Marmon plant. *II* Automotive Ind 39:318-21 Ag 22 '18  
 Service for women in the Gisholt shops. J. V. Hunter. *II* charts diags Am Mach 50:6-10 Ja 2 '19  
 Shopwomen doing good work in Quaker City. Elec Ry J 52:295 Ag 17 '18  
 Skirts or overalls for women. Am Mach 49:487 S 12 '18  
 Solving New Haven's man-power problem. C. L. Edholm. *II* Am Mach 49:721-3 O 17 '18  
 Solving the labor problem in Louisville (Ky.) woodworking industries. *II* Am Lumberman 2241:45 Ap 27 '18  
 Solving the problems of female labor in a car-making plant. *II* Automotive Ind 39:57-9 Jl 11 '18  
 Special machines for producing 9.2-inch shells. *II* diag Engineer 125:190-1 Mr 1 '18  
 Standard uniform for women workers. *II* Am Mach 49:8 Jl 4 '18  
 Standards adopted for women. Automotive Ind 40:36 Ja 2 '19  
 Standards formulated for women in industry. Automotive Ind 40:1469 Je 26 '19  
 Substation operation a woman's job. H. J. Burton. *II* Elec W 73:30-2 Ja 4 '19  
 Success with girls hired as meter readers. Elec W 71:572-3 Mr 16 '18  
 Superintendence of women. Mrs H. E. Huestis. Ind Management 55:280 Ap '18  
 Training girls for the drafting room. *II* Automotive Ind 39:235 Ag 3 '18  
 Training of women as machine operators. J. V. Hunter. Am Mach 49:566-6 S 26 '18  
 Training schools in factories. A. Sinsheimer. Automotive Ind 38:818-20 Ap 25 '18  
 Training the woman war worker. E. K. Hammond. *II* Mach 25:15-17 S '18  
 Training women for record output. R. I. Clegg. *II* Iron Age 103:169-74 Ja 16 '19

**Woman—Employment—Continued**

- Training women for the drawing room; methods employed by Norton grinding co. H. W. Dunbar and W. E. Freeland. *Il diags Iron Age* 102:1-5 JI 4 '18
- Training women for war work. *Am Mach* 49:502a S 12 '18
- Training women for war work. G. B. Harris. *Am Mach* 48:47-8 Ja 10 '18
- Training women in an airplane plant. J. W. Russell. *Il Mach* 25:593-5 Mr '19
- Training women machinists. I. C. Decatur and H. A. Chase. *Il Mach* 24:823-4 My '18
- Value of women workers in the machine shop. A. C. Halvorsen. *Am Mach* 50:438 Mr 6 '19
- Vestibule school of Lincoln motor co. J. M. Eaton. *Il Ind Management* 56:452-5 D '18
- War labor policies board establishes rules governing employment. *Automotive Ind* 39:770-1 O 31 '18
- War work for women. L. D. Burlingame. *Il Mach* 24:682-7 Ap '18
- Wartime experience with women metal workers. Foundry 47:6-7 Ja '19
- What women are doing in the shipyards and shops in Great Britain. *Il Int Marine Eng* 23:403 JI '18
- When ladies learn the art of railroadng. *Il Sci Am* 118:571 Je 22 '18
- Where England gets her women workers; the factory school which promises to supply the skilled labor of the future. *Il Sci Am* 118:520+ Je 8 '18
- Why women can sell electrical household appliances. A. A. Tietz. *Elec R* 72:644 Ap 13 '18
- Woman conductor should keep her job after the war. P. Witt. *Elec Ry J* 52:663-4 O 12 '18
- Woman conductors must go, Cleveland investigators decide. *Elec Ry J* 52:586 S 28 '18
- Same cond. Munic J 46:274 O 5 '18
- Woman in the drafting room. K. Works. *Am Mach* 49:245 Ag 8 '18
- Woman line yard purchasing agent. *Am Lumberman* 2237:84 Mr 30 '18
- Woman substation operators a notable success. *Il diag Elec W* 72:645-8 S 21 '18
- Woman worker. J. W. Upp. *Il Am Soc M E J* 40:45-8 Ja '18; Same cond. *Iron Age* 100:1426-7 D 13 '17; Excerpts. *Eng N* 80:69 Ja 10 '18
- Women a fixture in electrical industry. *Il Iron Age* 103:353-4 F 6 '19
- Women a problem in Detroit. *Elec Ry J* 52:1111-12 D 21 '18
- Women and the labor shortage. *Sci Am* 119:206 S 14 '18
- Women are not allowed to test meters in Pennsylvania. *Elec W* 72:700 O 12 '18
- Women as solution of automobile service problem. *Motor Age* 34:17 Ag 15 '18
- Women can handle exacting work. J. E. Schipper. *Il Automotive Ind* 40:266-7 Ja 30 '19
- Women conductors a success at Kansas City. *Il Elec Ry J* 52:617-18 O 5 '18
- Women conductors in Kansas City, Kenosha and Camden. *Il Elec Ry J* 51:1147-8 Je 15 '18
- Women conductors in New York; reports. B. M. Squires; R. Hall. *Elec Ry J* 51:1006-13 My 25 '18
- Women conductors on surface cars of New York railways. *Elec Ry J* 50:1075 D 15 '17
- Women employed in German foundries. K. Abeking. *Foundry* 46:99 Mr '18
- Women employees increase in Detroit. *Automotive Ind* 37:780 N 1 '17
- Women fill men's places in shops. D. C. Buell; H. D. Wolcomb; M. Lampert. *Ry Mech Eng* 92:23-6 Ja '18
- Women for St Louis cars. *Elec Ry J* 50:1137 D 22 '17
- Women help relieve labor scarcity in B. R. T. mechanical department. *Il Elec Ry J* 52:655-7 O 12 '18
- Women in airplane production. I. W. Chubb. *Il Am Mach* 48:221-5 F 7 '18
- Women in British industries. *Mach* 24:887 Je '18
- Women in British munition manufacture. *Ind Management* 55:413 My '18
- Women in British munitions factories. *Il Sci Am S* 86:8 JI 6 '18
- Women in British rolling mills. *Iron Age* 102:636 S 12 '18
- Women in British wartime industry. *Automotive Ind* 41:332 Ag 14 '19
- Women in engineering. *Engineer* 128:337 O 3 '19
- Women in French industry. *Engineer* 125:228 Mr 15 '18
- Women in industry. *Am Mach* 49:410a+ Ag 29 '18
- Women in industry. *Coal Age* 12:1067; 13:70, 890 D 22 '17, Ja 12, My 11 '18
- Women in industry. H. E. Miles. *U S Bur Labor Statistics Bul* 247:119-29 '19; Excerpts. *Am Ind* 19:20-1 S '18; Abstract. *Iron Tr R* 62:1331-2 My 23 '18
- Women in industry; statement of the government's attitude. *Iron Age* 102:165 JI 18 '18
- Women in machine shops. *Am Mach* 48:761-2 My 2 '18
- Women in metal trades; report of the National industrial conference board; abstracts. *Iron Age* 102:282 Ag 1 '18; *Elec Ry J* 52:242 Ag 10 '18; *Automotive Ind* 39:164 JI 25 '18; *Mach* 25:84-5 S '18
- Women in munition factories. G. F. Kellaway. *Engineer* 126:30 JI 12 '18
- Women in railway work. *Il Ry R* 63:122-3 JI 27 '18
- Women in technical work. *Il Sci Am S* 85:56 Ja 26 '18
- Women in the chemical industries of England. *J Ind & Eng Chem* 10:1028-9 D '18
- Women in the gear industry. W. H. Diefendorf. *Am Mach* 49:642 O 3 '18
- Women in the machine shop. S. A. Hand. *Il Am Mach* 49:1035-7 D 5 '18
- Women in the offices of the Canadian railways. J. L. Payne. *Ry Age* 65:821-3 N 8 '18
- Women in the railroad service. P. Goldmark. *Ry R* 63:857-9 D 14 '18; Abstract. *Elec Ry J* 53:102 Ja 11 '19
- Women industrial workers in France. M. Conyngton. *Automotive Ind* 39:411 S 5 '18
- Women munition workers in France. *Metal Ind* 16:467 O '18
- Women on B. R. T. surface cars. *Elec Ry J* 50:1181 D 29 '17
- Women operate one-man cars in Keokuk. *Il Elec Ry J* 52:1140 D 28 '18
- Women prove efficient mechanics. *Il Motor Age* 34:25 Ag 22 '18
- Women reading meters for Consolidated gas company also help housewives to save gas. *Il Am Gas Eng J* 109:404-5 O 26 '18
- Women successful as conductors. T. S. Williams. *Elec Ry J* 51:416-17 Mr 2 '18
- Women take place of men called to war service. *Il Am Gas Eng J* 108:115+ F 2 '18
- Women water-waste inspectors at Baltimore, Maryland. W. E. Lee. *Il Eng N* 82:1105 Je 6 '19
- Women workers and labor turnover. I. M. Wilson. *Ind Management* 57:67-8 Ja '19
- Women workers in French factories. E. Chouanard and G. H. Brigham. *Mach* 24:1062-3 JI '18
- Women workers in machine shops in Great Britain. *Mach* 24:597 Mr '18
- Women workers in railroad shops. *Il Ry Mech Eng* 91:702-4 D '17
- Women workers in the shop. D. A. Baker. *Mach* 24:451 Ja '18
- Women workers make good showing; report of Welfare committee of Cleveland chamber of commerce. *Iron Age* 102:276-7 Ag 1 '18
- Women workers of Canada; personal experiences in a Canadian rifle factory. M. J. Huestis. *Il Sci Am* 118:52 Ja 12 '18
- Women's labor in British war industries. L. H. Quin. *Il Iron Age* 101:206-10 Ja 17 '18
- Women's latest field—in the retort-house. *Am Gas Eng J* 108:460 My 11 '18
- Women's place in the electrical industry. *Il Elec W* 71:1196-9 Je 8 '18
- Womens' service section. *Ry Age* 66:184-6 Ja 17 '19

**Woman—Employment—Continued**

- Women's work in war time. W. I. Bullard. *Il Am Ind* 18:14-15 D '17  
 Work of a repetitive character specially suited to women employees. *Am Gas Eng J* 109:412 N 2 '18  
 Work of women in engineering factories. B. H. Morgan. *Eng & Contr* 50:429-30 O 30 '18  
 Working conditions for women prescribed. *Iron Age* 102:1588-9 D 26 '18  
 World policies; English women workers in retort house. *Gas Age* 41:442-3 My 15 '18

**Bibliography**

- Library work as a vocation for women. E. M. Johnson. *Special Libraries* 9:99-102 Ap '18  
 List of references on women in agriculture. C. R. Green. *Special Libraries* 10:138-45 Je '19  
 Training of women for war work; a bibliography. Mrs V. B. Turner. *Monthly Labor Rev* 7:164-71 Ag '18  
 Woman in the war. M. R. Nims. 77p '18 Council of national defense, Woman's committee  
 Women—war-time occupations and employment. E. M. Johnson. *Special Libraries* 9:12-16, 19-24, 51-2 Ja-F '18  
 Woman's benefit association of the Maccabees, Port Huron, Michigan  
 Office buildings for woman's benefit association of the Maccabees, Port Huron. *Arch Forum* 30:31, pl 4-8 Ja '19  
 Women's national league for the conservation of platinum  
 Members of council and letter issued by Pennsylvania chairman. *J Ind & Eng Chem* 10:494 Je '18

**Wood, Leonard**

- Amazing case of General Wood. *Sci Am* 118:542; 119:49 Je 15, Ji 20 '18

**Wood**

- Causes and prevention of failure in creosoted wood block factory floors. L. J. Ericson. *Eng & Contr* 49:318-20 Mr 27 '18; Abstract. *Eng N* 80:306 F 14 '18  
 Compression wood and failure of factory roof-beam. G. E. Heck. *Il Eng N* 83:508-9 S 11 '19  
 Coopersage industry. H. Maxwell. *Il Sci Am* S 88:228-30 O 11 '19  
 Curiosities of rare woods. *Am Arch* 116:70 Ji 16 '19  
 Decay in mill-roof timber. R. J. Blair. *Il Textile World* 54:2857+, 2981 D 7-14 '18  
 Decay in wood in buildings. *J Fr Inst* 185:857-8 Je '18  
 Decay of timber in Mexican low coastal plains. J. D. Mathews. *Eng N* 82:631-2 Mr 27 '19  
 Defects in airplane woods. S: J. Record. *Il Sci Am* 119:212+ S 14 '18  
 Durability of untreated piling above mean low water. M. E. Thorne and C. H. Teesdale. *Eng & Contr* 49:405-8 Ap 24 '18; Same cond. *Ry Age* 64:1235-6 My 24 '18  
 Fire-proofing wood investigated by Forest products laboratory. *Gas Age* 41:118 F 1 '18  
 General and special uses of wood. *Am Lumberman* 2283:35 F 15 '19  
 Grain of wood, with reference to direction of fibre. A. Koehler. *diags Sci Am* S 86:156-7 S 7 '18  
 How woods compare for airplane manufacture. *Am Lumberman* 2231:37 F 16 '18  
 Less known woods and how to finish them. G. V. Leonard. *Bldg Age* 41:288 S '19  
 Phenomena of drying wood. H. D. Tiemann. *Il diags J Fr Inst* 188:27-50 Ji '19  
 Reducing shrinkage and swelling in laminated wood construction. J. S. Mathewson. *Aviation* 7:140 S 1 '19  
 Selecting wood for airplanes. A. Koehler. *Il Sci Am* S 88:148-9 S 6 '19  
 Special wood pulp stacking equipment. *Il Am Lumberman* 2231:68 F 16 '18  
 Use of wood in chemical apparatus. A. W. Schorger. *Met & Chem Eng* 18:528-31 My 15 '18  
 Uses of wood in building construction; report of National fire protection association committee. *Am Lumberman* 2243:40-1 My 11 '18

Vertical grained wood block units form floor. *Il Eng N* 80:100 Ja 10 '18

Way in which some woods became popular. *Bldg Age* 40:463-4 S '18

Wood as reinforcement for concrete. *diags Eng & Contr* 52:505 O 29 '19

Wood for electric lamp stands. *Am Lumberman* 2305:41 Ji 19 '19

Wood is the cheapest material for residence construction. *Am Lumberman* 2301:1+ Je 21 '19

Woods for making airplanes. S: J. Record. *Il Sci Am* 119:248-9 S 28 '18

Woods with a fragrant odor. C: Davis. *Am Lumberman* 2250:55 Je 29 '18

See also Ash; Birch; Cedar; Chestnut; Coniferae; Cypress; Douglas fir; Elm; Fir; Forest products; Forests and forestry; Hard woods; Hemlock; Lignum-vitae; Lumber; Oak; Pine; Poles; Redwood; Sawmills; Shipbuilding; Spruce; Timber; Trees; Wood preservation; Wood pulp; Wood waste; Woodlots; Woodwork

**Analysis**

Proximate analysis of wood. W. H. Dore. *J Ind & Eng Chem* 11:556-63 Je '19

**Bibliography**

Structural service department; timber, lumber, wood construction, and finish. *Am Inst Arch J* 6:201-9 Ap '18

**Testing**

Design of flag poles. *Am Arch* 113:193 F 13 '18  
 Eight-inch hardwood rollers take 12 to 18 tons per foot. A. B. McDaniel. *Il Eng N* 80:123-4 Ja 17 '18

Method of determining moisture content of wood. *Eng & Contr* 52:252 Ag 27 '19

Progress reported on wood-block experiments in Minneapolis; abstracts. C. H. Teesdale and J. D. MacLean. *Eng N* 82:233-4 Ja 30 '19; *Eng & Contr* 51:146-7 F 5 '19

Relation of the shrinkage and strength properties of wood to its specific gravity. J. A. Newlin and T. R. C. Wilson. *U S Agric Bul* 676:1-35 '19; Abstract. *Eng & Contr* 52:239-41 Ag 27 '19

Relative design in wood. *Am Lumberman* 2277:37 Ja 4 '19

Splintering properties of airplane woods. G. E. Heck. *Il Automotive Ind* 40:1234-5 Je 5 '19; Same. *Sci Am* S 88:68 Ag 2 '19

Tests of Douglas fir after long use. A. C. Alvarez. 13 tables Univ of Cal Pub in Engineering v 2, no 2:57-118, pl 1-17 '18; Excerpts. *Eng N* 83:281 Ag 7 '19; Conclusions. *Eng & Contr* 52:365 S 24 '19

The renewal cost reduction deserves serious study. R. C. Cram. *Il diags Elec Ry J* 53:308-15 F 15 '19

Wood, Fossil. See Trees, Fossil

Wood alcohol. See Alcohol, Wood

Wood as fuel

Burning waste economically. *Factory* 22:1208+ Je '19

Burning wood to conserve coal. W. W. Cranford. *Power* 47:881 Je 18 '18

Economic use of wood refuse as fuel. C. M. Garland. *diag Am Lumberman* 2287:70 Mr 15 '19

Emergency fuel from the farm woodland. A. F. Hawes. *U S Agric Circ* 79:1-8 '17

Firing coal and wood in water heater. *Metal Work* 89:297 Mr 1 '18

Fuel value of wood. *Eng & Min J* 105:16-17 Ja 5 '18

Interesting fuel tests. *Power* 48:624-5 O 29 '18  
 Mill refuse and powdered coal for power generation. *Elec W* 71:777 Ap 13 '18

Unique plan to save coal by using stump wood. *Sci Am* 118:78 Ja 19 '18; Same cond. *Coal Age* 13:236 F 2 '18

Use of lignite, bagasse and wood waste for power generation and other purposes. J: B. C. Kershaw. *Il diags Engineer* 126:133-4 Ag 16 '18; Same. *Coal Age* 15:437-8 Mr 6 '19

Use of wood as fuel; symposium. *Am Soc M E J* 40:pt 2, 642-4 Ji '18

Use of wood for fuel. *Il plan U S Agric Bul* 753:1-39 '19

**Wood as fuel—Continued**

- Use of wood in logging locomotives. Am Lumberman 2252:53 J1 13 '18; Same cond. Ry R 63:105-6 J1 20 '18  
 Using hogged mill refuse as fuel. Il Power 48:79 J1 16 '18  
 Wood as fuel and how to use it. Heat & Ven 16:33 O '19  
 Wood-burning station of Northwestern electric company, Portland, Ore. Il Elec R 73:573-4 O 12 '18  
 Wood for boiler fuel. C. T. Baker. Ind Management 55:366-7 My '18  
 Wood fuel preparations. Metal Work 89:484 Ap 12 '18  
 Wood shavings used for fuel in a power plant. Elec W 71:776 Ap 13 '18

**Wood ashes**

- Inexpensive ash leaching plant. W. D. Turner and B. G. Nichols. diag J Ind & Eng Chem 10:374-6 My '18  
 Potash from wood ashes; production in Michigan and Wisconsin. C. T. Edgar. Il Met & Chem Eng 18:537-9 My 15 '18

**Wood carving**

- English architectural decoration. A. E. Bullock. Il plan Arch Rec 43:335-43, 426-34 Ap-My '18

**Wood distillation**

- Apparatus for wood distillation; patent. Met & Chem Eng 18:100 Ja 15 '18  
 Carbonization of wood in the Stockholm gas works. Il Gas Age 43:74-8 Ja 15 '19  
 Effect of catalyzers on the yield of products in the destructive distillation of hardwoods. R. C. Palmer. J Ind & Eng Chem 10:264-8 Ap '18  
 Effect of incomplete distillation on the yield of products in the destructive distillation of birch. R. C. Palmer. J Ind & Eng Chem 10:260-2 Ap '18  
 European substitutes for coal in gas making. map Gas Age 41:5-7 Ja 1 '18  
 Influence of moisture on the yield of products in the destructive distillation of hardwood. R. C. Palmer and H. Cloukey. J Ind & Eng Chem 10:262-4 Ap '18  
 New method of distilling both green and seasoned hardwoods. Il Chem & Met Eng 21:193-4 Ag 15 '19  
 Results of minor forest utilization during the war. C. T. Hamill. Am Lumberman 2277:51-2 Ja 4 '19  
 Wood gas. L. H. Bacque. Gas Age 41:493-4 Je 1 '18

See also Charcoal

**Wood engraving**

- Work of Timothy Cole, master wood-engraver, on exhibition at Chicago art institute. N: J. Quirk. Il Inland Ptr 64:185-6 N '19

**Wood finishing**

- Gray and Barash electric dubbing machine for wooden ships. Il Elec R 72:890-1 My 25 '18; Elec W 71:1167 Je 1 '18  
 How to finish common woods. A. A. Kelly. Bldg Age 41:316-7, 368 O-N '19  
 See also Lacquer and lacquering; Painting, Structural; Varnish and varnishing

**Wood oils**

- Flotation experiments on hardwood tar oils. L. F. Hawley and O. C. Ralston. Chem & Met Eng 20:586-7 Je 1 '19

See also Birch oil

**Wood pavements. See Pavements, Wood****Wood pipes. See Pipes, Wood****Wood preservation**

- American wood preservers' association 14th annual convention, Chicago. Ry R 62:129-30 Ja 26 '18; Ry Age 64:277-80 F 1 '18  
 American wood preservers' association 15th annual meeting, St. Louis. Ry Age 66:365-7 F 7 '19; Ry R 64:177-9 F 1 '19; Am Lumberman 2281:74-5+ F 1 '19  
 Attack on Chicago creosote oil specification fails. J. A. Meyer. Munic Eng 54:209 My '18  
 Complete wood preserving plant mounted on cars. Il Ry Age 67:453-5 S 5 '19; Same abr. Eng & Contr 52:334 S 17 '19

**Conservation essential in consumption of**

- wooden poles. Il Elec R 75:607-8 O 11 '19  
 Creosote treatment of car timbers. Il Ry Mech Eng 93:255-7 My '19  
 Destruction of wood block pavement due to use of tar in the creosote oil. P. C. Reilly. Il Munic Eng 54:183-4 My '18  
 Economic importance of wood preservation. K. C. Barth. Il Eng & Min J 104:985-8 D 8 '17  
 Economics of pole timber. E. F. Hartman. Il Elec W 72:590-1 S 28 '18  
 Extending the life of wood poles. C: R. Harte. Il Elec Ry J 53:554-9 Mr 22 '19  
 Government controls timber treating industry. Ry Age 65:731-2 O 25 '18  
 Inflammability of creosoted timber decreases with age. Eng N 80:1085 Je 6 '18  
 Keeping the propeller dry; use of aluminum leaf. M. E. Dunlap. Il Sci Am S 87:292-3 My 10 '19; Same. Aviation 6:636-8 J1 15 '19; Abstract. Automotive Ind 40:953 My 1 '19  
 Kyanizing. Mach 24:1043 J1 '18  
 Life of impregnated wooden poles; abstract. F. Moll. Elec W 71:211 Ja 26 '18  
 Machine dress railroad ties before treatment. diags Eng N 81:679-80 O 10 '18  
 New method of creosoting lumber. Sci Am S 86:167 S 14 '18  
 New process for creosoting fir lumber. B. L. Grondal. Eng & Contr 51:219 F 26 '19  
 Non-pressure treatment of wood for buildings. Il Eng N 82:237-8 Ja 30 '19  
 Oil for creosoting wood paving blocks; the Chicago specifications and the injunction suit to prevent their use. Munic J 44:260-1 Mr 30 '18  
 Preservation of mine timber. Coal Age 16:164, 377-8, 459 J1 24, Ag 28, S 11 '19  
 Preservation of timber in coal mines. P. Groom. Engineer 125:126-7 F 8 '18  
 Preservation of timber with zinc chloride by the steeping process. Eng & Contr 52:347 S 24 '19; Same abr. Eng N 83:676 O 2 '19  
 Preservation of wood in connection with the building of wharves and docks. H. von Schrenk. Il Int Marine Eng 23:230-2 Ap '18  
 Preservative treatment of mine timbers as a conservation measure. K. C. Barth. Coal Age 14:1025-7 D 5 '18  
 Problem of wooden shipbuilding. B. L. Grondal. Sci Am S 85:59 Ja 26 '18  
 Railroads must play big part in conserving timber. A. Gibson. Ry Age 65:815-16 N 8 '18  
 Relative resistance of various hardwoods to injection with creosote. C. H. Teesdale and J. D. MacLean. biblog Il diags U S Agric Bul 606:1-36 '18; Same, without appendix. Ry R 63:79-86 J1 20 '18  
 Resistance of hardwoods to treatment with creosote. Ry R 63:20 J1 6 '18  
 Results of long-time tests of creosote-treated fence posts. C. H. Teesdale. Eng N 82:1254 Je 26 '19  
 Salt boxes to preserve piles. H. Von Schrenk. Il Ry Age 64:114 Ja 11 '18  
 Seventeen years life from treated ties. Ry Age 64:1073-4 Ap 26 '18; Same. Eng & Contr 49:617-18 Je 19 '18  
 Standard specifications for timber preservation. Ry Age 66:445-7 F 21 '19  
 Statistics for 1917. Ry Age 65:293 Ag 16 '18  
 Tests of the absorption and penetration of coal tar and creosote in longleaf pine. C. H. Teesdale and J. D. MacLean. Il U S Agric Bul 607:1-42 '18  
 Timber preservation in car construction. H. S. Sackett. Ry R 64:957-9 Je 21 '19  
 Timber preservation will aid in lowering maintenance costs. R. C. Cram. Elec Ry J 53:597 Mr 22 '19  
 Treated lumber for car construction. Ry R 64:330-2 Mr 1 '19; Same, with tables. Ry Mech Eng 93:198-200 Ap '19  
 Treatment of factory roof timbers. G: M. Hunt. Eng & Contr 52:103 J1 23 '19; Abstract. Am Arch 115:863 Je 18 '19  
 Use of creosoted fir for marine construction. B. L. Grondal. Sci Am S 86:263 O 26 '18; Same abr. Eng & Contr 51:60 Ja 15 '19

**Wood preservation—Continued**

- Waterproofing railway ties to preserve them. H. K. Wicksteed. Ry Age 66:849-50 Mr 28 '19; Same. Eng & Contr 51:537-8 My 21 '19  
 Wood preservation statistics for 1918. Ry Age 67:910 N 7 '19  
 Zinc chloride treatment for railroad ties. Eng & Contr 51:394-5 Ap 16 '19

*See also* Dry rot; Zinc chloride

**Wood pulp**

- Cellulose, a new wood pulp fiber. Sci Am S 86:71 Ag 3 '18  
 New German textile substitute; abstract. Am Soc M E J 40:pt 1, 581 Jl '18  
 Pulpwood consumption and wood-pulp production in 1917. F. H. Smith. U S Agric Bul 758:1-19 '19  
 Wood pulp for cotton. Textile World 53:4241 Mr 16 '18

*See also* Paper

**Statistics**

- Pulpwood consumption and wood-pulp production in 1917. F. H. Smith. U S Agric Bul 758:9-19 '19

**Wood using industries**

- Utilization of elm. W. D. Brush. Il maps U S Agric Bul 683:1-43 '18

**Wood waste**

- Burning the profits. T. W. Bibb. Il Sci Am 121:110-11 Ag 2 '19  
 Manufacture of charcoal as an economic measure. H. Sylvén. Il Sci Am S 87:124-6 F 22 '19  
 Manufacture of ethyl alcohol from wood waste. diag Engineer 126:204-5 S 6 '18  
 Saving waste lumber at army cantonments. Il Sci Am 118:59 Ja 12 '18  
 Substitutes for coal and oil being tried; hogged fuel, pulverized coal and natural gas used by Pacific Coast companies. Elec W 71:881 Ap 27 '18  
 Warring on waste. H. S. Sackett. Factory 21:640-2 O '18  
 Wood-waste as a source of ethyl alcohol. G. H. Tomlinson. Il Chem & Met Eng 19: 552-5 O 1 '18; Same. J Ind & Eng Chem 10: 859-61 O '18

*See also* Sawdust; Wood as fuel

**Woodlots**

- Emergency fuel from the farm woodland. A. F. Hawes. U S Agric Circ 79:1-8 '17  
 Flood-basin wood lots logged for construction timber. Il Eng N 82:1178-9 Je 12 '19

**Woodwork**

- Art of scribing. O. B. Maginnis. diag Bldg Age 40:10-12 Ja '18  
 Developing the individuality of oak. H. R. Churchill. Am Arch 113:824-5+ Je 19 '18  
 Hints on making glue joints. C. A. King. diag Bldg Age 40:188-9 Ap '18  
 How to prime and paint common woods on the market to-day. A. A. Kelly. Bldg Age 40: 556-7 D '18  
 Practical pointers on nailing hardwood trim. O. B. Maginnis. Bldg Age 41:162-3 My '19  
 Preventing shrinkage of interior trim. L. V. Teesdale. Bldg Age 41:220-1 Jl '19; Same. Am Arch 116:143-5 Jl 30 '19  
 Saving money with interior trim. H. V. Walsh. Bldg Age 41:148-9+ My '19  
 Selecting and finishing interior trim. B. V. Leonard. Bldg Age 41:182-3 Je '19  
 Training the soldiers in woodworking. Il Am Lumberman 2259:50 Ag 31 '18  
 Woods used for finish and floors. Bldg Age 40:18 Ja '18

*See also* Carpentry; Furniture; Turning; Wood carving; Wood finishing; Woodworking machinery; Woodworking shops

**Woodworking machinery**

- Motor drive for woodworking machinery. C. E. Clewell. Il Elec W 72:253-6 Ag 10 '18  
 Oliver no. 74 wood boring machine. Il Metal Ind 16:94-5 F '18; Mach 24:857-8 My '18  
 Oliver no. 75 wood-milling machine. Il Am Mach 48:389 F 28 '18; Iron Tr R 62:536 F 28 '18; Iron Age 101:943 Ap 11 '18; Ry Mech Eng 92:291 My '18

- Oliver wood-shaping and surfacing machines. Il Am Mach 48:889 My 28 '18; Iron Age 101: 1283 My 16 '18; Mach 24:860 My '18  
 Selling woodworking machinery abroad. Sci Am 120:514+ My 17 '19  
 Ship building develops new woodworking machines. Am Lumberman 2227:29 Ja 19 '18  
 Solving woodworking drive problems. W. A. Black. Il Elec W 71:821-3 Ap 20 '18  
 Value of flywheels in woodworking. D. R. Shearer. Elec W 71:968-9 My 11 '18

*See also* Lathes; Planing machines; Saw-mills; Saws

**Safety devices**

- Safety in woodworking. diag Am Ind 18:sup 1-4 Mr; sup 1-4 Jl '18

**Woodworking shops**

- Installing management methods in the woodworking industry. C. M. Bigelow. Il chart diag Ind Management 58:1-8, 124-33, 185-95, 295-305 Jl-O '19  
 Need for the improved lighting of woodworking plants. F. H. Bernhard. Il Elec R 73: 401-6 S 14 '18  
 Shops of two contracting builders. plans Bldg Age 40:29 Ja '18

**Wool**

- As to South American wools; why they are not equal to Australian. Textile World 54: 1001 Ag 31 '18  
 Detection of the heavy metals by means of zinc sulfide wool fibers. E. M. Chamot and H. I. Cole. J Ind & Eng Chem 10:49-50 Ja '18  
 Effects of heat on wool. A. Woodmansey. Textile World 55:765+ Ja 25 '19  
 Retention of soap by wool. A. Woodmansey. Textile World 56:1177 Ag 30 '19  
 Shoddy and reworked wool; definitions. Textile World 53:4041 Mr 2 '18  
 Shoddy or reworked wool fiber. L. M. Dillon. Textile World 54:3105+ D 21 '18  
 Wool in United States on March 31, 1918. Textile World 53:5407 My 11 '18

*See also* Angora rabbits; Dyes and dyeing—Wool; Fulling; Sheep; Shoddy; Textile fabrics; Wool carbonizing; Wool combing; Wool grease; Wool scouring; Wool trade; Woolen and worsted manufacture; Worsted

**Shrinkage**

- Problem of making wool unshrinkable. C. Westgate. Textile World 53:5575+ My 18 '18  
 Wool shrinkage rates; calculations of grease prices from a clean basis. Textile World 54:242 Jl 13 '18

**Testing**

- Test for wool. H. L. Gray. Il J Ind & Eng Chem 10:633-4 Ag '18  
 Value of reworked wool. Textile World 55: 3272+ My 31 '19  
 Wool and cotton testing. Textile World 53: 4566 Ap 6 '18

**Wool carbonizing**

- Cloth carbonizing. Il Textile World 56:485 Jl 26 '19  
 Present practice in wool carbonization. Il Textile World 54:633+ Ag 10 '18  
 Test on carbonization of wool. W. Harrison. Il Textile World 54:2839 D 7 '18

**Wool carding**

- Carding shoddy. Textile World 55:2547 Ap 26 '19  
 Evolution of modern worsted card. Textile World 53:2365+ D 8 '17  
 Setting a worsted card. Textile World 54:1803 O 19 '18  
 Top manufacturing and its problems. A. F. Schumann. Il diag Textile World 56:87+, 797+ Jl 5, Ag 9 '19  
 Wool carding department accounts. R. H. Butz. Textile World 55:3693 Je 14 '19

**Wool combing**

- Care of combers. Textile World 54:743+ Ag 17 '18  
 Combing South American wools. Textile World 53:3819, 3913 F 16-23 '18  
 Preserving grill-box leathers. Textile World 54:637+ Ag 10 '18



**Wool combing—Continued**

Steam distribution in typical combing plant.  
G. H. Perkins. *diag* Textile World 56:107+  
Jl 5 '19

**Wool dyeing.** See Dyes and dyeing—Wool

**Wool fat.** See Wool grease

**Wool finishing**

Finishing wool underwear. Textile World 54:

2578 N 23 '18

Worsted clear finish. W. Lodge. Textile  
World 55:3963 Je 28 '19

**Wool grease**

Recovery of grease and fertilizers from sewage; Massachusetts joint investigating board reports against applying Miles acid process at Boston. Eng N 80:320-1 F 14 '18;  
Same. Munic J 44:239 Mr 23 '18

Wool grease control. Textile World 54:1724 O  
12 '18

Wool grease scarce. Textile World 53:4330 Mr  
23 '18

**Wool manufacturers, National association of.**  
See National association of wool manufacturers

**Wool oiling**

Oiling, scouring and fulling wool. W. H. Butler. Textile World 53:4145 Mr 9 '18

Picking woolen rags. Textile World 53:5577  
My 18 '18

Problem of top makers' oils. Textile World  
53:2363 D 8 '17

Turbo sprayer for the continuous oiling of  
wool. *il* Textile World 53:3277 Ja 12 '18

Wool oils and cloth. J. G. Burnes. Textile  
World 55:1901 Mr 29 '19

**Wool scouring**

Discussion of wool scouring. S. A. Shorter  
and W. Harrison. Textile World 54:1973+  
O 26 '18

Oiling, scouring and fulling wool. W. H. Butler. Textile World 53:4145 Mr 9 '18

Problems related to the scouring of wool.  
S. A. Shorter. Color Tr J 5:41 Ag '19

Properties of scouring and fulling soaps. F. A.  
Hayes. *il* Textile World 55:3109+ My 24  
'19

Recovery of potash from wool scouring waste.  
R. S. Weston. Textile World 53:3103+ Ja 12  
'18

Top manufacturing and its problems. A. F.  
Schumann. *il* *diag* Textile World 55:917,  
2071+ F 1, Ap 5 '19

Treatment of wool scouring liquor. W. S.  
Coulter. Textile World 55:765 Ja 25 '19

Utilization of wool scouring waste effluent.  
C. F. Paul. *il* Textile World 53:3577+ F 2 '18

**Cost**

Cost of wool scouring. Textile World 55:1179  
F 15 '19

**Wool terms.** See Wool trade—Terminology

**Wool trade**

Alleged plot to secure wool for Germany disclosed; connection of Passaic manufacturers with German agents. Textile World 53:4329-  
30 Mr 23 '18

Attorney general's report on alleged wool  
plot. Textile World 53:4694-5 Ap 13 '18

British wool trade in 1917. Textile World 53:  
3145-6 Ja 12 '18

British wool trade in 1918. Textile World 55:  
431+ Ja 11 '19

Complete control of foreign wools. Textile  
World 54:349 Jl 20 '18

Complicated wool situation. H. G. Lord. Textile  
World 54:3094 D 21 '18

Distributing woolens fifty years ago. Textile  
World 55:1567+ Mr 8 '19

Export embargo opposed; wool stock graders  
recommend free shipments on woolen rags.  
Textile World 53:6365 Je 29 '18

Foreign wool trade, 1917. Textile World 53:  
4327 Mr 23 '18

Government controls woolen rag market.  
Textile World 54:346-7 Jl 20 '18

Government supplies and the quartermaster's  
dept. Textile World 53:2784-5+ Ja 5 '18

Government wool auctions. Textile World 54:  
3094c+ D 21 '18

Great interest in wool auctions; first sale of  
Australian wool in this country attracts  
representative buyers. *il* Textile World 53:  
2785 Ja 5 '18

How government will exercise wool option.  
G. W. Goethals. Textile World 53:4227 Mr  
16 '18

Large wool requirements of government. H. P.  
Bonties. Textile World 53:5885+ Je 1 '18

Must accept wool regulations; War industries  
board shows no disposition to modify rulings. Textile World 53:5562 My 18 '18

National wool bureau annual meeting at Chicago. Textile World 53:6211+ Je 22 '18

New rulings governing imports and exports.  
Textile World 53:2603+ D 22 '17

Queensland wool trade. Textile World 54:894  
Ag 24 '18

Question of price fixing argued. W. M. Wood,  
jr. Textile World 53:6102 Je 18 '18

Rates on wool; I. C. C. opposes propriety of  
requirement of 19 lb. per cubic foot density.  
Textile World 54:133 Jl 6 '18

Reply to the wool questionnaire. L. Penwell.  
Textile World 53:6009+ Je 8 '18

Report on wool dealings; statement by C. J.  
Webb & co. Textile World 53:5128 My 4 '18

Review of wool imports in first six months of  
year. W. L. Marvin. Textile World 54:1607  
O 5 '18

Rise and fall of government wool control.  
Textile World 55:437+ Ja 11 '19

War history of woolen industry. H. E. Pea-  
body. Textile World 53:5882-3, 5924 Je 1 '18

Wool for civilian needs. Textile World 54:934  
Ag 31 '18

Wool in 1917. chart Textile World 53:3133+  
Ja 12 '18

Wool issue prices and conditions. Textile  
World 53:5886+ Je 1 '18

Wool market approaches new birth of freedom. Textile World 55:423+ Ja 11 '19

Wool prices from 1909 to 1918, inclusive; chart.  
Textile World 55:421 Ja 11 '19

Wool regulations announced; details for plan  
of handling new clip completed. Textile  
World 53:5710-11 My 25 '18

Wool stocks report. Textile World 56:1168-  
9 Ag 30 '19

Wool supply plenty. D. Kirschbaum. Textile  
World 53:3807 F 16 '18

Woolen industry in Japan. Textile World  
55:5864b My 10 '19

Woolen terms reformed in England. Textile  
World 53:4425 Mr 30 '18

Woolens controlled by government purchases.  
Textile World 53:3099-3100 Ja 12 '18

Woolens in South America. Textile World 53:  
4488 Mr 30 '18

See also Carpets; National sheep conference

**Terminology**

Foreign and domestic wool terms. W. T.  
Ritch. Textile World 53:3063+ Ja 12 '18

**War service**

Report of Joint woolen goods committee; relations of this body to Council of national defense. Textile World 53:3289-90 Ja 12 '18

Work of a co-operating committee; wool men  
anticipated war emergency. W. L. Marvin.  
Textile World 53:2958+ Ja 12 '18

**Wool waste**

Facts about waste. *il* Mach 24:887 Je '18

See also Base sorting plant, inc.

**Woolen and worsted machinery**

Care and operation of backwashers. *diag*  
Textile World 53:2363+ D 8 '17

Self-cleaning wool washing machine brought  
out by John Petrie, Ltd., Rochdale, Eng. *il*  
*diag* Textile World 55:3699 Je 14 '19

See also Looms; Textile machinery

**Woolen and worsted manufacture**

Active machinery; large amount of equipment engaged on American war orders.  
Textile World 54:1430 S 28 '18

Backwashing worsted sliver. Textile World  
56:803+ Ag 9 '19

British standard woolens. J. A. Hunter. *il*  
Textile World 54:2445+ N 16 '18

Chlorinating wool. Textile World 53:3463+ Ja  
26 '18

**Woolen and worsted manufacture—Continued.**

- Defects in finished woollens and worsteds. *Il* Textile World 53:3907+, 4435 F 23, Mr 30 '18
- Defects in wool and worsted fabrics. Textile World 53:2701 D 29 '17
- Forward strides in reworking of wool. Textile World 55:435+ Ja 11 '19
- Manufacture of high grade kersey. Textile World 56:1989+ O 4 '19
- Manufacture of high grade melton. Textile World 56:799+ Ag 9 '19
- Manufacturing and finishing worsted volle. Textile World 53:4579 Ap 6 '18
- Preparing process for worsted. Textile World 56:1991 O 4 '19
- Probable developments in worsted manufacturing, diag plans Textile World 53:4573+ Ap 6 '18
- Problems of wool and worsted mills. Textile World 55:397+ Ja 11 '19
- Specks in wool clothing fabrics. *Il* Textile World 53:3459 Ja 26 '18
- Top manufacturing and its problems. A. F. Schumann. *Il* diag. Textile World 54:2835+; 55:917, 2071+, 2865+; 56:87+, 797+, 1368+ D 7 '18, F 1, Ap 5, My 10, JI 5, Ag 9, S 6 '19
- Unsolved problems of wool manufacturing. Textile World 56:91+ JI 5 '19
- Use of cotton as a wool substitute. *Il* Textile World 53:3101 Ja 12 '18
- Wages and hours of labor in woolen and worsted goods manufacturing, 1918. U S Bur Labor Statistics Bul 281:1-93 '19
- Woolen mill accounts—supplies. R. H. Butz. Textile World 55:1569 Mr 8 '19
- See also* Fulling; Textile fabrics; Textile industry; Wool carbonizing; Wool finishing; Wool waste

**By-products**

- Recovery of potash from wool scouring waste. R. S. Weston. Textile World 53:3103+ Ja 12 '18
- Utilization of wool scouring waste effluent. C. F. Paul. *Il* Textile World 53:3577+ F 2 '18

**Specifications**

- Woolen specifications issued. *Il* Textile World 54:1963 O 26 '18
- Woolen and worsted manufacturers, American association of. *See* American association of woolen and worsted manufacturers
- Woolen and worsted mills
- Heat balance in typical woolen mill. G: H. Perkins. diag Textile World 55:8705+ Je 14 '19
- Modern worsted yarn plant. *Il* Textile World 53:4599+ Ap 6 '18
- Steam distribution in typical combing plant. G: H. Perkins. diag Textile World 56:107+ JI 5 '19
- Utilizing woolen mill waste. Textile World 56:1991+ O 4 '19

*See also* Textile mills

**Accounting**

- Wool carding department accounts. R. H. Butz. Textile World 55:3693 Je 14 '19
- Wool spinning department accounts. Textile World 56:89+ JI 5 '19

**Lighting**

- Woolen and worsted mill lighting. R. E. Harrington. *Il* Textile World 56:101+, 659+ JI 5, Ag 2 '19
- Woolen and worsted overseers, National association of. *See* National association of woolen and worsted overseers
- Woolen goods exchange
- Work of a co-operating committee; wool men anticipated war emergency. W. L. Marvin. Textile World 53:2958+ Ja 12 '18

**Worcester, Massachusetts**

- Development of an industrial city. C: G. Washburn. *Il* Am Soc M E J 40:pt 1, 524-9 JI 18

- Experiences in public work construction by city forces. A. T. Rhodes. Eng & Contr 51:12-13 Ja 1 '19

**Word division**

- Pronunciation and division. F. H. Teall. Inland Ptr 62:397-8 Ja '19
- Rules for dividing words into syllables. C. L. Woodfield. Inland Ptr 62:449-50 Ja '19

**Words**

- Verbal criticism. F. H. Teall. Inland Ptr 61:319-20 Je '18

*See also* Compound words; Technical terms; Word division

**Work, Ethics of**

- Human parasitism or service. H. Emerson. chart Ind Management 57:257-62 Ap '19

**Work, Piece. *See* Piece work****Workbenches**

- Building the bench to fit the job; photographs. Factory 22:38-9 Ja '19
- Design and construction of work-benches. F. H. Mayoh. *Il* diag. plan Mach 24:880-6 Je '18
- Exhaust bench for filling and painting machine parts. W. O. Strauss. *Il* Ind Management 57:372 My '19
- Job-shop bench with compartments. P: F. O'Shea. *Il* Am Mach 51:131 JI 17 '19
- Patternmakers' work bench. M. E. Duggan. diag Foundry 46:387 Ag '18
- Work-bench of steel shelving. D. M. Perrill. *Il* Mach 25:545 F '19

**Working classes. *See* Labor and laboring classes****Working day. *See* Hours of labor****Working women**

- Housing for women war workers. R. H. Moulton. *Il* plans Arch Rec 44:422-9 N '18

**Workingmen's houses. *See* Housing problem****Workingmen's insurance. *See* Insurance, Industrial****Workmen's compensation**

- Aliens as dependents. C. C. Sherlock. Mach 25:36 S '18
- Awards are higher than in 1916. Coal Age 13:113 Ja 19 '18
- Basis of employes' compensation payments. C. C. Sherlock. Mach 24:1142 Ag '18
- Comparison of compensation acts. C. C. Sherlock. Mach 24:609-11 Mr '18
- Comparison of workmen's compensation laws of the United States up to December 31, 1917. C. Hookstadt. chart U S Bur Labor Statistics Bul 240:1-106 '18
- Compensation laws are vindicated; investigation by government representative in Connecticut, Ohio and Pennsylvania. M. K. Conyngton. Iron Tr R 63:714-16 S 26 '18
- Compensation paid Pennsylvania mine workers during 1916. Coal Age 13:409 Mr 2 '18
- Computation of earnings. C. C. Sherlock. Am Mach 50:1087-9 My 29 '19
- Coverage of the compensation acts. C. C. Sherlock. Am Mach 50:271-3, 319-21, 354-6 F 6-20 '19
- Disability under the compensation acts. C. C. Sherlock. Am Mach 50:445-8, 499-502, 597-9 Mr 6-13, 27 '19
- Disease and accident liability. C. C. Sherlock. Iron Tr R 65:168-9 JI 17 '19
- Diseases and infections. C. C. Sherlock. Am Mach 50:28-30 Ja 2 '19
- Disobedience of orders by employees and its relation to compensation. C. C. Sherlock. Am Mach 49:980-2 N 28 '18
- Effect of workmen's compensation laws in diminishing the necessity of industrial employment of women and children. M. K. Conyngton. U S Bur Labor Statistics Bul 217:1-170 '18
- Explosion of chemicals; workmen's compensation acts. C. C. Sherlock. Chem & Met Eng 21:131-2 Ag 1 '19
- Failure to comply with compensation acts. C. C. Sherlock. Mach 25:110-11 O '18
- Illinois mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 169:394-436 '19
- Independent contractors. C. C. Sherlock. Inland Ptr 60:479-80 Ja '18
- Liability for infections. C. C. Sherlock. Chem & Met Eng 21:252-3 S 1 '19
- Liability of employer for hospital, surgical and medical aid. C. C. Sherlock. Mach 25:835-6 My '19

**Workmen's compensation—Continued**

- Operation of Ohio plan of state insurance. Iron Age 101:376 F 7 '18
- Partial disability. C. C. Sherlock. Mach 25: 674-5 Mr '19
- Pre-existing condition of the workman and its relation to compensation for injury. C. C. Sherlock. Am Mach 50:67-9 Ja 9 '19
- Question about the workmen's compensation laws in Illinois. Dom Eng 87:523-4 Je 21 '19
- Riddle of dependency. C. C. Sherlock. Am Mach 50:1174-6, 1226-8; 51:10-12, 70-2 Je 19-Jl 10 '19
- Self-insurance for workmen's compensation. O. G. Browne. Elec Ry J 53:1176-7 Je 14 '19
- State industrial insurance in Nevada. J. A. Carpenter. Il Eng & Min J 107:985-8 Je 7 '19
- Sunstroke and lightning as viewed by compensation commissions. C. C. Sherlock. Eng N 83:403 Ag 28 '19
- What constitutes casual employment? C. C. Sherlock. Am Mach 49:850-2 N 7 '18
- When employer must pay damages. C. C. Sherlock. Iron Tr R 64:1682 Je 26 '19
- Workmen's compensation. C. C. Sherlock. Eng & Min J 108:96-7 Jl 19 '19
- Workmen's compensation acts—extraterritorial effect. Am Arch 115:72-3 Ja 8 '19
- Workmen's compensation in munition plants in England. C. C. Sherlock. Mach 24:405 Ja '18
- Workmen's compensation—incapacity for work. C. C. Sherlock. Concrete 13:144 N '18
- Workmen's compensation legislation of the United States and foreign countries, 1917 and 1918. U S Bur Labor Statistics Bul 243:1-477 '18
- See also Employers' liability; Heat stroke
- Workshops.** See Machine shops; Structural shops
- Worm gearing.** See Gearing, Worm
- Worsted**
- Testing fastness of worsted knitting yarns. Textile World 54:1737 O 12 '18
- Uneven worsted knitting yarn. Textile World 56:2199+ O 11 '19
- Worsted yarn industry mobilized for the war. Textile World 55:407+ Ja 11 '19
- Worsted yarn prices from 1909 to 1918, inclusive; chart. Textile World 55:409 Ja 11 '19
- Worsted yarn prices reviewed. T. H. Ball. Textile World 53:3125+ Ja 12 '18
- Worsted yarns reach unprecedented levels in 1917. chart Textile World 53:3121+ Ja 12 '18
- Worsted yarns show varying costs. Textile World 54:339 Jl 20 '18
- See also Wool; Woolen and worsted machinery; Woolen and worsted manufacture; Yarn
- Worsted and woolen spinners.** National association of. See National association of worsted and woolen spinners
- Worsted mills.** See Woolen and worsted mills
- Wound shock**
- Nature and treatment of wound shock. Sci Am S 85:345 Je 1 '18
- Wounds**
- Antiseptics; work done for the British medical research committee in the pathological department, Edinburgh university. T. Rettle. Sci Am S 85:202-3 Mr 30 '18
- See also Surgery
- Wrecking**
- Blasting down a brick building. H. Gough. Eng & Contr 50:493 N 20 '18
- Breaking up brick masonry with dynamite. C. E. Riker. Eng & Contr 50:512 N 27 '18
- Cutting costs in wrecking brick walls. A. G. Drury. diag Bldg Age 41:151 My '19
- Demolishing concrete bridges. Concrete 15: 181 N '19
- Demolition of reinforced concrete buildings; the Western newspaper union building, Chicago. Il Am Arch 113:98-9 Ja 23 '18
- Derrick wrecks reinforced-concrete Western newspaper union building with heavy ball. Il Eng N 79:1208-9 D 27 '17
- Dynamite as a house wrecker. Il Sci Am 121:513 N 22 '19

- Felling a smokestack in a limited space. Il Sci Am 119:83 Ag 3 '18
- Method of felling a 130 ft. factory chimney. diag Eng & Contr 50:428-9 O 30 '18
- Montezuma aqueduct on Erie canal is demolished. J. G. Palmer. Il diags plan Eng N 81:769-72 O 24 '18
- Quicklime for removing foundations. G. Nelson. Elec R 73:626-7 O 19 '18
- Standpipe demolished after forty years' service. C. N. Schoonmaker. Il Eng N 80:174 Ja 24 '18
- Using explosives in removing old walls. Munic Eng 56:226 Je '19
- Wood ore docks are removed and piles pulled up. Il Eng N 80:300 F 14 '18
- Wrecking a reinforced concrete building; 1,200 lb. iron ball used to demolish Western newspaper union building. R. H. Moulton. Il Concrete 11:194-5 D '17; Same. Bldg Age 40:97-8 F '18
- Wrecking an old building with dynamite. Eng & Contr 50:487 N 20 '18

See also Salvage

**Wrenches**

- Home-made stud wrench. W. Forray. diags Power 46:805 D 11 '17
- Letting electricity turn the monkey wrench. Il diag Sci Am 118:194 Mr 2 '18
- Making a special double-end socket wrench. I. E. Pearce. diags Am Mach 51:769 O 23 '19
- Making an automobile wrench in two operations. H. F. Pusep. diags Am Mach 50: 1147-8 Je 12 '19
- Pipe wrench for many sizes. J. A. Lucas. diags Power 47:412 Mr 19 '18
- Ratchet wrench for close quarters. A. J. Lucas. diags Coal Age 14:1104 D 19 '18
- Spanner wrench for finished shafts. A. J. Cahen. diag Power 47:132 Ja 22 '18
- Special wrench for removing a bushing. H. H. Parker. diags Am Mach 51:833 N 6 '19
- Stud or pipe wrench. W. Forray. diags Power 46:876 D 25 '17
- Wrenches for conduit. C. W. Connette. diag Elec R 72:1097 Je 29 '18
- Wright, Orville, 1871-**
- Romance of invention. C. H. Claudy. Il Sci Am 121:340+ O 4 '19
- Wrought iron**
- Making wrought iron by a new process. Sci Am 118:429 My 11 '18
- Standard specifications for refined wrought-iron bars; English and Spanish. U S Bur For & Dom Com Ind Stand 26:1-16 '19
- Standard specifications for wrought-iron plates; English and Spanish. U S Bur For & Dom Com Ind Stand 27:1-13 '19
- Turns ore to wrought iron. Iron Tr R 62:1245 My 16 '18
- Unusual features in the microstructure of wrought iron. H. S. Rawdon. Il U S Bur Stand Tech Pa 97:1-25 '17; Same. Am Inst Min E Bul 129:1345-63 S '17; Excerpts. Iron Age 100:538-40 S 6 '17; Abstract. Am Soc M E J 39:886 O '17; Discussion. Am Inst Min E Bul 133:107 Ja '18

See also Ironwork, Architectural

**Wulfenite**

- Notes on the metallurgy of wulfenite. J. P. Bonardi. Chem & Met Eng 21:364-9 S 15 '19; Abstract. J Fr Inst 188:411-12 S '19; Same. Eng & Min J 108:620 O 11 '19

Wyoming. See Petroleum—Wyoming

## X

**X ray photography.** See Radiography

**X-ray tubes**

- Advance in the design of X-ray tubes. Sci Am S 87:414 Je 28 '19
- General electric company in the great world war. J. R. Hewett. Il Gen Elec R 22:603-7 Ag '19
- Lengthening the life of the X-ray tube. Il Sci Am 119:277 O 5 '18

**X-ray tubes—Continued**

New radiator type of hot-cathode Roentgen-ray tube for military use. W. D. Coolidge. *Il Gen Elec R* 21:56-60 Ja '18

**X rays**

Applying X-ray to study of steel. W. E. Ruder. *Iron Tr R* 65:1188-9 O 30 '19

Atomic structure of carborundum determined by X-rays. C. L. Burdick and E. A. Owen. *diags Am Chem Soc J* 40:1749-59 D '18

Crystal structure of chalcopyrite determined by X-rays. C. L. Burdick and J. H. Ellis. *diags Am Chem Soc J* 39:2518-25 D '17

Development by X-rays of two new fields. L. E. Dodd. *diags Sci Am S* 85:140-2 Mr 2 '18

Efficiency of production of X-rays; abstract. P. T. Weeks. *Elec W* 70:1157 D 15 '17

Examination of materials by X-rays; abstracts. *Mech Eng* 41:613 JI '19; *Chem & Met Eng* 21:64 JI 15 '19

Finding bullets with the X-ray. *Il Sci Am* 119:255+ S 28 '18

Focusing X-rays; single wave length intensity increased a thousand fold. L. E. Dodd. *Il diags Sci Am S* 85:156-7 Mr 9 '18

Magnetization and Rontgen-ray examination. *Sci Am S* 85:224 Ap 6 '18

New method of chemical analysis. A. W. Hull. *Il diags Am Chem Soc J* 41:1168-75 Ag '19; Same cond. *J Fr Inst* 188:131-3 JI '19

Portable Roentgen-ray generating outfit. W. D. Coolidge and C. N. Moore. *Il diags Gen Elec R* 21:60-7 Ja '18

Portable X-ray set for field service. *Elec W* 71:648 Mr 23 '18

Positions of atoms in metals. A. W. Hull. *Il diags Am Inst E E Pro* 38:1171-92 O '19

Present striking use of X-ray in metallurgy. *Sci Am* 121:179 Ag 23 '19

Prolongation of life of tribolium confusum apparently due to small doses of X-rays. W. F. Davey. *Gen Elec R* 22:479-83 Je '19

Putting X-rays through their paces. *Sci Am* 118:188 Mr 2 '18

Radiometallography. *Engineer* 127:432-3; 128: 80-1 My 2, JI 25 '19; Same (pt. 1). *Sci Am S* 88:18-19 JI 12 '19

Radium and radio-activity. C. H. Viol. *Sci Am S* 87:239 Ap 12 '19

Total emission of X-rays from certain metals; abstract. C. S. Brainin. *Elec W* 71:106 Ja 12 '18

Use of X-rays in metallurgy. *Iron Age* 103: 1650-2 Je 19 '19

Using X-rays in examination of steel. H. S. Rawdon. *Il Iron Tr R* 65:1329-31 N 13 '19

X-ray examination of metals. *Eng & Contr* 52:131 JI 30 '19

X-ray supplements magnetic testing. H. M. Howe. *Iron Tr R* 65:1189+ O 30 '19

X-rays and metal structure; important French results from increasing the intensity of the light. *Iron Age* 102:390 Ag 15 '18

X-rays and the war. G. W. C. Kaye. *Sci Am S* 86:250-1 O 19 '18

See also Radiography

**Xenia, Ohio****Sewerage**

New sewage treatment plant at Xenia; abstracts. W. J. Sherman. *Il diags map plans Munic Eng* 54:151-4 Ap '18; *Munic J* 44:503-4 Je 22 '18

**Xenon**

Measurements of wave lengths in the spectra of krypton and xenon. P. W. Merrill. *Il U S Bur Stand Sci Pa* 345:251-7 '19

**Xylose**

Preparation of several useful substances from corn cobs. F. B. LaForge and C. S. Hudson. *J Ind & Eng Chem* 10:925-7 N '18

Preparation of xylose from corn cobs. C. S. Hudson and T. S. Harding. *Am Chem Soc J* 40:1601-2 O '18; Same. *Sci Am S* 86:400 D 21 '18

Preparation of xylose from corn cobs. K. P. Monroe. *Am Chem Soc J* 41:1002-3 Je '19

Triacetyl-d-xylose and alpha triacetyl-methyl-d-xyloside. C. S. Hudson and J. K. Dale. *Am Chem Soc J* 40:997-1001 Je '18

**Y****Yachts**

Shamrock IV; the latest British yacht to try for the America's cup. *Il Sci Am* 121: 536 N 29 '19

**Yale university**

Complete reorganization planned at Yale. J. C. Tracy. *Eng N* 83:186 JI 24 '19

Memorial quadrangle of Yale college. M. Wilcox. *Il plan Arch Rec* 43:148-59 F '18

**Yangtse Kiang river**

Shipping possibilities of the Yangtse Kiang river. H. Delano. *Il diags Int Marine Eng* 24:394-8 Je '19

**Yarn**

Calculations for the knitting mill. E. Tompkins. *Textile World* 54:297+, 845+, 1323+, 1729+, 2571+, 3099+, 55:659, 1795+ JI 20, Ag 24, S 21, O 12, N 23, D 21 '18, Ja 18, Mr 22 '19

Comparative yarn counts. *Textile World* 53: 6355 Je 29 '18

Conditioning apparatus. *diags Textile World* 53:3575+ F 2 '18

Cotton and wool mixed yarns. W. Davis. *Il Textile World* 55:657+ Ja 18 '19

Government yarn prices. *Textile World* 54: 877+, 985+ Ag 24-31 '18

Jute yarn calculations. *Textile World* 56: 1367+ S 6 '19

Making warps from fine yarns. *Textile World* 54:1209 S 14 '18

Napping before knitting; patent. *diags Textile World* 53:4809 Ap 20 '18

Novelty yarns in clothing fabrics. *Il Textile World* 53:3531 F 2 '18

Resultant yarn counts. *Textile World* 55: 1801 Mr 22 '19

Rules adopted by Hard yarn association. *Textile World* 53:3808+ F 16 '18

Silk and wool underwear yarns. W. Davis. *Il Textile World* 55:3507 Je 7 '19

Silk knitting yarns and substitutes. W. Davis. *Il Textile World* 55:1175+ F 15 '19

Sizing fine yarns. T. Aspinall. *Textile World* 54:185 JI 13 '18

Taking care of odd yarn lots. *Textile World* 56:925 Ag 16 '19

Theories relating to yarn twist. *Textile World* 54:184, 745 JI 13, Ag 17 '18

Use of feathers in textiles. *Textile World* 53: 3819 F 16 '18

Where substitutes save the day; spinning feathers. *Sci Am* 118:146 F 16 '18

Yarns and machinery for hosiery. *Textile World* 53:6217 Je 22 '18

Yarns for Red cross knitting in Britain. W. Davis. *Il Textile World* 53:5771+ My 25 '18

See also Cotton yarn; Wool; Worsted

**Yazoo & Mississippi Valley railroad**

Improvements on the Yazoo & Mississippi. *Il map Ry Age* 64:781-4 Mr 29 '18

**Yeast**

Detection of methyl alcohol in alcoholic beverages and its formation by the several kinds of yeasts. T. Takahashi, M. Gunke and T. Yamazaki. *Am Chem Soc J* 39:2723-6 D '17

**Yeatsman, Pope, 1861-**

Receives 1918 medal of Mining and metallurgical society of America. *por Eng & Min J* 105:594-6 Mr 30 '18

**Yellow dock. See Rumex crispus****Yellow pine. See Pine****Yellow Pine mining company**

Annual report. *Eng & Min J* 105:593 Mr 30 '18

**Yguazú falls, South America**

Yguazú falls. *Engineer* 127:506 My 23 '19

**York, Pennsylvania****Sewerage**

Operating methods at sewage treatment plant. *Il Munic Eng* 53:197-200 N '17

Yorkship village. See Camden, New Jersey

## Z

## Young men's Christian association

Inspiring harmony between capital and labor; conference at Lake Geneva, Wis. Am Lumberman 2252:41-2 JI 13 '18

Making war specialists of young America. Sci Am 118:596 Je 29 '18

Men like Y. M. C. A. in Ohio construction camp. G. W. McAlpin. Eng N 80:93 Ja 10 '18

Railroad Y. M. C. A. membership campaign. Il Ry R 64:709-11 My 17 '19

Remarkable progress being made by R. R. Y. M. C. A. J. F. Moore. Il Ry Age 64: 889-93 Ap 5 sec 1 '18

Welfare work among the soldier-lumbermen in France. H. A. Templeton. Am Lumberman 2263:1+ S 28 '18

Work in war industries is theme of conference of industrial executives and Y.M.C.A. officials. Am Lumberman 2242:53 My 4 '18

Y. M. C. A. work among the soldier-loggers. Il Am Lumberman 2247:40 Je 8 '18

## Young men's Christian association buildings

Minneapolis, Minn., central Y.M.C.A. building; views and plans. Am Arch 116:pl 1-6 JI 2 '19

Needed supplement to industrial housing. C. R. Towson. Il diags plans Am Arch 113: 616-21, 667-72 My 15-22 '18

Post-war construction program; the building bureau of the International committee of the Y.M.C.A. C. C. May. Il plans Arch Rec 45:217-41, 325-42 Mr-Apr '19

Social center. F. Kimball. Il plans Arch Rec 45:417-40 My '19

War headquarters of the Y. M. C. A. Il Arch & Bldg 50:45-8 JI '18

Y.M.C.A. building, Santa Barbara, Cal.; views and plans. Am Arch 114:pl 176-8 D 4 '18

Y. M. C. A. building vs. Y. hut. C. F. Willis. Il Coal Age 14:486-8 S 12 '18

## Young women's Christian association buildings

Housing for women war workers. R. H. Moulton. Il plans Arch Rec 44:422-9 N '18

## Youngstown, Ohio

## Architecture

Entrance to the Tod homestead cemetery. diag plan Am Arch 115:848-9, pl 195-200 Je 18 '19

## Parks

Mill Creek Park, Youngstown, O. J. A. Schweinfurth. Il Am Arch 115:869-73 Je 25 '19

## Rapid transit

Relieving congestion at the Diamond. Il diags map Elec Ry J 53:969-70, 1062 My 17, 31 '19

Youngstown service-at-cost franchise. R. P. Stevens. Elec Ry J 54:sup21-4 O 11 '19

## Youngstown sheet and tube company

Americanizing alien-born toilers. Il Iron Tr R 63:264-5 Ag 1 '18; Same. Iron Age 102: 138-9 JI 18 '18

Report for 1917. Iron Age 101:532 F 21 '18

## Ypres, Belgium

War rendering of Ypres. L. V. Solon. Il Arch Rec 46:287-8 S '19

## Yttrium

Observations on the rare earths; the atomic weight of yttrium. H. C. Kremers and B. S. Hopkins. Am Chem Soc J 41:718-21 My '19

Observations on the rare earths; the separation of yttrium from erbium; the ratio  $\text{Er}_2\text{O}_3:2\text{ErCl}_3$ . E. Wichers, B. S. Hopkins and C. W. Balke. Am Chem Soc J 40:1615-19 N '18

Preparation and properties of yttrium mixed metal. J. F. G. Hicks. diag Am Chem Soc J 40:1619-26 N '18; Same. Sci Am S 88:139+ Ag 30 '19

## Yucca

Binder twine from the desert. J. L. Von Blon. Il Sci Am 121:82-3+ JI 26 '19

## Yukon gold company

Yukon gold. Ry Age 65:898-9 N 15 sec 2 '18

## Zeebrugge raid

Attack on Zeebrugge and Ostend; brilliant bottling-up expedition against the German submarine bases. Il maps Sci Am 118:433+ My 11 '18

Heroes of Zeebrugge and Ostend. Sci Am 118: 486 My 25 '18

## Zellulose

Wood pulp wet spinning process. Textile World 56:233 JI 12 '19

## Zeolites

Zeolites as potash collectors. F. W. Clarke. Chem & Met Eng 19:431 S 26 '18

## Zeppelins. See Airships

## Zinc

Gallium. L. M. Dennis and J. A. Bridgman. Il diags Am Chem Soc J 40:1531-61 O '18

New and interesting uses for zinc. Sci Am 119:311 O 19 '18

New uses for zinc. Iron Age 102:361 Ag 8 '18

Not advisable to melt zinc in a cupola. Foundry 46:106 Mr '18

Potentials of the zinc and cadmium electrodes. W. G. Horsch. diag Am Chem Soc J 41:1787-1800 N '19

Production of rolled zinc in the United States. C. B. Siebenthal. Metal Ind 16:556 D '18; Same. Metal Work 91:243 F 21 '19

Ribbon zinc; its use as a substitute for sheet brass. H. D. Murphy. Iron Age 101:859 Ap 4 '18; Same. Metal Work 89:358 Je 28 '18

Sheet zinc for roofing. W. H. Seamon. diags Eng & Min J 106:620-9 O 5 '18

Sheet zinc to have placed as building material. Metal Work 92:245-7 Ag 29 '19

Soldering of zinc. Iron Age 103:193 Ja 16 '19

Soldering of zinc. W. H. Hendricks. Metal Work 90:584-5 N 22 '18; Same cond. Foundry 46:557 D '18

Soldering of zinc. E. V. Peters. Metal Ind 16:497 N '18

Some properties and applications of rolled zinc strip and drawn zinc rod. C. H. Mathewson, C. S. Trewin and W. H. Finkeldey. Il diag Am Inst Min Bul 158:sup2775-2846 S '19; Abstract. Chem & Met Eng 21:550-1 O 29 '19; Discussion. 156:3172-3 D '19

Spelter for high grade brass; report of zinc producers to the committee on raw materials of the War Industries board. Metal Ind 16:175-6 Ap '18

Standard specifications for spelter; English and Spanish. U S Bur For & Dom Com Ind Stand 55:1-21 '19

Swelling of zinc base die castings. H. M. Williams. Metal Ind 15:470-1 N '17; Abstract. Mach 24:438 Ja '18

Use of zinc by sheet metal contractors. P. L. Biersach. Metal Work 91:58 Ja 10 '19

What zinc is used for in the building trades. J. A. Singmaster. Bldg Age 40:551 D '18; Same. Chem & Met Eng 19:826 D 15 '18; Same. Metal Work 91:58 Ja 10 '19

Zinc and its uses. Eng & Min J 106:705-6 O 19 '18; Same. Metal Ind 16:476 O '18; Same. Metal Work 90:444+ O 18 '18

Zinc as a roof covering. W. Hutton. diags Metal Work 91:370-1+ Mr 21 '19

Zinc-box practice. A. W. Allen. Il diags Eng & Min J 106:1017-21 D 14 '18

Zinc for roof covering. Metal Work 90:538-9 N 8 '18

Zinc for roofing. Il Eng & Min J 108:399 S 6 '19

Zinc in the building industry. E. V. Peters. Bldg Age 41:89 Mr '19

Zinc loss in zincing. Metal Ind 17:374 Ag '19

Zinc used in construction of New Jersey zinc co.'s new building. Il Eng & Min J 107: 322 F 15 '19; Iron Tr R 64:563 F 27 '19

See also Brass; Galvanizing; Muntz metal; Zinc metallurgy; Zinc ores; Zinc works

## Analysis

Determination of zinc. J. W. Springer. Eng & Min J 105:386 F 23 '18

**Zinc—Analysis—Continued**

- Determination of zinc and copper in gelatin. G: S. Jamieson. *J Ind & Eng Chem* 11:323-5 Ap '19
- Gravimetric and volumetric determination of zinc precipitated as zinc mercury thiocyanate. G: S. Jamieson. *Am Chem Soc J* 40:1036-9 Jl '18
- Notes on the estimation of metallic zinc content of zinc dust. W. F. Edwards. *Chem & Met Eng* 21:192 Ag '19
- Study of conditions affecting the precise determination of zinc as the sulfide. H. A. Fales and G. M. Ware. *Am Chem Soc J* 41:487-99 Ap '19

**Zinc alloys**

- Mechanical, micrographic and macrographic properties of alloys high in zinc; abstract. L. Guillet and V. Bernard. *Chem & Met Eng* 20:645-6 Je '19
- Some zinc and aluminum alloys. W. J. May. *Sci Am S* 87:367 Je '19
- Zinc alloys instead of copper alloys. L. Guillet and V. Bernard. *Iron Age* 103:175 Ja '19
- Zinc base alloy. *Foundry* 46:403-4 S '18

**Zinc carbonate**

- Equilibrium in the system: zinc carbonate, carbon dioxide and water. H. J. Smith. *Am Chem Soc J* 40:883-5 Je '18

**Zinc chloride**

- Increasing use of zinc chloride in treating ties. *Ry R* 64:323-4 Mr '19
- Influence of zinc ties on track circuits. *Ry Age* 66:305-6 Ja '19
- Preservation of timber with zinc chloride by the steeping process. *Eng & Contr* 52:347 S 24 '19; Same abr. *Eng N* 83:676 O 2 '19
- Rainfall influence on durability of zinc-treated cross-ties. C. H. Teesdale and S. W. Allen. *Eng N* 82:234-5 Ja 30 '19; Same. *Ry R* 64:721 My '19
- Zinc as an alternative for creosote in treating railway ties. *Eng N* 82:609 Mr 27 '19
- Zinc chloride treatment for railroad ties. *Eng & Contr* 51:394-5 Ap '19

**Zinc cyanide**

- Zinc cyanide plating solutions. F. J. Liscomb. *Metal Ind* 16:552-3 D '18

**Zinc dust**

- Evaluation of zinc dust: a proposed method of analysis; abstracts. L. A. Wilson. *diags Chem & Met Eng* 19:32-4 Jl '18; *Eng & Min J* 106:334-6 Ag 24 '18; Discussion. J. E. Clennell. *Eng & Min J* 106:672 O 12 '18
- Notes on the estimation of metallic zinc content of zinc dust. W. F. Edwards. *Chem & Met Eng* 21:192 Ag '19

**Bibliography**

- Zinc-dust analysis. *Eng & Min J* 106:145 Jl 20 '18

**Zinc industry and trade**

- American sheet-zinc industry. E. H. Wolff. *Eng & Min J* 106:304 Ag 17 '18
- Benefits to be derived from close cooperation of zinc mining and smelting interests in helping win the war. W. R. Ingalls. *Eng & Min J* 106:217-21 Ag 3 '18
- Economics of the zinc industry: a prophetic discussion. P. C. Choate. *Chem & Met Eng* 20:237-9 Mr '19
- Field in China for American zinc. *Eng & Min J* 105:234 F 2 '18
- Foreign trade in lead and zinc, 1917. *Eng & Min J* 105:424 Mr 2 '18
- Foreign zinc-smelting capacities and prospects. W. R. Ingalls. *Eng & Min J* 107:227 F 1 '19
- Lead and zinc in 1918. C. E. Siebenthal. *Iron Age* 103:130 Ja 9 '19
- Lead and zinc in the Joplin district. J. A. Zook. *Eng & Min J* 106:70-1 Ja 12 '18
- New uses for zinc. G: S. Harney. *Eng & Min J* 108:100-1 Jl '19
- Production of secondary zinc in 1917. *Metal Ind* 16:514 N '18
- Progress of Japan's zinc industry. *Metal Work* 89:856-7 Je 28 '18
- Reconstruction in the zinc industry. J. A. Singmaster. *J Ind & Eng Chem* 11:146-7 F '19

- Situation in the zinc industry. *Eng & Min J* 106:807 Ap 27 '18

- Situation in zinc. *Eng & Min J* 107:205 Ja 25 '19

- Spelter statistics for 1917. W. R. Ingalls. *Eng & Min J* 106:176-81 Jl 27 '18

- Spelter statistics for 1918. W. R. Ingalls. *Eng & Min J* 107:958-62 My 31 '19

- Statistical tables. *Eng & Min J* 107:57-8 Ja 11 '19

- War efforts at the Trail (B.C.) smelter and refinery. S. G. Blaylock. *Eng & Min J* 106:206 Ag 3 '18

- War's influence on the zinc industry. P. Yeatman. *Eng & Min J* 108:19-21 Jl 5 '19

- Working conditions in the zinc smelters of the gas belt. *Chem & Met Eng* 20:375 Ap 15 '19

- Zinc imports of Madras, India. *Dom Eng* 82:425 Mr 16 '18

- Zinc in Missouri, Kansas, Oklahoma and Arkansas. O: Ruhl. *Eng & Min J* 106:302-4 Ag 17 '18

- Zinc industry in Belgium; abstracts. M. F. Chase. *Metal Work* 92:135 Ag 1 '19; *Iron Age* 104:436-7 Ag 14 '19

- Zinc industry of Missouri, Arkansas, Kansas, and Oklahoma. O: Ruhl. *Eng & Min J* 107:1170-1 Je 23 '19

- Zinc ores and the tariff. *Chem & Met Eng* 21:62-3 Jl 15 '19

- Zinc smelting active in Wales. *Eng & Min J* 105:1116 Je 22 '18

- Zinc smelting in India. T. R. Wynne. *Eng & Min J* 107:356-8 F 22 '19

- Zinc statistics in 1917. *Eng & Min J* 105:68-9 Ja 12 '18

- Zinc institute, American. See American zinc institute

**Zinc metallurgy**

- Condensation in electric zinc smelting. J: Thomson. *Chem & Met Eng* 19:62-3 Jl 15 '18

- Condensation of zinc from its vapor. C: H. Fulton. *diags Am Inst Min E Bul* 140:1375-94 Ag '18; Discussion. 143:1649-51; 145:109-10 N '18, Ja '19

- Continuous zinc smelter. W. M. Johnson. *diags Met & Chem Eng* 18:654 Je 15 '18

- Design of a small zinc mill. W. F. Boericke. *flow sheet diag plan Eng & Min J* 107:1158-9 Je 28 '19

- De Spirlet kilns at Argentine, Kan. *Met & Chem Eng* 18:9 Ja 1 '18

- Details of the electrolytic zinc process; patents. *Met & Chem Eng* 18:549-50 My 15 '18

- Development of the Collinsville zinc corporation. *Il Eng & Min J* 108:461-2 S 13 '19

- Economic factors in the production of electrolytic zinc. R. G. Hall. *Am Inst Min E Bul* 129:1287-1302 S '17; Discussion. 133:55-7 Ja '18

- Economics in the zinc industry. E. M. Johnson. *diags Chem & Met Eng* 20:500-1 My 15 '19

- Economics of the zinc industry: a prophetic discussion. P. C. Choate. *Chem & Met Eng* 20:237-9 Mr '19

- Effect of addition agents in flotation. M. H. Thornberry and H. T. Mann. *diag Met & Chem Eng* 17:709-13 D 15 '17

- Effect of sodium chloride on blue-powder formation. R. S. Dean. *Chem & Met Eng* 20:628 Je 15 '19

- Electric furnaces for zinc reduction. E. A. Johansson. *diags Met & Chem Eng* 18:654 Je 15 '18

- Electric-resistance furnace of large capacity for zinc ores. C: H. Fulton. *Il diags Am Inst Min Bul* 153:2159-95 S '19

- Electrolytic deposition of zinc. H. E. Broughton. *Il Chem & Met Eng* 20:155-62 F 15 '19

- Electrolytic process; patent. *Met & Chem Eng* 18:485 My 1 '18

- Electrolytic zinc. C. A. Hansen. *Am Inst Min E Bul* 135:615-43 Mr '18; Abstract. *Met & Chem Eng* 18:481-3 My 1 '18; Discussion. *Am Inst Min E Bul* 142:1528-33; 146:1638-41 O-N '18

- Electrolytic zinc. C. A. Hansen. *diags Am Inst Min Bul* 152:1247-81 Ag '19

**Zinc metallurgy—Continued**

Elimination of gelatinous silica in the hydrometallurgy of zinc. Eng & Min J 106:1117-18 D 28 '18

Fine-grinding and porous-briquetting of the zinc charge. W. M. Johnson. Am Inst Min E Bul 134:593-6 F '18; Same. Eng & Min J 105:370-1 F 23 '18; Discussion. Am Inst Min E Bul 136:714-16 Ap '18; Eng & Min J 105:558, 883, 1175-6 Mr 23, My 11, Je 29 '18

Fulton's electric zinc furnace. diags Met & Chem Eng 18:539-40 My 15 '18

Hydrometallurgy and the electrolytic precipitation of zinc. F. D. James. Il Mo U Sch Mines & Met Bul tech ser 4:1-26 Ag '17

Media mill. Webb City, Mo. H. B. Pulsifer. flow sheet Il diag plan Am Inst Min E Bul 125:787-97 My '17; Same abr. Eng & Min J 108:321-2 My 26 '17; Discussion. Am Inst Min E Bul 133:41-7 Ja '18

Metallurgy of the Oklahoma-Kansas district. R. W. Johnson and C. E. Heinz. Eng & Min J 107:558-60 Mr 29 '19

Metallurgy of zinc. J. H. Hastings. Chem & Met Eng 19:114 Ag 1 '18

Metallurgy of zinc in 1917. Met & Chem Eng 18:3-4 Ja 1 '18

Metallurgy of zinc, 1917. W. R. Ingalls. Eng & Min J 105:96-9 Ja 12 '18

Metallurgy of zinc, 1918. W. R. Ingalls. Eng & Min J 107:87-8 Ja 11 '19

Ore-dressing practice in the Joplin district; with mining and milling costs of a representative mine. C. A. Wright. Am Inst Min E Bul 130:1565-91 O '17; Discussion. 133:10-13 Ja '18

Power data for electrolytic zinc. G. H. Clevenger and F. S. Mulock. diag Chem & Met Eng 20:supp F 15 '19

Recent development of the Côte and Pierron electric zinc-smelting process. G. Flusin. Met & Chem Eng 18:17 Ja 1 '18

Recent metallurgical progress. H. K. Picard. Eng & Min J 108:66-9 Jl 12 '19

Recovery of spelter and the treatment of re-tort residues. E. M. Johnson. Met & Chem Eng 18:135-6 F 1 '18

Recovery of zinc from low-grade and complex ores. D. A. Lyon and O. C. Ralston. diags plan U S Bur Mines Bul 168:1-145 '19

Refining of zinc. Eng & Min J 105:1083 Je 15 '18

Research preparedness in the zinc industry. P. C. Choate. Chem & Met Eng 19:20-2 Jl 1 '18; Discussion. 19:169, 541 Ag 15, O 1 '18

Re-treating zinc tailings in Wisconsin. W. F. Boericke. diags plans Eng & Min J 107:524-7 Mr 22 '19

Roasting and magnetic separation of Wisconsin zinc ores; with cost table. E. G. Deutman. flow sheet Il plan Eng & Min J 107:1107-11 Je 28 '19

Sintering zinc residues. K. Stock. Il plan Chem & Met Eng 20:525-8 My 15 '19

Wisconsin zinc district; discussion. W. N. Smith. Il Am Inst Min E Bul 135:705-6 Mr '18; Excerpt. Eng & Contr 49:285 Mr 20 '18

Zinc furnace temperatures. E. M. Johnson. Met & Chem Eng 17:300-2; 18:14-17 S 15 '17, Ja 1 '18

Zinc in Wisconsin. A. M. Plumb. Chem & Met Eng 21:339-40 S 15 '19

Zinc leaching patent. Chem & Met Eng 20:647 Je 15 '19

Zinc problem in Italy. E. Ferraris. Eng & Min J 107:197 Ja 25 '19

Zinc refining. L. E. Wemple. Il Am Inst Min E Bul 131:1901-15 N '17; Discussion. 136:717-20 Ap '18

Zinc-smelting works of Vado Ligure, Italy. E. Ferraris. diags Eng & Min J 106:212 Ag 3 '18; Discussion. J. A. Singmaster. 106:537 S 21 '18

**Bibliography**

Bibliography on the roasting, leaching, smelting and electrometallurgy of zinc. H. L. Wheeler. Mo U Sch Mines & Met Bul tech ser 4:1-386 F '18

**Zinc mines and mining****Arkansas**

North Arkansas zinc and lead field. T. Shiras. Il Eng & Min J 105:313-15 F 16 '18

Operations at the Zinc camp, Arkansas. T. Shiras. Il Eng & Min J 107:607-8 Ap 5 '19

**Indo-China**

Zinc-smelting possibilities in Tonkin. A. Lochard. Eng & Min J 105:316-18 F 16 '18

**Missouri**

Development and underground mining practice in the Joplin district. H. I. Young. diags Am Inst Min E Bul 129:1247-55 S '17; Same. Eng & Min J 104:595-8 O 6 '17; Discussion. Am Inst Min E Bul 133:51-3 Ja '18

Mining districts of Joplin and southeast Missouri. H. W. Kiltson. Il maps Eng & Min J 104:1067-73; 105:359-64, 411-15 D 22 '17, F 23-Mr 2 '18

**Missouri-Kansas-Oklahoma district**

Mining and milling of lead and zinc ores in the Missouri-Kansas-Oklahoma zinc district. C. A. Wright. flow sheet Il diags map plan U S Bur Mines Bul 154:1-126 '18

**Montana**

Butte district. B. B. Thayer. Eng & Min J 105:57 Ja 12 '18

**New Jersey**

Zinc mining at Franklin, N.J. C. M. Haight and B. F. Tillson. Il diags plans Am Inst Min E Bul 130:1593-8 O '17; Discussion. 133:58-62 Ja '18

**Poland**

Revival of the zinc industry in Russian Poland. Eng & Min J 104:1077 D 22 '17

**United States**

Characteristics of zinc deposits in North America. F. L. Nason. diags Am Inst Min E Bul 125:799-824 My '17; Discussion. 133:62-7 Ja '18

Zinc in Missouri, Kansas, Oklahoma and Arkansas. O. Ruhl. Eng & Min J 106:302-4 Ag 17 '18

**Wisconsin**

Rise in cost of zinc mining in Wisconsin. W. F. Boericke. Eng & Min J 107:564-6 Mr 29 '19

Wisconsin zinc district. W. F. Boericke and T. H. Garnett. flow sheet diag maps Am Inst Min Bul 152:1213-35 Ag '19; Discussion. 154:2942-3; 155:3017-19 O-N '19

Wisconsin zinc district. H. C. George. diags maps Am Inst Min E Bul 132:2045-74 D '17; Excerpt. Eng & Min J 105:322 F 16 '18; Discussion. Am Inst Min E Bul 135:702-6 Mr '18; Excerpt. Eng & Contr 49:285 Mr 20 '18

Zinc mining, 1917. J. E. Kennedy. Eng & Min J 105:69-70 Ja 12 '18

Zinc mining, 1918. J. E. Kennedy. Eng & Min J 107:133-4 Ja 11 '19

**Zinc ores**

Characteristics of zinc deposits in North America. F. L. Nason. diags Am Inst Min E Bul 125:799-824 My '17; Discussion. 133:62-7 Ja '18

Zinc ores of the Joplin district; their composition, character and variation. W. G. Waring. Am Inst Min E Bul 129:1257-66 S '17; Abstract. Eng & Min J 105:280 F 9 '18; Discussion. Am Inst Min E Bul 133:48-51 Ja '18

**Zinc oxide**

Baghouses for zinc oxide. J. F. Cregan. Il diags plans Eng & Min J 106:126-32 Jl 20 '18

Extraction of gallium and germanium from zinc oxide. H. C. Fogg and C. James. Am Chem Soc J 41:947-9 Je '19

Lead in pharmaceutical zinc oxide. W. D. Collins and W. F. Clarke. J Ind & Eng Chem 11:138-9 F '19

Manufacture of zinc oxide at Monteponi. F. Sartori. Eng & Min J 106:742 O 26 '18

Oxide of zinc. G. C. Stone. diags plans Am Inst Min E Bul 129:1217-28 S '17; Same cond. Iron Age 100:598-600 S 13 '17; Discussion. Am Inst Min E Bul 133:53-4 Ja '18

**Zinc plating**

Art of zinc plating. T. C. Eichstaedt. Metal Ind 17:325-6 Jl '19

**Zinc sulfide**

Detection of the heavy metals by means of zinc sulfide wool fibers. E. M. Chamot and H. I. Cole. *J Ind & Eng Chem* 10:49-50 Ja '18

Study of conditions affecting the precise determination of zinc as the sulfide. H. A. Fales and G. M. Ware. *Am Chem Soc J* 41:487-99 Ap '19

Zinc sulphide made phosphorescent through heat. *Eng & Min J* 104:1073 D 22 '17

**Zinc works**

Media mill, Webb City, Mo. H. B. Pulsifer. flow sheet & diag plan *Am Inst Min E Bul* 125:787-97 My '17; Same abr. *Eng & Min J* 103:921-2 My 26 '17; Discussion. *Am Inst Min E Bul* 133:41-7 Ja '18

**Zion national monument**

Zion canyon and the Colob plateau. L. Jeffers. *Il Sci Am* 120:144-5 F 15 '19

**Zircon**

New uses for zircon. *Sci Am S* 87:391 Je 21 '19

**Zirconia**

Uses of zirconia as a refractory. J. A. Audley. *Iron Age* 102:72-3 Jl 11 '18

Uses of zirconia in steel metallurgy. *Iron Age* 101:1276-7 My 16 '18

Zirconia and zirconia apparatus. *Sci Am S* 85:229 Ap 13 '18

Zirconia as a refractory. E. H. Rodd. *Sci Am S* 87:54 Ja 25 '19

Zirconia as a refractory material. *Foundry* 46:429 S '18

Zirconium, its alloys and oxide. L. Bradford. *Chem & Met Eng* 19:684 N 1 '18

**Zirconium**

Analysis of ferrozirconium and zirconium in steel. J. D. Ferguson. *Eng & Min J* 106:356 Ag 24 '18

Determination of zirconium by the phosphate method. G. E. F. Lundell and H. B. Knowles. *Am Chem Soc J* 41:1801-8 N '19

Properties and uses of zirconium and its compounds. H. G. Meyer. *Eng & Min J* 105:330-1 F 16 '18

Zirconium—a resumé. *Sci Am* 118:265 Mr 23 '18

Zirconium content in ores and alloys. J. D. Ferguson. *Eng & Min J* 106:793-4 N 2 '18

Zirconium in steel. *Iron Age* 103:1015 Ap 17 '19

Zirconium in steel and alloys. H. C. Meyer. *Iron Age* 103:1234 My 8 '19

Zirconium, its alloys and oxide. L. Bradford. *Chem & Met Eng* 19:684 N 1 '18

Zirconyl basic benzoates and salicylates. F. P. Venable and F. R. Blaylock. *Am Chem Soc J* 40:1746-8 N '18

**Zirconium chromate**

Zirconyl basic chromate. F. P. Venable and L. V. Giles. *diags Am Chem Soc J* 40:1653-6 N '18

**Zirconium compounds**

Zirconyl compounds with the oxy-halogen acids. F. P. Venable and I. W. Smithey. *Am Chem Soc J* 41:1722-7 N '19

**Zirconium silicate. See Zircon****Zirconium steel**

New zirconium steel. *Sci Am* 120:670 Je 21 '19

**Zone fares. See Street railroads—Fares****Zone system. See City planning—Zone system****Zoological gardens**

Reinforced concrete panorama for zoological gardens. A. Lakeman. *Il Eng & Contr* 50:130 Jl 31 '18

**Zoological specimens****Collection and preservation**

Mystery of the transparent rat. *Sci Am S* 84:391 D 22 '17

**Zoology**

Anomalies of the animal world. R. W. Shufeldt. *Il Sci Am S* 83:34-7, 248-50, 333-4; 84:100-2, 325-6; 85:4-5, 68-9, 168-70, 245-6, 303-9, 373-4; 86:84-5, 237-8, 404-5; 87:85-7 F 10, Ap 21, My 26, Ag 18, N 24 '17, Ja 5, F 2, Mr 16, Ap 20, My 18, Je 15, Ag 10, O 12, D 28 '18, F 8 '19

See also Animals, Habits and behavior of; Paleontology; Phosphorescence

**Antarctic regions**

Kerguelen island as an antarctic reserve. *Sci Am S* 85:191 Mr 23 '18

**Zulder Zee**

Holland seeks a new province. H. M. Allen. *Il map Sci Am S* 86:392-3 D 21 '18

How Holland will dispose of the Zuyder Zee. R. G. Skerrett. *diag plan Sci Am* 119:245, 251+ S 28 '18













3 2044 015 458 292

This book  
the Library  
stamped below.

A fine of five cents a day is incurred  
by retaining it beyond the specified  
time.

Please return promptly.

